University of Wollongong

Group 05 - ZeeTech

9th of September, 2016

Dear Mr. Halliwell and Mr. Freeman,

We are submitting the attached Project Requirement paper. This paper will discuss what the team has been investigating and considering regarding current project. It covers the target market, design methodology, development environment, tools and requirement analysis in more details while justifying why the mentioned tools are essential to this project.

This paper should be final, in a sense that there will be no changes along the way. If there are any changes along the timespan of this project, however, the latest copy of project requirement paper will be sent to the appropriate stakeholders. The team can be officially contacted through mha682@uowmail.edu.au.

I hope you find this report satisfactory.

Thank you and have a nice day,

Muhammad Harits Abiyyudo

Project Leader

Report

Of the

Project Requirement

For the

Social Interactive E-Learning System

By

Group 05 (ZeeTech)

Held at

Wollongong, Australia

In

September, 2016

EXECUTIVE SUMMARY

The project requirement report is to establish the list of requirements needed that satisfies the needs of the clients and reaches the complexity of the project's system. The following are the highlighted point which includes the project's target market, design methodology, the environment or platforms and tools used with each of the proper reasoning.

The E-Training platform's target market will vary depending on the decisions made by stakeholders regarding the scope of the project. The current proposal limits the project's deployment parameter to the main campus of the University Of Wollongong (UOW). Since the main goal of this platform is to provide users with necessary knowledge and skills in conjunction with the incorporation of gamification, the content has to be available and requires no extensive research from users. This target market segmentation is defined based on the consumers' level of education. The demographic segmentation is only concerned with consumers' level of education only and in no way take other characteristics such as gender, age, race or occupation into consideration.

The methodology ZeeTech will be adopting in undertaking this project will be based on the agile design methodology. In addition to the core principles of agile, ZeeTech will be adopting elements of XP (Extreme Programming), Kanban, and Lean of the agile methodology as well that will best fit with the team's size and circumstances. This method will be ensured through meeting, Schedule Performance Measurement (SPM) that is specified for this project and Test Driven Development (TDD).

There will be several platforms that are used for this project. For development, Netbeans 8.1 running on Windows which will be version controlled at GitHub will be the main developing environment that ZeeTech will utilize for most of its code production. The front-end framework or library ZeeTech will be working with involves Bootstrap 3.3.7, JQuery 3.0 and PixiJS v4. Considering the project requires heavy and complex computations on the server side, Java EE 6 web technologies will be utilized as the server side environment instead of the more popular PHP. For deployment, OpenShift's free web hosting plan with included MySQL database services and NodeJS will be used. For management and administration, free tools and services such as Google Form, Google Docs, Google Sheet, and Google Slides will be the go-to methods.

There will be several types of requirements. Externally, the system will API where the player could share their module progress through the system. To use this functionality, user should be able to login to system and user should login to the social media with through the API with their own social media account. For admin and e-learner modeller, system will also provide an editor interface for the trainer to maintain the module. All the functionality for trainer will be served on this interface through web based graphical user interface. For the basic users, the system will provide a main interface for the player to play available module. All the functionality for player will be served on this interface through web based graphical user interface.

Functionally, each user will have his own workspace, and he must be logged in to the server to access his workspace. Hence, users must complete registration process first. After user register himself, he can interact with the user management, module management, user profile and module player. Depending on the type of user, user can access the module editor and admin content management system.

Non-functionally, the system should run on variety of browser to ensure the user able to run the system on their browser. For this system, we chose 3 major browsers with different web browser engine, Chrome, Firefox, and Internet Explorer 11. Performance required by the server side is powerful server, high speed internet access and storage space to accommodate multiple users. Performance required by the client side is the system should be developed as lightweight app so that it can run on almost any platform flawlessly. Since the system will be hosted on cloud server, all the user data will be kept on the cloud server. All the sensitive user data will be encrypted to ensure the data safe.

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INTRODUCTION

The current problem of the client Mr. Matt Halliwell is his need to have the group to develop an E-Learning platform implemented with gamification and social media features. The main focus here is using gamification function being able to turn monotonous topic into a socially engaging content that also enhance learner's experience.

The content of this report is to establish the list of requirements needed to satisfy the needs of the client and reaches the complexity of the project's system towards the current problem. The following are the highlighted point which includes the project's target market, design methodology, the environment or platforms and tools used with each of the proper reasoning, followed by requirement analysis describing possibilities for the system in the future. All of the information gathered in the report is based on research from the past weeks and the meeting discussions with the client.

TARGET MARKET

The E-Training platform's target market will vary depending on the decisions made by stakeholders regarding the scope of the project.

The current proposal limits the project's deployment parameter to the main campus of the University of Wollongong (UOW). Since the main goal of this platform is to provide users with necessary knowledge and skills in conjunction with the incorporation of gamification, the content has to be available and requires no extensive research from users. Therefore, ZeeTech limits the target market to students who are enrolled in a course at UOW.

After the general market has been defined, ZeeTech continues to conduct a demographic segmentation and limits the target market to:

- UOW College Students
- UOW Undergraduate Students

This target market segmentation is defined based on the consumers' level of education. The process of creating and developing content that interacts with consumers requires those

responsible to have an extensive knowledge and experience of a particular field. This often constrains them to have a higher education degree or at least be taking part in a course of that level. Therefore, the current target market is limited to those with the highest level of education to hold a bachelor degree. In addition, because the content provided by the platform will contain specialized knowledge regarding a specific field of study, the minimum level is high school graduate.

The demographic segmentation is only concerned with consumers' level of education only and in no way take other characteristics such as gender, age, race or occupation into consideration. Furthermore, the target market defined in this section is only temporary and will vary depending on the scope of the project. For example, if the project is to be implemented in other locations such as other academic institutions, the target market will expand to those institutions' student or if it is the case of businesses or organizations, their employees will also join the target market.

DESIGN METHODOLOGY

The methodology ZeeTech will be adopting in undertaking this project will be based on the agile design methodology. In addition to the core principles of agile, ZeeTech will be adopting elements of XP (Extreme Programming), Kanban, and Lean of the agile methodology as well that will best fit with the team's size and circumstances.

In the project management side, ZeeTech will organize face-to-face meetings with the client weekly to discuss on the project progress and development. Feedback and modifications from the client will be highly encouraged as to satisfy the team's goal and purposes. Tasks will be broken down and grouped into categories of 'Not Done', 'In Progress', 'In Testing', and 'Done' in a manner that is visible to all team members. The amount of work in progress will also be limited to prevent the team from spending resources on needless amount of issues at a time. Weekly performance measurement surveys will also be distributed among the team members in order to identify any group difficulties before they develop into severe predicaments. Inefficient tasks, documentation, or meetings that fail to add value to the project will be considered for pausing or removal.

As for the technical side, Test Driven Development (TDD) will be involved in the production of the core functions of the project to improve the efficiency and productivity of the group. Test cases that involve visual bugs or glitches will not be automated; instead it will be done manually as to control the quality of the product. Releases will be small and in a brief amount of time to stimulate more development cycles and feedback. This will further promote the development of a modular program which will particularly benefit the sort of product that ZeeTech will be working on.

Elements of agile methodology that involves a physical office or large team amount such as daily scrum, on-site user representative, or pair programming from XP will not be adopted due to the team's size and circumstances.

DEVELOPMENT ENVIRONMENT

Netbeans 8.1 running on Windows which will be version controlled at GitHub will be the main developing environment that ZeeTech will utilize for most of its code production. This is mainly because Netbeans provides an all-in-one package for most, if not all, of the programming language or script that ZeeTech will make use of which will be Java and the common web technologies such as HTML5, CSS3, and JavaScript.

The front-end framework or library ZeeTech will be working with involves Bootstrap 3.3.7 and JQuery 3.0, which are the latest stable versions of the most popular client-end frameworks as of this time of writing. PixiJS v4 will also be used as the 2D Rendering Engine for the graphics-heavy elements of the product due to its extensive documentation, resources, compatibility, and advanced text rendering features that will be vital as the user-generated content is likely to be text-heavy.

Considering the project requires heavy and complex computations on the server side, Java EE 6 web technologies will be utilized as the server side environment instead of, the more popular, PHP as Java will be a lot more maintainable and scalable. ZeeTech will not be using Java EE 7, the current latest stable version, as there are little to no web hosting services that offers a free hosting plan which allows Java EE 7. Each team members' developing unit will also

include XAMPP MySQL and Tomcat services in order to develop, debug, and test the web application that ZeeTech will be working on.

DEPLOYMENT ENVIRONMENT

ZeeTech's final product for this project will be deployed as a web application and ran on OpenShift hosting services. The main reason for this is that OpenShift is one of the few web hosting services available that offers free hosting plan for Java EE 6 web technologies, which is Tomcat 7. Due to fact that the environment will only provide ZeeTech for 3GB of total storage on a free hosting plan, which is considerably small for a media-heavy product, ZeeTech will look into hosting its user-generated media assets on other hosting services. OpenShift's free web hosting plan also includes MySQL database services and NodeJS, which may be required for one of ZeeTech's stretch goals, which is online multiplayer support.

TOOLS

Free tools and services such as Google Form, Google Docs, Google Sheet, and Google Slides will be used by ZeeTech for most of its management purposes. Docs and Slides is used on organizing and preparing project documents and presentation as it allows live collaboration among the team members. Form is used as well to create and distribute performance measurement surveys among team members and Sheet will be used to visualize workflow and task distribution based on the Kanban principle. Common documents and files will be stored on a free account of Dropbox and team communication will utilize LINE groups, which allows free messaging service and group calls.

On the technical side, A java-based test unit for automated web application testing called Selenium will be utilized in order to accomplish the TDD methodology that ZeeTech adopted. Another case for the use of Selenium is the fact that Netbeans 8.1, ZeeTech's preferred IDE, provides built-in support for unit testing involving Selenium. In consideration of the web server and database environment at the developing period, XAMPP which provides both MySQL and Tomcat 7 will be used locally on each of the team member's developing unit. The currently maintained versions of Internet Explorer, Firefox, and Chrome will also be used for testing and debugging purposes.

REQUIREMENT ANALYSIS

This section will describe the requirements of the software in detail and categorize it into 4 categories, External Interface Requirements, Functional Requirements, Non-functional Requirements, and Stretch Goals.

1. EXTERNAL INTERFACE REQUIREMENTS

This subsection will describe the external interface requirements of the product in three categories which are Social Media API, Editor Interface, and Player Interface. The purpose of this section is to identify and document the interfaces and interaction of the software with external entities in detail.

With Social Media API, we aim to integrate the social media elements as part of our system to enable player sharing their progress through the system.

Editor Interface will be the graphical user interface for trainer to create their own module. It will allow to create, edit, save, load, delete, and test run their module and support other basic feature for maintaining the module.

Player Interface will be the graphical user interface for player to play their intended module. It will allow player to play, save, load progress their module and other basic feature for sharing and tracking their progress.

1.1. SOCIAL MEDIA API

The system will API where the player could share their module progress through the system. To use this functionality, user should be able to login to system and user should login to the social media with through the API with their own social media account. After login success, the social media will provide necessary data for social media sharing functionality.

During all the processes, user should be notified about stage of the process and user should be given an alert or error message if anything goes wrong during any process. User also can choose to cancel or remove the social media data from the system, in such case, the social media functionality won't available to the player until the player login again.

