

第 47 屆國際技能競賽第 2 階段國手選拔賽

職類名稱：17 網頁技術職類

競賽試題命題

項目 1 – GraphQL

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注意事項：為與國際競賽接軌，本次競賽**選手需將成果傳送至遠端伺服器**，確認作答成果。選手需熟悉使用 FTP 將成果傳送到遠端這種開發模式。常用的工具如: FileZilla、IDE(PhpStorm...)內建遠端連線功能。**最後以競賽時的規定為主。**

簡介

GraphQL 是一種 API 的查詢語言，也是一個運行時系統，用於根據現有數據滿足這些查詢。GraphQL 提供了對 API 中數據的完整和易於理解的描述，讓客戶端能夠精確地請求所需的數據而無需多餘的數據，並且使得 API 在時間推移中更容易進行演進，同時還提供了強大的開發者工具。

GraphQL 的查詢不僅可以訪問單個資源的屬性，還可以順利地跟隨它們之間的引用。傳統的 REST API 需要從多個 URL 進行加載，而 GraphQL API 可以在一個請求中獲取應用程序所需的所有數據。使用 GraphQL 的應用程序即使在緩慢的移動網絡連接下也可以快速運行。

工作要求

在這個模組中，你需要使用 Laravel 框架的 `rebing/graphql-laravel` 工具，實作一個圖書管理系統。這個系統應該能夠使用 GraphQL 進行認證，並提供對書本和作者

的相關操作。這個工具能夠輕鬆整合 GraphQL 功能到你的 Laravel 應用程式中。

你可以使用這個工具來定義 GraphQL 模型、查詢和突變，並將其映射到 Laravel

控制器和服務器邏輯上。這將讓你能夠快速構建一個功能豐富且安全的圖書管理系

統，通過 GraphQL API 為使用者提供各種功能。

資料庫需由選手自行設計與建立

請在系統中內建以下帳號：

#	Email	Password	Username	Role
1	admin@webXX.com	adminpass	admin	ADMIN
2	user1@webXX.com	user1pass	user1	USER

使用者認證

登入後的 user_token 為 Email 進行 sha256 產生

Mutate login -> 會員

1. 訪客登入		
	Request	Response
成功	<pre>mutation userLogin { login(email: "admin@webXX.com", password: "adminpass") { user_token } }</pre>	<pre>{ "data": { "login": { "user_token": "acbf6a6af774e6f225e1894916b6bc199 61277833d5fd8f169f97f54d5e6c035" } } }</pre>
email 或密碼有誤	<pre>mutation userLogin {</pre>	<pre>{</pre>

	<pre>login(email: "nouser@webXX.com", password: "nouser") { user_token }</pre>	<pre>"errors": [{ "message": "user not found" }]</pre>
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Mutate logout -> 會員

2. 訪客登出		
	Request	Response
成功	<pre>// header Authorization: Bearer acbf6a6af774e6f225e1894916b6 bc19991277833d5fd8f169f97f54 d5e6c035 // body mutation userLogout { logout { message } }</pre>	<pre>{ "data": { "logout": { "message": "user logout success" } } }</pre>
使用者未認證	<pre>// header (empty) // body mutation userLogout { logout { message } }</pre>	<pre>{ "errors": [{ "message": "unauthorized user" }] }</pre>
	<pre>// header Authorization: Bearer d5563a8962cfc11dd3341a1cb16 ee5fbd95c04f00af1916bd37220a ea22a6ead // body mutation userLogout { logout { message } }</pre>	

Mutate register -> 訪客

3. 訪客註冊		
	Request	Response
成功	<pre>mutation userRegister { register(email: "user2@localhost", password: "user2pass", username: "user2") { message } }</pre>	<pre>{ "data": { "register": { "message": "user register success" } } }</pre>
重複的使用者	<pre>mutation userRegister { register(email: "admin@localhost", password: "adminpass", username: "admin") { message } }</pre>	<pre>{ "errors": [{ "message": "user already exists" }] }</pre>

Query getUser -> 會員

4. 取得會員自身資料		
	Request	Response
成功	<pre>// header Authorization: Bearer acbf6a6af774e6f225e1894916b6 bc19991277833d5fd8f169f97f54 d5e6c035 // body query getUser { user { id email username role } }</pre>	<pre>{ "data": { "user": { "id": 1, "email": "admin@webXX.com", "username": "admin", "role": "ADMIN" } } }</pre>
使用者未認證	<pre>// header (empty) // body query getUser { user { id } }</pre>	<pre>{ "errors": [{ "message": "unauthorized user" }] }</pre>
	<pre>// header Authorization: Bearer d5563a8962cfc11dd3341a1cb16 ee5fbd95c04f00af1916bd37220a ea22a6ead // body query getUser {</pre>	

	<pre>user { id }</pre>	
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書本管理

Query getBooks -> 會員

5. 取得書籍列表		
	Request	Response
成功	<pre>query getBooks { books { id name isbn author created_at reader { username } } }</pre>	<pre>{ "data": { "books": [{ "id": 1, "name": "The Pragmatic Programmer : From Journeyman to Master", "isbn": "978-0135957059", "author": "Andrew Hunt & David Thomas", "created_at": 1693317403, "reader": { "username": "admin" } }, { "id": 2, "name": "Clean Code", "isbn": "978-0132350884", "author": "Robert Martin", "created_at": 1693317403, "reader": null }] } }</pre>

Mutate insertBook -> 管理者

須對新增的 ISBN 格式進行驗證，ISBN 格式為 13 個數字組成，排列方式為 XXX-XXX-XXX-X

假設某 ISBN 的前 12 位是：978-986-181-728；計算方式為

1. $9 \times 1 + 7 \times 3 + 8 \times 1 + 9 \times 3 + 8 \times 1 + 6 \times 3 + 1 \times 1 + 8 \times 3 + 1 \times 1 + 7 \times 3 + 2 \times 1 + 8 \times 3 = 164$

2. 校驗碼即為加權和除以 10 的負餘數: $164 = 17 \times 10 - 6$

3. 所以，本書的校驗碼是 6，完整的 ISBN 為 978-986-181-728-6

6. 新增書本		
	Request	Response
成功	<pre>// header Authorization: Bearer acbf6a6af774e6f225e1894916b6 bc19991277833d5fd8f169f97f54 d5e6c035 // body mutation createBook { insertBook(name: "Atomic Habits", isbn: "978-073-521-129- 2", author: "James Clear") { id } }</pre>	<pre>{ "data": { "insertBook": { "id": 3 } } }</pre>
使用者未認證	<pre>// header (empty) // body mutation createBook { insertBook(name: "New Book", isbn: "978-0735211291", author: "Eli Lin") { id } }</pre>	<pre>{ "errors": [{ "message": "unauthorized user" }] }</pre>
	<pre>// header Authorization: Bearer d5563a8962cfc11dd3341a1cb16 ee5fbd95c04f00af1916bd37220a ea22a6ead // body mutation createBook { insertBook(name: "New Book", isbn: "978-0735211291", author: "Eli Lin") {</pre>	

	<pre> id } } </pre>	
權限不足	<pre> // header Authorization: Bearer 76b648246c99e4b735aaf869505 40ca910883158781fdd82f44a50 66edfb6b6b // body mutation createBook { insertBook(name: "New Book", isbn: "978-0735211291", author: "Eli Lin") { id } } </pre>	<pre> { "errors": [{ "message": "permission denied" }] } </pre>
ISBN 有誤	<pre> // header Authorization: Bearer acbf6a6af774e6f225e1894916b6 bc19991277833d5fd8f169f97f54 d5e6c035 // body mutation createBook { insertBook(name: "Software Engineering at Google: Lessons Learned from Programming Over Time", isbn: "invalid-isbn", author: "Winters, Titus,Manshreck, Tom,Wright, Hyrum") { id } } </pre>	<pre> { "errors": [{ "message": "invalid isbn" }] } </pre>
	<pre> // header Authorization: Bearer acbf6a6af774e6f225e1894916b6 bc19991277833d5fd8f169f97f54 d5e6c035 </pre>	

	<pre>// body mutation createBook { insertBook(name: "Software Engineering at Google: Lessons Learned from Programming Over Time", isbn: "978-5541403962", author: "Winters, Titus,Manshreck, Tom,Wright, Hyrum") { id } }</pre>	
書本已存在	<pre>// header Authorization: Bearer acbf6a6af774e6f225e1894916b6 bc19991277833d5fd8f169f97f54 d5e6c035 // body mutation createBook { insertBook(name: "Clean Code", isbn: "978-0132350884", author: "Robert Martin") { id } }</pre>	<pre>{ "errors": [{ "message": "book already exists" }] }</pre>

Mutate deleteBook -> 管理者

7. 刪除書本		
	Request	Response
成功	<pre>// header Authorization: Bearer acbf6a6af774e6f225e1894916b6 bc19991277833d5fd8f169f97f54 d5e6c035</pre>	<pre>{ "data": { "removeBook": { "message": "book delete success"</pre>

	<pre>// body mutation deleteBook { removeBook(id: 2) { message } }</pre>	<pre>} } }</pre>
使用者未認證	<pre>// header (empty) // body mutation deleteBook { removeBook(id: 2) { message } }</pre>	<pre>{ "errors": [{ "message": "unauthorized user" }] }</pre>
	<pre>// header Authorization: Bearer d5563a8962cfc11dd3341a1cb16 ee5fbd95c04f00af1916bd37220a ea22a6ead // body mutation deleteBook { removeBook(id: 2) { message } }</pre>	
權限不足	<pre>// header Authorization: Bearer 76b648246c99e4b735aaf869505 40ca910883158781fdd82f44a50 66edfbbb6b // body mutation deleteBook { removeBook(id: 2) { message } }</pre>	<pre>{ "errors": [{ "message": "permission denied" }] }</pre>

書本租借中	<pre>// header Authorization: Bearer acbf6a6af774e6f225e1894916b6 bc19991277833d5fd8f169f97f54 d5e6c035 // body mutation deleteBook { removeBook(id: 1) { message } }</pre>	<pre>{ "errors": [{ "message": "book is rental" }] }</pre>
不存在的書本	<pre>// header Authorization: Bearer acbf6a6af774e6f225e1894916b6 bc19991277833d5fd8f169f97f54 d5e6c035 // body mutation deleteBook { removeBook(id: 99) { message } }</pre>	<pre>{ "errors": [{ "message": "book not exists" }] }</pre>

書本租借

Query rents -> 會員

8. 取得會員當前租借列表		
	Request	Response
成功	<pre>// header Authorization: Bearer acbf6a6af774e6f225e1894916b6 bc19991277833d5fd8f169f97f54 d5e6c035 // body query getRents { rents { id created_at book { id name } } }</pre>	<pre>{ "data": { "rents": [{ "id": 1, "created_at": 1693317403, "book": { "id": 1, "name": "The Pragmatic Programmer : From Journeyman to Master" } }] } }</pre>
使用者未認證	<pre>// header (empty) // body query getRents { rents { id } }</pre>	<pre>{ "errors": [{ "message": "unauthorized user" }] }</pre>
	<pre>// header Authorization: Bearer d5563a8962cfc11dd3341a1cb16 ee5fbd95c04f00af1916bd37220a ea22a6ead</pre>	

	<pre>// body query getRents { rents { id } }</pre>	
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Mutate rentBook -> 會員

9. 租借書本		
	Request	Response
成功	<pre>// header Authorization: Bearer 76b648246c99e4b735aaf869505 40ca910883158781fdd82f44a50 66edfbbb6b // body mutation borrowBook { insertRent(bookId: 2) { id } }</pre>	<pre>{ "data": { "insertRent": { "id": 2 } } }</pre>
使用者未認證	<pre>// header (empty) // body mutation borrowBook { insertRent(bookId: 2) { id } }</pre>	<pre>{ "errors": [{ "message": "unauthorized user" }] }</pre>
	<pre>// header Authorization: Bearer d5563a8962cfc11dd3341a1cb16 ee5fbd95c04f00af1916bd37220a ea22a6ead // body mutation borrowBook { insertRent(bookId: 2) { id } }</pre>	

