Abstract

This report describes the initial finding, outline proposals, analysis, and design of the new system that will handle order processing, procurement, stock recording, user management, and associated financial routines.

The following are covered by the report:

- Introduction
- Problem Findings
- Requirement of the proposed system (Functional and Non-Functional)
- Functional Requirements
- Design of the proposed system
- System Architecture (Hardware, Software and Network Configuration)
- Benefits
- Constraints and Limitations
- System Analysis and Design (UML)
- Actor Description
- Use case description
- Use case diagram
- Base Use Case Description
- Class Diagram (Design Level)
- Sequence Diagram (System Level)
- Entity Relation Diagram (ERD)
- Detailed Database Design
- Project Schedule (Gantt Chart)
- Conclusion
- Project Log

Table of Content

Abstract **1**

Table of Content **2**

Introduction **3**

Problem Findings **4**

Requirement of the proposed system **5**
- Functional Requirements 5
- Non-Functional Requirements 6

Design of the proposed system **7**
- System Architecture 7
- Benefits 9
- Constraints and Limitations 10
- **System Analysis and Design (UML)** **11**
  - Actor Description 11
  - Use case description 12
  - Use case diagram 17
  - Base Use Case Description 19
  - Class Diagram (Design Level) 37
  - Sequence Diagram (System Level) 38
- Entity Relation Diagram (ERD) 45
- Detailed Database Design 46
- User Interface and Report Design 53

All test cases and test data **87**

User Guide **109**

Conclusion **132**

Project Log **133**

Introduction

HKIVE Game Entertainment is a local based game company in developing online games on Android Mobile Phone Platform. Everyone can download the games from Google Play free of charge. First time player needs to register when activate the game. However, players can buy tools and weapons using virtual money issued by the company. The virtual money can be topped-up by Point Card or by completing some designed tasks when playing the game. Different values of Point Card sealed in plastic bag can be purchased from various convinces stores.

The company currently released two games, namely GSD War Zone and GSD F1 Race. GSD War Zone is a 3D action shooting games on Android platforms. GSD F1 Race is a first person racing game on Android platform. The company expects to release another three games in the coming year.

The management of HKIVE Game Entertainment out-sources this project to an IT firm because the in-house development team is busy in developing the three coming games. Currently, the games have their own game server (database) to store player's information, which should be merged with the newly design database. After the successful launch of the proposed system, the games will connect to the new database every time player start the game. The company expected your company to submit an Analysis and Design Report in Early-June and launch the applications in Early-July.

The aim is to develop a new system that will handle order processing, procurement, stock recording, user management, and associated financial routines.

Problem Findings

- Point Card cannot active
  When player is topping-up balance by point card, if player input the wrong or invalid Point Card ID or active password, the top-up process will stop, and it only can re-active by staff.

- Lack of backup mechanism
  When database exists some errors and problems,which is leading to database cannot run normally. The important data in the database will become outflow.

- Language disability in Greater China market
  After the business entered the Greater China market successfully, the player at that area may feel confused and difficult to play the game. Therefore, language disability may affect the player's interest to the game, and loss the quantity of player in Greater China market.

- Data update delay
  When player topping-up by point card, if the data update is delayed, such as the virtual gold coins update, it will create an illusion to player that the top-up process was failed. As a result, player may get an unhappy experience.

- Lack of communication between player and staff
  When player find some problems or bugs at the game or system, they lacks a path to tell the staff what happen about the problems. Therefore, staff cannot receive and miss the problems, and these will affect the system running.

Requirement of the proposed system

Functional Requirements

Top-up System

The virtual money can be topped-up by Point Card or by completing some designed tasks when playing the game. Different values of Point Card sealed in plastic bag can be purchased from various convinces stores.

Players need to login to topped-up their virtual money through the company website. Each Point Card has a unique ID and an activate code and each Point Card may worth 50, 100 and 200. If a Point Card is not activated within three trails, the Point Card will be suspended and need to be reinstated by the corresponding company staff manually.

Player Interface Function that will allow users to

- Enquire the Game Detail by Name
- View Game Promotion and Point Card information
- Register Player Account
- Enquire Player Information and Game Progress
- Top-up balance by Point Card
- Play Mini game “Lucky Draw”
- View Own Point Card information
- Reflect Problems

System Management Function that will allow users to

- Create Point Card (Customer Service Manager)
- Enquire Point Card Detail
- Maintain Point Card
- Maintain Player Account
- View Player Point Card topped-up History
- Top-up Player account by Point Card (Customer Service Manager)
- Receive Problems

Both Player Interface and System Management Function that will allow users to

- Login
- Forget password

○

Non-Functional Requirements

Development platforms

- Application platform C#.NET.
- Online Player web page ASP.NET.

Compatibility

- The system should be able to support different operating systems, e.g Window, MacOS, Linux.

Effectiveness

- System response time should not exceed three seconds.
- System request should not fail more than 0.001%.

User friendly

- Users can choose different languages, e.g English, Traditional Chinese and Simplified Chinese.
- Provide adequate guidance or teaching to users.
- Clear functional layout.
- Provide user manual, Frequently Asked Questions(FAQ), Questions and Answers(Q&A).

Security

- Password must be six to fifteen alphanumeric characters.
- User data needs to be encrypted when transferring and saving.
- The user account will frozen when you enter the password incorrectly multiple times.

Supportability / Serviceability

- Provide regular updates and maintenance.
- Provide user feedback problems receiving channels.

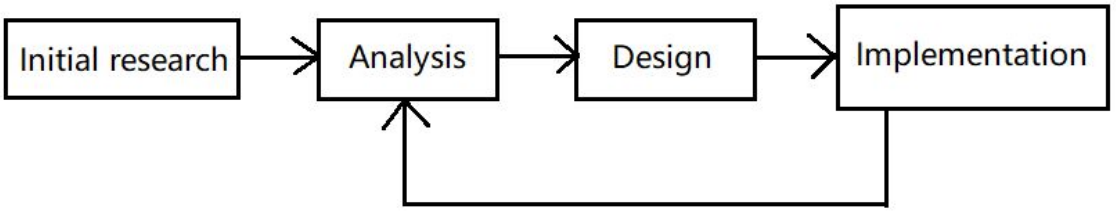
Cultural and political

- The system must not contain images or icons that may be objectionable in any country where the system is used.

Design of the proposed system

System Architecture

Methodology



We use a modified version of the waterfall model.

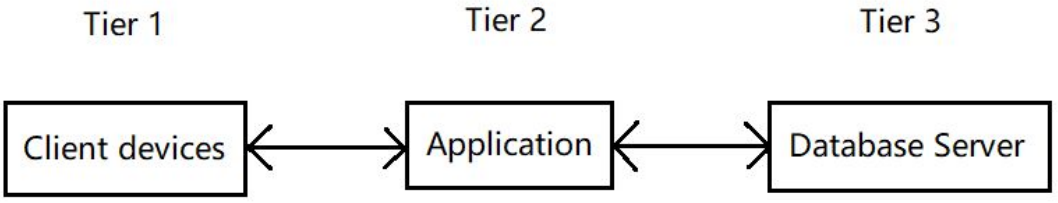
Relative to the traditional waterfall model, you can see the prototype of the system in a short time.

The development pace is faster, which can meet the needs of the rapid changes in the needs of today's social users.

Hardware and Software

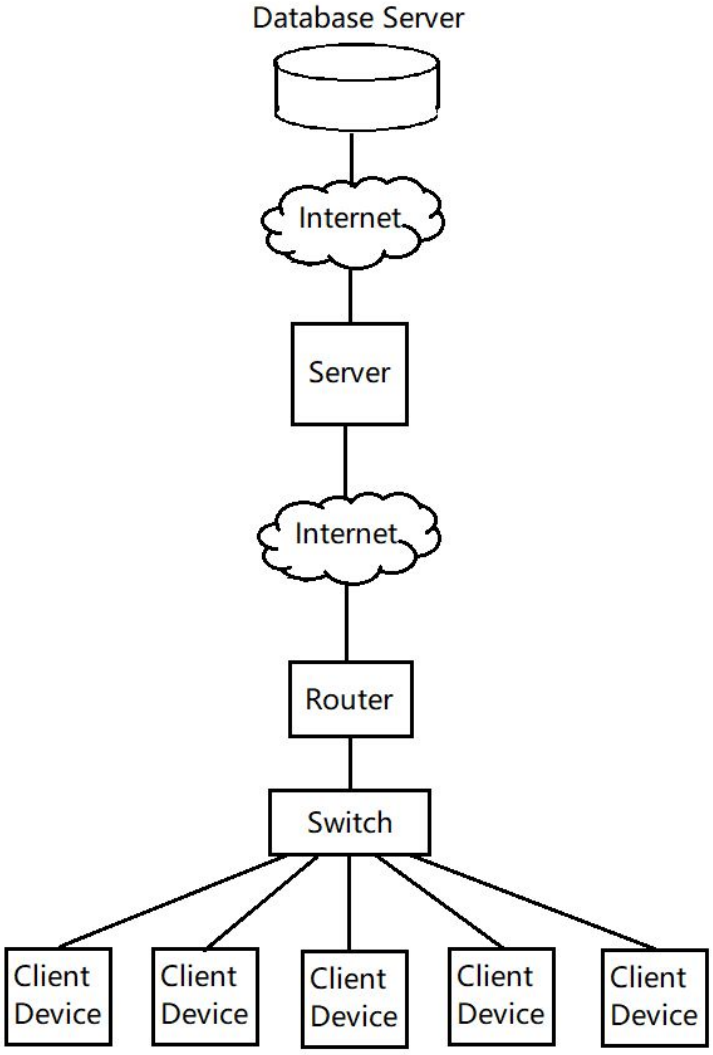
For the system architecture, we use three-tiered architecture (client-server).

A three-tier client/server is a multi-tier computing architecture in which the entire application is distributed across three different computing layers or layers. It will mean that the application logic and data processing layers are divided into client and server devices.



For Software, we use C# as the programming language, Visual Studio 2017 to be IDE and Microsoft Office Access to be DBMS.

Network Configuration



Benefits

To solve the language disability in Greater China market, we will provide a language translate function to player, which the player can translate the words from english to their readable language. It is believed that the quantity of player will increase after adding such user-friendly function.

To solve the lack of communication between player and staff, we will provide problem reflect and problem receive function. For the former, player can report the problem finding in the function, such as what and when player find the bug or problem. For the latter, staff can receive player's report in the function, and then provide some solutions to player, in order to tackle the problem. Moreover, player can see the improvement after solving the problem.

To solve the major problem, lack of backup mechanism, we will provide relative backup mechanisms, to prevent the data outflow.

Overall, the system will provide language translate, problem report, problem receive functions and relative backup mechanisms.

Constraints and Limitations

- Virtual Gold Coins of Point Card are less and fixed
- Chance of Increasing the Virtual Gold Coins is fixed
- The company only provide English
- Only the corresponding staff can reinstate the suspend Point Card
- The company will provide a stable network connection
- The company will provide a stable power supply
- The server database may not have enough storage space to save data
- Different window version of computer may affect the system executing
- The new system and server may not compatible
- The budget of development may not enough

System Analysis and Design (UML)

Actor Description

Actor specification	
Actor name:	Player
Description:	The player is those who are using the system to enquire the game detail by name, view game promotion and point card information and top-up balance by point card. Moreover, they can play mini game “Lucky Draw”.

Actor specification	
Actor name:	Staff
Description:	The person who are working for the company. He can use the system to enquire point card detail and view player point card topped-up history.