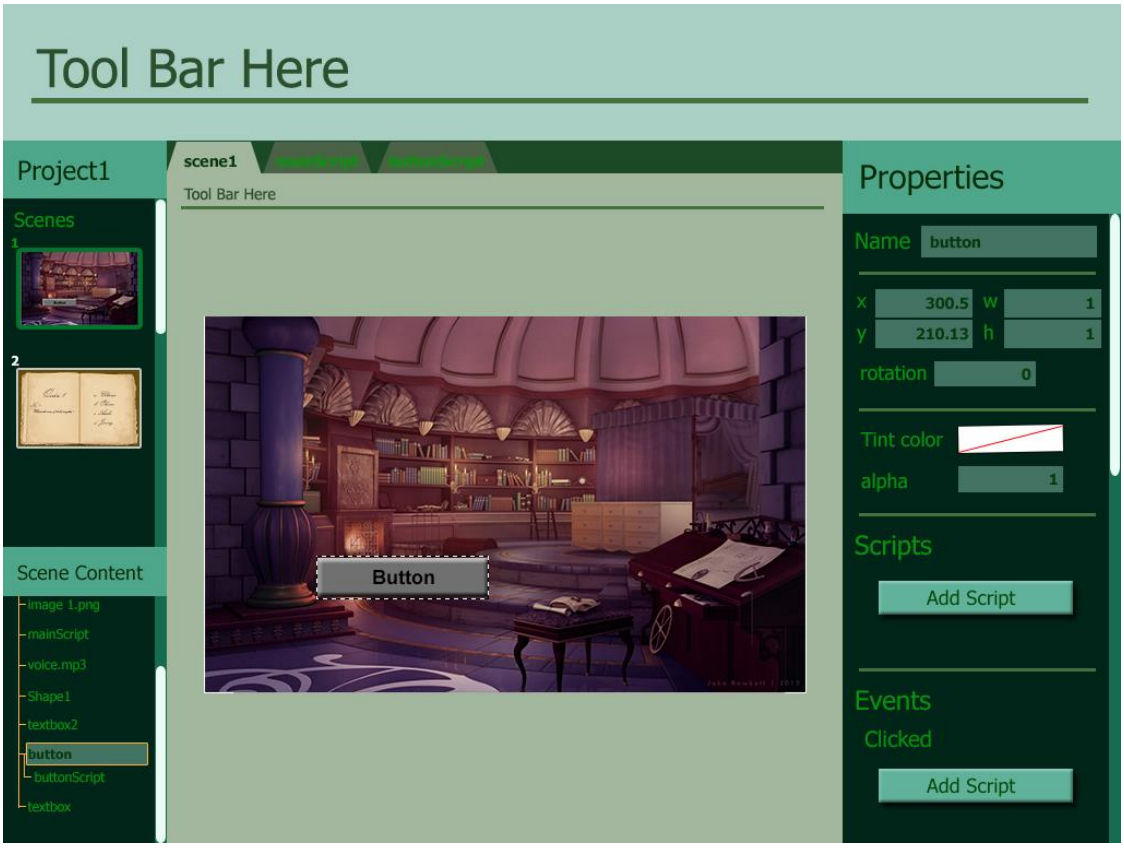
1.2. EDITOR INTERFACE

System will provide an editor interface for the trainer to maintain the module. All the functionality for trainer will be served on this interface through web based graphical user interface.

To use the editor interface, trainer first should login to the system with their own credentials. After login, the trainer will be redirected to their workspace. In this workspace, trainer could manage and edit their module.

During any process, trainer should know about the status of the process. If a process runs successfully, user should be notified about the effect of the process. If an error occurs, trainer should be notified about the error and able to recover from the situation.

Below is the mockup for the overall appearance of the editor interface;



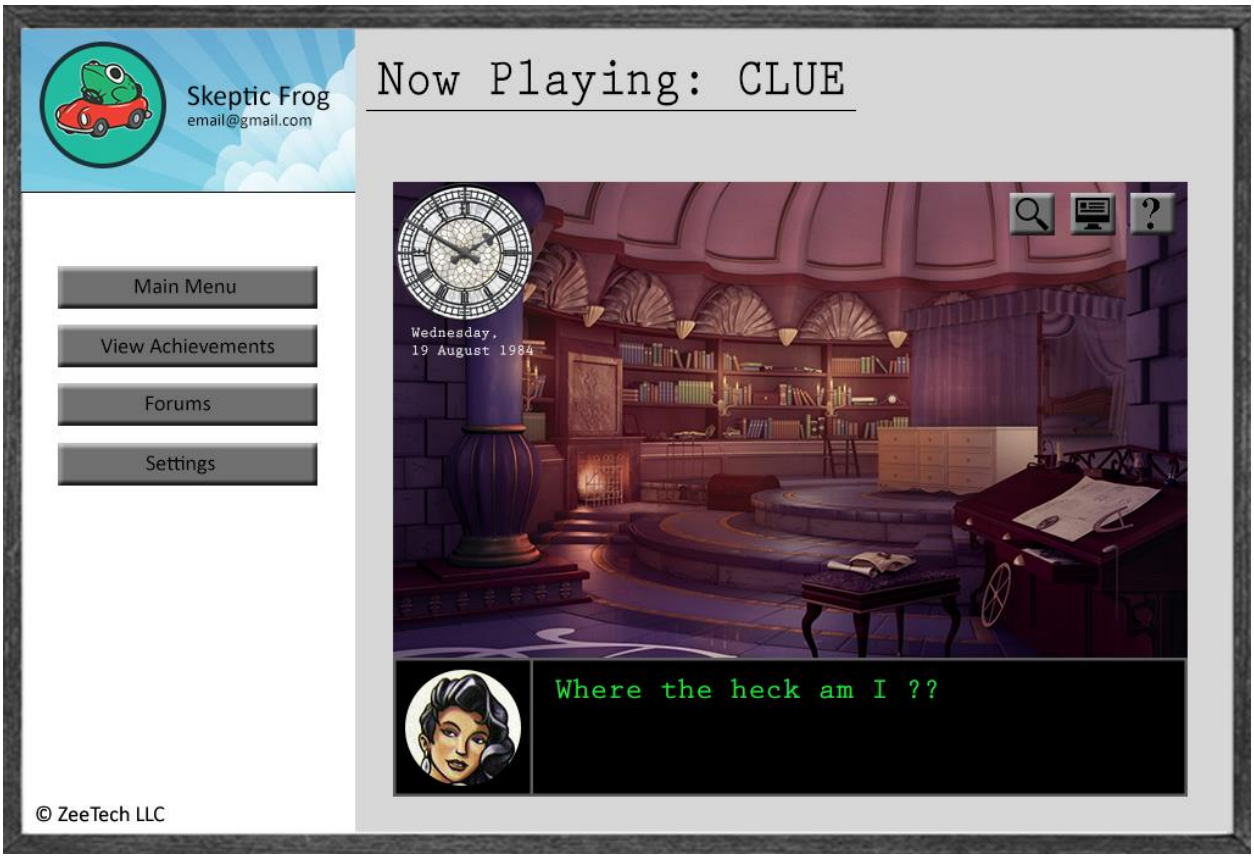
1.3. PLAYER INTERFACE

System will provide a main interface for the player to play their module. All the functionality for player will be served on this interface through web based graphical user interface.

To use the player interface, player should login to the system with their own credentials. After login, the player will be redirected to the main page. In this main page, player could play their module and view their previous progress.

During any process, player should know about the status of the process. If a process runs successfully, user should be notified about the effect of the process. If an error occurs, trainer should be notified about the error and able to recover from the situation.

Below is the mockup for the overall appearance of the player interface;



2. FUNCTIONAL REQUIREMENTS

This subsection will examine the functional requirements of the systems in detail by categorizing them according to their functionality.

2.1. USER MANAGEMENT

2.1.1. Background Information

System will be used via a web browser. Each user will have his own workspace, and he must be logged in to the server to access his workspace. Hence, users must complete registration process first. To register to the system, user should provide some information needed. After validation, registration will completed, and user will be informed.

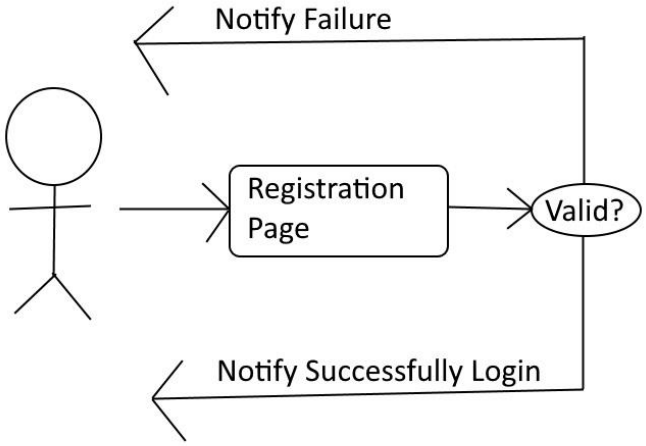
There will be a login page so that user can type into his login information, and login to the system. Login information will be username or e-mail address and password specified in registration process. Server let through the user if the given credentials are matched with the ones in database saved in registration and redirected to his workspace. If specified information is not matched, an error dialog will be shown.

When user forgets his password, he can request a new password from the system by specifying his username or e-mail address.

2.1.2. Stimulus/Response Sequences

2.1.2.1. Register

Diagram



Description

Primary Actor	User
Goal in Context	Register to the system
Trigger	User wants to register to the system

Normal Flow of Events

1.User opens the registration page

2.User specifies his information

3.System validate the specified information

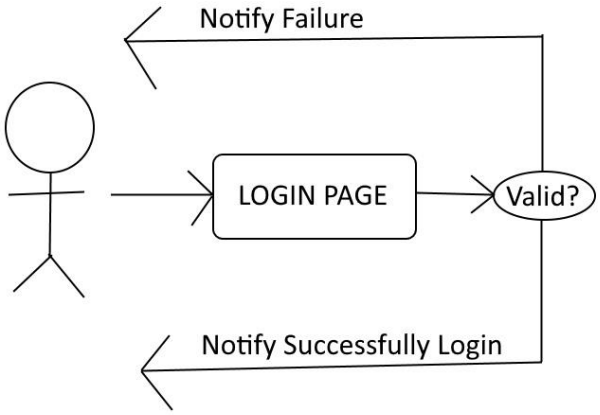
4.User is registered to the system

Alternative Event Flow 1

4.1.User can not registered to the system due to inappropriate information

2.1.2.1.1. Login

Diagram



Description

Primary Actor	User
Goal in Context	Login to the system with user credentials in order to use the system
Trigger	User wants to login to the system

Normal Flow of Events

1. User opens the login page
2. User tries to login to the system with his credentials
3. System validate the specified information
4. User is logged into the system

Alternative Event Flow 1

1.1.User cannot logged into the system due to incorrect credentials

2.1.3. Functional Requirements

REQ 1: The system shall provide a registration page

REQ 2: The system shall provide a login page

2.2. MODULE MANAGEMENT

2.2.1. Background Information

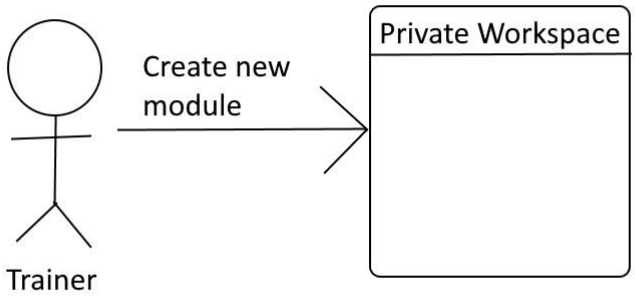
After trainer completes the registration process, a private module workspace will be available for him. Trainer could set his module private or public and observe his module.

The system provides trainer a module management system where trainer could manage his module through web interface.