書本租借中	<pre>// header Authorization: Bearer 76b648246c99e4b735aaf869505 40ca910883158781fdd82f44a50 66edfbbb6b // body mutation borrowBook { insertRent(bookId: 1) { id } }</pre>	<pre>{ "errors": [{ "message": "book is rental" }] }</pre>
不存在的書本	<pre>// header Authorization: Bearer 76b648246c99e4b735aaf869505 40ca910883158781fdd82f44a50 66edfbbb6b // body mutation borrowBook { insertRent(bookId: 99) { id } }</pre>	<pre>{ "errors": [{ "message": "book not exists" }] }</pre>

Mutate returnBook -> 會員

10. 歸還書本		
	Request	Response
成功	<pre>// header Authorization: Bearer 76b648246c99e4b735aaf869505 40ca910883158781fdd82f44a50 66edfbbb6b // body</pre>	<pre>{ "data": { "removeRent": { "message": "rent delete success" } } }</pre>

	<pre>mutation returnBook { removeRent(id: 2) { message } }</pre>	
使用者未認證	<pre>// header (empty) // body mutation returnBook { removeRent(id: 2) { message } }</pre>	<pre>{ "errors": [{ "message": "unauthorized user" }] }</pre>
	<pre>// header Authorization: Bearer d5563a8962cfc11dd3341a1cb16 ee5fbd95c04f00af1916bd37220a ea22a6ead // body mutation returnBook { removeRent(id: 2) { message } }</pre>	
權限不足 (只能歸還自己借的書)	<pre>// header Authorization: Bearer 76b648246c99e4b735aaf869505 40ca910883158781fdd82f44a50 66edfbbbb6b // body mutation returnBook { removeRent(id: 1) { message } }</pre>	<pre>{ "errors": [{ "message": "permission denied" }] }</pre>
找不到租借紀錄	<pre>// header</pre>	<pre>{ "errors": [</pre>

	<p>Authorization: Bearer 76b648246c99e4b735aaf869505 40ca910883158781fdd82f44a50 66edfbbb6b</p> <p>// body</p> <p>mutation returnBook { removeRent(id: 99) { message } }</p>	<pre>{ "message": "rent not exists" }] }</pre>
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單元測試

使用 `phpunit` 撰寫單元測試，針對您完成的 GraphQL 功能進行測試，在執行測試前

可以動或手動還原資料庫

你需要完成以下的測試項目

1. 訪客登入
 - a. 成功登入
 - b. Email 有誤
 - c. 密碼有誤
2. 訪客登出
 - a. 成功登出
 - b. 使用者未認證
3. 訪客註冊
 - a. 成功註冊
 - b. 重複的使用者
4. 取得會員本身資料
 - a. 成功取得會員本身資料
 - b. 使用者未認證

評分表

各項次若完成請於右方打勾✓。

項次	主/ 客	配分	得 分	工作項目及評分說明	完成
1.	客	2.0		訪客登入功能正常	
2.	客	1.5		訪客登出功能正常	
3.	客	2.0		訪客註冊功能正常	
4.	客	1.5		取得會員資料功能正常	
5.	客	3.0		取得書籍列表功能正常	
6.	客	2.5		新增書本功能正常	
7.	客	2.0		刪除書本功能正常	
8.	客	2.0		取得會員當前租借列表功能正常	
9.	客	2.5		租借書本功能正常	
10.	客	2.0		歸還書本功能正常	
11.	主	1.0		訪客登入之 PHPUnit 撰寫良好 (Coverage、Test Cases)	
12.	主	1.0		訪客登出之 PHPUnit 撰寫良好 (Coverage、Test Cases)	
13.	主	1.0		訪客註冊之 PHPUnit 撰寫良好 (Coverage、Test Cases)	
14.	主	1.0		取得會員本身資料之 PHPUnit 撰寫良好 (Coverage、Test Cases)	
總分		25.0			

前端模組 Frontend Module

項目 2~項目 6 – 前端模組 Frontend Module

說明

Task Requirements (工作要求)

作為前端開發人員，您負責網站或 Web 應用程式的使用者界面 (UI) 和使用體驗 (UX)。您需要使用 HTML、CSS 和 JavaScript 來建立網站的視覺元素，例如排版、字體、顏色和圖片。您還需要撰寫程式碼，使網站具有交互性。

As a front-end developer, you are responsible for the user interface (UI) and user experience (UX) of a website or web application. You need to use HTML, CSS, and JavaScript to create the visual elements of a website, such as the layout, fonts, colors, and images. You have to write code to make the website interactive.

通常，您必須創造使用者對網站的第一印象。一個設計良好且使用者友好的網站可以使使用者更有可能留在該網站上並完成一項任務，例如付錢或註冊電子報。

Usually, you have to create the first impression that users have of a website. A well-designed and user-friendly website can make users more likely to stay on the website and complete a task, such as making a purchase or signing up for a newsletter.

此外，您還需要改進網站的 SEO (搜尋引擎優化)。通過在 HTML、CSS 和 JavaScript 程式碼中使用正確的關鍵字和組合，您可以幫助確保網站在搜尋引擎結果頁面 (SERP) 中的排名更高。

In addition, you need to improve the SEO (search engine optimization) of a website. By using the right keywords and phrases in the HTML, CSS, and JavaScript code, you can help to ensure that a website appears higher in search engine results pages (SERPs).

競賽時會從項目 2~項目 6 之中選擇一道題目作答。

項目 2:

Star Battle- DESIGN AND INITIAL LAYOUT

項目 2: Star Battle- DESIGN AND INITIAL LAYOUT

Introduction

In recent years, the internet has become an integral part of our daily lives, enabling the dissemination of information in an inexhaustible source of content and interaction. Every day the use of games has gained a prominent role in this universe, allowing millions of people to get access to fun and entertainment quickly and free.

Thinking about these concepts, you decided to develop a small game that works in the most common web browsers and that makes it possible to spread your talent in the skill of web design and development. The game will be called **Star Battle**.

You should design the game, develop the layout using HTML and CSS and develop client-side programming using JavaScript and its open source libraries. Some media files are available to you in a zip file. You can create more media and modify anything in the media if you want.

To be used in different resolutions your game needs to be developed in a tablet resolution with 960x600 pixels. But, if game is open in a big screen, the game must be in the center of the screen (horizontally and vertically).

You need to design the layout using HTML/CSS, and create the functionality of game using JavaScript that allows the game to work correctly in different web browsers, following the requirements described below.

Star Battle game uses elements described below:

1. Main spaceship: Element that is controlled by the player.
2. Planets in background: Elements that move from right to left to give the impression of movement of the spaceship in the space.
3. Enemy spaceships: Elements that player needs to destroy to get points.
4. Asteroids: Elements that player needs to destroy to get points.
5. Friendly spaceships: Elements that player shouldn't destroy or player will lose points.
6. Fuel icon: Elements that player needs to collect to increment the fuel level.
7. Fuel Counter: Element that shows how much fuel is available. It must be a number and a graphical element and it should be animated when the fuel is decreasing and when the user gets more fuel.
8. Score Counter: Elements that shows how many points the user got destroying asteroids and enemy's spaceships.

9. Timer: Element that shows how much time the spaceship is flying.
10. Sound Button: Element that enable and disable the sounds in the game.
11. Font Size Buttons: Elements that increase and decrease the font size.
12. Pause/Continue button: Button to pause/continue the game.
13. Sensible areas to control the spaceship.
14. Logo: Add the provided logo in the game.
15. Shot: Shot by the ships.

DESIGN AND INITIAL LAYOUT:

1. Design the layout that present:

- 1.1. Game Instructions: The first screen of the game presents the instructions to the user and the “Start Game” button. The instructions for the game are included in the media files.
 - 1.2. Game board layout: This design must present all 15 elements described above in the game screen.
 - 1.3. Ranking Table presentation: This design must present the logo of game and ranking with the following columns: position, name, score and time in this order, with the table is presented the “Start Game” button.
2. Develop the layout (with HTML + CSS) of your game application. When the address is accessed, the game is presented to the user with the game instructions and the button “Start Game”. The instructions must be presented in an animated way.
 3. “Start Game” buttons must have active and hover effects. The background of the buttons in hover state must be: #f19e0d. The active state must follow the example called ripple which is provided in the media files.
 4. Your layout should include the elements described below. Create the elements that represent the same visual style.
 - 4.1. Main spaceship (controlled by player)
 - 4.2. Timer Icon
 - 4.3. Sound button
 - 4.4. Font size buttons
 - 4.5. Pause/continue button
 - 4.6. Fuel counter
 - 4.7. Fuel icon
 5. The HTML and CSS code must be valid in the W3C standards for HTML 5 and CSS 3 rules.

項目 3: Star Battle- GAME FUNCTIONALITIES

項目 3: Star Battle- GAME FUNCTIONALITIES

GAME FUNCTIONALITIES:

1. Pressing the “Start Game” button in the initial screen, starts the game. The planets should be animated and move from right to left to give the impression of movement of the spaceship in the space. The timer starts from zero and displays the time in seconds that the spaceship is in movement. The fuel counter starts to decrease, one point per second. When the game starts, there are 15 points of fuel (15 seconds). The max capacity of fuel is 30 points (30 seconds of flight). The score starts with zero points.
2. The spaceship fires when the user presses space bar, the user cannot keep pressing the space bar to fire many times sequentially, i.e. only one shoot for each space bar pressing.
3. The shot of the main spaceship can destroy just one target. The shot cannot pass through one target and hit other elements.
4. The user can move the spaceship in the screen using sensible areas that you include in the interface. As a videogame controller, these areas are activated in mouse hover and deactivate in mouse leave actions. The areas must be drawing in cross distribution. The up area moves the main spaceship up. The down area moves the main spaceship down. The left area moves the main spaceship to the left and the right area moves the main spaceship to the right. It is not possible fly the spaceship off the screen.
5. During flight, the spaceship needs to destroy the enemy spaceships and asteroids that are presented in space. If the spaceship collides with an asteroid element or a spaceship element, that element is destroyed and the fuel must decrease by 15 points.
6. The spaceships and asteroids needs to be presented in random position and in an animated way, flying from right to left.
7. The enemy spaceships must shoot (from right to left). The player must dodge these shots; otherwise, if the player is hit by a shot, the fuel counter should decrease by 15 points.
8. The enemy spaceships are destroyed by one shot. Each enemy spaceship destroyed increases the score counter by 5 points. If the user destroys a friendly spaceship the score counter is decreased by 10 points.