Actor specification	
Actor name:	Customer Service Manager
Description:	Staff with higher authority, He can do anything that staff can do. In addition, he can create point card and top-up player account by point card.

Use case description

User Case Name:	Enquire the Game Detail
User Case ID:	UC-100
Actor:	Player
Description:	The player can enquire the game detail, player need to input game name for search, and login before. The system shows the game details. Include the introduction and gameplay information.

User Case Name:	View Game Promotion and Point Card information
User Case ID:	UC-200
Actor:	Player
Description:	The player can view the game promotion and the overview of point card.

User Case Name:	Register Player Account
User Case ID:	UC-300
Actor:	Player
Description:	The player can register player account, player account is formed by eight alphanumeric characters with a password is six to fifteen alphanumeric characters. Player need to input account name, password and email. Then player can login to use advance function of the system.

User Case Name:	Enquire Player Information and Game Progress
User Case ID:	UC-400
Actor:	Player
Description:	The player can enquire player information and game progress, player need to login before.

User Case Name:	Top-up balance by Point Card
User Case ID:	UC-500
Actor:	Player
Description:	The Player can top-up balance by Point Card, player need to input Point Card ID, Point Card activate password, and login before.

User Case Name:	Play Mini game “Lucky Draw”
User Case ID:	UC-600
Actor:	Player
Description:	The game generates a random number between one and ten. Player needs to guess whether the secret number is greater than number five or not. When the guess is correct, the player will has a lucky draw.

User Case Name:	Create Point Card
User Case ID:	UC-700
Actor:	Customer Service Manager
Description:	Only Customer Service Manager can generate new Point Cards that will sell in convenience stores. The generate Point Card UI allow manager to input the quantity and retail value of the Point Card to be generated.

User Case Name:	Enquire Point Card Detail
User Case ID:	UC-800
Actor:	Staff
Description:	The staff can enquire Point Card detail, staff need to input Point Card ID and login before.

User Case Name:	Maintain Point Card
User Case ID:	UC-900
Actor:	Staff
Description:	The staff can maintain point card, staff need to input Point Card ID and login before.

User Case Name:	Maintain Player Account
User Case ID:	UC-1000
Actor:	Staff
Description:	The staff can maintain player account, staff need to input player account and login before.

User Case Name:	View Player Point Card topped-up History
User Case ID:	UC-1100
Actor:	Staff
Description:	The staff can view player Point Card topped-up history, staff need to input player account and login before.

User Case Name:	Top-up Player account by Point Card
User Case ID:	UC-1200
Actor:	Customer Service Manager
Description:	Only Customer Service Manager can top-up Player account by Point Card, Customer Service Manager need to input Point Card ID and login before.

User Case Name:	Translate Language
User Case ID:	UC-1300
Actor:	Player
Description:	Player can translate the words to their readable language, system will support English, Traditional Chinese and Simplified Chinese.

User Case Name:	View Own Point Card information
User Case ID:	UC-1400
Actor:	Player
Description:	The player can view the Point Card information, player need to input Point Card ID, Point Card activate password, and login before.

User Case Name:	Reflect Problems
User Case ID:	UC-1500
Actor:	Player
Description:	Player can reflect some problems to staff when they found some bugs or problems in game or topping-up balance by point card.

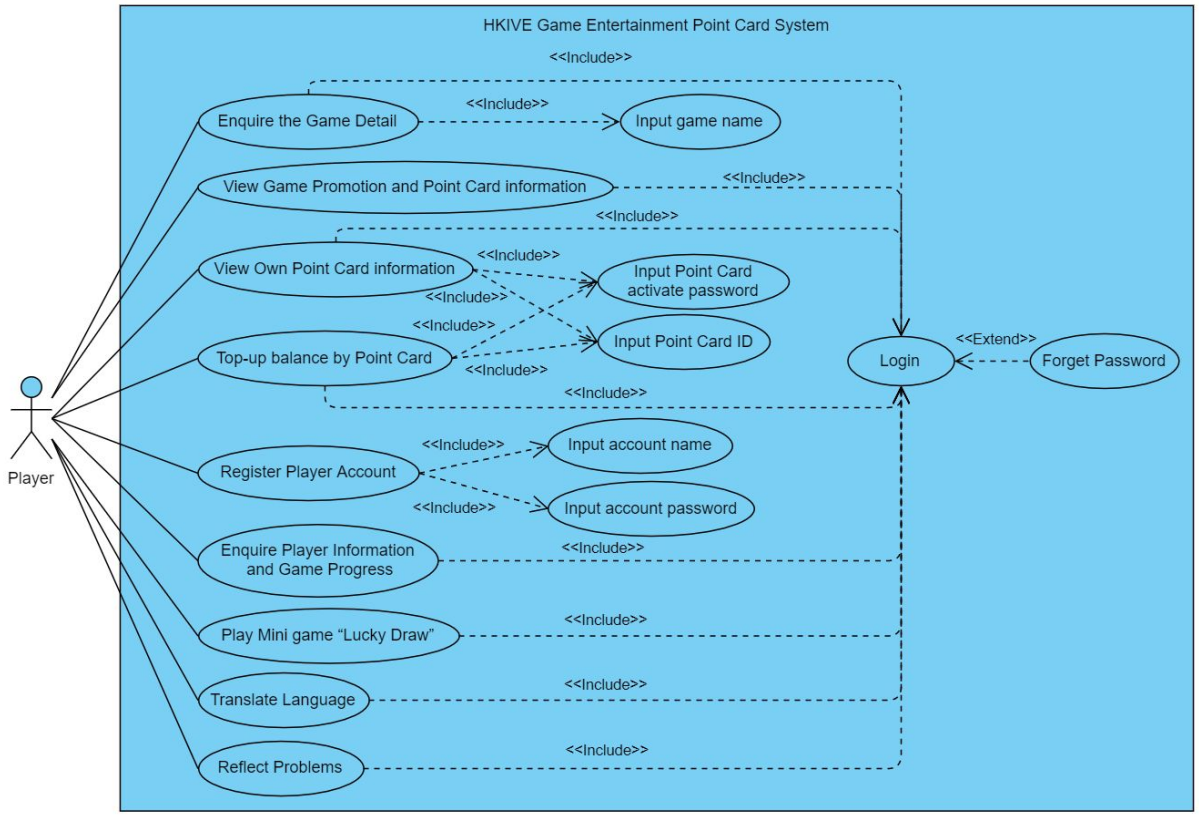
User Case Name:	Receive Problems
User Case ID:	UC-1600
Actor:	Staff
Description:	Staff would receive the problem by player's reflection and staff can notify the player for each problem report.

User Case Name:	Login
User Case ID:	UC-1700
Actor:	Player, Staff, Customer Service Manager
Description:	The player, staff and Customer Service Manager can login by enter the corresponding account password. They can use system function after login.

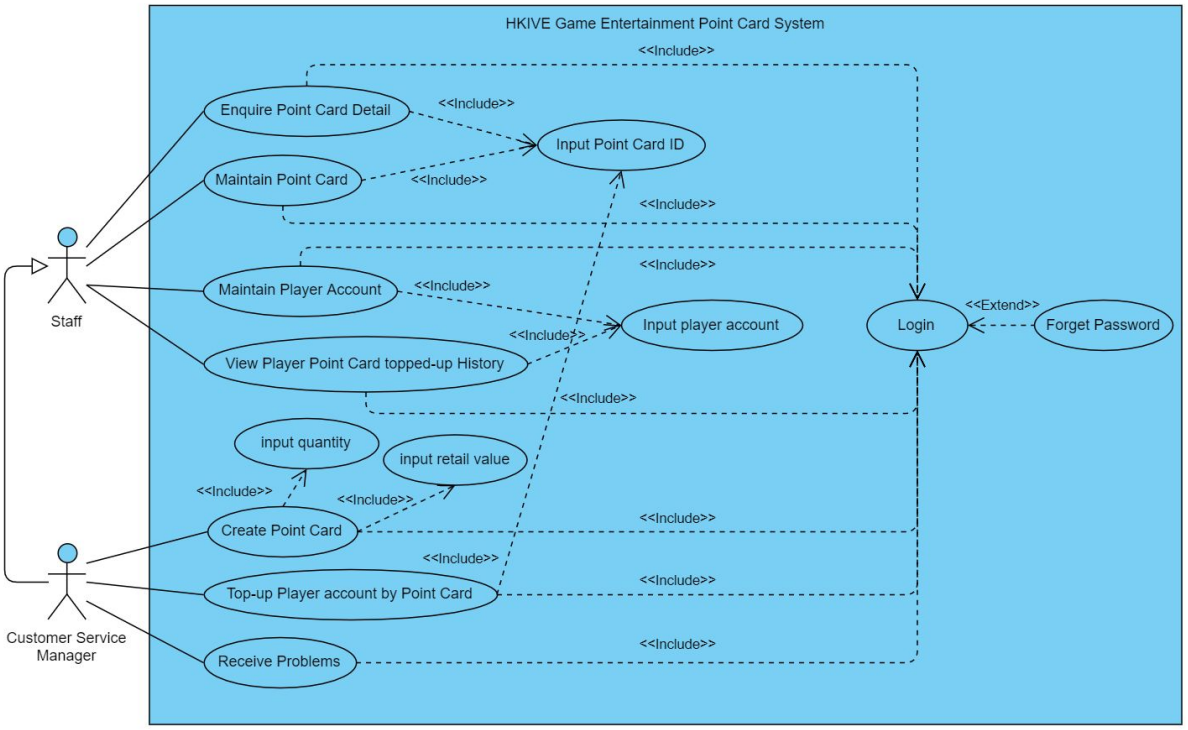
User Case Name:	Forget Password
User Case ID:	UC-1800
Actor:	Player, Staff, Customer Service Manager
Description:	The player, staff and Customer Service Manager can enter relevant information to find the corresponding account password.