2.2.2. Stimulus/Response Sequences

2.2.2.1. Add Module

Diagram



Description

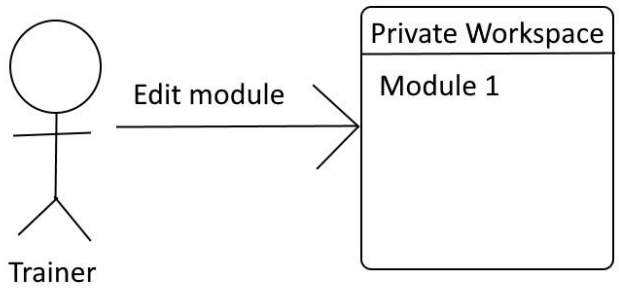
Primary Actor	Trainer workspace owner
Goal in Context	Create new module into trainer workspace
Preconditions	Trainer must be logged into the system
Trigger	Trainer want to create new module

Normal flow of events

1. Trainer logins into the system
2. Trainer opens his workspace
3. Trainer selects “Add New Module” Button

2.2.2.2. Edit Module

Diagram



Description

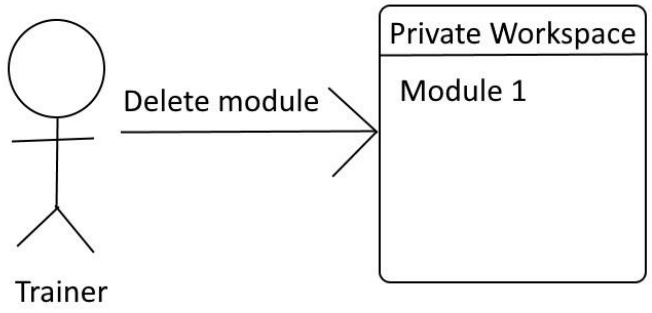
Primary Actor	Trainer workspace owner
Goal in Context	Edit selected module in existing trainer workspace
Preconditions	Trainer must be logged into the system
Trigger	Trainer want to edit existing module

Normal flow of events

1. Trainer logins into the system
2. Trainer opens his workspace
3. Trainer select desired module
4. Trainer selects “Edit Module” Button

2.2.2.3. Delete Module

Diagram



Description

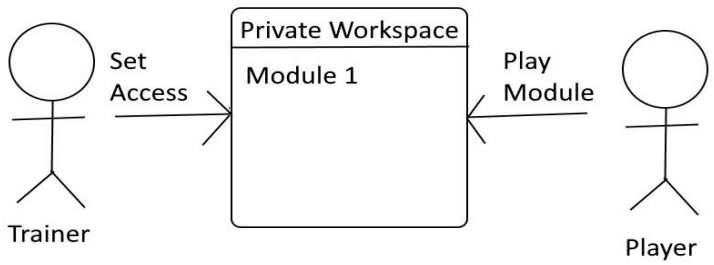
Primary Actor	Trainer workspace owner
Goal in Context	Delete selected module in existing trainer workspace
Preconditions	Trainer must be logged into the system
Trigger	Trainer want to delete existing module

Normal flow of events

1. Trainer logins into the system
2. Trainer opens his workspace
3. Trainer select desired module
4. Trainer selects “Delete Module” Button

2.2.2.4. Set Module Access

Diagram



Description

Primary Actor	Trainer workspace owner
Goal in Context	Set module access to public or private
Preconditions	Trainer must be logged into the system
Trigger	Trainer want to change the module access

Normal flow of events

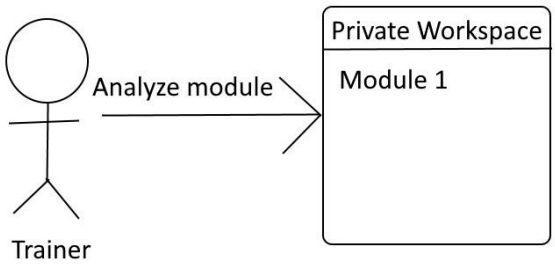
1. Trainer logins into the system
2. Trainer opens his workspace
3. Trainer select desired module
4. Trainer selects “Set Module Access” Button
5. Trainer selects “Public”

Alternative Event Flow 1

5.1 Trainer selects “Private”

2.2.2.5. Analyze Module

Diagram



Description

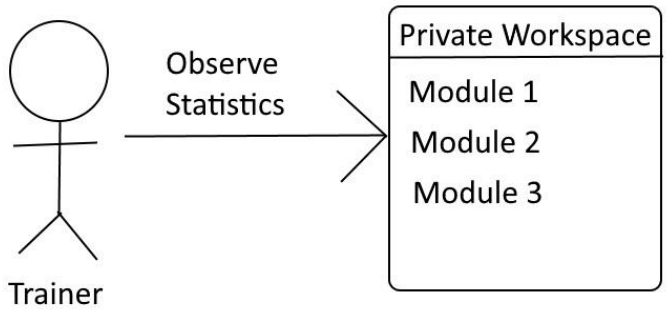
Primary Actor	Trainer workspace owner
Goal in Context	Analyze selected module statistics in existing trainer workspace
Preconditions	Trainer must be logged into the system
Trigger	Trainer want to analyze statistics from existing module

Normal flow of events

1. Trainer logins into the system
2. Trainer opens his workspace
3. Trainer select desired module
4. Trainer selects “Analyze Module” Button

2.2.2.6. Statistics

Diagram



Description

Primary Actor	Trainer workspace owner
Goal in Context	Provide overall statistics from all module
Preconditions	Trainer must be logged into the system
Trigger	Trainer want to analyze statistics from overall module

Normal flow of events

1. Trainer logins into the system
2. Trainer opens his workspace
3. Trainer selects “Statistics” Button

2.2.3. Functional Requirements

REQ 3: The system shall provide add module functionality

REQ 4: The system shall provide edit module functionality

REQ 5: The system shall provide delete module functionality

REQ 6: The system shall provide set access module functionality

REQ 7: The system shall provide analyze module functionality

REQ 8: The system shall provide statistics functionality

2.3. MODULE EDITOR

2.3.1. Background Information

After trainer login and create new or edit existing module, the system will redirect trainer to module editor. The module editor provides trainer functionality to edit module through web interface.

Module editor provide functionality as following:

2.3.1.1. Viewport

Viewport provide the trainer the overall appearance of the selected scene to the trainer. The viewport also can act as script editor.

2.3.1.2. Add/Delete Scene

The system will provide trainer a functionality to add new or delete existing scene.

2.3.1.3. Scenes Selector Sidebar

The system will provide trainer a scene selector sidebar to select existing scene. The sidebar also provide trainer the overall component of the selected scene

2.3.1.4. Component Properties

The system will provide trainer a component sidebar to edit currently selected component. The sidebar also provides trainer option to add scripts/events.

2.3.2. Stimulus/Response Sequences

Diagram

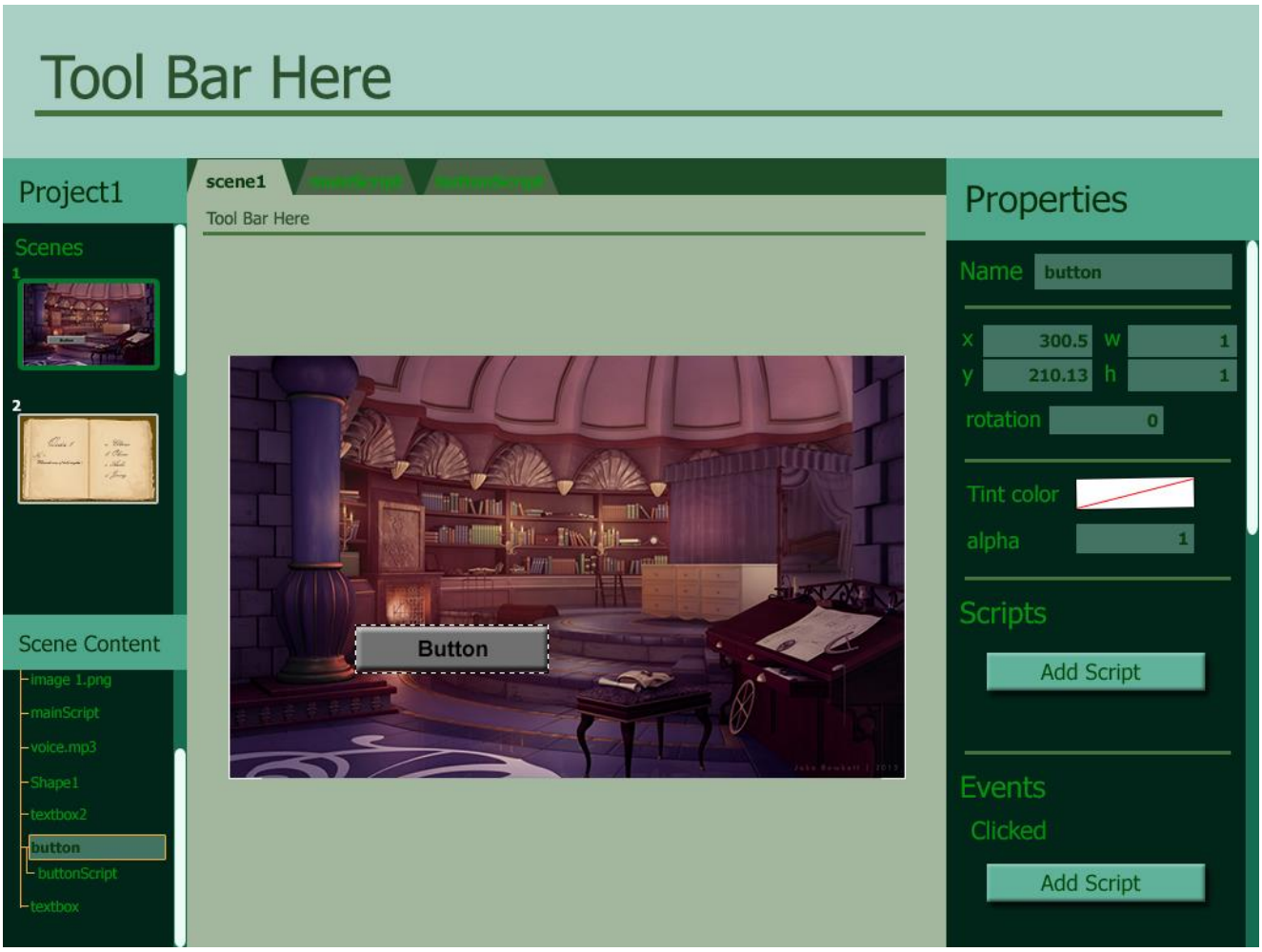


Figure 2.3.2 presentation of Functionalities of the Module Editor

Description

Primary Actor	Trainer workspace owner
Goal in Context	To provide fundamental requirements for the module editor
Preconditions	Trainer must be logged into the system

Trigger	Trainer creates new or edits existing module

Normal Flow of Events

1. Trainer logins into the system
2. Trainer opens his workspace
3. Trainer create new or edit existing module
4. Trainer observe the viewport

Alternative Event Flow 1

4.1. Trainer select one of the script above the viewport
5.1. Trainer observe the script editor

Alternative Event Flow 2

4.2. Trainer select “Add Scene” button

Alternative Event Flow 3

4.3. Trainer select existing scene
5.2. Trainer select “Delete Scene” button

Alternative Event Flow 4

4.4. Trainer observe scene selector sidebar

Alternative Event Flow 5

4.5. Trainer observe scene properties sidebar

Alternative Event Flow 6

4.6. Trainer observe scene properties sidebar
5.6. Trainer select one of the component
6.6. Trainer select “Add Scripts” button

Alternative Event Flow 7

4.7. Trainer observe scene properties sidebar

5.7. Trainer select one of the component

6.7. Trainer select “Add Events” button

2.3.3. Functional Requirements

REQ 9: The system shall provide module editor with viewport

REQ 10: The system shall provide module editor with add/delete scene capabilities

REQ 11: The system shall provide module editor with scene selector sidebar

REQ 12: The system shall provide module editor with component properties sidebar

2.4. USER PROFILE

2.4.1. Background Information

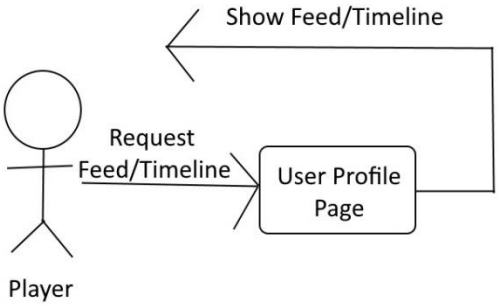
After player completes the registration process, a user profile will be available for him. The user profile act as a workspace where player could play the module and interact.

The system will provide player a user profile through web interface.