9. The game permits negative scores.
10. The asteroids must be destroyed with two shots. Destroying each asteroid, the score is increased by 10 points.
11. During the flight, the main spaceship needs to collect fuel icons by flying into them. Fuel icons should be dropped in an animated way from the top of the screen in random horizontal position. For each fuel icon collected, the fuel counter is increased by 15 points. One point gives 1 second of flight time.
12. During the flight, the user can pause the game clicking the pause button, or by pressing the letter “p” on the keyboard. When the game is paused, all interactions and sounds must be stopped. If the user clicks the pause button again, or presses the letter “p” again, the game continues from the moment that it was paused.
13. The planets in background need to present an animation to give the sensation of movement. The planets must move with different speed, the bigger planets must move faster than the smaller planets, creating a parallax effect. Include at least 5 different size planets in the background.
14. If the fuel counter reaches zero, the game is over.
15. When the game is over, the animations, sounds, interactions and the timer counter stops, the game will collect the name of the user in a form field “Name”. The user fills the “Name” field and clicks the button “Continue”. The “Continue” button should be disabled until the user fills in the “Name” field.
16. Use the file “ranking.sql” in the media folder “php” to create the table inside your database.
17. The user name, the time of flight and the score need to be registered in the server through an AJAX request. Send this information to the server address and using these variables:
 - 17.1. `http://competitorYY.wsad.local/XX_Client_Side /register.php`
XX is your country code. YY is your workstation number.
 - 17.2. Use the register.php file available in media folder “php”. Update the connection information in line 3 to use your username and password, update host and dbname to connect to your database.
 - 17.3. Method: post
 - 17.4. name: name of the user
 - 17.5. time: number (integer) time in seconds
 - 17.6. score: number (integer) of points earned during the flight

18. The register.php will register your information in one database and will return a JSON information with a ranking of users. An example of the JSON structure is presented below:

```
[  
  {"id":"1","name":"Player 1", "time":"20", "score":"10"},  
  {"id":"2","name":"Player 2","time":"14","score":"8"}  
]
```

19. The game presents the user ranking to the user with the button “Start Game” that permits restarting the game. Clicking in the “Start Game” button the game instructions are presented to the user again.

20. The ranking needs to be ordered by the score and for time elapsed in decreasing order. If more than one user has the same score and the same time, they receive the same position in the ranking. The JSON data returned by the server is not ordered, it is your task to order the data correctly to present to the user on the client side.

21. To increase the game interaction, some sound effects need to be used:

- 21.1. background.mp3: used during the flight in loop;
- 21.2. destroyed.mp3: played when one spaceship (friendly or enemy) or asteroid is destroyed;
- 21.3. shoot.mp3: played when the main spaceship shoots.

22. Use your talent to increase the usability of the game as much as possible to permit a better experience for the user.

23. To improve the accessibility of the game you must have options to increase/decrease the font size in the screen for timer and score counter.

24. There must be an option to disable/enable game sounds. If the sound is disabled, none of sounds should be played. If sound is enabled all sounds must be played.

25. Your game should work without JavaScript errors or messages shown in the browser console.

26. Maintain your HTML/CSS and JavaScript code organized and clean to facilitate future maintenance. Use correct indentation and comments. Use meaningful variable names and document your code as much as possible so another developer would be able to modify your work in the future

27. The game needs to work correctly in two browsers, Google Chrome and Mozilla Firefox. The game requirements will be checked in Google Chrome and compatibility will be checked in Mozilla Firefox.

INSTRUCTIONS TO THE COMPETITOR

The media files are available in the ZIP file. You can modify the supplied files and create new media files to ensure the correct functionality and improve the application. You can use jQuery and jQuery UI if you find it necessary.

Save the working game to the directory on the server named "YY_Client_Side". Be sure that your main file is called index.html.

Use meaningful variable names and document your code as much as possible so another would be able to modify your work in the future.

Be sure that the address is correct and the variables and formats are correct to permit a correct registration in the database. In case of error the JSON error messages returned to request.

```
[  
  {"error":"Error Message"}  
]
```

項目 2 及項目 3 評分表

#	O / J	Item	Description	Mark
1.	O	Was delivered the game instructions, game board and the ranking table layout in the scheduled time	Deduct 0,20 per file missing	0.60
2.	O	Game board design present the 15 requirements elements described in the test project	deduct 0,10 per item missing	1.50
3.	O	Game Instructions present the instructions of the media files and "Start Game" button	In the Game Instructions Design	0.20
4.	O	There are at least 5 planets in the background of Game Board Design		0.25
5.	O	Hover Effects on the "Start Game" button use #f19e0d background	background: #f19e0d In the rule :hove	0.50
6.	O	Active Effects on the "Start Game" button present the ripple effect presented in the media files	in rule :active	0.50
7.	O	Game is centered on the screen		0.30
8.	S	Quality of the created spaceship (controlled by user)	0. Spaceship isn't present or not related with the game theme 1. Created spaceship is very simple with just one graphical element 2. Created spaceship is good with more than one graphical element 3. Created spaceship is related with the game theme and improves the game design	0.50

#	O / J	Item	Description	Mark
9.	S	Visual identity is consistent in all the design game	0. Inconsistent visual identity and / or do not incorporate graphic elements provided / created 1. Minimum visual identity maintained in design, with only a few connecting elements 2. Good visual identity of elements, but only one element must be updated to connect everything 3. Consistent visual identity which all elements are organized and connected with themselves	0.50
10.	S	Quality of the created icons and buttons in the game board design	0. The icons/buttons are completely different without any relationship elements 1. More than one icon/button present problems with the relationship elements 2. Just one icon/button present problems to define the icon as part of family 3. The icons/buttons represent a family with excellent relationship elements	0.50
11.	O	Game instructions is shown with animation		0.30
12.	S	Quality of instructions animation	0. There is no animation 1. There is animation simple with one effect 2. There is a good animation with two effects 3. The animation is perfect, improving the application usability with more than two effects	1.00
13.	S	Contrast among background and objects	0. Poor choice of colors without or problems in a visual contrast 1. Basic pallet of colors and poor contrast 2. Good choice of color with a good contrast between the elements 3. Excelent use of colors and contrast, choice of the elements colors help actions to the users	0.50

#	O / J	Item	Description	Mark
14.	O	There should not be CSS syntax error in W3C validator report	Deduct 0.25 per syntax error found	1.00
15.	S	Create easy-to-maintain CSS codes	0. CSS unorganized without indentation 1. CSS Code have a good indentation and a few comments 2. CSS Code have a good indentation and many comments 3. CSS code is very well organized with perfect indentations and comments to facility the maintenance and a group technique was used for related code	0.60
16.	O	HTML code validated for HTML5 in W3C validator	Deduct 0,25 per type of error found	1.00
17.	S	Create easy-to-maintain HTML codes	0. HTML Code is completely unorganized without indentation and comments 1. HTML Code have a good indentation and a few comments 2. HTML Code have a good indentation and many comments 3. HTML code is very well organized with perfect indentations and comments to facility the maintenance identifies the elements of the game in the code	0.60
18.	O	Game instructions present the elements created in the design	deduct 0,10 per missing element - Compare with the design delivered	0.50
19.	O	Game instructions elements follow the design created	deduct 0,10 per for wrong format or wrong position - Compare with the design delivered	0.50
20.	S	Consistent use of Typography - (Contrast, readability, and family choice)	0. The fonts presented are inconsistent or Fonts are simple and there is no hierarchy in the content 1. Good font choice but without hierarchy of the information 2. Present a good hierarchy of the information but the font choice is simple	0.30

#	O / J	Item	Description	Mark
			3. Excellent choice of font and different sizes present a hierarchy of the content	
21.	S	Correct align of the fixed elements (icons, buttons and counters)	0. There are big problems of the align of the elements presented in the interface 1. Only part of the elements presents a good align, and much present problems 2. The most part of elements is correct align but only one problem can be found 3. All the elements present a perfect align	0.30
22.	O	Ranking page design present the requirements described in the test project	deduct 0,10 per item missing (table with the following columns: position (0.10), name (0.10), score (0.10) and time (0.10) in this order (0,10), "Start Game" button (0,10) and logo(0.10))	0.70
23.	O	Design was developed to the correct resolutions	Three designs 960x600px (deduct 0,25 per wrong resolution)	0.75
24.	O	The fuel icon moves from top to down		0.20
25.	O	During the flight, the main spaceship needs to collect fuel icons dropping (from the top of the screen) in the space randomly		0.20
26.	O	For each fuel icon collected, the fuel counter is increased in 15 points		0.20
27.	O	The user can increase/decrease the size of font in screen	Timer and score counter	0.20
28.	S	Fuels animation	0. There is no animation 1. There is animation very simple animation with just two frames 2. There is a good animation but not perfect to improve the application usability	0.50

#	O / J	Item	Description	Mark
			3. The animation is perfect animation, improving the application usability with fluid animation	
29.	O	Game can be accessed directly using the address: http://<IP>/YY_Client_Side	yy = workstation number the game is presented to the user with the “How to Play” instructions animated and Start Button, <IP> is your remote server IP address	0.10
30.	O	Pressing the “Start Game” button, the game starts and the Spaceship (controlled by user) starts to fly in the space	Game Instruction Hide and Game Board presented	0.20
31.	O	The timer is started from zero and present the time in seconds that the Spaceship (controlled by user) is in movement		0.20
32.	O	The fuel counter, start to decrease, one point per second. The fuel counter starts with 15 points	The graphical element must be animated when the fuel is decreasing and when the user gets more fuel.	0.30
33.	O	The max capacity of fuel is 30 points		0.20
34.	O	The left sensible area moves the Spaceship (controlled by user) to left	Activate in mouse hover and deactivate in mouse leave	0.20
35.	O	The up sensible area moves the Spaceship (controlled by user) to up	Activate in mouse hover and deactivate in mouse leave	0.20
36.	O	The down sensible area moves the Spaceship (controlled by user) to down	Activate in mouse hover and deactivate in mouse leave	0.20
37.	O	The right sensible area moves the Spaceship (controlled by user) to right	Activate in mouse hover and deactivate in mouse leave	0.20
38.	O	It is not possible fly with the Spaceship (controlled by user) to the outside of game area		0.20
39.	O	The score starts with zero points		0.20
40.	O	The user can shoot pressing space bar	the user cannot keep pressing the space bar to shoot many times sequentially, that is, and it must be possible shoot once for each space bar pressing	0.40

#	O / J	Item	Description	Mar k
41.	O	The shot of main spaceship can destroy just one target.	The shot cannot pass through one target and hits other elements.	0.40
42.	O	If the user's spaceship collides an asteroid or an any spaceship the element is destroyed		0.30
43.	O	If the spaceship collides an asteroid or an any spaceship the fuel must be decrease in 15 points		0.20
44.	O	The spaceships and asteroids needs to be presented in random position		0.20
45.	O	The spaceships and asteroids move from right to left		0.20
46.	O	The enemy's ships must shoot (from right to left)		0.30
47.	O	If the player is hit by the enemy shoots, the fuel counter will be decreased in 15 points		0.30
48.	O	The ships are destroyed by one shoot		0.20
49.	O	Each enemy ship destroyed increase the score counter in 5 points		0.20
50.	O	If the user destroys a friendly ship the score counter is decreased in 10 points		0.30
51.	O	The game permits a negative score		0.20
52.	O	The asteroids can be destroyed with two shots		0.30
53.	O	Destroying each asteroid, the score is increased in 10 points		0.20
54.	O	Each 5 seconds of flight, the difficult of game must be increased.	The spaceships, fuels icons and asteroids must be shown faster and the enemy's spaceships must shoot more times	0.50
55.	O	The spaceships are presented in an animated way	Include the main spaceship controlled by the user	0.20
56.	O	The asteroids are presented in an animated way		0.20
57.	O	Fuel icons are presented in an animated way		0.20

#	O / J	Item	Description	Mar k
58.	O	Game Board present the elements created in the design	deduct 0,10 per missing element - Compare with the design delivered	0.50
59.	O	Game Board elements follow the design created	deduct 0,10 per for wrong format or wrong position for fixed elements (like icons and counters) - Compare with the design delivered	0.50
60.	O	Ranking Table present the elements created in the design	deduct 0,10 per missing element - Compare with the design delivered	0.40
61.	O	Ranking Table elements follow the design created	deduct 0,10 per for wrong format or wrong position for fixed elements (like icons and counters) - Compare with the design delivered	0.40
62.	O	When the fuel counter arrives at zero, the game is over	When the game is over, the animations, sounds, interactions and the timer counter stops	0.30
63.	O	When the game is over the game collect the name of the user in a form field	Name field is presented to the user with a "Continue" button	0.20
64.	O	The Continue button will be disabled until the user fills the name field		0.30
65.	O	The user name, the time of flight and the score must to be sent to server through an AJAX request when the user clicks in Continue button	To address http://<IP>/YY_Client_Side/register.php Method: POST variables name, time and score (with this names)	0.30
66.	O	After click in "Continue" button, the game present the game ranking with the following columns: position, name, score and time in this order with the button "Start Game"	data provided by the json by register.php	0.20
67.	O	The ranking is ordered by the score and for time elapsed in decrease order (ordered in front-end).		0.50