Use case diagram

Player



Staff and Customer Service Manager



Base Use Case Description

Use case name:	Enquire the Game Detail
Use case ID:	UC-100
Primary actor:	Player
Secondary actor(s):	/
Brief description:	The player can enquire the game detail, player need to input game name for search, and login before.
Preconditions:	The player has logged in to the system.
Flow of events:	1.The player navigates to the system and clicks on the “Enquire the Game Detail” button. The system will ask for player to input the game name. 2.The player input the game name. 3.The system shows the game details. Include the introduction and gameplay information.
Postconditions:	/
Alternative flows:	/
Exceptions:	In step 3, if the system cannot find the corresponding game name in the database, system will display the “game not found” message.
Non-behavior requirements:	/
Assumptions:	/
Issue:	/
Source:	/

Use case name:	View Game Promotion and Point Card information
Use case ID:	UC-200
Primary actor:	Player
Secondary actor(s):	/
Brief description:	The player can view the game promotion and the overview of point card.
Preconditions:	The player has logged in to the system.
Flow of events:	1.The player navigates to the system and clicks on the “Game Promotion” button. 2.The system will display promotion of the games. Such as the discount of game items, top-up discount of games. The system will also show the worth of point card.
Postconditions:	/
Alternative flows:	/
Exceptions:	/
Non-behavior requirements:	/
Assumptions:	/
Issue:	/
Source:	/

Use case name:	Register Player Account
Use case ID:	UC-300
Primary actor:	Player
Secondary actor(s):	/
Brief description:	The player can register player account, player need to input account name, password and email. Then player can login to use advance function of the system.
Preconditions:	Prepare account name, password and email.
Flow of events:	1. The player navigates to the system and clicks on the “Register Player Account” button. 2. The system will ask player to input account name, password and email. 3. Player input account name, password and email. 4. The system update the database according player input.
Postconditions:	/
Alternative flows:	/
Exceptions:	In step 3, player account is formed by eight alphanumeric characters with a password is six to fifteen alphanumeric characters, if player input the invalid account and password, the flow will back to step 2, let player to input again.
Non-behavior requirements:	/
Assumptions:	/
Issue:	/
Source:	/

Use case name:	Enquire Player Information and Game Progress
Use case ID:	UC-400
Primary actor:	Player
Secondary actor(s):	/
Brief description:	The player can enquire player information and game progress, player need to login before.
Preconditions:	The player has logged in to the system.
Flow of events:	1.The player navigates to the system and clicks on the “Check Player Information and Game Progress” button. 2.The system shows the game details of the player, include the game progress, the game items and the topped-up informations.
Postconditions:	/
Alternative flows:	/
Exceptions:	/
Non-behavior requirements:	/
Assumptions:	/
Issue:	/
Source:	/

Use case name:	Top-up balance by Point Card
Use case ID:	UC-500
Primary actor:	Player
Secondary actor(s):	/
Brief description:	The Player can top-up balance by Point Card, player need to input Point Card ID, Point Card activate password, and login before.
Preconditions:	The player has logged in to the system.
Flow of events:	1.The player navigates to the top-up system. And click “Top-up” button. 2. The system require player input Point Card ID, Point Card activate password. 3.The player input point card unique ID and activate password. 4. The system top-up balance to user account according to the value of the Point Card.
Postconditions:	/
Alternative flows:	In step 4, if top-up value is HK$100 or HK$200, The system will navigate to the “Play Mini game “Lucky Draw” “ Part.
Exceptions:	In step 3, if the point card ID and activate password are not valid, the top-up processes will stop. The system will back to step 2 and let player input again.
Non-behavior requirements:	/
Assumptions:	/
Issue:	/
Source:	/

Use case name:	Play Mini game “Lucky Draw”
Use case ID:	UC-600
Primary actor:	Player
Secondary actor(s):	/
Brief description:	The game generates a random number between one and ten. Player needs to guess whether the secret number is greater than number five or not. When the guess is correct, the player will has a lucky draw.
Preconditions:	The player has logged in to the system, and player top-up Point Card with HK$100 or HK$200.
Flow of events:	1.The system will give different “Mini game “Lucky Draw”” times according to the corresponding top-up value. 2.The game generates a random number between one and ten. The player needs to guess whether the secret number is greater than number five or not. 3.When the guessing is correct, the player will has a lucky draw. 4. According to the results of the lucky draw, it is decided to increase the value of virtual gold.
Postconditions:	/
Alternative flows:	In step 1, If user top-up value is $100, the system will give user one Lucky Draw. If user top-up value is $200, the system will give user two Lucky Draw. In step 3, If the guessing is incorrect, the game is end. In step 4, the chance of increasing 10%, 20%, 50%, 100% of topped-up Virtual Gold Coins is 0.5, 0.3, 0.15, 0.05 respectively.
Exceptions:	/
Non-behavior requirements:	/
Assumptions:	/
Issue:	/
Source:	/

Use case name:	Create Point Card
Use case ID:	UC-700
Primary actor:	Customer Service Manager
Secondary actor(s):	/
Brief description:	Only Customer Service Manager can generate new Point Cards that will sell in convenience stores.
Preconditions:	The customer service manager has logged in to the system.
Flow of events:	1.The Customer Service Manager navigates to the system. And click “Create Point Card” button. 2. The system require user to input the quantity and retail value of the Point Card. 3. Customer Service Manager Input the quantity and retail value of the Point Card. 2.New Point Cards list is then printed and sent to sales department for making the Point Card package.and newly generated Point Card information will add to database for player topped-up process.
Postconditions:	/
Alternative flows:	/
Exceptions:	In step 1, if customer service manager input the invalid (eg. negative number) quantity and retail value, the generate Point Card UI will send an error message to manager and tell manager to input again.
Non-behavior requirements:	/
Assumptions:	/
Issue:	/
Source:	/

Use case name:	Enquire Point Card Detail
Use case ID:	UC-800
Primary actor:	Staff
Secondary actor(s):	/
Brief description:	The staff can enquire Point Card detail, staff need to input Point Card ID and login before.
Preconditions:	The player has logged in to the system.
Flow of events:	1.The staff navigates to the system and click the “Enquire Point Card Detail” button. The system will ask for Point Card ID. 2.Staff then input the Point Card ID. 2.Then system shows the point card details to the staff, such as the date and time of point card production and the status of the point card that it is active or inactive.
Postconditions:	/
Alternative flows:	/
Exceptions:	/
Non-behavior requirements:	/
Assumptions:	/
Issue:	/
Source:	/

Use case name:	Maintain Point Card
Use case ID:	UC-900
Primary actor:	Staff
Secondary actor(s):	/
Brief description:	The staff can maintain point card, staff need to input Point Card ID and login before.
Preconditions:	The staff has logged in to the system.
Flow of events:	1.The staff navigates to the system and click the “Maintain Point Card” button. The system will ask for Point Card ID. 2.Staff then input the Point Card ID. 3. The system will display the Point Card information and allow the staff to change or modify the Point Card status or information.
Postconditions:	/
Alternative flows:	/
Exceptions:	In step 3, if system can not find the Point Card ID in the database according the staff input, the system will diaplay error message “Point Card ID is not find” and let staff to input Point Card ID again.
Non-behavior requirements:	/
Assumptions:	/
Issue:	/
Source:	/

Use case name:	Maintain Player Account
Use case ID:	UC-1000
Primary actor:	Staff
Secondary actor(s):	/
Brief description:	The staff can maintain player account, staff need to input player account name and login before.
Preconditions:	The player has logged in to the system.
Flow of events:	1.The staff navigates to the system and click the “Maintain Player Account” button. The system will ask for player account name. 2.Staff then input the player account name. 3. The system will display the player information and allow the staff to change or modify the player status or information.
Postconditions:	/
Alternative flows:	/
Exceptions:	In step 2, player account is formed by eight alphanumeric characters, if staff input the invalid account name, system will let staff to input again. In step 3, if system can not find the player account in the database according the staff input, the system will display error message “player account is not find” and let staff to input player account again.
Non-behavior requirements:	/
Assumptions:	/
Issue:	/
Source:	/

Use case name:	View Player Point Card topped-up History
Use case ID:	UC-1100
Primary actor:	Staff
Secondary actor(s):	/
Brief description:	The staff can view player Point Card topped-up history, staff need to input player account number and login before.
Preconditions:	The staff has logged in to the system.
Flow of events:	1.The staff navigates to the system and click the “View Player Point Card topped-up History” button. The system will ask for player account number. 2.Staff then input player account number. 3.The system shows the player point card topped-up history, which is including the topped-up time, date, value and price of the point card.
Postconditions:	/
Alternative flows:	/
Exceptions:	In step 2, player account is formed by eight alphanumeric characters, if staff input the invalid account name, system will let staff to input again.
Non-behavior requirements:	/
Assumptions:	/
Issue:	/
Source:	/

Use case name:	Top-up Player account by Point Card
Use case ID:	UC-1200
Primary actor:	Customer Service Manager
Secondary actor(s):	/
Brief description:	Only Customer Service Manager can top-up Player account by Point Card, Customer Service Manager need to input Point Card ID and login before.
Preconditions:	The customer service manager has logged in to the system.
Flow of events:	1.The manager navigates to the system and click the “Top-up Player account by Point Card” button. The system will ask for related information (player account number and Point Card ID). 2.Manager then input the player account number and Point Card ID. 3.After system verify the input data is correct, the process of top-up player account by point card is successful.
Postconditions:	/
Alternative flows:	/
Exceptions:	In step 2, player account is formed by eight alphanumeric characters, if staff input the invalid account name, system will let staff to input again. In step 3, if system can not find the player account or Point Card ID in the database according the manager input, the system will display error message and let Manager to input player account again.
Non-behavior requirements:	/
Assumptions:	/
Issue:	/
Source:	/

Use case name:	Translate Language
Use case ID:	UC-1300
Primary actor:	Player
Secondary actor(s):	/
Brief description:	Player can translate the words to their readable language, system will support English, Traditional Chinese and Simplified Chinese.
Preconditions:	The player has logged in to the system.
Flow of events:	1.The player navigates to the system and click the “Translate language” button.Then system will shows “English”, “Traditional Chinese” and “Simplified Chinese” three choices to player. 2.Player choose a language. 3. The system display language will be changed according to the player's choice.
Postconditions:	/
Alternative flows:	/
Exceptions:	/
Non-behavior requirements:	/
Assumptions:	/
Issue:	/
Source:	/

Use case name:	View Own Point Card information
Use case ID:	UC-1400
Primary actor:	Player
Secondary actor(s):	/
Brief description:	The player can view the Point Card information, player need to input Point Card ID, Point Card activate password, and login before.
Preconditions:	The player has logged in to the system.
Flow of events:	1..The player navigates to the system and click the “View Own Point Card information” button. 2. The system require player to input Point Card ID and Point Card activate password. 3. Player input the Point Card ID and Point Card activate password. 4. The system will display the Point Card information, including the value, purchase time.
Postconditions:	/
Alternative flows:	/
Exceptions:	In step 4, if Point Card ID and Point Card activate password is incorrect, the system will display error message and let player to input again.
Non-behavior requirements:	/
Assumptions:	/
Issue:	/
Source:	/