2.4.2. Stimulus/Responses Sequences

2.4.2.1. Show Feed/Timeline

Diagram



Description

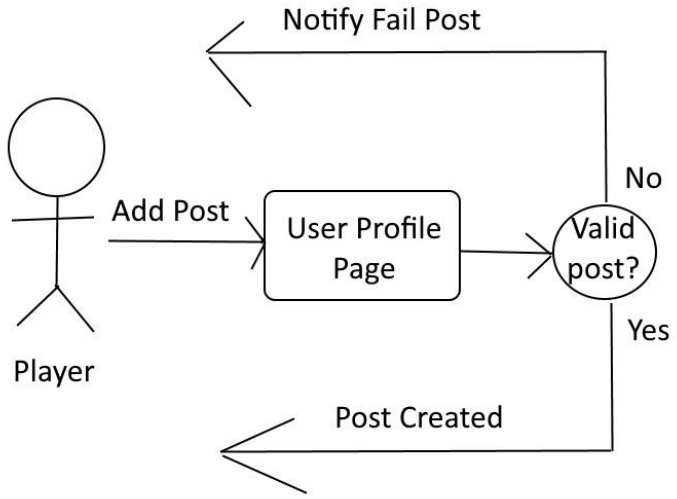
Primary Actor	Player workspace owner
Goal in Context	Show feed/timeline of current player
Preconditions	Player must be logged into the system
Trigger	Player want to see his feed/timeline

Normal flow of events

1. Player logins into the system
2. Player opens his user profile/workspace
3. Player select show feed

2.4.2.2. Add Post

Diagram



Description

Primary Actor	Player workspace owner
Goal in Context	Add a new post
Preconditions	Player must be logged into the system
Trigger	Player want to add a new post

Normal flow of events

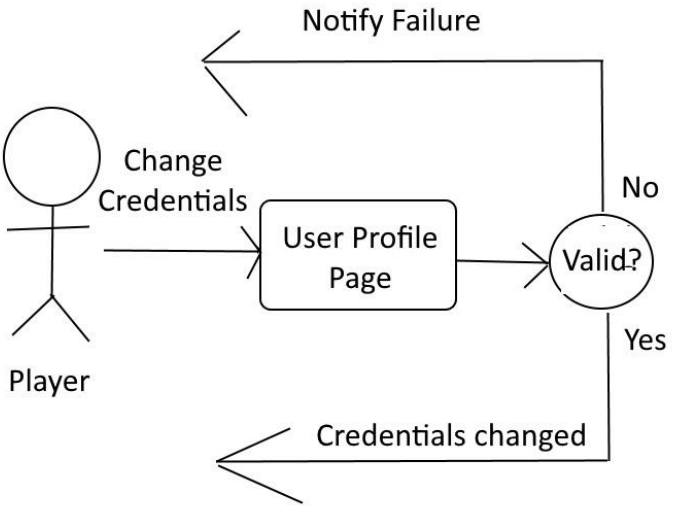
1. Player logins into the system
2. Player opens his user profile/workspace
3. Player select “Add Post” button
4. Post created

Alternative Event Flow

4.1 Post not created because of post is invalid

2.4.2.3. Change Credentials

Diagram



Description

Primary Actor	Player workspace owner
Goal in Context	Change user credentials
Preconditions	Player must be logged into the system
Trigger	Player want to change his credentials

Normal flow of events

1. Player logins into the system
2. Player opens his user profile/workspace
3. Player select “Settings” button
4. Player select “Change Credentials” button
5. Player fill the required data

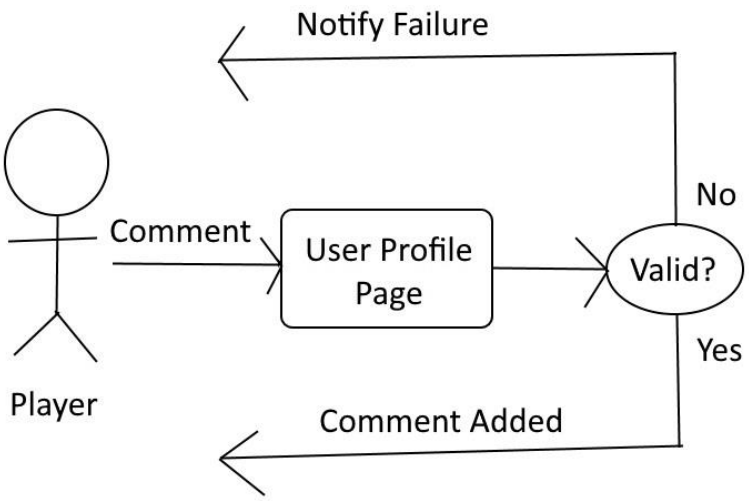
6. Credentials changed

Alternative Event Flow

6.1. Credentials not changed because of invalid data

2.4.2.4. Comment

Diagram



Description

Primary Actor	Player workspace owner
Goal in Context	Add comment in post
Preconditions	Player must be logged into the system
Trigger	Player want to comment to a post

Normal flow of events

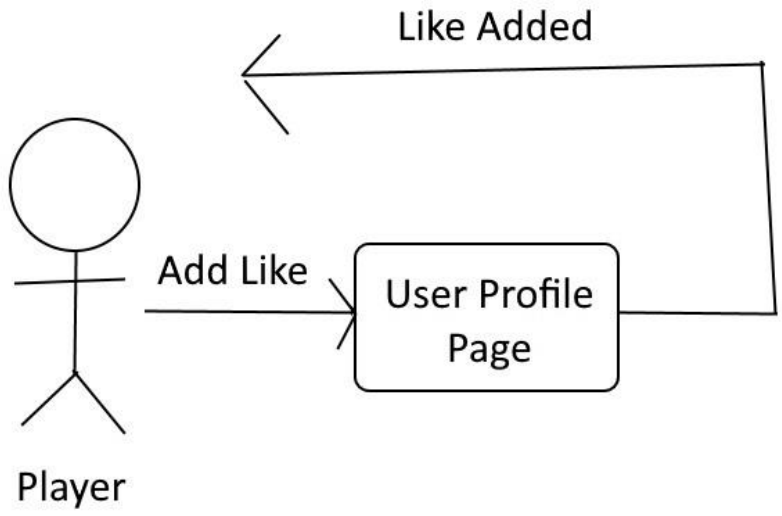
1. Player logins into the system
2. Player opens his/other user profile/workspace
3. Player select a post
4. Player add comment
5. Comment added

Alternative Event Flow

5.1. Comment not added because the comment is invalid

2.4.2.5. Like

Diagram



Description

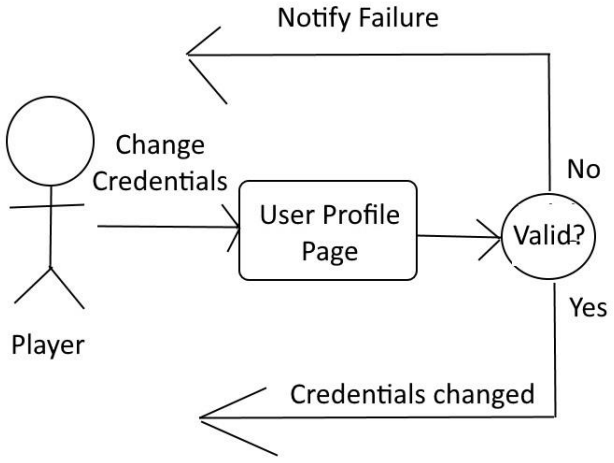
Primary Actor	Player workspace owner
Goal in Context	Add like to a post
Preconditions	Player must be logged into the system
Trigger	Player want to like a post

Normal flow of events

1. Player logins into the system
2. Player opens his/other user profile/workspace
3. Player select a post
4. Player select “Like” button

2.4.2.6. Share

Diagram



Description

Primary Actor	Player workspace owner
Goal in Context	Share a post
Preconditions	Player must be logged into the system
Trigger	Player want to share a post

Normal flow of events

1. Player logins into the system
2. Player opens his user/other profile/workspace
3. Player select a post
4. Post is shared

2.4.3. Functional Requirements

REQ 13: The system shall provide user profile with feed/timeline
REQ 14: The system shall provide user profile with add post functionality
REQ 15: The system shall provide user profile with change credentials functionality
REQ 16: The system shall provide user profile with comment functionality
REQ 17: The system shall provide user profile with like functionality
REQ 18: The system shall provide user profile with share functionality

2.5. MODULE PLAYER

2.5.1. Background Information

As the player logged in into the system, the system will provide the player the module player to play selected module. The module will run through web interface.

The module player will provide functionality as following:

2.5.1.1. Run Module

The system will provide the functionality to run the module for the player.

2.5.1.2. Save Module

The module player can save the current module progress.

2.5.1.3. Load Module

The module player can load existing module progress.

2.5.1.4. Leaderboard

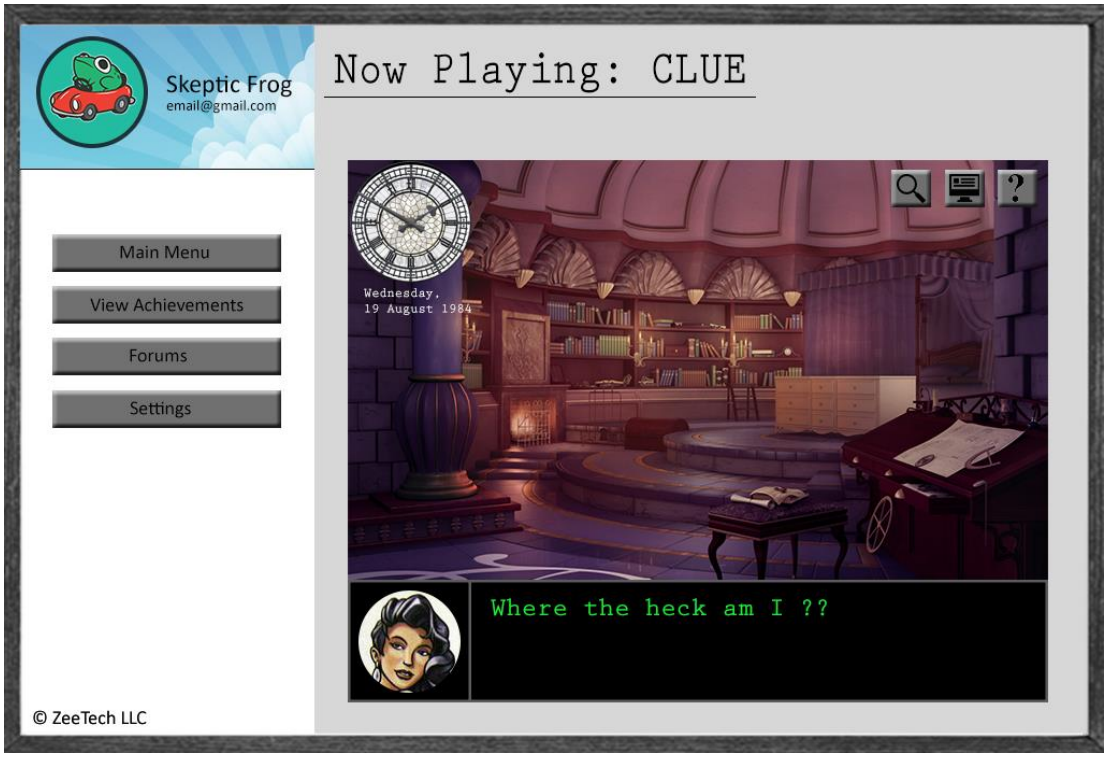
The system can show the player the leaderboards of selected or overall module.

2.5.1.5. Achievements

Player could see their achievements from overall module the player have progress through.

2.5.2. Stimulus/Response Sequences

Diagram



Description

Primary Actor	Player workspace owner
Goal in Context	To provide fundamental requirements for the module player
Preconditions	Player must be logged into the system
Trigger	Player play a new or load existing module

Normal flow of events

1. Player logins into the system
2. Player opens his profile/workspace
3. Player play new module

Alternative Event Flow 1

4.1. Player save the module progress

Alternative Event Flow 2

3.1. Player load existing module

Alternative Event Flow 3

4. Player select “Leaderboards” button
5. Player observe the leaderboards window

Alternative Event Flow 4

4.2.Player select “Achievements” button

5.2.Player observe the achievements window

2.5.3. Functional Requirement

REQ 19: The system shall provide module player to run the module

REQ 20: The system shall provide module player with save functionality

REQ 21: The system shall provide module player with load functionality

REQ 22: The system shall provide module player with leaderboards functionality

REQ 23: The system shall provide module player with achievements functionality

2.6. ADMIN CONTENT MANAGEMENT SYSTEM (CMS)

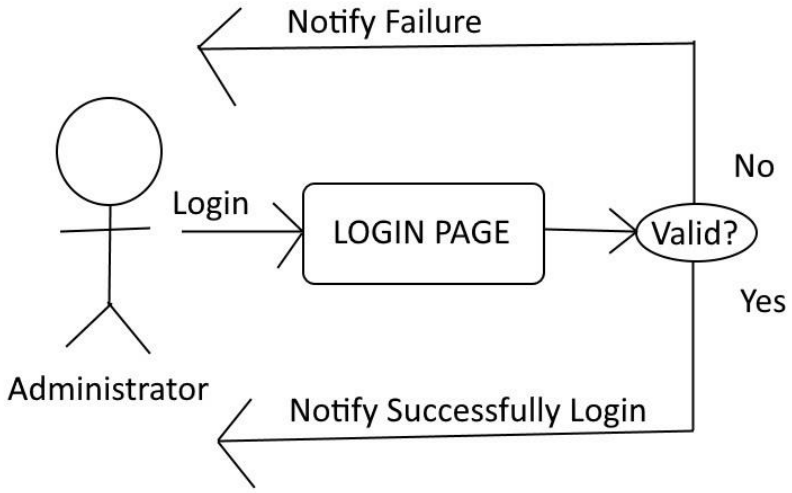
2.6.1. Background Information

As the system will have many user and trainer registered, the system will have an admin content management system to manage all the user and trainer. The admin should be able to manage all the user and trainer through the web interface.