#	O / J	Item	Description	Mark
68.	O	If more than one user has the same score and the same time, they receive the same position in the ranking	JSON from server get by provided file register.php.	0.40
69.	O	It is possible restart the game clicking in the "Start Game" button in the Ranking Table screen	the game instructions are presented to the user again	0.20
70.	O	During the flight, the user can pause the game clicking the pause button	When the game is paused, all interactions and sounds must be stopped	0.20
71.	O	During the flight, the user can pause the game pressing the letter p in the keyboard	When the game is paused, all interactions and sounds must be stopped	0.20
72.	O	In a pause state If the user clicks the pause button again, the game continues from the moment that it was paused.		0.20
73.	O	In a pause state If the user presses the letter "p" again, the game continues from the moment that it was paused.		0.20
74.	O	The game should work without JavaScript errors and messages shown in the browser console		0.40
75.	S	Spaceship (controlled by user) animation	0. There is no animation 1. There is animation very simple animation with just two frames 2. There is a good animation but not perfect to improve the application usability 3. The animation is perfect animation, improving the application usability with fluid animation	0.50
76.	O	The planets in background must move with different speed, the biggest planets must be moved faster than the smallest planets, creating a parallax effect.		0.50
77.	O	Sound Effects: background.mp3: used during the flight in loop		0.20
78.	O	Sound Effects: destroyed.mp3: played when one spaceship or asteroid is destroyed		0.20

#	O / J	Item	Description	Mark
79.	O	Sound Effects: shoot.mp3: played when main spaceship shoots		0.20
80.	O	The user can enable/disable the sounds of game	All sounds must be enabled or disabled	0.20
81.	S	The JavaScript code is well organized	0. Javascript code is unorganized, without indentation and no comments 1. Javascript code have a good indentation, with meaningful variable names but not comments 2. Javascript code have a good indentation, with meaningful variable names and a few comments but no describe the functions and methods functionalities 3. Javascript code is very organized, with meaningful variable names, including perfect indentation and comments of the functions and methods	0.60
82.	S	Planets Animation	0. There is no animation 1. There is a simple animation with all planets moving with the same speed 2. There is a good animation with different speeds for smallest and biggest planets 3. The animation is perfect, improving the application usability with different speed for each planet presented in background	0.50
30				

項目 4: Interactive Presenter

項目 4: Interactive Presenter

Introduction

Our world has changed a lot over the past 10 years, the borders of country are blurred, it becomes easier to travel, people learn new worlds and become travellers. But this leads to an increase in the information processed and may be the reason for the loss of the most important and interesting aspects of the life of the studied worlds for travellers.

This problem is solved by various electronic helpers, simple and affordable Internet services that help to systematize the data, follow the notes of other travelers, create new resources and databases about interesting places and things.

Your task will be to develop a working prototype of one of these services – Interactive Presenter.

The main idea of that service is to create a huge database of everything. And to give everyone the opportunity to get acquainted with it in an interactive way, allowing you to concentrate only on this interesting information.

But the company understands that this is a voluminous task, so it suggested that you develop a prototype of a web application for one narrow area - tourist company of Kazan, whose goal is to acquaint visitors of the city with the history, culture and atmosphere of the thousand-year-old capital of Tatarstan in an interactive presentation format. The visitor can choose the route of acquaintance and receipt of information in accordance with his contextual choice on each slide.

In the future, it is planned to open for everyone to create their own interactive routes and publish them on the company's website. Therefore, special attention is paid to the route editor in terms of convenience and ease of use for the mass user.

Description:

You will create the worked prototype of application using JavaScript ensuring the app works correctly in different web browsers, following the requirements described below.

The main feature of the application is its work in two modes: “Route Editor” for those who want to create and share their impressions of Kazan tourist information and “View Mode” those who study new tourist material. This feature should be reflected in the design of the website.

Because the service will be used as presentation tools to promote tourism in Kazan the users of the route editor can be segmented as adult aged 25 - 40 years old. But, for the presentation format it will be targeted for all ages, so that both children and adults can understand about history of Kazan easily.

Glossary

- Route Editor - a mode in the service that can be used to link different element using links visually and can be controlled using mouse and keyboard
- View Mode - a mode in the service that can be used to see the end result of all linked elements and their transition (like a presentation of slides)
- Element - a node in the route editor that is used to store the content and link it with other element (like a slide)
- Link - a line in the route editor that is used to store information about the next element to transition and the transition property itself
- Transition - an animation that runs in view mode between moving from one element into other element
- Content – it is user input data to be demonstrated.

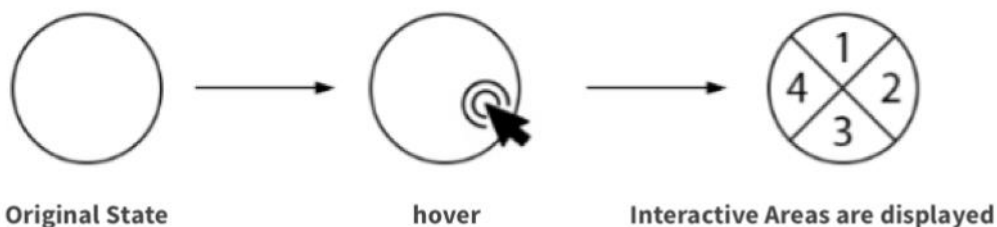
Front-end programming

Route editor

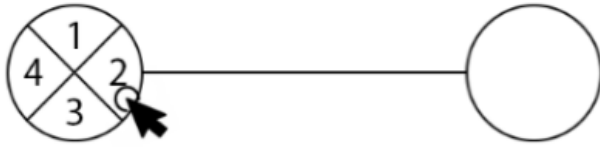
The editor should work on desktop. In this scope of work, we don't consider supporting touch devices for editor mode.

You need to make the route editor that can be used by the user to link several created elements into a sequence. The functionality of the route editor that you need to make is listed below:

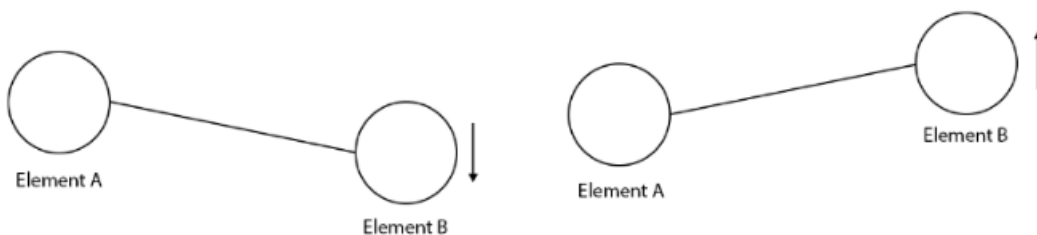
1. When creating a new presentation or clearing the editor, one root element initially appears in the center of the screen. An element can be look like anything (circle, square, star, blob, etc.).
2. The element has 4 interaction areas, (1, 2, 3, 4), which are hidden by default and are displayed only after **hovering** on the element.



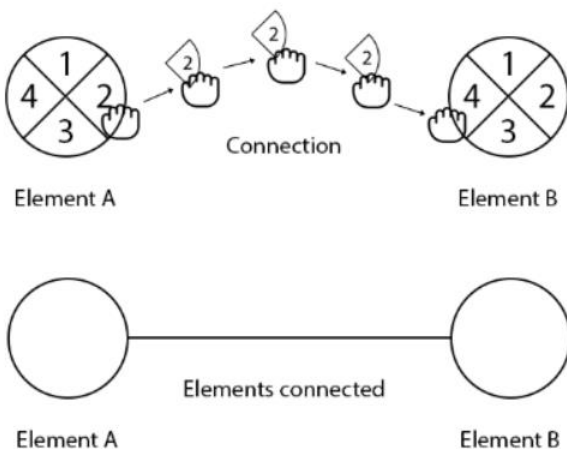
3. When you click on one of the areas, a related element should appear on the side of the areas node on which the click was made. Link between the elements should be created as well.



4. Alongside the 4-interactive-areas, there should be “edit” button and “delete” button for the element which are shown only when element is on hover.
5. The following features should be implemented for the elements:
 - a. Editing the content of the element (slide). To edit you need to use one of the wysiwyg editors, which will be given to you.
 - b. Editing captions for each of the sections (1,2,3,4), which will be shown in view mode.
 - c. Deleting an element by clicking the delete button.
6. When deleting an element, all links of this element must also be deleted.
7. The user can delete a link by clicking on the link and pressing the **Delete/Back Space** key.
8. Elements can be moved around the editor by mouse drag. Links should also follow the element.



9. To link two unrelated elements (for example, after removing a connection), with the **Shift** key held down, move a section of one element to a section of another element.



10. The possibility of looping routes is allowed.
11. Any changes done inside slide editor is saved automatically and will be restored upon refresh.

The presented examples are only a sketch, you have to choose the appearance, size, animation, reaction time to user actions and other characteristics to improve the usability of the application.

It is expected that you will create additional interface elements and or user interaction mechanism to improve the convenience of the specified functionality.

View mode

The view mode should work in both desktop and tablet.

1. You need to create a view mode that open the preview of the slides starting from the root element with an option for moving between content based on linked section that is already modified in the route editor.
2. You also need to implement a transition when there is a movement between element.
3. The animation of transition must correspond to the direction of movement and movement along the main path or an additional one (For example, left, right, down, up, in a circle).
4. The view mode needs to be seen in full screen mode.
5. The user should be able to understand where he is at the moment and go to the desired element.
6. For navigation, this mode should provide movement controls that should be easy to use, including on touchscreen devices. And show the title of that control, which helps the user with the choice of the next step to move.
7. For navigation in desktop, the viewer allows using number keys (1,2,3,4) on keyboard to navigate to corresponding linked element.

You need to consider the user experience and design the apps accordingly to be as easy as possible when used and as clear as possible when viewed. Even if you cannot implement a full application, you may implement a view mode as a proof-of-concept to show the client how it works.

Your viewer should follow the design that you created at design module and correspond to Web Content Accessibility Guidelines (WCAG) 2.0.