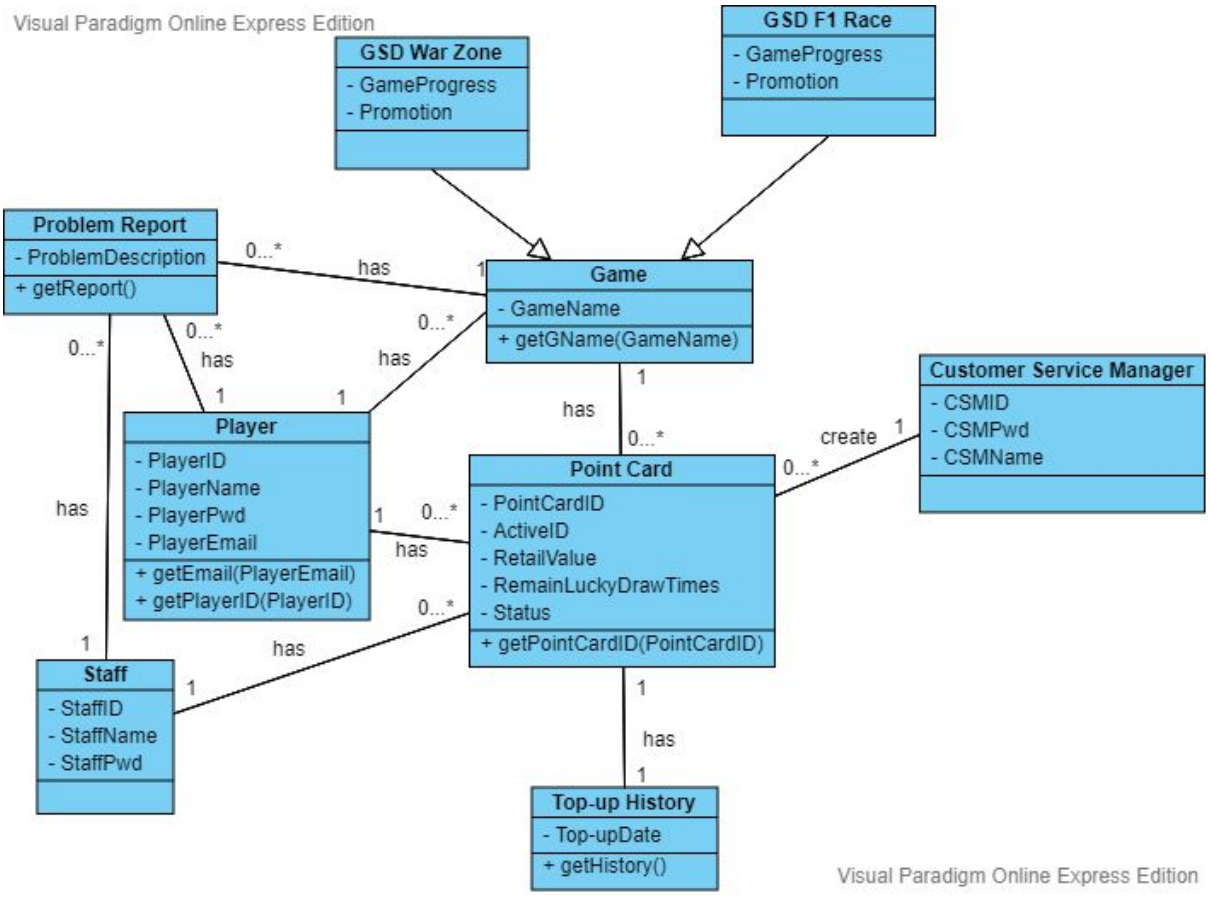
Use case name:	Reflect Problems
Use case ID:	UC-1500
Primary actor:	Player
Secondary actor(s):	/
Brief description:	Player can reflect some problems to staff when they found some bugs or problems in game or topping-up balance by point card.
Preconditions:	The player has logged in to the system.
Flow of events:	1. The player navigates to the system and click the “Reflect Problems” button.Then system will display a new report form to player. 2. Player input the problems detail, such as problem information, happen time and date. 3. Then player submit the report form, system will receive the problem report and add to the database.
Postconditions:	/
Alternative flows:	/
Exceptions:	In step 2, if player input the invalid data, such as invalid time and data, the system will display the error message and let player to input again.
Non-behavior requirements:	/
Assumptions:	/
Issue:	/
Source:	/

Use case name:	Receive Problems
Use case ID:	UC-1600
Primary actor:	Staff
Secondary actor(s):	/
Brief description:	Staff would receive the problem by player's reflection and staff can notify the player for each problem report.
Preconditions:	The player has logged in to the system.
Flow of events:	1.The staff navigates to the system and click the "Receive Problems" button. 2. Then system will display the list of problem reports by player. 3. The Staff notify the player for each problem report.
Postconditions:	/
Alternative flows:	/
Exceptions:	/
Non-behavior requirements:	/
Assumptions:	/
Issue:	/
Source:	/

Use case name:	Login
Use case ID:	UC-1700
Primary actor:	Player, Staff, Customer Service Manager
Secondary actor(s):	/
Brief description:	The player, staff and Customer Service Manager can login by enter the corresponding account password. They can use system function after login.
Preconditions:	Player, Staff, Customer Service Manager should prepare their account name and password.
Flow of events:	1. player, staff and Customer Service Manager select the corresponding login interface. 2. Enter the corresponding account and password 3. Login success and navigate to main function selection interface.
Postconditions:	/
Alternative flows:	In Step 2, if user forget their password, they can click the “Forget Password” button and navigate to the forget password interface.
Exceptions:	In Step 2, if user input the invalid account and password, system will display the error message and let user to input corresponding account and password again.
Non-behavior requirements:	/
Assumptions:	/
Issue:	/
Source:	/

Use case name:	Forget Password
Use case ID:	UC-1800
Primary actor:	Player
Secondary actor(s):	Staff, Customer Service Manager
Brief description:	The player, staff and Customer Service Manager can enter relevant information to find the corresponding account password.
Preconditions:	Player, Staff, Customer Service Manager forget their password.
Flow of events:	1.The player navigates to the system and click the “Forget Password” button. 2.The system require player, staff and manager to input their account name and email. 3.User input their account name and email. 4.After system verified the email is correct, system will ask user to create a new password. 5.User input a new password. 6.New password is created and system will update it to database.
Postconditions:	/
Alternative flows:	/
Exceptions:	In step 4, if system verified the email is incorrect, system will tell user to input a new email again.
Non-behavior requirements:	/
Assumptions:	/
Issue:	/
Source:	/

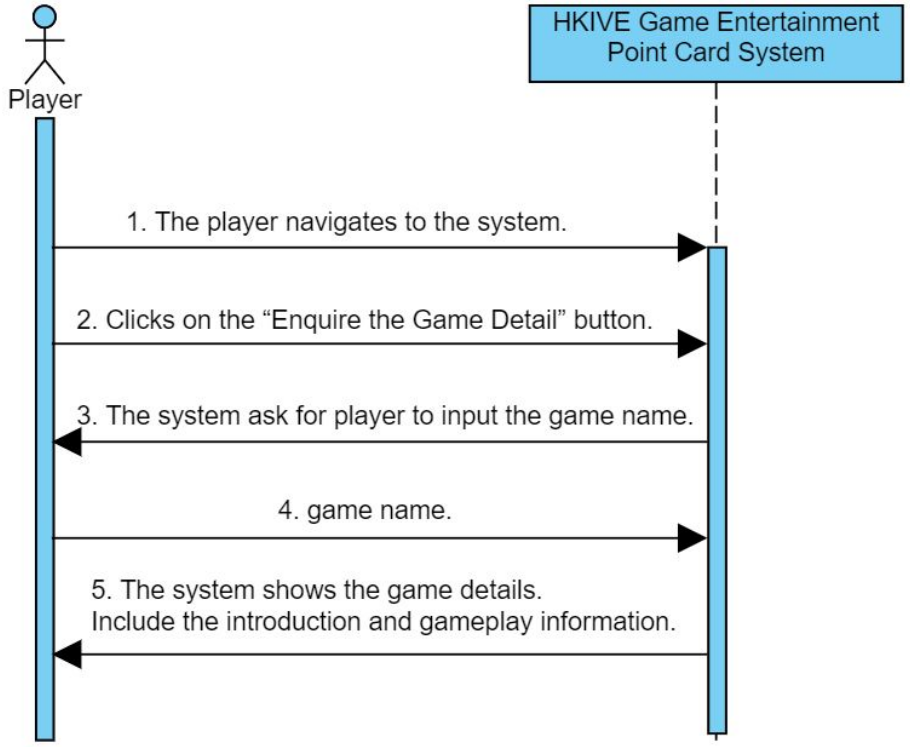
Class Diagram (Design Level)



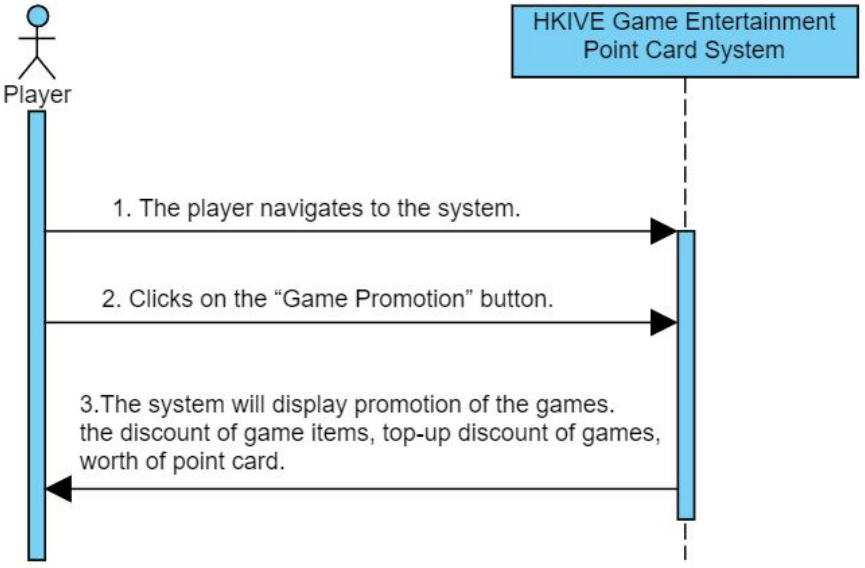
■
■
■
■
■

Sequence Diagram (System Level)

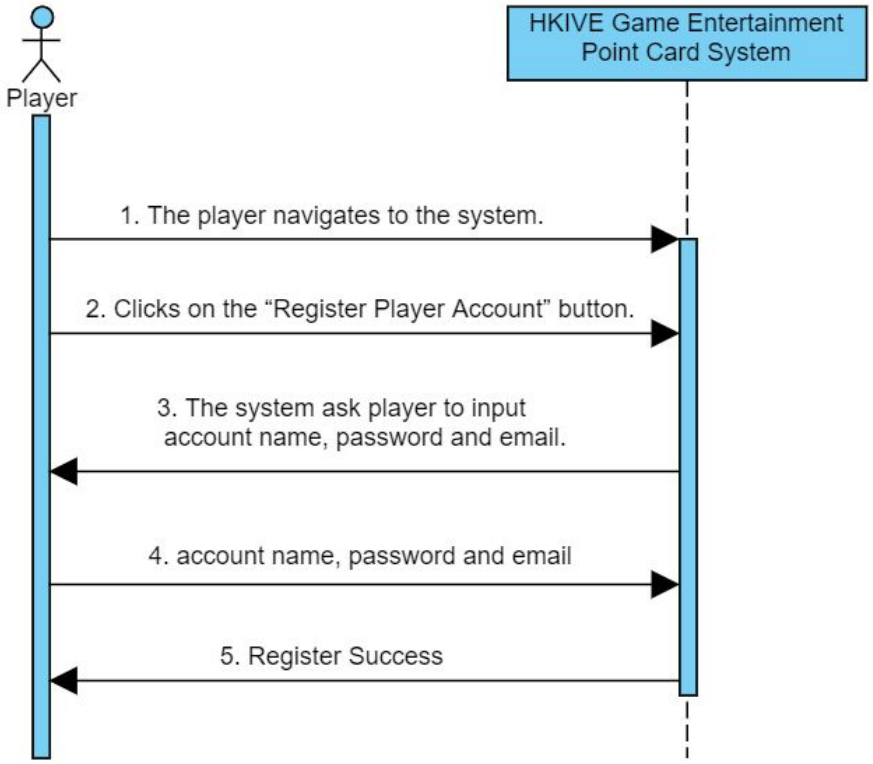
Enquire the Game Detail



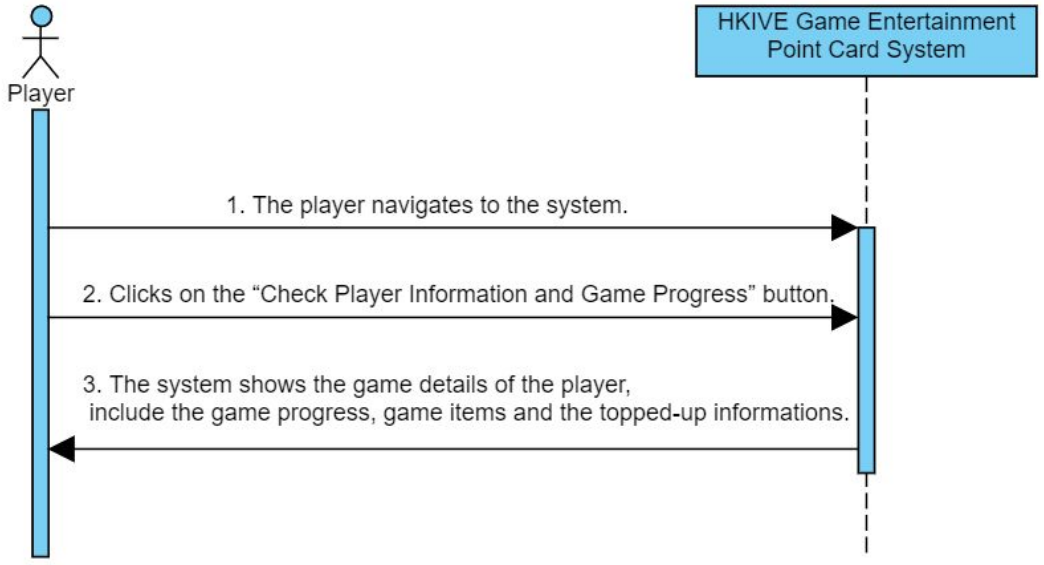
View Game Promotion and Point Card information