2.6.2. Stimulus/Response Sequences

2.6.2.1. Login

Diagram



Description

Primary Actor	Administrator
Goal in Context	Login to the system
Preconditions	-

Trigger	Administrator want to login to the system

Normal flow of events

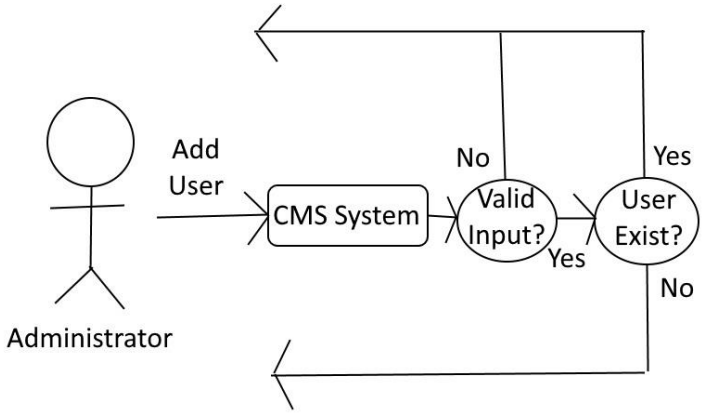
1. Administrator opens the login page
2. Administrator tries to login to the system with his credentials
3. System validate the specified information
4. Administrator is logged into the system

Alternative Event Flow

4.1 Administrator cannot logged into the system due to incorrect credentials

2.6.2.2. Add User

Diagram



Description

Primary Actor	Administrator

Goal in Context	Add new user
Preconditions	Administrator must be logged into the system
Trigger	Administrator want to add user

Normal flow of events

1. Administrator logins into the system
2. Administrator opens his workspace
3. Administrator select “Add User” button
4. Administrator input the user info
5. System check the info validation
6. System check whether the user already exist
7. User Added

Alternative Event Flow 1

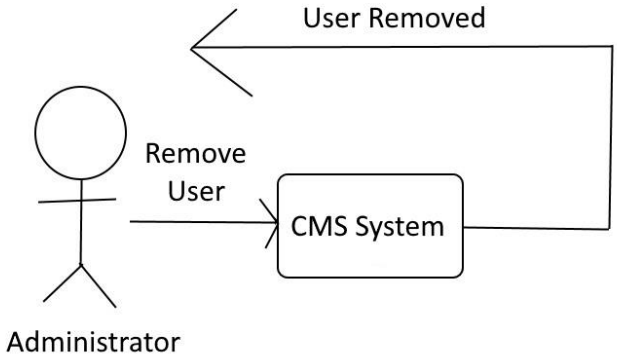
6. User not added because of invalid info

Alternative Event Flow 2

7. User not added because of user already exist

2.6.2.3. Remove User

Diagram



Description

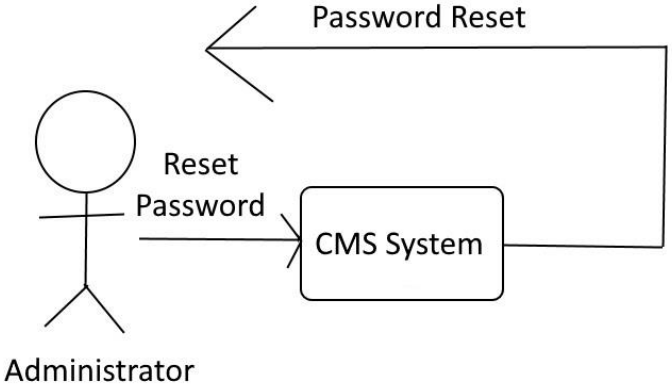
Primary Actor	Administrator
Goal in Context	Remove existing user
Preconditions	Administrator must be logged into the system
Trigger	Administrator want to remove user

Normal flow of events

1. Administrator logins into the system
2. Administrator opens his workspace
3. Administrator select existing user
4. Administrator select “Remove User” button
5. User deleted

2.6.2.4. Reset Password

Diagram



Description

Primary Actor	Administrator
Goal in Context	Reset user password
Preconditions	Administrator must be logged into the system
Trigger	Administrator want to reset user password

Normal flow of events

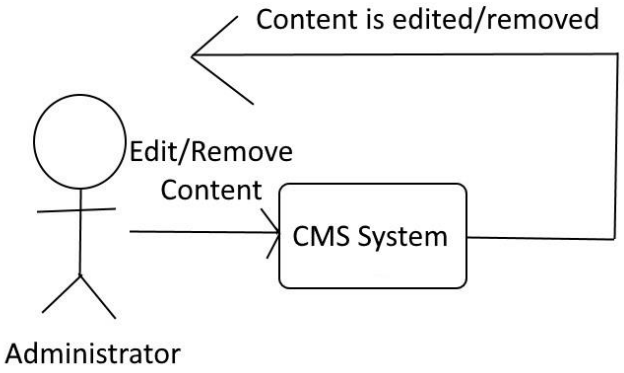
1. Administrator logins into the system
2. Administrator opens his workspace
3. Administrator select existing user

4. Administrator select “Reset Password” button

5. System reset the password and notify the selected user the new password via e-mail

2.6.2.5. Edit/Delete Content

Diagram



Description

Primary Actor	Administrator
Goal in Context	Edit or delete any content
Preconditions	Administrator must be logged into the system
Trigger	Administrator want to edit or delete a content

Normal flow of events

1. Administrator logins into the system

2. Administrator opens his workspace

3. Administrator select “Post” Tab
4. Administrator select a post
5. Administrator select “Delete” button
6. Post deleted

Alternative Event Flow 1

3.1.Administrator select “Comment” Tab
4.1.Administrator select a comment
5.1.Administrator select “Delete” button
6.1.Comment deleted

Alternative Event Flow 2

3.2.Administrator select “Module” Tab
4.2.Administrator select a module
5.2.Administrator select “Delete” button
6.2.Module deleted

2.6.3. Functional Requirement

REQ 24: The system should provide a CMS with login functionality
REQ 25: The system should provide a CMS with add user functionality
REQ 26: The system should provide a CMS with remove user functionality
REQ 26: The system should provide a CMS with reset password functionality
REQ 27: The system should provide a CMS with edit/delete content

3. NON-FUNCTIONAL REQUIREMENTS

This subsection will describe non-functional requirements in detail. Non-Functional requirements include Compatibility Requirements, Performance Requirements, and Security Requirements.

3.1. COMPATIBILITY REQUIREMENTS

Since this system is run on client browser, the system should run on variety of browser to ensure the user able to run the system on their browser. For this system, we chose 3 major browsers with different web browser engine, Chrome, Firefox, and Internet Explorer 11.

3.2. PERFORMANCE REQUIREMENTS

Since this system is going to web based platform, it does require a powerful server with high band internet access.

Performance required by the server side is powerful server, high speed internet access and storage space to accommodate multiple users. Performance required by the client side is the system should be developed as lightweight app so that it can run on almost any platform flawlessly.

Expected number of simultaneous users should be at least 100. System should be able to deal with 100 users at the same time without any problem.

3.3. SECURITY REQUIREMENTS

Since the system will be hosted on cloud server, all the user data will be kept on the cloud server. All the sensitive user data will be encrypted to ensure the data safe. Workspace of the user should be accessed through user own credentials and any other user should not be able to access to the user private data.

4. STRETCH GOALS

This section contains the stretch goals of this system at the end of the project. The goals set are serve as the indicator of our preferred requirements in the future and won't affect any of current requirements whether the goals is achieved or not in the end of the project.

4.1. MULTIPLAYER

Real-time multiplayer functionality could be added to the system as the multiplayer system will enhance the overall interaction between player and adding new possibility for trainer to create a collaborative type module. As of now, this functionality is not the top priority of our team because of the complexity of the system.

4.2. COMMERCIALIZATION

As of now, the system that we work on is not intended for commercial use. Our project is intended to use by a client with a small user capacities. In the end of the project, our team will discuss about the commercialization and scaling our system to fit the industry standard.

CONCLUSION

The E-Training platform's target market will vary depending on the decisions made by stakeholders regarding the scope of the project. The current proposal limits the project's deployment parameter to the main campus of the University Of Wollongong (UOW). Since the main goal of this platform is to provide users with necessary knowledge and skills in conjunction with the incorporation of gamification, the content has to be available and requires no extensive research from users. This target market segmentation is defined based on the consumers' level of education. The demographic segmentation is only concerned with consumers' level of education only and in no way take other characteristics such as gender, age, race or occupation into consideration.

Based on the project requirements users for the target demographic is meant for education levels only. Methodology for the project will agile as it is suited for the team's capacity and in accordance to the problem. There are several platforms used for this project, primarily Netbeans 8.1 is the core program followed by server side, web technologies, and database management programs. Utilities focused on management and documentations are google based forms such as Google Docs, Google Sheet, and Google Slides. Functionality wise user should have an ownership their account for social media purposes. Admins should have an editor framework to make changes and maintain the modules. Both trainers and user should be able to see a web based graphical interface the difference being players can interact by playing the game. As part of the client's requirement the platform should be able to run on 3 major web browser engines which are Google Chrome, Firefox, and Internet Explorer 11. Security is ensured due all sensitive user data is encrypted in a cloud server.

There will be several types of requirements. Externally, the system will API where the player could share their module progress through the system. To use this functionality, user should be able to login to system and user should login to the social media with through the API with their own social media account. For admin and e-learner modeller, system will also provide an editor interface for the trainer to maintain the module. All the functionality for trainer will be served on this interface through web based graphical user interface. For the basic users, the system will provide a main interface for the player to play available module. All the functionality for player will be served on this interface through web based graphical user interface.

Functionally, each user will have his own workspace, and he must be logged in to the server to access his workspace. Hence, users must complete registration process first. After user register himself, he can interact with the user management, module management, user profile and module player. Depending on the type of user, user can access the module editor and admin content management system.

Non-functionally, the system should run on variety of browser to ensure the user able to run the system on their browser. For this system, we chose 3 major browsers with different web browser engine, Chrome, Firefox, and Internet Explorer 11. Performance required by the server side is powerful server, high speed internet access and storage space to accommodate multiple users. Performance required by the client side is the system should be developed as lightweight app so that it can run on almost any platform flawlessly. Since the system will be hosted on cloud server, all the user data will be kept on the cloud server. All the sensitive user data will be encrypted to ensure the data safe.

As a stretch goal, multiplayer capability and commercialization seems visible. Although the utmost priority is to finish this project according to the group's goal: Fast, Reliable and Aesthetically Pleasing

REFERENCES

- *Apache Tomcat, Welcome!* 2016, viewed 8 September 2016, <http://tomcat.apache.org/>.
- *Bootstrap · The world's most popular mobile-first and responsive front-end framework* 2016, viewed 8 September 2016, <http://getbootstrap.com/>.
- *Github* 2016, viewed 8 September 2016, <http://github.com/>.
- *Google Docs - create and edit documents online, for free.* 2016, viewed 8 September 2016, <http://www.google.com/intl/en/docs/about/>.
- *Google Forms - create and analyze surveys, for free.* 2016, viewed 8 September 2016, <http://www.google.com/intl/en/forms/about/>.
- *Google Sheet - create and edit spreadsheets online, for free.* 2016, viewed 8 September 2016, <http://www.google.com/intl/en/sheets/about/>.
- *Google Slides - create and edit presentations online, for free.* 2016, viewed 8 September 2016, <http://www.google.com/intl/en/slides/about/>.
- *Java Platform, Enterprise Edition (Java EE) | Oracle Technology Network | Oracle* 2016, viewed 8 September 2016, <http://www.oracle.com/technetwork/java/javaee/overview/index.html>.
- *JQuery* 2016, viewed 8 September 2016, <http://jquery.com/>.
- *MySQL* 2016, viewed 8 September 2016, <http://www.mysql.com/>.
- *OpenShift: PaaS by Red Hat, Built on Docker and Kubernetes* 2016, viewed 8 September 2016, <http://www.openshift.com/>.
- *PixiJS v4* 2016, viewed 8 September 2016, <http://www.pixijs.com/>.
- *Selenium - Web Browser Automation* 2016, viewed 8 September 2016, <http://www.seleniumhq.org/>.
- *Welcome to NetBeans* 2016, viewed 8 September 2016, <http://netbeans.org/>.
- *XAMPP Installers and Downloads for Apache Friends* 2016, viewed 8 September 2016, <http://www.apachefriends.org/index.html>.