MARKING SCHEMA

#	M /J	Item	Description	Ma rk
1.	M	The design included the logo, social icons for sharing, link to the page with suggestions and feedback. And resolutions is 1440 x 900 pixels	deduct 0,25 for missing element	0.5 0
2.	M	Information presented on the web page: about service, feature, editor and view mode, call to action to test the product.	deduct 0,25 for missing element	1.0 0
3.	M	All designs included a red border - less than or equal to 3 pixels wide, showing the border of the screen resolution of the respective device.	Deduct 0,25 per item missing	0.5 0
4.	M	User interface design for editor mode included: more than 5 Elements (node) with and without interaction areas, simple and looped path, button or link to go to view mode	Deduct 0,25 per item missing	1.0 0
5.	M	User interface design for view mode included: sample slide content, controls for moving to the next slide with captions, element showing the current position	Deduct 0,25 per item missing	1.0 0
6.	M	The element has 4 interaction areas, (1, 2, 3, 4), which are hidden by default and are displayed only after double-clicking on the element.	deduct 0,25 per error found	0.5 0
7.	M	When click on one of the areas, a related element should appear on the side of the areas node on which the click was made and the area is hidden	deduct 0,3 per error found	0.5 0
8.	M	It possible to change the content of element by wysiwyg editor	deduct 0,5 if not using wysiwing editor	1.0 0
9.	M	It possible to change the captions for each sections		1.0 0
10.	M	It possible to delete of element by Delete key and weblink(button)	deduct 0,25 per error found	0.5 0
11.	M	When deleting an element, all link of this element must also be deleted		0.5 0

#	M/J	Item	Description	Mark
12	M	The user can delete a link by choosing the link and pressing the Delete key		0.50
13	M	Elements can be moved around the editor, links should also follow the element.	deduct 0,25 per error found	0.50
14	M	It possible to link two unrelated elements with the Shift key held down and move a section of one element to a section of another element.		1.00
15	M	It possible to looping routes		0.25
16	M	When creating a new presentation or clearing the editor, one root element initially appears in the center of the screen		0.50
17	M	It possible to move the canvas using a combination of Shift + left mouse click + move		0.50
18	M	Any changes done inside slide editor is saved automatically and will be restored upon refresh.		0.75
19	M	Viewing begins with the root element.		0.25
20	M	The view mode to be seen in full screen mode		0.25
21	M	It possible to understand where you are at the moment and go to the desired element.		1.00
22	M	Motion control presented on the screen with the caption from associated interaction areas (exist, from areas, count)	deduct 0,25 per error found	0.75
23	M	HTML/CSS layout of application follow the design that was created at first part of module	deduct 0,25 per one big different	0.75
24	M	The style of the transition animation corresponds to the direction of movement between the elements in view mode		0.75

#	M/J	Item	Description	Mark
25	J	The page present a concept to meet business requirements (one-page site for promoting of service in two modes: "Route Editor" and "View Mode")		0.7
			0 The website not related with the goal	5
			1 The website is simple and achieve only main idia	
			2 The website design achieve the business requirements	
			3 The website achieve the business requirements and overcome the expectations	
26	J	The concept of two service modes of operation is reflected in the design of page.		1.0
			0 Only one mode is described.	0
			1 There is no clear separation between the two modes. Described as a list.	
			2 The design shows two different narrative lines.	
			3 These storylines interact with each other (for example, comparition).	
27	J	Design user interface of editor matches the target audience. (children and adults)		0.7
			0 The colors, fonts or images don't match with the target audience.	5
			1 The design looks good but common.	
			2 The design basically fits the target audience.	
			3 The colors, fonts and images look attractive for the target audience.	
28	J	Use of Typography		0.5
			0 The fonts presented are inconsistent or Fonts are simple and there is no hierarchy in the content	0
			1 Good font choice but without hierarchy of the information	
			2 Present a good hierarchy of the information but the font choice is simple	
			3 Excellent choice of font and different sizes present a hierarchy of the content	
29	J	Align of elements		0.5
			0 There are big problems of the align of the elements presented in the interface	0
			1 Only part of the elements presents a good align, and much present problems	
			2 The most part of elements is correct align but only one problem can be found	
			3 All the elements present a perfect align	
30	J	Balance between text and image		0.7
			0 Excess / Lack of text or images	5

#	M /J	Item	Description	Mark
			1 Good balance between text and images, but with problems in many areas of design	
			2 Good balance between text and images, with few problems in some areas of design	
			3 Perfect balance between text and image allow easy understanding of the purpose of communication	
31	J	Creative Use of media provided		0.7
			0 The media provided/used is not related to theme	5
			1 Basic use of supplied media	
			2 Some media files were updated/created used for improving design	
			3 Media were used in a creative and differentiated way to highlight and promote design innovation	
32	J	Use of color to improve the organization, readability and Aesthetics		0.7
			0 Poor choice of colors without a visual contrast	5
			1 Basic pallet of colors (2 colors or less) and poor use of elements to help the actions of the user	
			2 Good choice of color but with problems in the use of elements	
			3 Excellent use of colors and choice of the elements to help actions to the users	
33	J	Visual identity is consistent in all the webpage/project		0.7
			0 Inconsistent visual identity and / or do not incorporate graphic elements provided / created	5
			1 Good visual identity of elements, but only one element must be updated to connect everything	
			2 Consistent visual identity which all elements are organized	
			3 Excellent visual identity which all elements are organized and connected with themselves	
34	J	Use of special graphic solutions for monitors with touch controls		0.5
			0 No elements for touch devices	0
			1 Just one Single element was adjusted the content to touch devices	
			2 Elements are adjusted using single touch functionalities	
			3 Excellent use of the content distribution and elements to touch devices	
35	J	Quality of used animation for editor		1.0
			0 Poor animation or no animations	0

#	M/J	Item	Description	Mark
			1 There is animation simple with one effect	
			2 There is a good combination of animation with two effects per one object	
			3 The animation is perfect, improving the application usability with more than two effects combination	
36	J	Quality of used animation for transition between elements in view mode		1.0 0
			0 Poor animation or no animations	
			1 There is animation simple with one effect	
			2 There is a good combination of animation with two effects per one object	
			3 The animation is perfect, improving the application usability with more than two effects combination	
37	J	All navigation elements are developed in accordance with the standard ARIA (Accessible Rich Internet Applications Suite)		0.7 5
			0 Incorrect semantic HTML tags for accessibility are being used.	
			1 Only used alternative text in image tag and title on anchor tags	
			2 Where used semantic tags on HTML, as header, footer, aside, nav, article and others tags HTML5	
			3 Used HTML5 semantic tags and ARIA attributes (Accessible Rich Internet Applications Suite), like role, aria-label, aria-pressed, aria-modal, and others.	
38	J	Create easy-to-maintain CSS code		0.5 0
			0 CSS unorganized without indentation	
			1 CSS Code have a good indentation	
			2 CSS Code have a good indentation and a few comments	
			3 CSS code is very well organized with good indentations and comments to facility the maintenance and a group technique was used for related code. Use of meaningful names	
39	J	Create modular and reusable JavaScript code		0.5 0
			0 The JavaScript code is confusing and poorly organized	
			1 The JavaScript code is well organized but there is no code reuse	
			2 The JavaScript code is well organized	
			3 The JavaScript code is well written and organized, used to allow reuse of code, or even with features provided by the framework	
40	J	Create easy-to-maintain JavaScript code		

#	M/J	Item	Description	Mark
			0 JavaScript code is unorganized, without indentation and no comments	0.50
			1 JavaScript code have a good indentation, with meaningful variable names but not comments	
			2 JavaScript code have a good indentation, with meaningful variable names and a few comments but no describe the functions and methods functionalities	
			3 JavaScript code is very organized, with meaningful variable names, including perfect indentation and comments of the functions and methods	
				27.00

項目 5: Online Browser Gaming Platform

項目 5: Online Browser Gaming Platform

Introduction

A new founded company is looking for full stack developers to create an online browser gaming platform. Game developers can upload their games to the platform and users can play them online in the browser.

There are three parts to the platform:

- Game Developer Portal: A web application for game developers to upload their games to the platform.
- Administrator Portal: A web application for administrators to manage the platform with its users and games.
- Gaming Portal: A web application for players to play games online in the browser.

The company wants to create a minimum viable product (MVP) for the platform. The MVP should already contain the aforementioned parts, but it is acceptable that the Game Developer Portal and the Administrator Portal are not fleshed out yet. The Gaming Portal should be fully functional, so that users can play games online in the browser.

The project is split into two phases:

phase one (morning) for building the API and static pages using a PHP framework and MySQL database

phase two (afternoon) for building the frontend parts using HTML/CSS and a JavaScript framework, consuming the API developed in phase one

You are now in **phase two**. A backend implementation is provided so you can now focus on the frontend.

You are **required** to use the provided version and not use your own backend solution from phase one. The provided API should be placed at `/module_c_solution/`

Description of project and tasks

This phase two requires you to implement the Developer and Gaming portal frontend. The frontend should be implemented as a single page application using the framework of choice.

The frontend provides the following features:

- User Sign Up, Sign In, Sign Out
- Discover games
- Play game
 - When game ends, post scores

- View highscores per game
- View a user profile
 - Lists authored games
 - Lists highscores per game
- Manage own games
 - Update title and description
 - Upload new version

Non-Functional Requirements

- You are free to use the frontend technology of your choice.
- The application should run successfully in the versions of Google Chrome and Mozilla Firefox installed on your machine.
- Accessibility: You are expected to follow accessibility best practices. The following rules must be followed:
 - every input has an associated label or placeholder
 - landmarks are used correctly (header, main, footer)
 - the HTML page is W3C valid
 - each page has a discernible title as document title
 - each button has a discernible text
 - each image has an alt text
 - every clickable element can be reached with the Tab key and interacted with by pressing Enter

Page Structure

The basic structure of each page should contain:

- Header: Visual bar that includes the App Title: "WorldSkills - Games".
- Page Title: A title after the header.
- User section:
 - If the user is not signed in: Shows a "Sign In" and a "Register" button
 - If the user is signed in: Shows a "Sign Out" button

If the user navigates to a page, the document title (the title shown in the browser tab or window title) must reflect the shown page title.

Pages

For each page you have to implement, you are provided with a wireframe mockup.

These are guides and should not be followed to the pixel.

You can come up with your own layout, color scheme and user experience. However, you have to meet or exceed the functionality that the mockups showcase.

Page: Discover Games

This is the main page that opens when the user visits the site. It must be reachable under the path `/XX_module_d/`.

The functionality of this page includes:

- See a list of games. For each game, the following is shown:
 - Title
 - Score Count: Number of scores submitted
 - Description: The description provided by the author.
 - Thumbnail: If available, otherwise a default graphic.
 - The list can be sorted by popularity, recently updated, or title. Both ascending and descending options can be selected by the user.
- The link to the game should have link-only link purpose applied for accessibility.

The games are shown in an infinitely scrolling list. With an infinitely scrolling list, there are no pages, but scrolling the page triggers loading of more games if the scroll position gets close to the end of the currently loaded games.

In infinite scroll mode, there are no pages, but scrolling triggers loading of more games.

- An initial number of games are loaded so they overflow the user's screen.
- If the user scrolls towards the end of the loaded games, more games are loaded.
- It only loads as many games that are needed to render enough items so the user does not see the end of the list. It does not load everything to save bandwidth and server resources.
- Reloading the page in the browser resets the user to the top again, but retains the sort settings. Note that browsers try to retain the current scroll position and might not go to the very top position by itself upon page reload.

Sign Up Sign In


WorldSkills: Games

654 Games available

PopularityRecently UpdatedAlphabeticallyASCDESC

Game Title A by Dev #1


scores submitted: 6103



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Game Title B by Dev #2


scores submitted: 175



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Game Title C by Dev #3

scores submitted: 103



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Page: Sign Up

Here the user can enter username and password to sign up.

The user can enter username and password to sign up on a separate page.

This page can be reached by clicking "Sign Up" in the header.

If the user is already signed in and tries to access this page, they are redirected to the home page (Path: /XX_module_d/).

They do not need to provide their password twice as can sometimes be seen on other websites.

The form is validated by the API:

- Username: required, min length 4, max length 60
- Password: required, min length 8, max length 2^16

If any input is invalid, a message is shown next to the relevant field what exactly is invalid and what constraint it violated.

Example:

> Password: Length must be at least 8.

If the server responds with a message that the request was not successful, this response message is shown. For example it could be that the username already existed.

If the sign up is successful, the user is immediately signed in as well and redirected to the home page Path: `/XX_module_d/`).

WorldSkills: Games

Sign Up

Sign In

Sign Up

@Username

#123Password

Sign Up

Cancel

Page: Sign In

Here the user can enter their username and password to sign back in.

The user can enter their username and password to sign in.

This page can be reached by clicking "Sign In" in the header.

If the user is already signed in and tries to access this page, they are redirected to the home page (Path: `/XX_module_d/`).

The form is validated the same way as the Sign Up form.

If the sign in is successful, they are redirected to the home page (Path: `/XX_module_d/`).