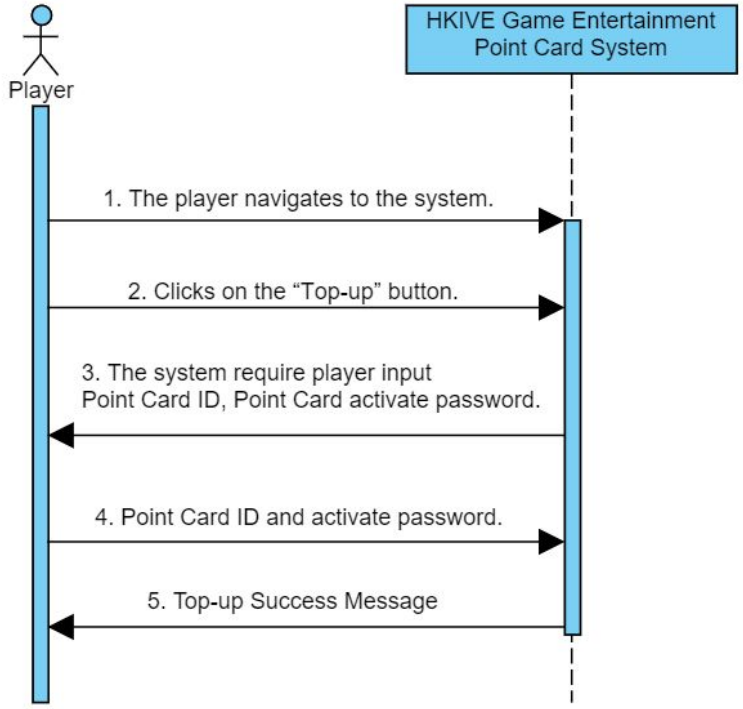
Register Player Account



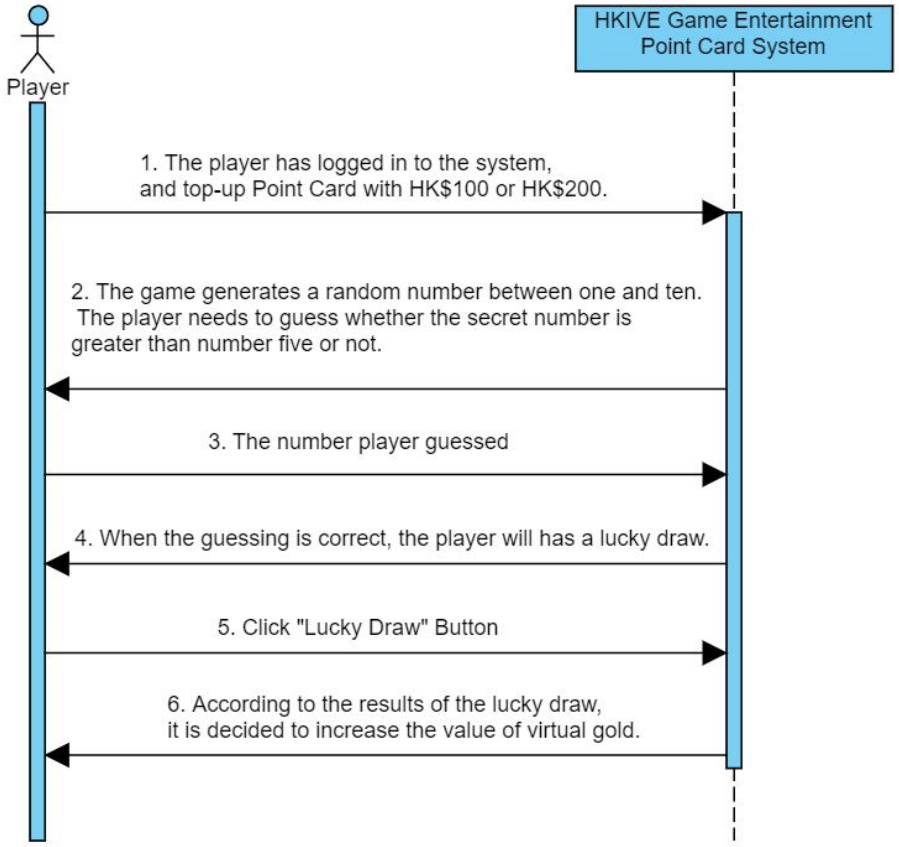
Enquire Player Information and Game Progress



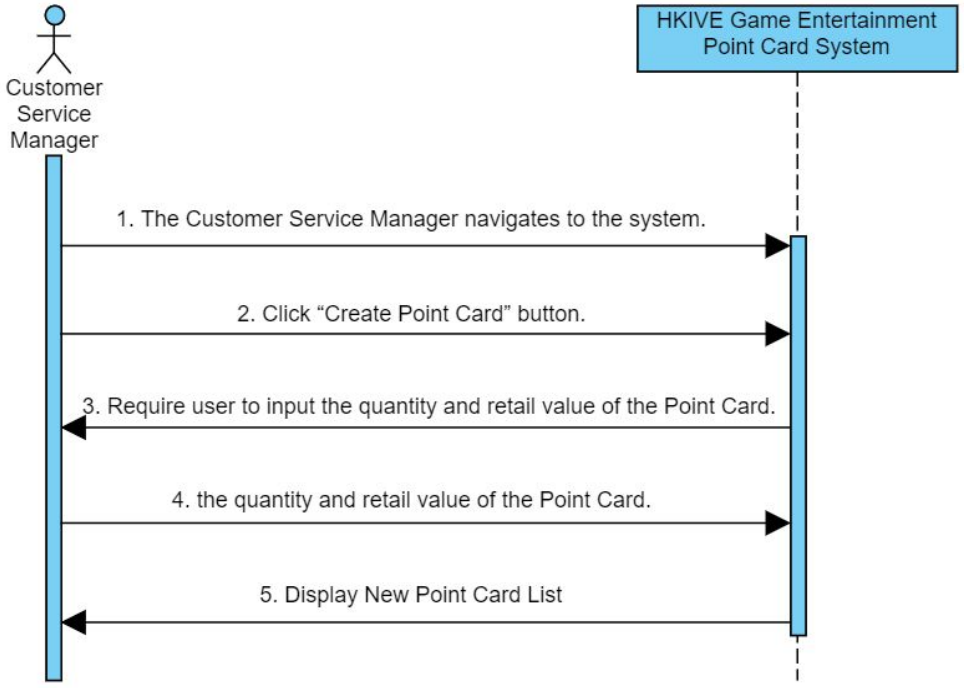
Top-up balance by Point Card



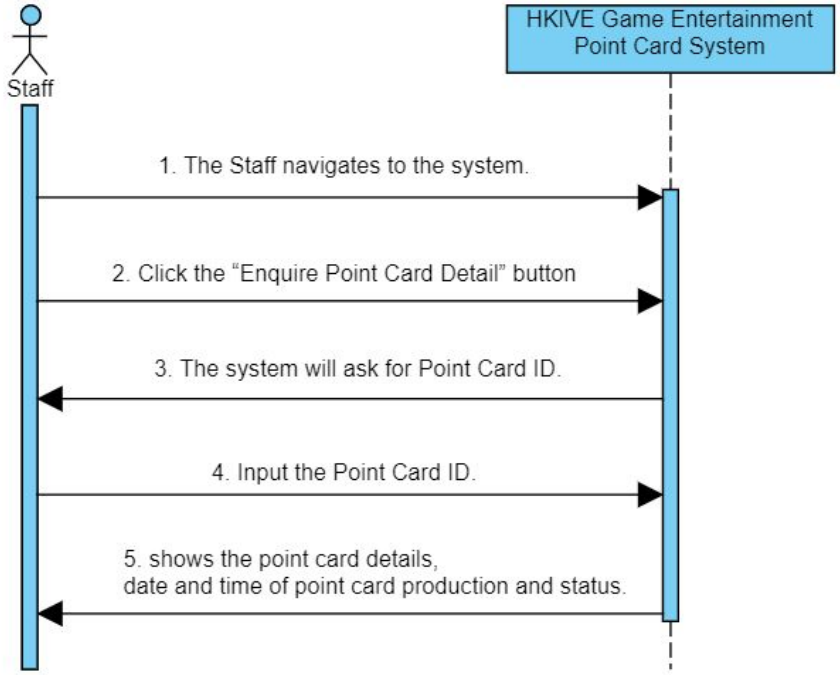
Play Mini game “Lucky Draw”