GLOSSARY

Agile an iterative approach to software development

API Application Programming Interface, describes how one program interacts with another

Bootstrap a set of pre-built functions and designs to develop a web application

Client-end functions that are executed from the user's computer or machine

Cloud sharing of computer resources via the internet

Content Management System an application to manage the content of another application

CSS a technology used to describe the visual form of a webpage

Dropbox a service to share files and documents between devices

Framework a set of functions that acts as a foundation to build a program

Github an online service that enables developers to share and sync code

Google Docs an online document editing service

Google Form an online service to create and distribute forms

Google Sheet an online spreadsheet editing service

Google Slides an online service to edit and present presentation

Hosting a service that accommodate files or information so that it can be accessed from the internet

HTML a technology used to describe the content of a webpage

IDE a piece of software to develop programs

Java EE a server side web technology that uses Java

Javascript a technology used to dynamically manipulate the content of a webpage

JQuery a set of pre-built function to develop web applications

Lean an approach of development that maximize value while minimizing waste

Library a set of functions

Kanban an approach for visualizing work

LINE a free cross platform instant messaging application

Modular broken down design of a program into individual components

MySQL a piece of software that offers relational database functionalities

Netbeans Java-focused Integrated Developing Environment (IDE)

NodeJS a server side web technology that uses javascript

OpenShift an online service that offers web hosting

Pair programming the idea of assigning 2 people to program and review the code at the same time

PHP a server side web technology

PixiJS a set of pre-built functions to develop 2D graphics in the browser

Rendering Engine a framework to generate computer graphics

Selenium a Java-based library to automate testing a web application

Server a computer that provides services to another computer

TDD an approach to develop software with automated testing

Tomcat a web server that allows Java technologies to be run on

Unit Testing a testing approach by breaking down the tests into individual units

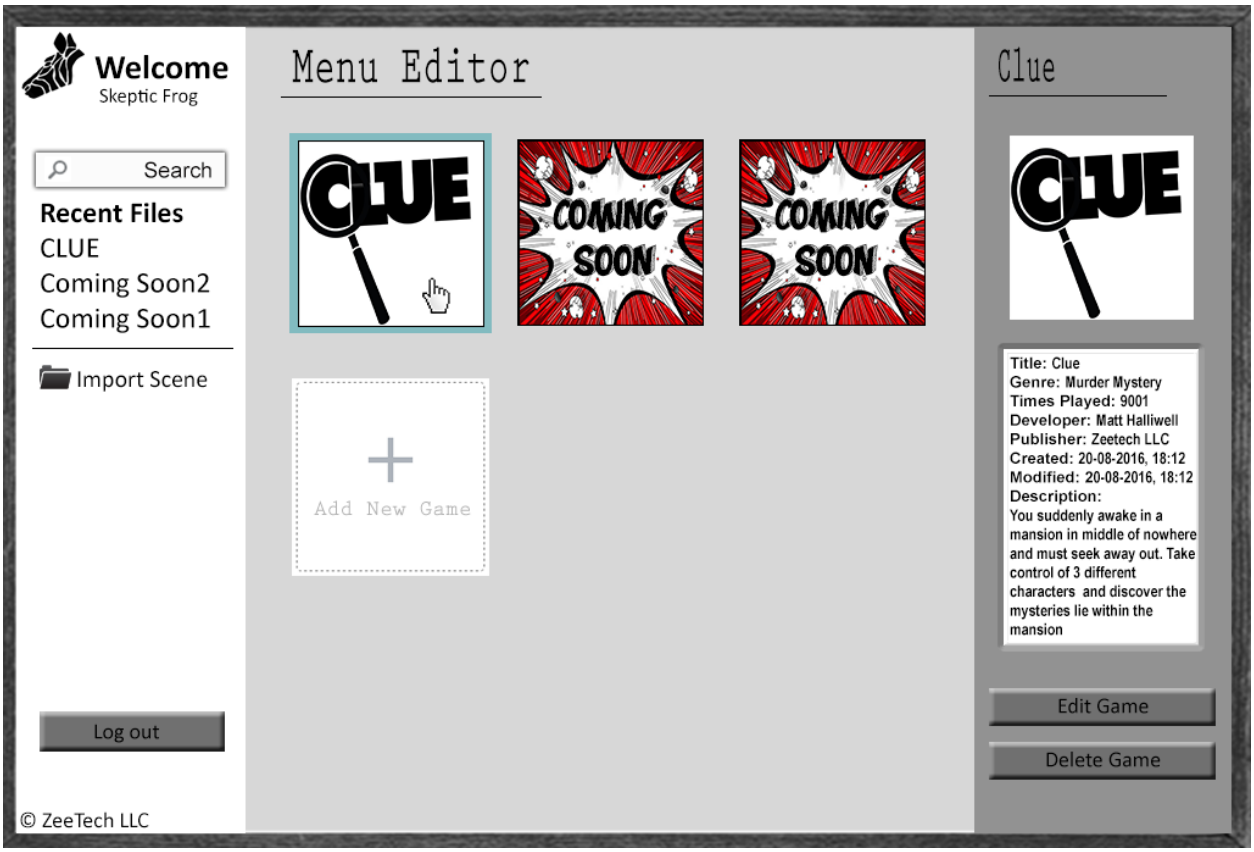
Web Application an application that runs on the browser

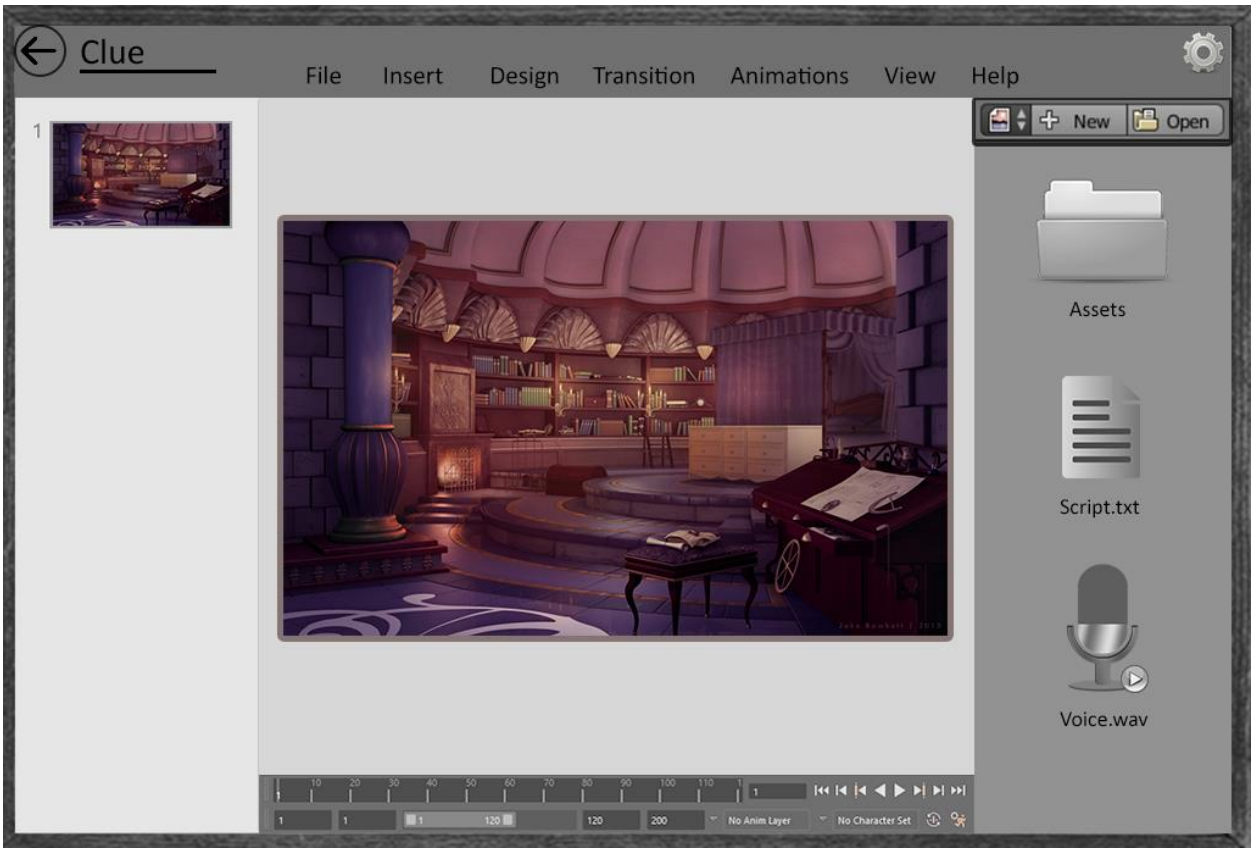
Web Server a computer or program that provide web services to another computer

XAMPP A set of services to deploy a web server

XP Extreme Programming, an approach of software development that focuses on writing codes