The image shows a wireframe of a 'Sign In' page. At the top, there is a header bar. On the left side of the header is a box containing the text 'WorldSkills: Games'. On the right side of the header are two links: 'Sign Up' and 'Sign In'. Below the header, the main content area is titled 'Sign In'. Centered in this area is a form box. Inside the form box, there are two input fields: the first is labeled 'Username' with an '@' icon to its left, and the second is labeled 'Password' with a '#123' icon to its left. Below these fields are two buttons: a blue 'Sign In' button and a blue 'Cancel' button.

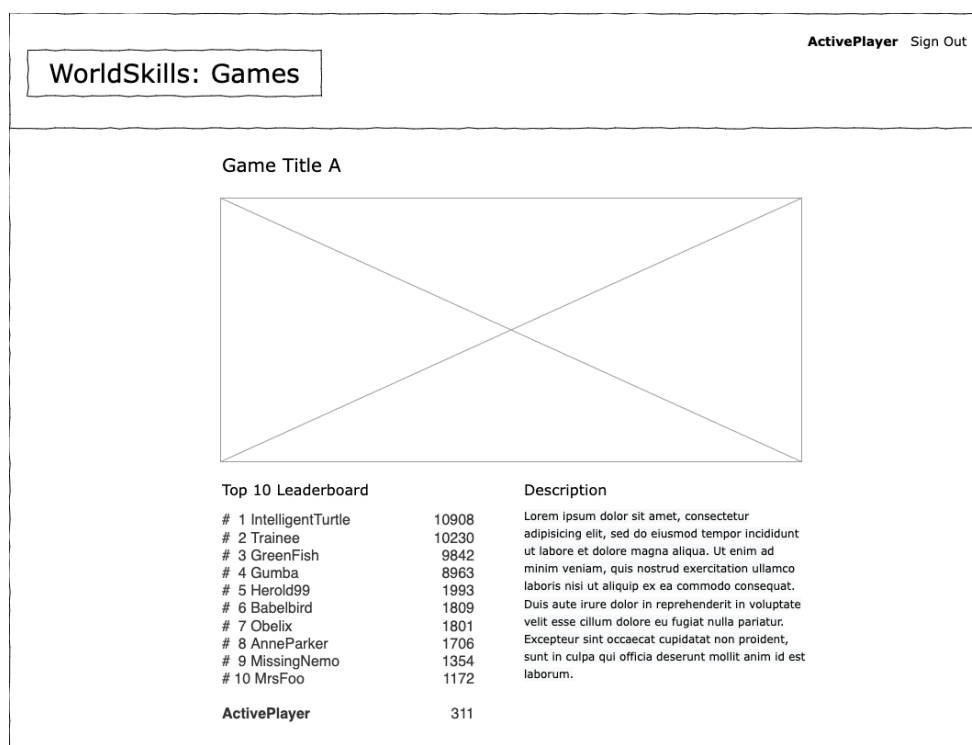
Page: After Sign Out

This page is shown after the user clicked the "Sign Out" button.



Page: Game

This page renders the game in an iframe and shows the current highscores (which are automatically updated).



This page renders the game in an iframe and shows the current top ten highscores. The list updates automatically regularly by polling the server in a 5 second interval. The game description is shown as well.

The user's highest score in that game is interleaved into the highscores. If the user is within the top ten, the current user is highlighted and marked as being the current user (for example by showing it bold). If the current user has a score that ranks below the top ten, then the score is appended, but shown without rank.

When the game run ends, the user is asked if they want to publish their score. This is triggered by the game in the iframe messaging the parent window that the game ended and includes the score in the message.

The message the game has to send to the parent via `window.parent.postMessage(...)` looks like this:

```
{  
  "event_type": "game_run_end",  
  "score": 100  
}
```

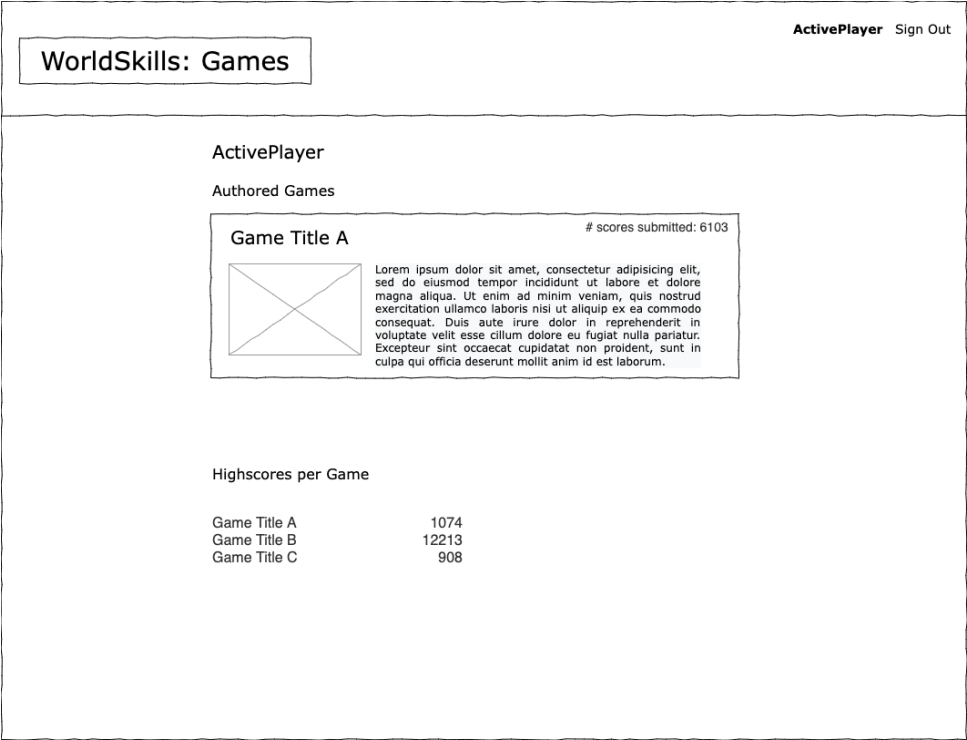
The parent needs to listen to those messages and prompt the user if they want to publish the score. If the user selects "Yes", then the score is posted to the leaderboards. The top leaderboard that is shown on the page is updated accordingly and immediately. It should not be waited until the leaderboard updates anyway by the interval.

Page: User Profile

This page shows the user profile with:

- Username
- Authored Games
 - The list is sorted by when the last version was uploaded. The most recently updated game is at the top.
 - If the user has not uploaded any games, the "Authored Games" section is omitted.
 - Per authored game, the following is shown:
 - Game Title
 - Description
 - Thumbnail
 - The number of submitted scores
 - The author is not shown per game as this is redundant information.
 - If the active user is looking at their own profile page, they also see games that have no version yet. They are also offered a button to "Manage Game".
- Highscores
 - The list shows the highest score per game.

- The list is sorted by game title alphabetically.
- Each game has a link that can be clicked to go to the game.



Page: Manage Game

On this page, developers can update title and description of a game, delete the game, or upload a new version.

On this page, developers can do the following:

- Update title and description.
- Upload a new version. This requires the user to upload a ZIP file.
- Delete the game. The game is only deleted after the user confirms.

If a user tries to reach this page without being the author, they are redirected to the game itself.

Manage Game

Game Title A

Edit



Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Edit

Upload new version

Delete

MARKING SCHEMA

#	O / J	Item	Description	Mark
1.	M	Header Visual Bar with title and page title	App Title: WorldSkills - Games. Page title reflects the main content title	0.25
2.	M	Document title must reflect the shown page title	Page title content is included as whole or part of the document title.	0.25
3.	M	Register, Sign In, Sign Out button	If the user is not signed in, show Sign In and Register. If the user is signed in, show Sign Out	0.25
4.	M	Developer can see “my games” list		0.50
5.	M	Developer can upload a game via zip	Able to unzip uploaded file. New version is created every time when uploaded.	0.50
6.	M	Developer can edit game meta	Title, description	0.50
7.	M	Developer can un-publish existing game	Un-published games is not viewable in public, but viewable to developer	0.50
8.	M	Developer can view game matrix of the uploaded games	Play time, unique players, high scores	1.00
9.	M	Developer can view the game status of blocked		0.25
10	J	Create easy-to-maintain JavaScript code		1.00
			0 JavaScript code is unorganized, without indentation and no comments	0
			1 JavaScript code have a good indentation, with meaningful variable names but not comments	
			2 JavaScript code have a good indentation, with meaningful variable names and a few comments but no describe the functions and methods functionalities	
			3 JavaScript code is very organized, with meaningful variable names, including perfect indentation and comments of the functions and methods	
11	J	Use of framework/library of choice		0.50
			0 Framework/libraries not used at all	0

#	O /J	Item		Description	Mark
			1	Framework/libraries used but too much manual coding	
			2	Framework/libraries used but not according to best practice	
			3	Make best use of the framework/library for best practice, such as don't-repeat-yourself. And not over-kill with too many frameworks together.	
12	M	URL is reachable		/XX_module_d/	0.25
13	M	For each game, all fields as described shown		Title, score count, description, thumbnail. Deduct .25 point per each type of missing. Thumbnail uses uploaded thumbnail.png file if provided, or general image file.	0.50
14	M	List sort options		Popularity, recently updated, title. Ascending and descending. Deduct .25 point per each type of missing.	0.25
15	M	Visitor (User) can sign up		And should go to /XX_module_d/ after signed-up	0.25
16	M	Only one password field in sign-up form			0.25
17	M	Response message is shown after server response			0.25
18	M	Visitor (User) can sign-in.			0.25
19	M	Visitor (User) can sign out.			0.25
20	M	The current page is reflected in the URL. A page refresh shows the list on the same sort settings.			0.25
21	M	In infinite scroll, there are no pages, but scrolling triggers loading of more games.			0.25
22	M	An initial number of games are loaded so they overflow the user's screen.			0.25
23	M	If the user scrolls towards the end of the loaded games, more games are loaded.			0.25
24	M	It never loads all games to save bandwidth. Loaded games are also rendered.		It only loads as many games that are needed to render enough items so the user does not see the end of the list.	0.25
25	M	Can visit the user profile		Shows username, authored game section, game high scores section. if the user has not	0.25

#	O / J	Item	Description	Mark
			uploaded any games, the authored games section is omitted.	
26	M	Required information is shown per authored game	game title, description, thumbnail, number of submitted scores, and not the authored user. Deduct 0.25 per error.	0.50
27	M	If the active user is looking at their own profile page, they also see games that have no version yet. They are also offered a button to "Manage Game".		0.25
28	M	Games without version is hidden to other users visit		0.25
29	M	high scores list in user profile	The list shows highest the scores per game, and the game list is sorted by game title alphabetically	0.50
30	M	If a user tries to reach game management page without being the author, they are redirected to the game itself		0.25
31	M	This page renders the game in an iframe and shows the current highscores		0.25
32	M	The high score list is updated with 5 second polling interval		0.25
33	M	Player's score is interleaved into the highscores.	If the user is within the top ten, the current user score is part of the top 10 score If the user highest score is not within the top ten, the score is appended to the end of the top 10 list, but shown without rank.	0.50
34	M	Player's score is highlighted when within the top 10 list	Any form of highlighting, such as bold, or colored.	0.25
35	M	When the game ends, the user is asked if they want to publish their score		0.25
36	M	Game posting API is done via parent page instead of embeded iframe game page inside iframe		0.50
37	M	Game score is sent to parent page from within the iframe game page via postMessage		0.50
38	M	When the game score posts, the leaderboard should be updated immediately instead of waiting for the polling interval	Only for score that breaks the highest score of the current player	0.25
39	M	Accessibilty, checked by Chrome Lighthouse	Deduct 0.25 per error reported. (Warning allowed) (Choose only accessibility)	1.25
40	J			

#	O /J	Item		Description	Mark
		Link Purpose (Link Only) meet WCAG 2.4.9 requirement for game listing page	0	When reading the link by screen reader, the spoken text is empty or not related to the link text.	0.50
			1	When reading the link by screen reader, the spoken text not the same as the link text, but can still convey the message of the link purpose. e.g. the spoken text contains the game title but not conveying the link action, "play" or "view"	
			2	When reading the link by screen reader, the spoken text contains only the link text and content not related to context (game title). E.g. "Play the game", "View the game"	
			3	When reading the link by screen reader, the spoken text contains both the link text and the game title so the reader through screen reader software know the purpose of each link without needs to know the context around. E.g. "Click to play XXX game."	
41	J	Choice of colors, typography, spacing between the elements enhances the overall look and feel			1.00
			0	poor color contrast, poor font choice, poor spacing.	
			1	color contrast, font choice, spacing are there but not enhancing the overall look and feel	
			2	color contrast, font choice, spacing are there but further improvements can be made	
			3	excellent choice of colors, typography and spacing enhances the overall look and feel	

項目 6: Fruit Pang

項目 6: Fruit Pang

Introduction

A fruit dealer wants to launch a game web site called “Fruit Pang” for promote his own business.