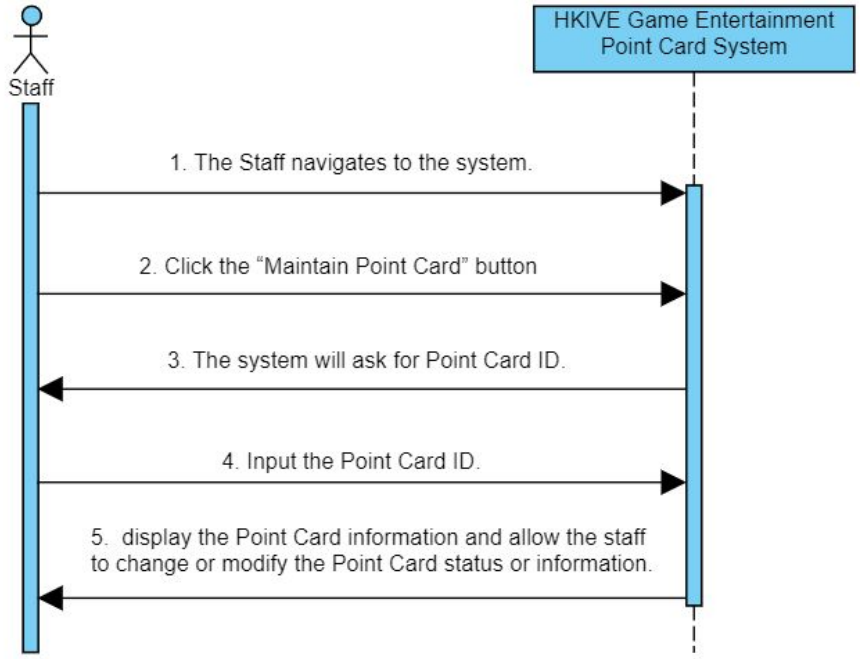
Create Point Card



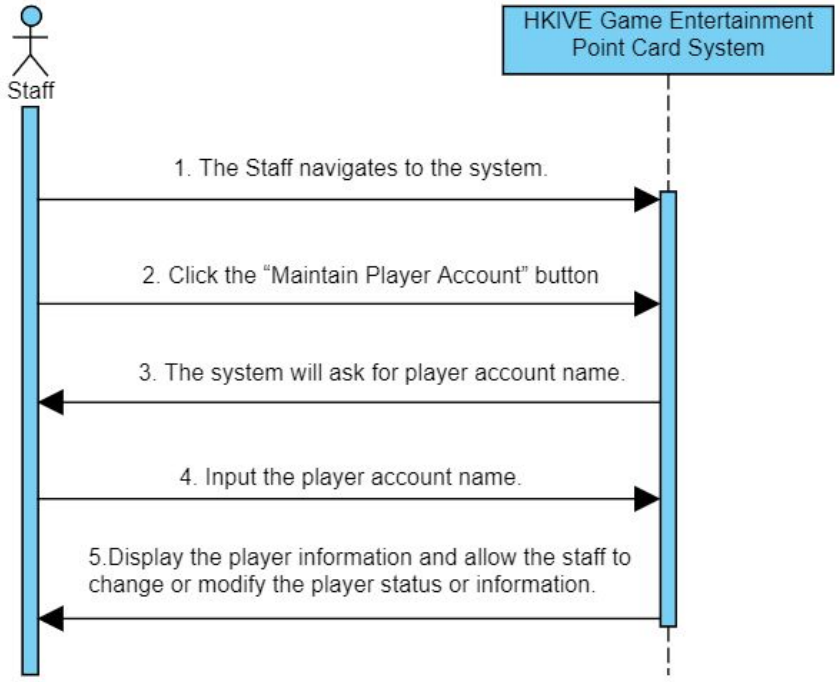
Enquire Point Card Detail



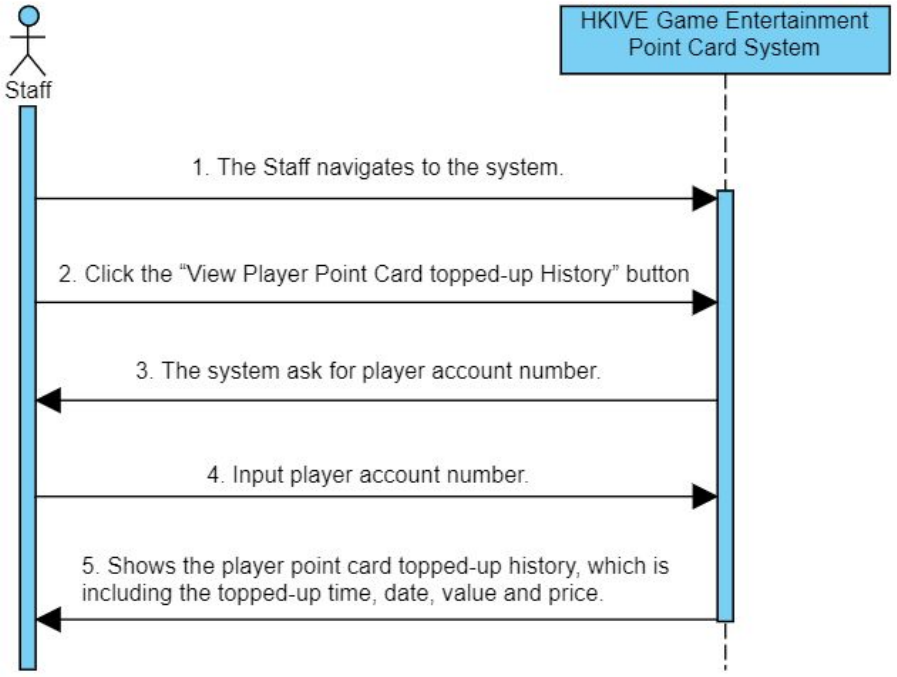
Maintain Point Card



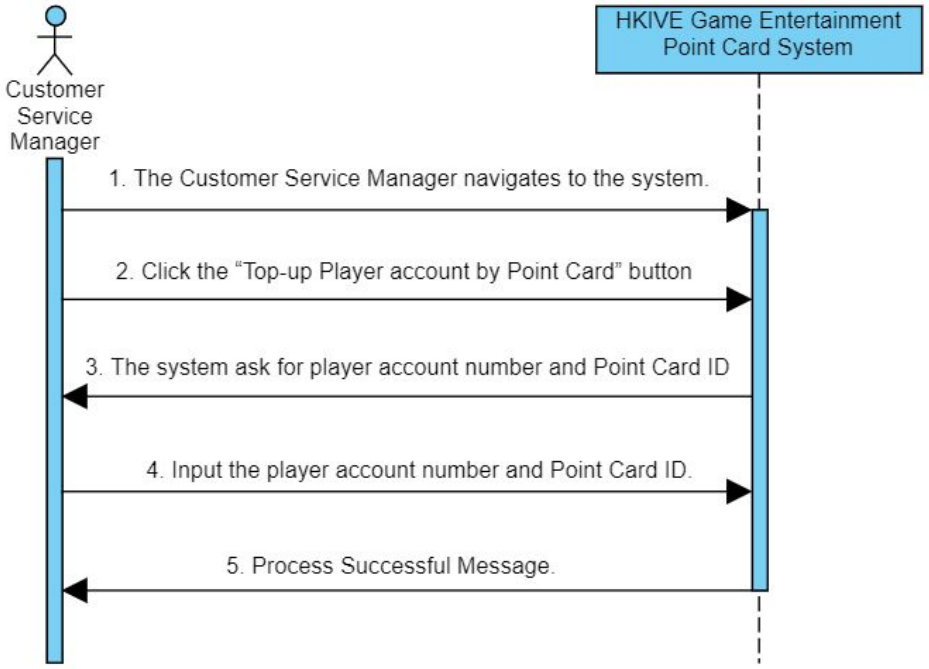
Maintain Player Account



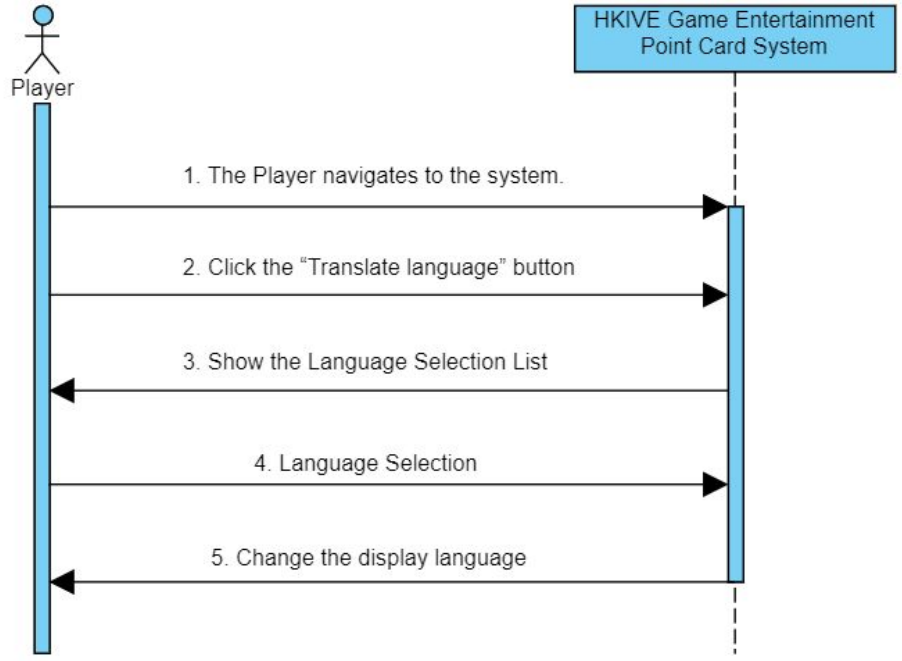
View Player Point Card topped-up History