APPENDIX


Welcome
Skeptic Frog
Search
Recent Files
CLUE
Coming Soon2
Coming Soon1
Import Scene
Log out
© ZeeTech LLC
Menu Editor
CLUE
COMING SOON
COMING SOON
Add New Game
Clue
CLUE
Title: Clue
Genre: Murder Mystery
Times Played: 9001
Developer: Matt Halliwell
Publisher: Zeetech LLC
Created: 20-08-2016, 18:12
Modified: 20-08-2016, 18:12
Description:
You suddenly awake in a mansion in middle of nowhere and must seek away out. Take control of 3 different characters and discover the mysteries lie within the mansion
Edit Game
Delete Game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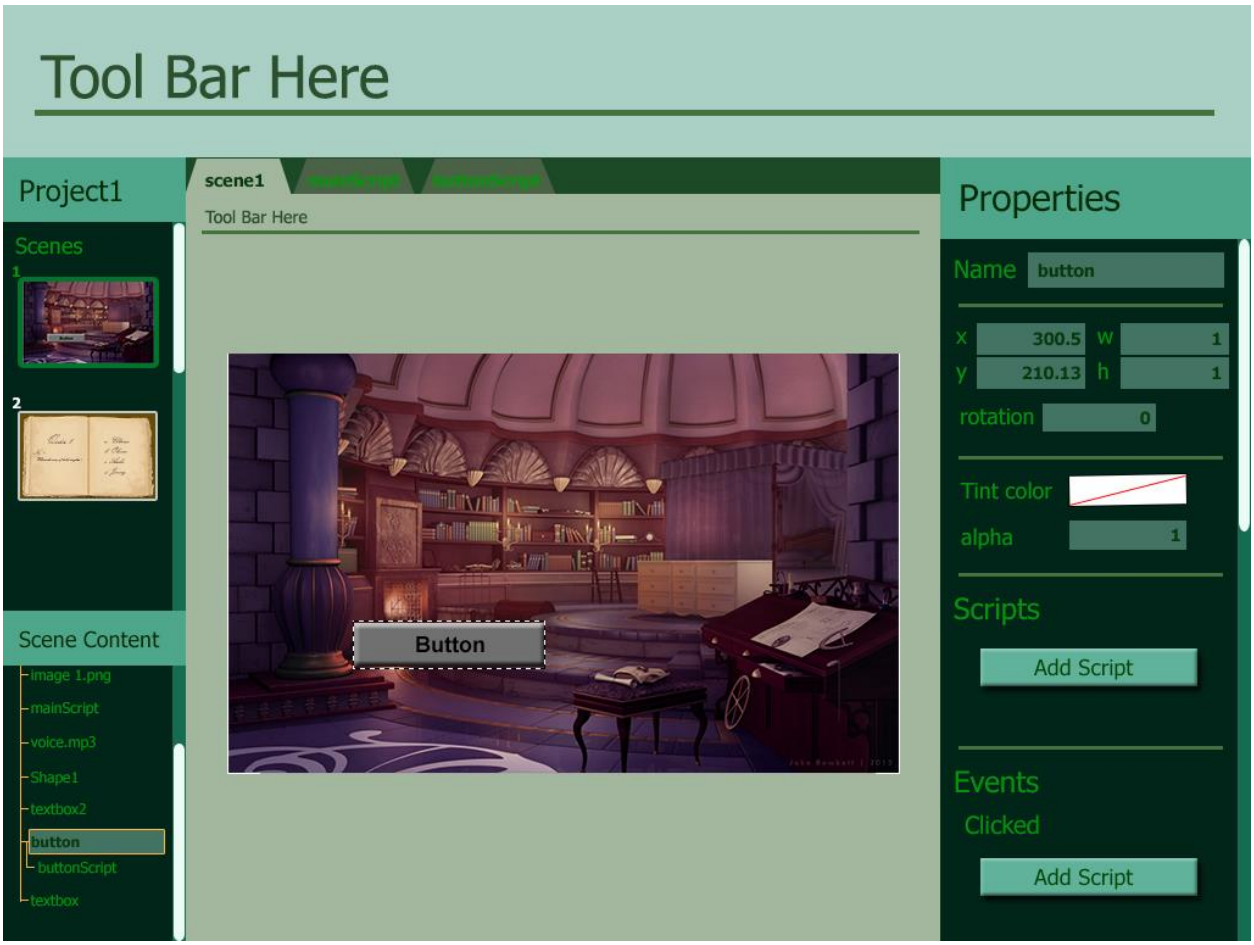
Transition
Animations
View
Help
New
Open
Assets
Script.txt
Voice.wav
No Anim Layer
No Character Set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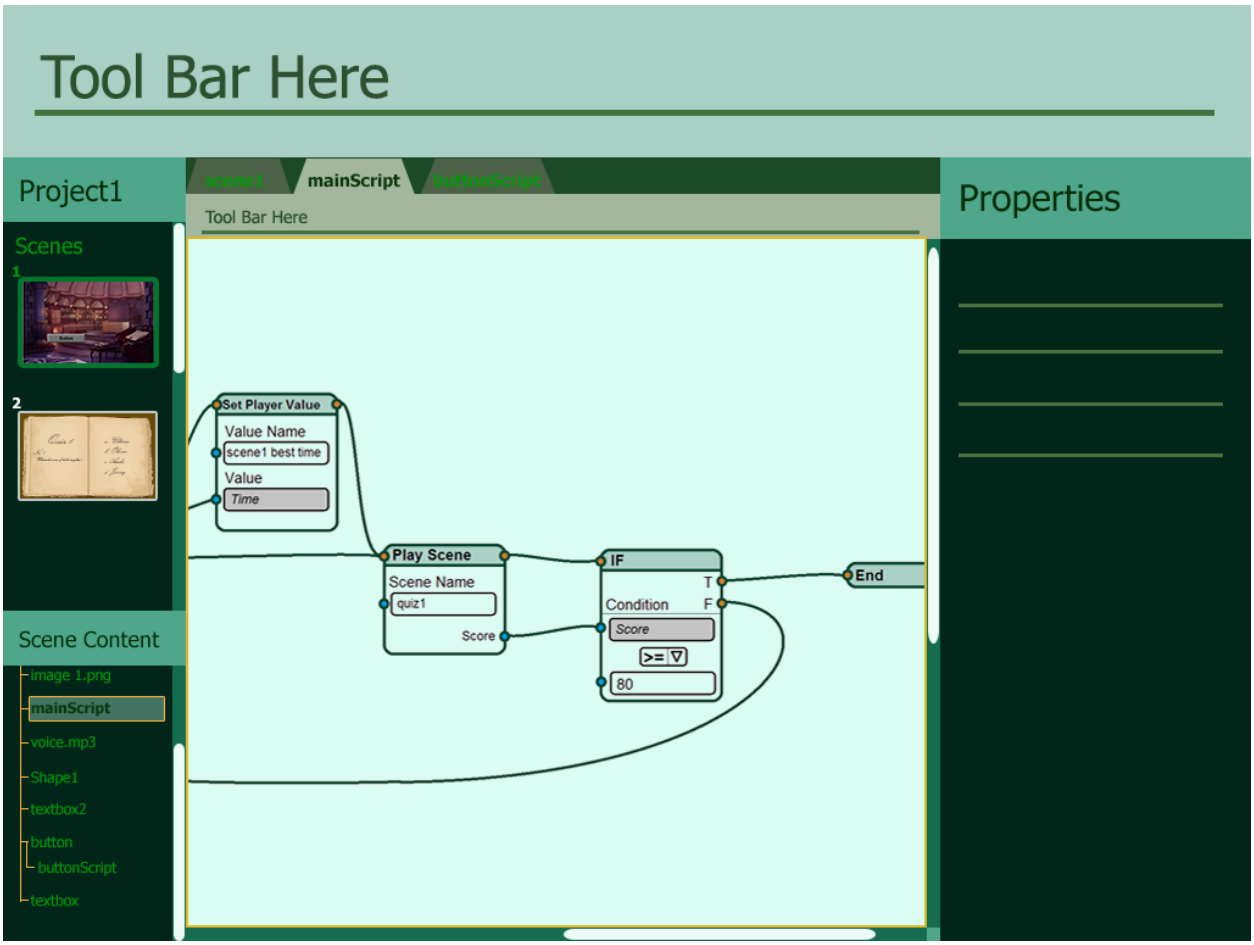
Project1
Scenes
1
2
Scene Content
image 1.png
mainScript
voice.mp3
Shape1
textbox2
button
buttonScript
textbox
scene1
Tool Bar Here
Button
Properties
Name
button
x
300.5
w
1
y
210.13
h
1
rotation
0
Tint color
alpha
1
Scripts
Add Script
Events
Clicked
Add Script


Tool Bar Here
Project1
Scenes
1
2
Scene Content
image 1.png
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Shape1
textbox2
button
buttonScript
textbox
scene1
mainScript
buttonScript
Tool Bar Here
Set Player Value
Value Name
scene1 best time
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Time
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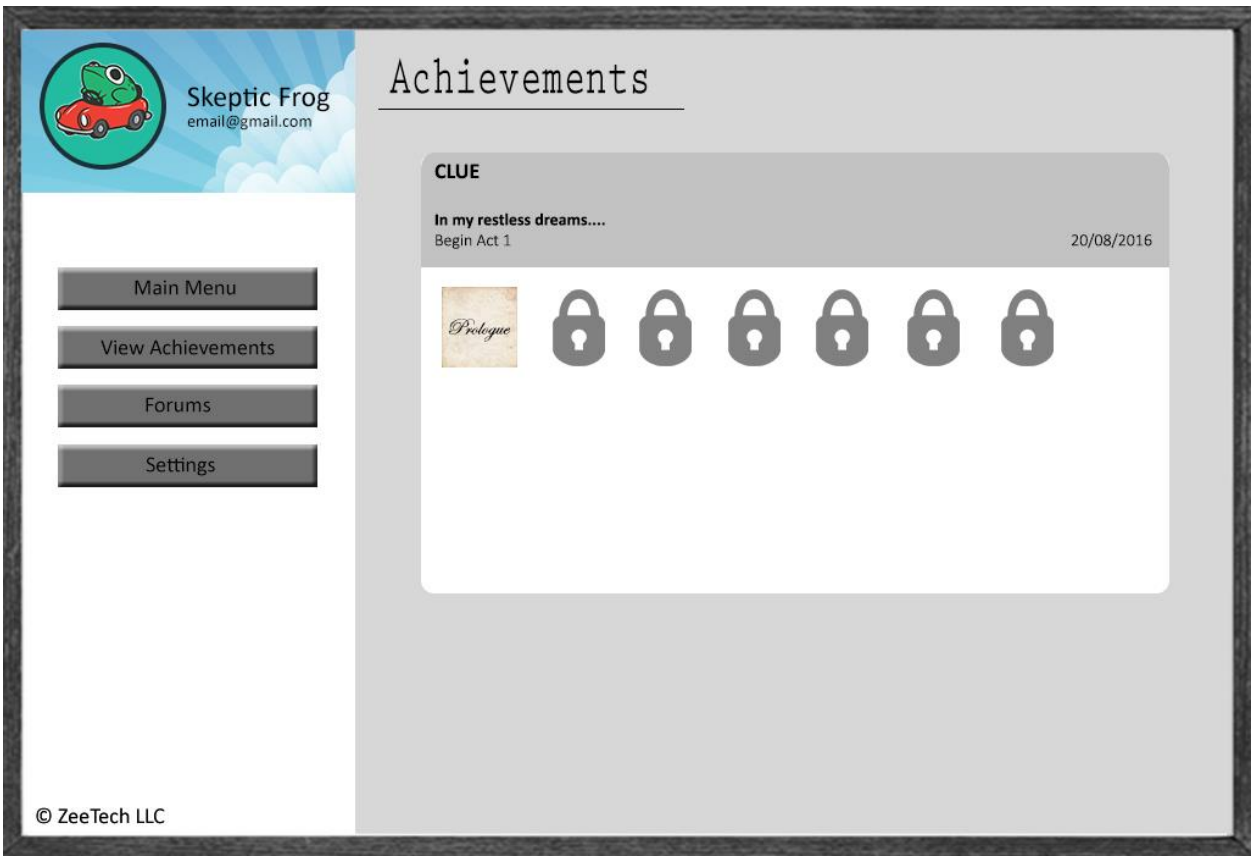
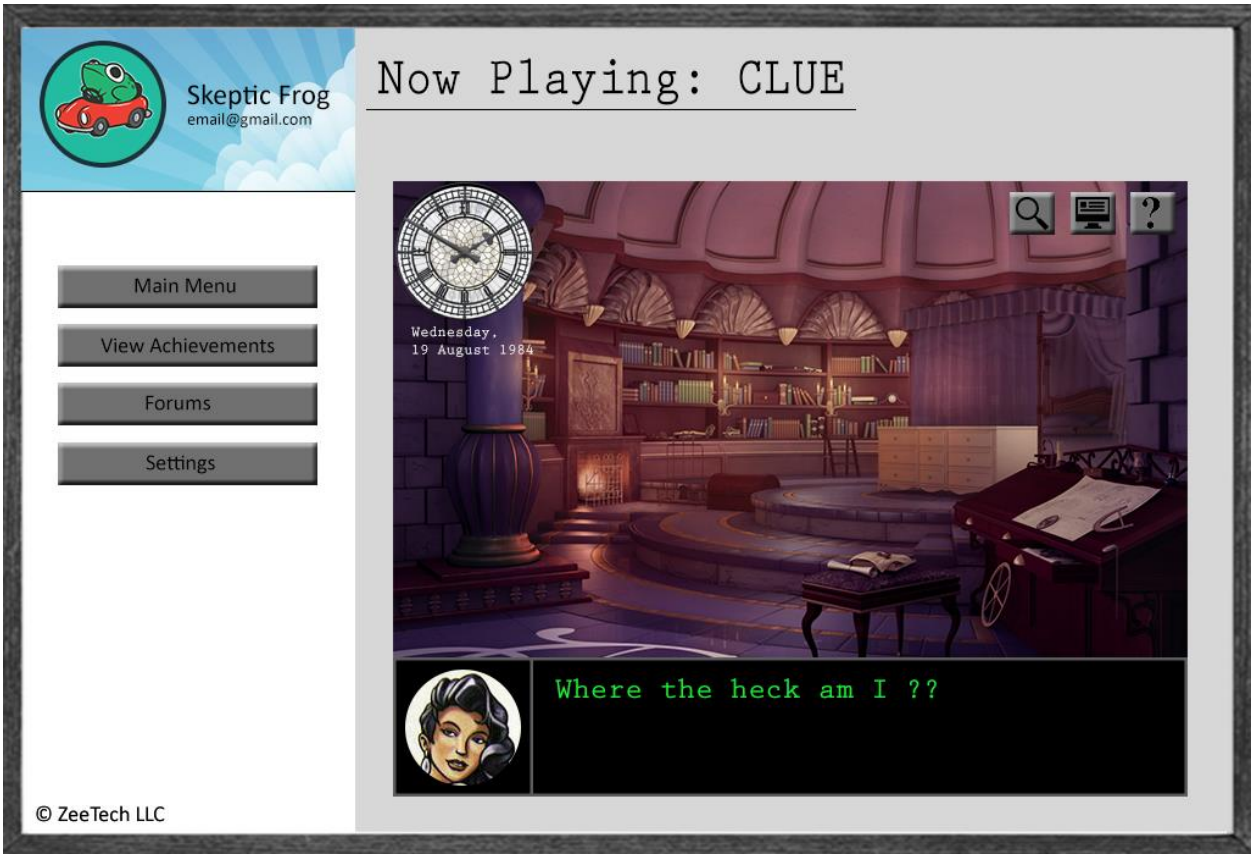
Scene Name
quiz1
Score
IF
Condition
Score
>=
80
T
F
End
Properties