Description of project and tasks

- Common requirements
 - Provided SVG files should be loaded in the proper position of layout area.
 - When user move to “Start screen”, “Game screen” and “End screen”, the moving should have a sliding animation effect(s)
- Start screen
 - Proper SVG files for Start screen should be loaded in this area.
 - All cloud images should have some animation effect(s) to show each cloud looks like a real one.
 - All fruits shod have some animation effects, so each of them can get users interest.
 - APPLE, BANANA, GRAPE, PEACH, WATER MELON
 - You can set the duration of animations.
 - All animations should work repeatedly.
 - The Start button should have an interactive effect(s) when user click it.
 - There should be a text field for inputting user’s nickname.
 - If nickname field is empty, user can’t start game.
 - When user click Start button with empty nickname, a warning message should be shown with user friendly effect(s).
 - When user click Start button with nickname, the screen moves to the Game screen.



NICKNAME



APPLE



BANANA



GRAPE



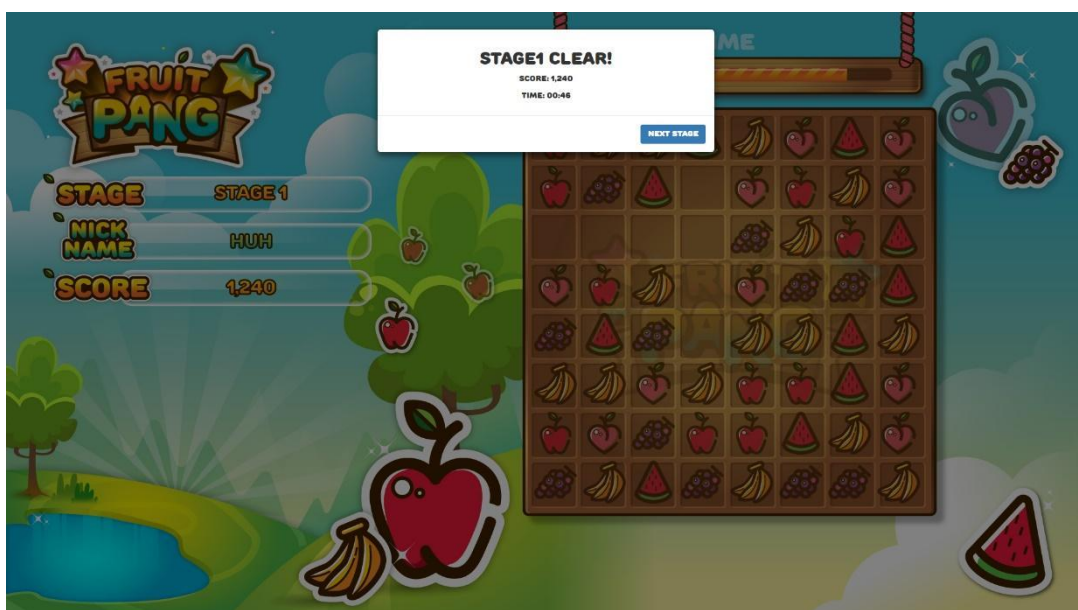
PEACH



WATER
MELON

- Game screen
 - Proper SVG files should be loaded in this screen.
 - There 5 stages in this game. Each stage means game level.
 - Each stage has board with 8x8 squares.
 - Each square of all stages must have one fruit image. No blank square is allowed.
 - Stage 1
 - Time limit : 5 minutes
 - Target score : 1,000 point
 - Stage 2
 - Time limit : 4 minutes 30 seconds
 - Target score : 1,500 point
 - Stage 3
 - Time limit : 4 minutes
 - Target score : 2,000 point
 - Stage 4
 - Time limit : 3 minutes 30 seconds
 - Target score : 2,500 point
 - Stage 5
 - Time limit : 3 minutes
 - Target score : 3,000 point
 - There is a timer on the right upper corner of the Game screen.
 - To show the timer, you should use “timer bar” image and show the duration time.
 - Time format : mm:ss
 - The stage level(eg, Stage – 1), nickname and current score should be shown on the left upper corner.
 - When a user reaches the target score of a stage, the screen moves to the next stage.
 - Before a user moves to the next stage, a popup with stage name, user’s score and duration time should be popped up for a moment.
 - When screen moves to the new(next) stage, timer and score should be initialized.
 - If a user achieves target score of all stages, the screen moves to the End screen.
 - When a user meets the time-out of each stage, the screen moves to the End screen.
 - Game rules

- User can select a fruit by mouse click.
- Selected fruit looks different compare to unselected fruits.
- User can move a selected fruit using arrow keys.
 - ↑, ↓, ←, →
 - With arrow keys, you can move only one step at once.
 - Moving fruit action is exchanging location.
 - User can't move 2 steps at once.
 - Once user moves fruit, the fruit loses focus which means unselected.
- If there are 3 or more same fruits in a row or in a column abreast, the fruits disappeared immediately and new fruits replace the space randomly.
- User get 20 points for each disappeared fruit.



- End Screen

- Proper SVG files should be loaded in this screen.
- There should be displayed FAIL or SUCCESS text in the End screen.
- There should be displayed nickname, score, duration time(mm:ss).
- If success, star image will be displayed, else star image will not be displayed.
- If user click "Restart Button", screen moves to the Start screen and nickname field should be empty.



MARKING SCHEMA

#	O / J	Item	Description	Mark
1.	O	Was delivered the game instructions, game board and the ranking table layout in the scheduled time	Deduct 0,20 per file missing	
2.	O	Game board design present the elements described in the test project	deduct 0,10 per item missing	
3.	O	Game Instructions present the instructions of the media files and "Start Game" button	In the Game Instructions Design	
4.	O	There are 5 fruits in the background of Game Board Design		
5.	O	There are effects on the "Start Game" button present.	in rule :active and :hover	
6.	O	Game is centered on the screen		
7.	S	Quality of start game screen animation	0. There is no animation 1. There is animation simple with one effect 2. There is a good animation with two effects 3. The animation is perfect, improving the application usability with more than two effects	
8.	S	Contrast among background and objects	0. Poor choice of colors without or problems in a visual contrast 1. Basic pallet of colors and poor contrast 2. Good choice of color with a good contrast between the elements 3. Excelent use of colors and contrast, choice of the elements colors help actions to the users	
9.	O	There should not be CSS syntax error in W3C validator report	Deduct 0.25 per syntax error found	
10.	S	Create easy-to-maintain CSS codes	0. CSS unorganized without indentation 1. CSS Code have a good indentation and a few comments	

#	O / J	Item	Description	Mark
			2. CSS Code have a good indentation and many comments 3. CSS code is very well organized with perfect indentations and comments to facility the maintenance and a group technique was used for related code	
11.	O	HTML code validated for HTML5 in W3C validator	Deduct 0,25 per type of error found	
12.	S	Create easy-to-maintain HTML codes	0. HTML Code is completely unorganized without indentation and comments 1. HTML Code have a good indentation and a few comments 2. HTML Code have a good indentation and many comments 3. HTML code is very well organized with perfect indentations and comments to facility the maintenance identifies the elements of the game in the code	
13.	S	Consistent use of Typography - (Contrast, readability, and family choice)	0. The fonts presented are inconsistent or Fonts are simple and there is no hierarchy in the content 1. Good font choice but without hierarchy of the information 2. Present a good hierarchy of the information but the font choice is simple 3. Excellent choice of font and different sizes present a hierarchy of the content	
14.	S	Correct align of the fixed elements (icons, buttons and counters)	0. There are big problems of the align of the elements presented in the interface 1. Only part of the elements presents a good align, and much present problems 2. The most part of elements is correct align but only one problem can be found 3. All the elements present a perfect align	

#	O / J	Item	Description	Mark
15.	O	End screen design present the requirements described in the test project	deduct 0,10 per item missing	
16.	O	There 5 stages in this game.	Each stage means game level.	
17.	O	Game board showed with 8x8 squares.		
18.	O	Each square of all stages must have one fruit image.	No blank square is allowed.	
19.	O	There is a count down timer on the right upper corner of the Game screen	"timer bar" image used, Time format : mm:ss.	
20.		The stage level(eg, Stage – 1), nickname and current score should be shown on the left upper corner.		
21.		User can select a fruit by mouse click.	Selected fruit looks different compare to unselected fruits.	
22.		User can move a selected fruit using arrow keys	With arrow keys, you can move only one step at once. Moving fruit action is exchanging location. User can't move 2 steps at once.	
23.		Once user moves fruit, the fruit loses focus which means unselected.		
24.		If there are 3 or more same fruits in a row or in a column abreast, the fruits disappeared immediately and new fruits replace the space randomly.		
25.	S	fruits animation	0. There is no animation 1. There is animation very simple animation with just two frames 2. There is a good animation but not perfect to improve the application usability 3. The animation is perfect animation, improving the application usability with fluid animation	

#	O / J	Item	Description	Mark
26.	O	The timer is started from time limit for the current stage and count down the time that the current stage started		
27.	O	User get 20 points for each disappeared fruit.		
28.	O	When a user reaches the target score of a stage in the time limit, a popup with stage name, user's score and duration time should be popped up for a moment.		
29.	O	When screen moves to the new(next) stage, timer and score should be initialized.		
30.	O	When a user meets the time-out of each stage, the screen moves to the End screen		
31.		When a user reaches the target score of the stage 5 in the time limit, the screen moves to the End screen		
32.		The text show correctly in the end screen.	FAIL if reached time limit, SUCCESS if the user reaches the target score of the stage 5 in the time limit	
33.		There should be displayed nickname, score, duration time(mm:ss) in the end screen.		
34.		Star image show correctly in the end screen	If success, star image will be displayed, else star image will not be displayed.	
35.		If user click "Restart Button" in the end screen, screen moves to the	Start screen and nickname field should be empty.	
36.	S	Fruit (controlled by user) animation	0. There is no animation 1. There is animation very simple animation with just two frames 2. There is a good animation but not perfect to improve the application usability 3. The animation is perfect animation, improving the application usability with fluid animation	
37.	S	The JavaScript code is well organized	0. Javascript code is unorganized, without indentation and no comments	

#	O / J	Item	Description	Mark
			<ol style="list-style-type: none"> 1. Javascript code have a good indentation, with meaningful variable names but not comments 2. Javascript code have a good indentation, with meaningful variable names and a few comments but no describe the functions and methods functionalities 3. Javascript code is very organized, with meaningful variable names, including perfect indentation and comments of the functions and methods 	
38.	S	Star Animation	<ol style="list-style-type: none"> 0. There is no animation 1. There is a simple animation with all planets moving with the same speed 2. There is a good animation with different speeds for smallest and biggest planets 3. The animation is perfect, improving the application usability with different speed for each planet presented in background 	