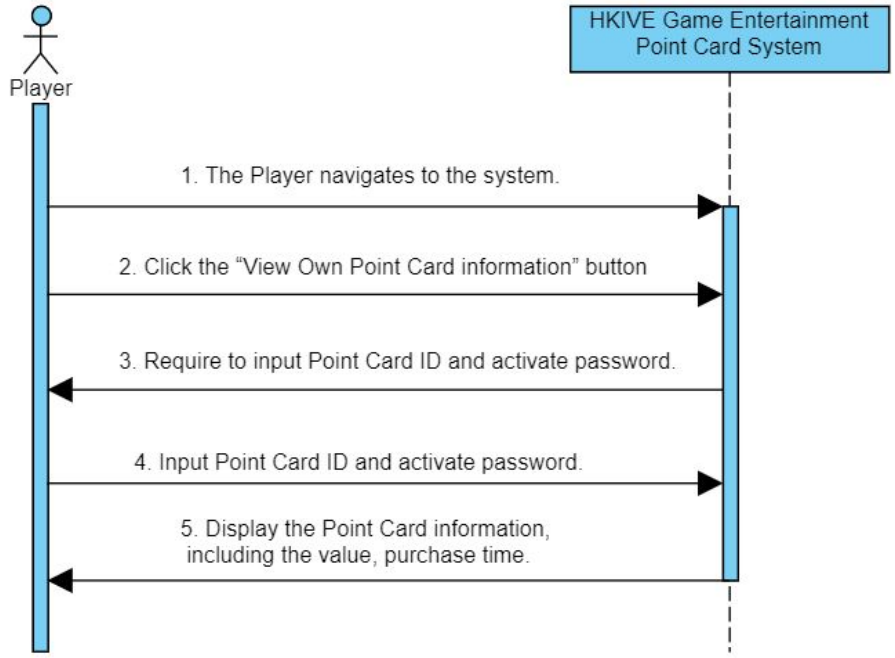
Top-up Player account by Point Card



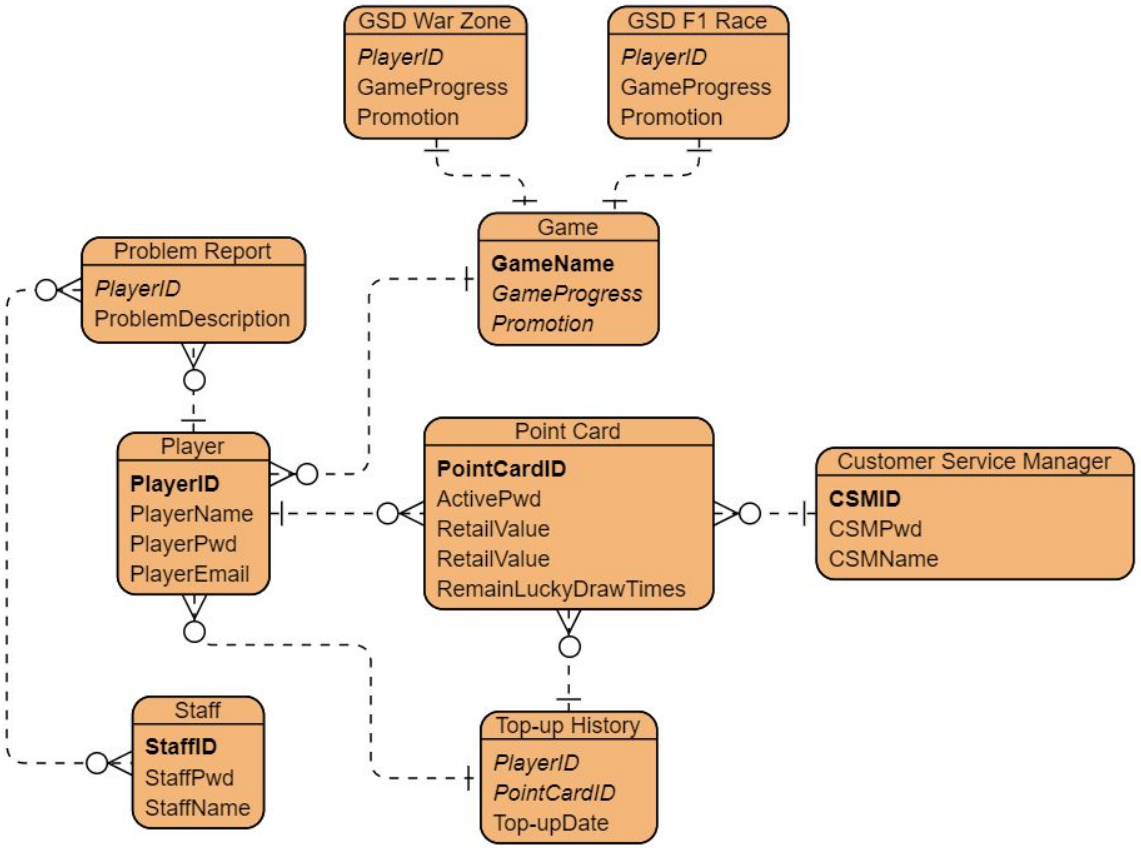
Translate Language



View Own Point Card information



Entity Relation Diagram (ERD)



Detailed Database Design

Data Dictionary

Player Table

Key	Field Name	Data Type	Caption	Notes
P	PlayerID	varchar(8)	Player ID	P(1 char) + registered player number(7 digit) e.g. P0000001
	PlayerAccount Name	varchar(16)	Player account name	Not null, unique. sixteen alphanumeric characters e.g. Chan1234
	PlayerPassword	varchar(16)	Login password	Not null, six to fifteen alphanumeric characters with at least 1 upper case letter and 1 lower case letter e.g. ItisPwd1234
	PlayerName	varchar(32)	Player name	Not null, alphanumeric characters e.g. Chan dsad sad
	PlayerEmail	varchar(64)	Player email	null
	PlayerProfile	varchar(256)	Player Profile	null
	PlayerGoldCoins	int(8)	Gold Coins	default 0
	isEnglish	bool	a status for display english or chinese	default true

Staff Table

Key	Field Name	Data Type	Caption	Notes
P	StaffID	varchar(8)	Staff id	S(1 char) + 7 digits e.g. S0000001
	StaffAccount Name	varchar(16)	Staff Login Account Name	Not null, unique. sixteen alphanumeric characters e.g. Chan1234
	StaffPassword	varchar(32)	Login password	Not null, >=6 digits with at least 1 upper case letter and 1 lower case letter e.g. ItisPwd1234
	StaffName	varchar(64)	Staff full name	Not null
	StaffEmail	varchar(64)	Staff Email	null
	StaffProfile	varchar(256)	Staff Profile	null
	isEnglish	bool	a status for display english or chinese	default true

Customer Service Manager Table

Key	Field Name	Data Type	Caption	Notes
P	CSMID	varchar(8)	Login account	C(1 char) + 7 digits e.g. C0000001
	CSMAccount Name	varchar(16)	Customer Service Manager Login Account Name	Not null, unique. sixteen alphanumeric characters e.g. Chan1234
	CSMPassword	varchar(32)	Login password	Not null,>=6 digits with at least 1 upper case letter and 1 lower case letter e.g. ItisPwd1234
	CSMName	varchar(64)	Customer Service Manager full name	Not null
	CSMEmail	varchar(64)	CSM Emial	null
	CSMProfile	varchar(256)	CSM Profile	null
	isEnglish	bool	a status for display english or chinese	default true

Point Card Table

Key	Field Name	Data Type	Caption	Notes
P	PointCardID	varchar(8)	Point Card number	V(1 char) + 7 digits e.g. V0000001
	ActivePwd	varchar(8)	Point Card Active password	Not null e.g. s8whv2fn
	RetailValue	int(4)	Value of Point Card	Not null e.g. 50 / 100 / 200 it mean HK$50, HK$100, HK$200 value of Point Card
	GoldCoins	int(8)	Gold Coins	not null e.g 100, 350, 800
	RemainLucky DrawTimes	int(1)	The number of remaining Luck Draw	Not null e.g. 0, 1, 2
	Status	varchar(16)	The status of Point Card	Not null e.g. activated, inactivated, suspended
	GenerationDa te	Date	The Point Card generation date	Not null e.g. 31/8/2019

Top-up History Table

Key	Field Name	Data Type	Caption	Notes
F	PlayerID	varchar(8)	Player ID	P(1 char) + registered player number(7 digit) e.g. P0000001
F	PointCardID	varchar(8)	Point Card number	V(1 char) + 7 digits e.g.V0000001
	Top-upDate	Date	The date of top-up	Not null e.g. 5/6/2019

Game Table

Key	Field Name	Data Type	Caption	Notes
P	GameID	varchar(8)	Game ID	G(1 char) + 7 digits e.g. G0000001
	GameName	varchar(32)	Name of games	Not null
	GameDescription	varchar(256)	Game Description	null e.g. GSD War Zone is a 3D action shooting games on Android platforms.
	GameChineseDescription	varchar(256)	Game Description of Chinese	null e.g. GSD War Zone是Android平台上的3D動作射擊遊戲。

GSD War Zone Table

Key	Field Name	Data Type	Caption	Notes
F	PlayerID	varchar(8)	Player ID	P(1 char) + registered player number(7 digit) e.g.P0000001
	GameProgress	varchar(256)	GSD War Zone Game progress	null e.g. Level: 100, Character: Warrior
	GameChinese Progress	varchar(256)	GSD War Zone Game progress of Chinese	null e.g. 等級：100, 角色：戰士

GSD F1 Race Table

Key	Field Name	Data Type	Caption	Notes
F	PlayerID	varchar(8)	Player ID	P(1 char) + registered player number(7 digit) e.g.P0000001
	GameProgress	varchar(256)	GSD F1 Race Game progress	null e.g. Level: 100, Character: Warrior
	GameChinese Progress	varchar(256)	GSD F1 Race Game progress of Chinese	null e.g. 等級：100, 角色：戰士

Problem Report Table

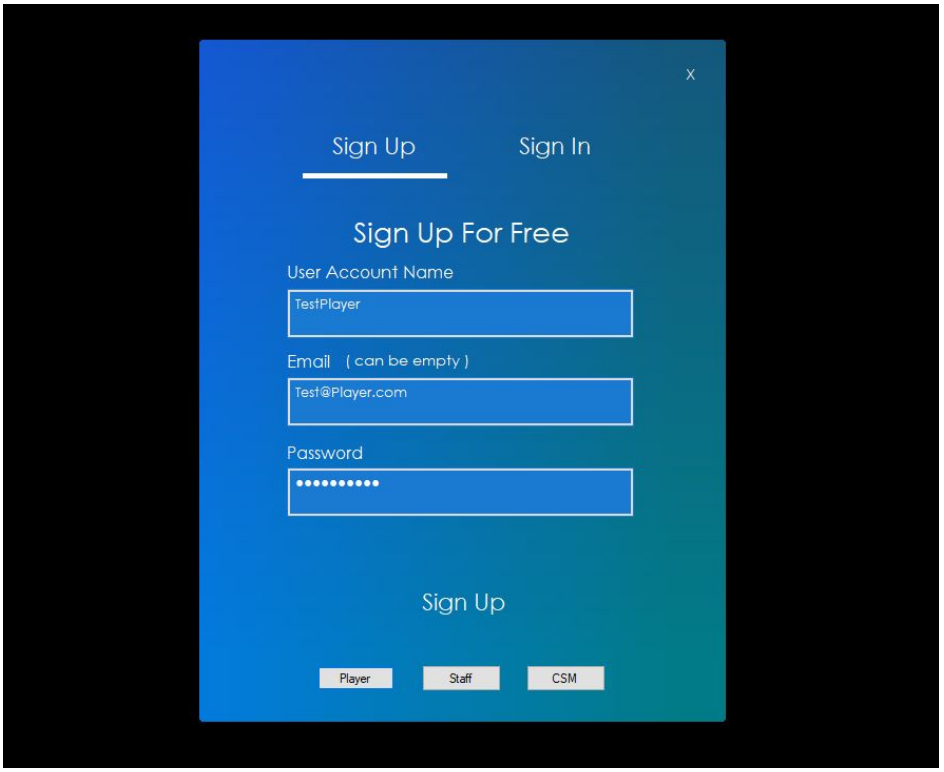
Key	Field Name	Data Type	Caption	Notes
P	ProblemReport ID	varchar(8)	Report ID	R(1 char) + registered player number(7 digit) e.g.R0000001
F	PlayerID	varchar(8)	Player ID	P(1 char) + registered player number(7 digit) e.g.P0000001
	Title	varchar(64)	Title, Problem Briefly Description	not null e.g. Profile cannot show correctly
	Detail	varchar(1024)	The problem report of game or system by player	null e.g. yesterday i found a bug in GSD F1 Race. When I try to …...

System Table

Key	Field Name	Data Type	Caption	Notes
	PlayerNum	int	The Player number of the system	e.g 10
	StaffNum	int	The Staff number of the system	e.g 10
	CSMNum	int	The CSM number of the system	e.g 10
	PointCardNum	int	The Point Card Num of system	e.g 10
	ProblemReport Num	int	the Problem Report Num	e.g 10