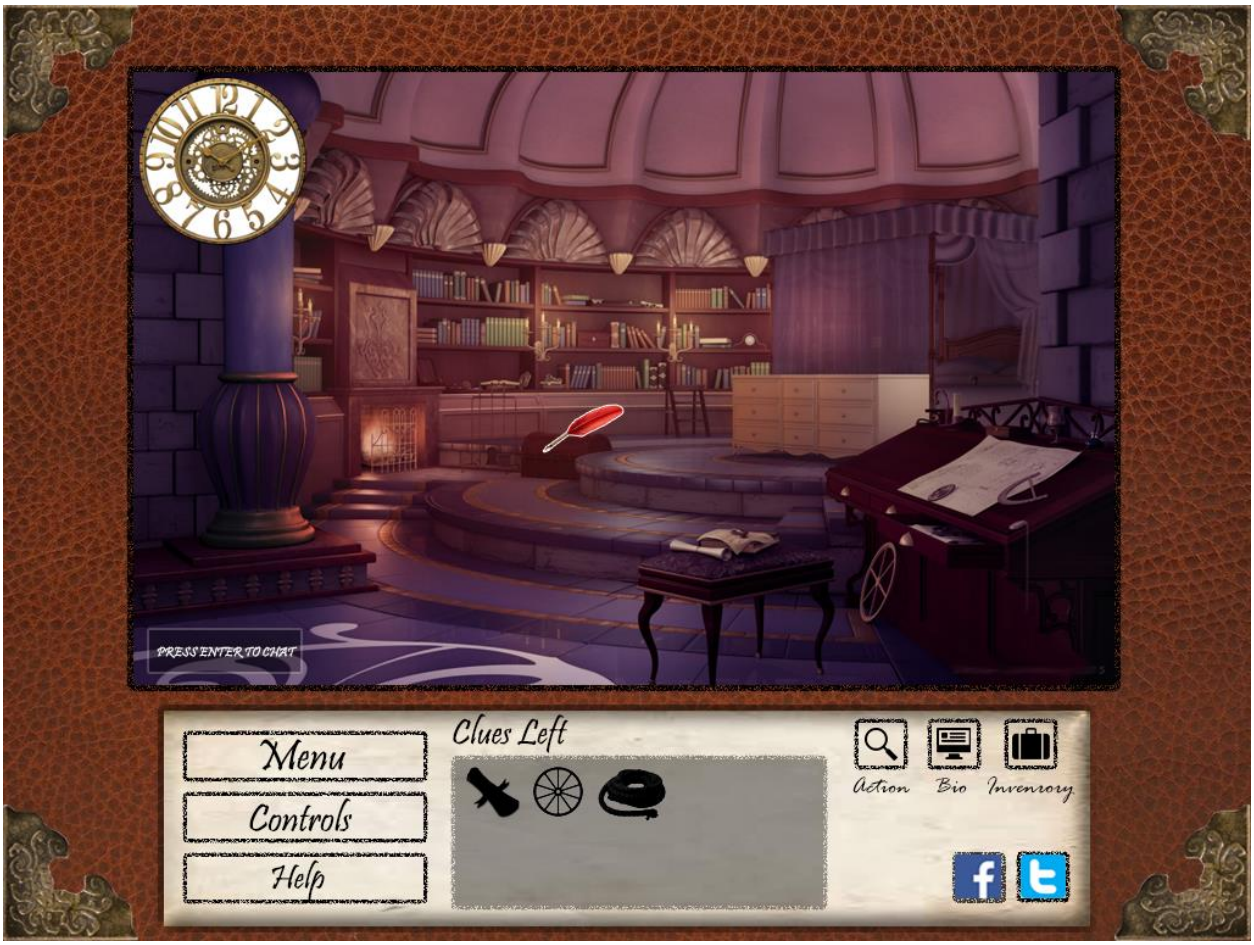

Skeptic Frog
email@gmail.com
Achievements
CLUE
In my restless dreams....
Begin Act 1
20/08/2016
Prologue
Main Menu
View Achievements
Forums
Settings
© ZeeTech LLC


PRESS ENTER TO CHAT
Menu
Controls
Help
Clues Left
Action
Bio
Inventory


Controls
Mouse controls cursor
Left click to examine Object
Arrow keys to pick Dialogue Options
PRESS ENTER TO CHAT
Menu
Controls
Help
Clues Left
Action
Bio
Inventory


Inventory
My phone no signal though
PRESS ENTER TO CHAT
Menu
Controls
Help
Clues Left
Action
Bio
Inventory


Skeptic Frog
email@gmail.com
Now Playing: CLUE
Main Menu
View Achievements
Forums
Settings
Wednesday,
19 August 1984
Where the heck am I ??
© ZeeTech LLC


PRESS ENTER TO CHAT
Menu
Controls
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Clues Left
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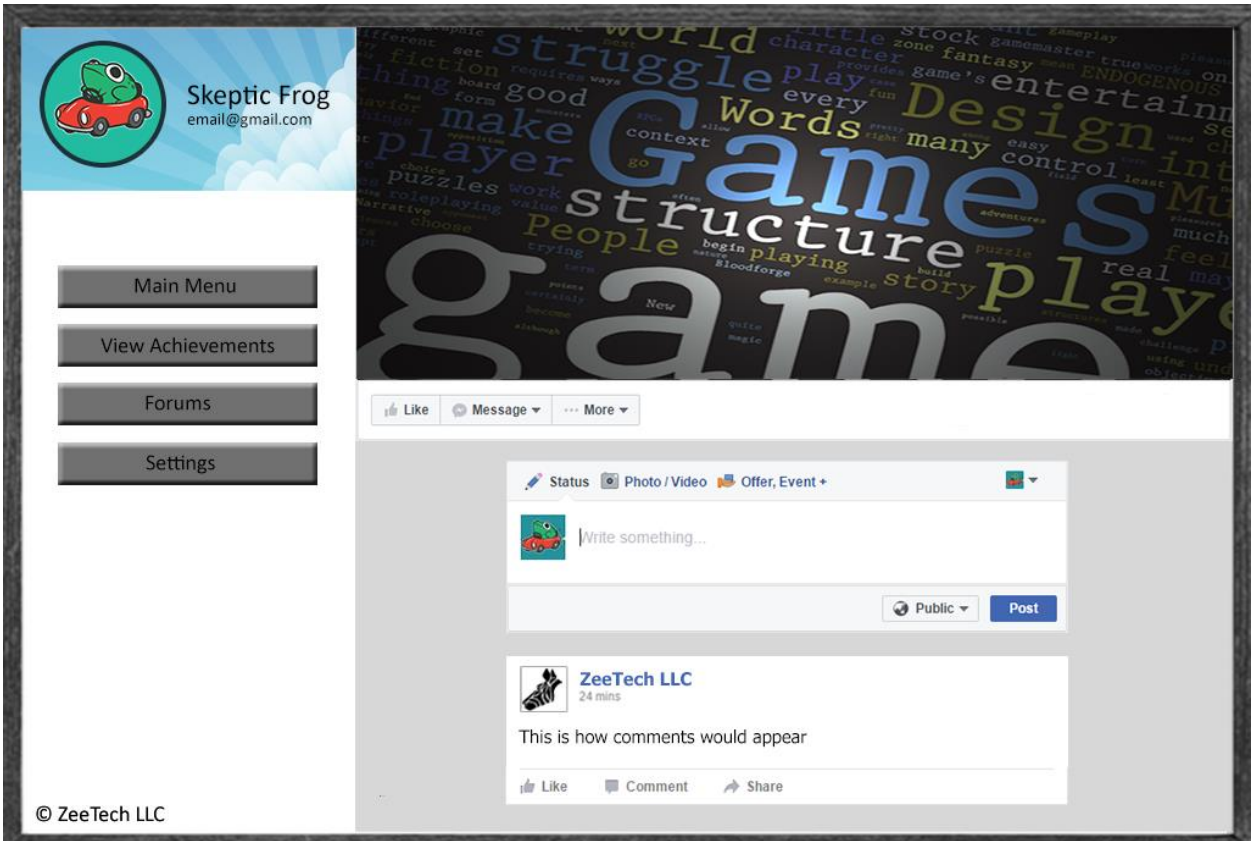
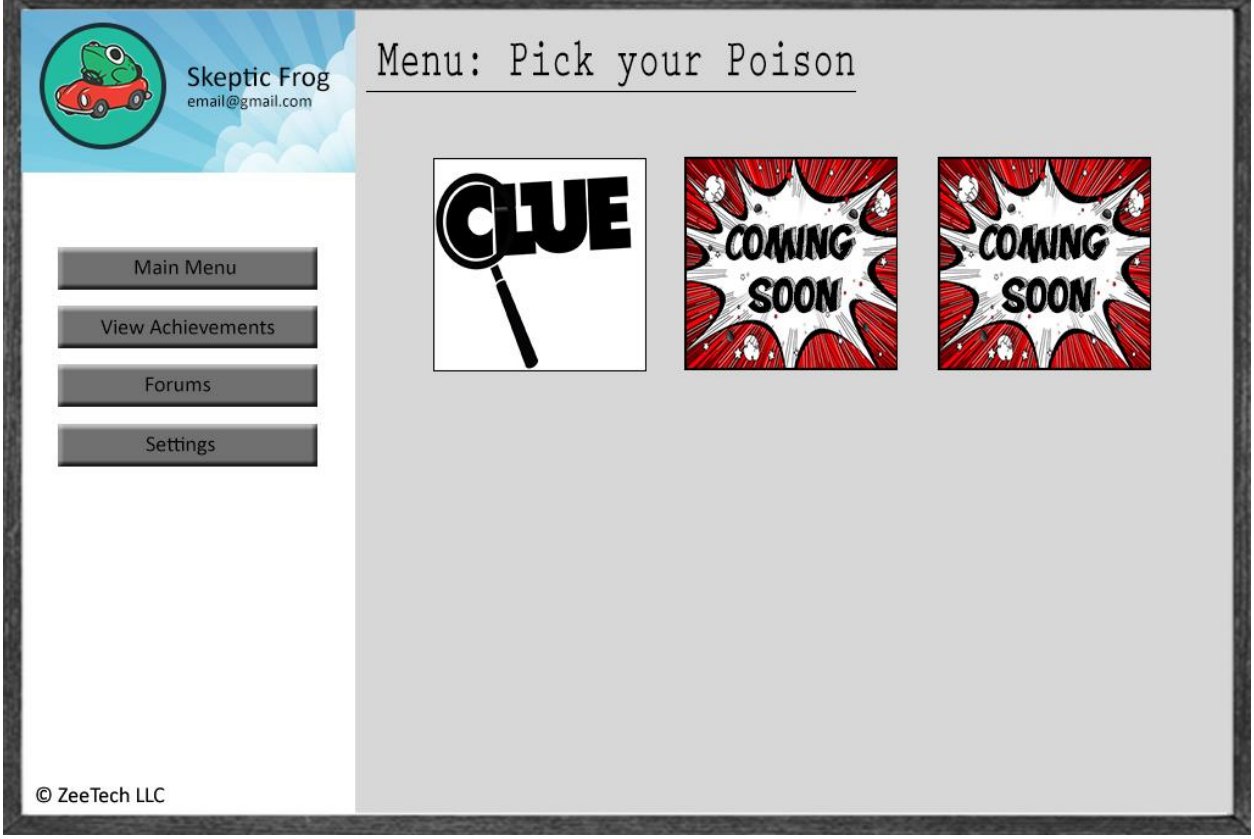

Skeptic Frog
email@gmail.com
Main Menu
View Achievements
Forums
Settings
Like
Message
More
Status
Photo / Video
Offer, Event +
Write something...
Public
Post
ZeeTech LLC
24 mins
This is how comments would appear
Like
Comment
Share
© ZeeTech LLC


Skeptic Frog
email@gmail.com
Main Menu
View Achievements
Forums
Settings
Menu: Pick your Poison
CLUE
COMING SOON
COMING SOON
© ZeeTech LLC