項目 7 – Layout

項目 7 – Layout

簡介

在此模組中，我們應設計並創建一個行銷頁面來推廣 **Hellcat 公司** 的遊戲平台。頁面標題應設為"頂尖網頁遊戲平台"，**副標題則應設為"開發商、廣告商、玩家共好循環"**。

應交付檔案：

1. 桌面版本與行動裝置版本**需在同一個.html 檔案及.css 檔案**。
2. 請設計一張，用於在社群媒體(例如 Line/FB/IG...等)，發布網址時會出現的網頁連結縮圖。交付格式 JPEG 或 PNG。

專案及任務說明

我們希望這個頁面設計良好，能強力吸引讀者使他們關注 **Hellcat 公司** 新推出的遊戲平台，也期望它能展示公司的願景。這模組著重於設計、HTML 和 CSS 方面技術，**故不允許使用 PHP 和 JavaScript**。

網頁基本資訊 (The page contains all the content)

該網頁基本資訊如下 (只能多，不能少)：

- 標題
- 副標題
- 行銷用之平臺形象廣告橫幅圖，用於網頁進入時第一眼將看到的。

- 4 大功能介紹
- Hellcat 公司資訊
- Ecosystem Roadmap for 2023

請為這個平台，建立一個用於網頁進入時，第一眼將看到的平臺形象廣告橫幅圖，必須要自行設計，設計所需之素材，已放置在資料夾中；來自 Hellcat 公司的資訊也可在資料夾中找到。

4 大功能介紹 (Top 4 Features showcasing)

遊戲平台庫中有 4 大功能，完整介紹檔案於資料夾中：

1. 遊戲版本
2. 高分排行榜
3. 個人資料頁面
4. 遊戲排名

你負責針對這 4 大功能，建立適合的情境圖用於行銷推廣。

客戶希望 4 大功能介紹區塊，可以使用頁籤切換(不可使用 JavaScript)。

Ecosystem Roadmap for 2023

為了讓大家知道 Hellcat 公司所做的不僅僅只有一個遊戲平台，Hellcat 公司想介紹他們整體企業生態的 Roadmap。請根據以下的" Ecosystem Roadmap 敘述"，創建吸引使用者的視覺(含效果)於網頁中。視覺表現上應自信的展現出企業的格局視野及光明的願景，吸引各路人馬投入遊戲平台為

此付出。 為能正確表達 Roadmap 內的資訊給讀者，可使用任何形式的視覺 (包括動畫) 呈現描述資訊中彼此之間的關係脈絡。

Roadmap 視覺與效果請選手自由發揮。

以下是 Hellcat 公司未來展望的 Ecosystem Roadmap 敘述：

- 本公司的廣告平台會與開發商、廣告商、玩家以及遊戲平台做連結互動
- 開發商透過開發遊戲與廣告平台做結合，得到他們需要的收入
- 廣告商則能透過廣告平台從他們所投放(關注)的廣告中，獲得更好的曝光率
- 而玩家也可以透過廣告平台做遊戲互動，給予對該廣告的反饋
- 由於廣告平台與遊戲平台的串接，透過 API 的串接進而達到廣告營收

發布網址時會出現的網頁連結縮圖

請將檔案命名為"social-network"，副檔名 JPEG 或 PNG。

此圖像應包含網站標題和網頁中的畫面，畫面可部分剪裁。

此圖像中應呈現本網頁的主要亮點及設計，以吸引觀眾。

使用者體驗

客戶希望大部分人能看得懂他們的 Roadmap，所以他們想遵循 WCAG 2.1 規範以優化使用者體驗。

特別的一頁式網頁 Special one page website

Hellcat 公司期待此推廣遊戲平台的行銷網頁，在資訊的呈現有別傳統的一頁式網頁，因此 one page website 不能有水平與垂直的拖拉捲軸，期待畫面資訊切換表現能更具風格，呈現 Hellcat 公司的與眾不同。

這個特別的一頁式網頁不能使用 JavaScript，請選手自行發揮設計如何整合於網頁中。

選手須知

- 行銷頁面應可於伺服器上存取。
- 創建行銷頁面時請切記考量可讀性和設計原則。
- 請切記考量程式碼及圖像創建功能的維護難易度。
- 所有評分均在伺服器上完成；不會在工作崗位評分。

評分表

#	主/客	評分項目	備註	Mark
1.	客	The marketing page is accessible via required URL 行銷頁面應可透過 URL 存取		0.50
2.	客	High fidelity website presentation graphics for SNS is provided 網址發布於社群時，能正確顯示縮圖。	A file named “social-network” with extension JPEG, or PNG, or PDF is provided	1.00
3.	客	All text content is readable by screen reader 所有文本內容均可通過閱讀器閱讀		1.00
4.	客	Text size can be scaled up and down 文字大小可以放大和縮小	From 50% to 200% at least	1.00
5.	客	Heading levels are correct 標題級別正確	Each session has its own heading, following the heading hierarchy	1.00
6.	客	Heading color contrast follows WCAG guide 標題顏色對比遵循 WCAG 指南	Large text contrast ratio	1.00
7.	客	Body color contrast follows WCAG guide body 顏色對比遵循 WCAG 指南	Use Chrome developer accessibility panel to check. Body text contrast ratio	1.00
8.	客	The page contains all the content required 有包含題目所要求的網頁基本資訊	Deduct 0.50 per miss 缺一項扣 0.5 分	2.00
9.	客	In the features section, can toggle features by clicking on the feature title 在 4 大功能介紹，可以通過單擊功能標題來切換功能		1.00
10.	客	Special one page website should not have vertical and horizontal scrollbar. (no JS) (for desktop version)		2.50

#	主/客	評分項目	備註	Mark
		one page website 不能有水平與垂直的拖拉捲軸 (不能使用 JavaScript)		
11.	主	Create an aesthetically pleasing and creative design 創建美觀且富有創意的設計		1.00
12.	主	Balance between text and image 文字與圖像的平衡		1.00
13.	主	Use of typography to improve readability 使用排版來提高可讀性		1.00
14.	主	Visual identity is consistent in all components in the web page 網頁中所有視覺元素的識別性保持一致		1.00
15.	主	Hierarchy of information (for desktop version) 資訊層次結構 (桌面版)		1.00
16.	主	Grouping of information 良好的資訊分類群組		1.00
17.	主	Design match with the target audience 設計符合目標受眾		1.00
18.	主	The images chosen for features presenting can enhance the understanding of the game platform and features 所選用於呈現特色的圖像可以增強對遊戲平台和特色的理解。		1.00
19.	主	Use adapted elements for different screen resolutions or different devices 適應不同螢幕解析度或不同裝置的元素。		1.00
20.	主	Ecosystem roadmap image integrate well into the page.		1.00

#	主/客	評分項目	備註	Mark
		Ecosystem roadmap 的圖片很好地融入了頁面中。		
21.	主	<p>This one page website (no JS) is stunning and the transitions of the screen are smooth in this website.</p> <p>該一頁式網站(no JS) 的呈現令人驚嘆，畫面的過渡也很流暢。</p>		3.00
				25.00

項目 8 – 系統規劃

項目 8 – 系統規劃：

需求規格：

你所在的工作小組正在為公司開發一個線上聊天系統，你被分派到處理登入的模組。為了要讓用戶更容易註冊與登入，工作小組決定要讓系統可以透過常見的社群平台登入。這些社群平台透過 OIDC(OpenID Connect) 提供身分驗證的功能。你的任務是詳細閱讀 OIDC 的 handbook，並在下次小組會議簡報這個協議是如何運作，以及回答小組成員的疑問。

OIDC 是基於 OAuth 2.0 的一種身份認證協議，基於 JSON 格式，良好的兼容 REST。允許使用者端通過 Authorization Server 驗證使用者身份，並以標準的 ID_TOKEN 獲取使用者的基本資訊。它讓使用者能夠登錄到企業內的身分辨識，使用者成功辨識身分之後，再自動轉到相對應的應用程式，完成登入作業。讓使用者在不同的應用程式中遊走，卻不用到處註冊留下密碼，實現單一登入的一種機制。OIDC 允許所有類型的用戶端，包括基於瀏覽器的應用程式、行動裝置應用程式與需透過安裝於作業系統的應用程式。

請利用 UML 語法圖來完成 OIDC 流程簡報以及系統的規劃，至少需要包含：

- 使用者若要進行登入/註冊，所需要的模組時序圖
- 功能模組互動圖
- 資料庫規劃圖

同時，小組成員在開會前也快速瀏覽了 OIDC 的流程，想進一步了解以下問題，請在簡報時一併回答：

- Authentication 和 Authorization 的差異
- id_token 裡面放了哪些資料
- 如何避免重播攻擊
- 要如何確認 token 是特定的 provider 核發
- OIDC 和 OAuth 2.0 之間的關聯，為什麼要額外有 OIDC 的流程

以及其他依據你回答的 follow up

最後，你需要繳交：

- 系統規劃簡報，檔名為 XX_Module_E.pptx，封面須包含：
 - 崗位編號
 - 姓名
- 在過程中製作圖表的原始檔案，存放於 Source 資料夾。XX 為崗位編號。

並：

- 依據其系統規劃的內容做口頭報告及講解

- 講解後回答小組成員的問題

注意事項：

- 本模組選手做口頭報告及講解的表現列入評分項目。
- 本模組評審裁判會口頭提問專業問題，選手的回答列入評分項目。
- 報告時間為 7 分鐘。報告完畢後，進入 QA 時間。請在 QA 階段回答指定問題，以及追加問題。

評分表：

#	M/J	Item	Description	Mark
1.	M	檔案繳交正確		0.50
2.	M	報告時間安排適當	報告時間 0~1 分鐘內得 0.00 報告時間 1~5 分鐘內得 1.00 報告時間 6~7 分鐘內得 3.00 報告時間超過 7 分鐘得 2.00	3.00
3.	M	有繪製出指定三張圖表	缺一張扣 1.00	2.00
4.	J	能報告出 OIDC 核心概念	0: 完全無法說出 OIDC 核心概念 1: 僅能簡單介紹 OIDC 2: 能說明 OIDC 概念與運作流程 3: 能說明 OIDC 概念與運作流程，並且完全沒接觸過的也知道接下來要如何實作	3.00
5.	J	時序圖繪製能說明相關流程與元件間的互動	0: 無規劃 1: 圖表缺乏關鍵元件 2: 圖表有說明清楚大部分流程，但有部分仍須調整 3: 圖表有說明清楚相關流程	2.50
6.	J	功能模組互動圖能說明不同模組之間的運作	0: 無規劃或是規劃簡陋 1: 圖表缺乏關鍵元件	2.00

#	M/J	Item	Description	Mark
			<p>2: 圖表有說明清楚模組之間的關聯與互動</p> <p>3: 圖表有說明清楚模組之間的關聯與互動，並且未來容易進行擴充與修改</p>	
7.	J	資料庫規劃	<p>0: 無規劃或是規劃簡陋</p> <p>1: 可以保存功能所需資訊，但不容易擴充</p> <p>2: 可以保存功能所需資訊，並可以擴充簡單功能，達成 2NF 正規化</p> <p>3: 可以保存功能所需資訊，並容易進行功能擴充，達成 3NF 或以上正規化</p>	3.00
8.	J	整體問答表現與反應	<p>0: 沒有回答問題</p> <p>1: 能回答少部分問題，但部分內容仍無法理解</p> <p>2: 能回答大部分問題，並且在少數追問下能補充完相關資訊</p> <p>3: 能回答幾乎所有問題，也能主動補充額外資訊，並能指出不合理問題</p>	7.00
				23