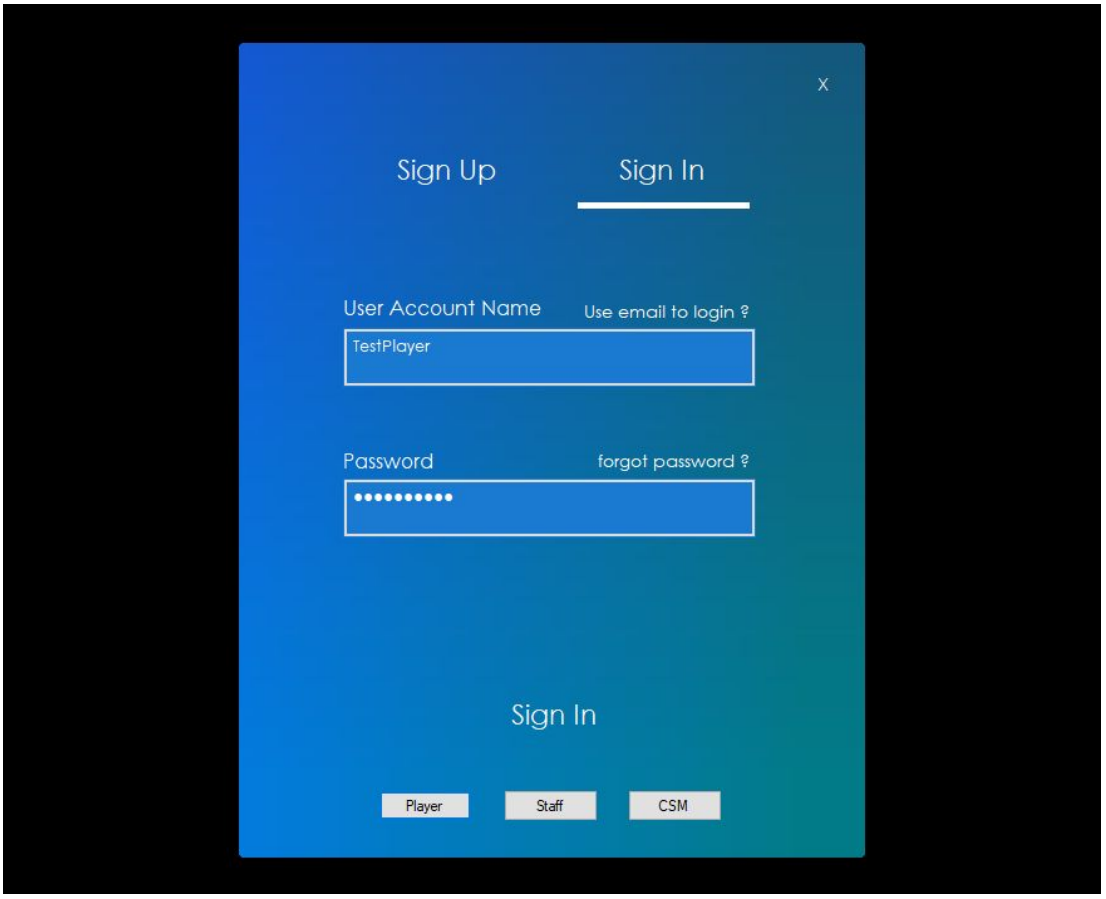
User Interface and Report Design

Player Interface (Sign Up)
This interface is for the user who are not registered before. After input the user name, email and password in correct way, user would sign up successfully. After that, the system will ask player to enter a username, which can modify it later.



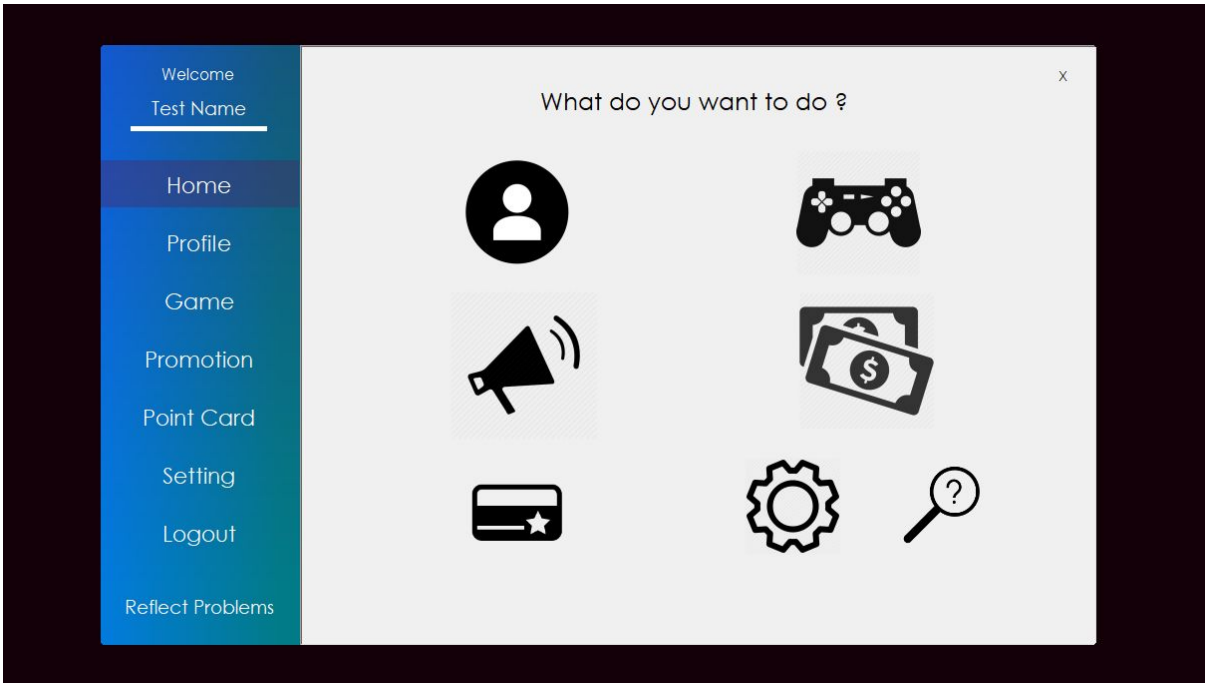
Player Interface (Sign in)

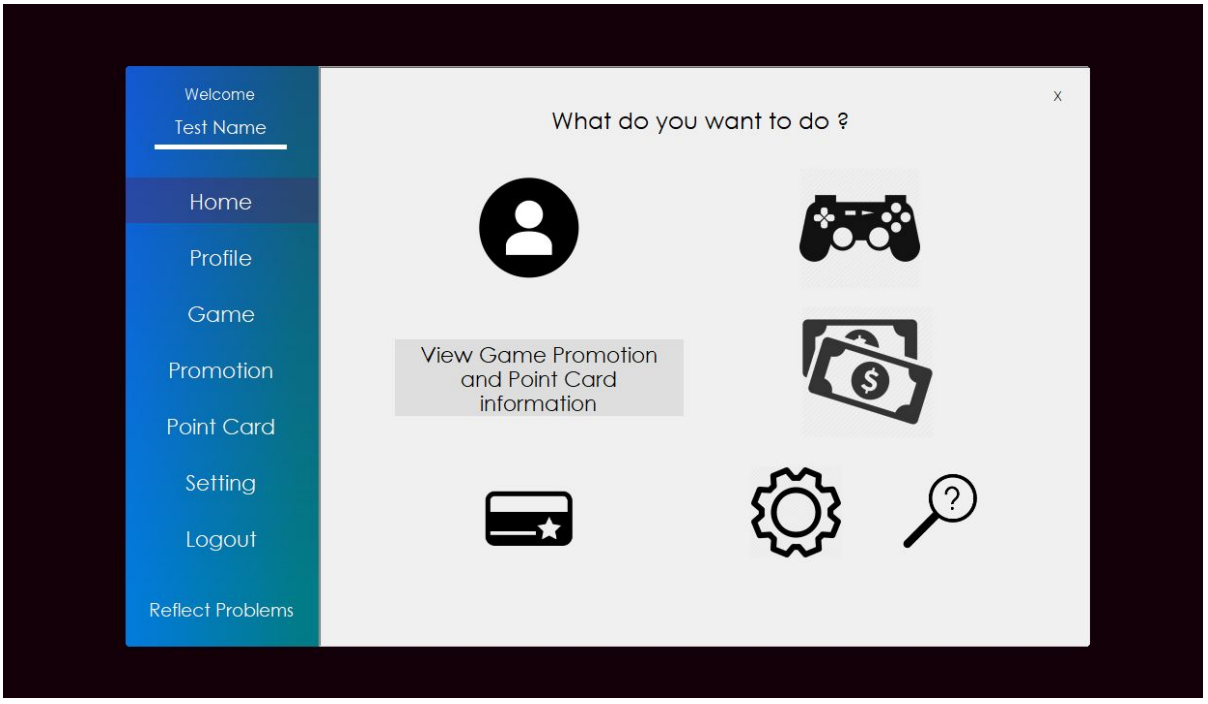
This interface is for the registered user to login their account. After input their correct user name and password, they would sign in successfully.



Player Interface (Main menu)

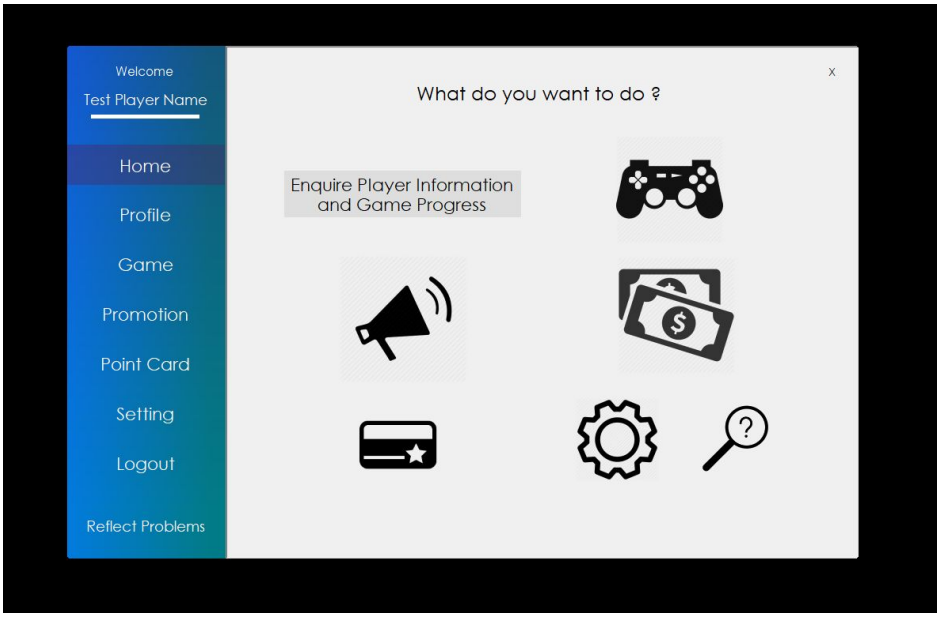
At the main menu, player can do different functions, such as view game promotion and Point Card information, and top-up balance by Point Card. Also, at the left hand side, player can directly click the different functions to do the same thing instead of clicking the image. Here will show the view game promotion function for an example.

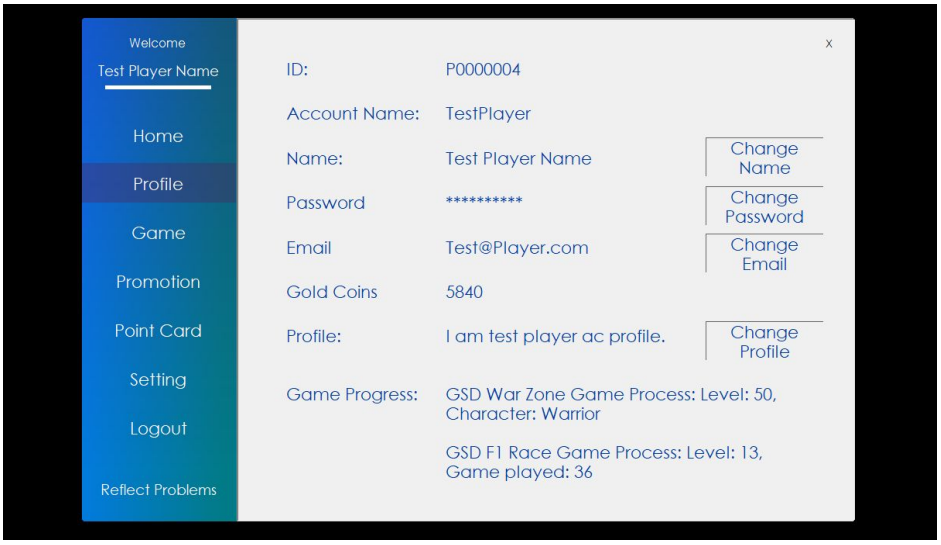


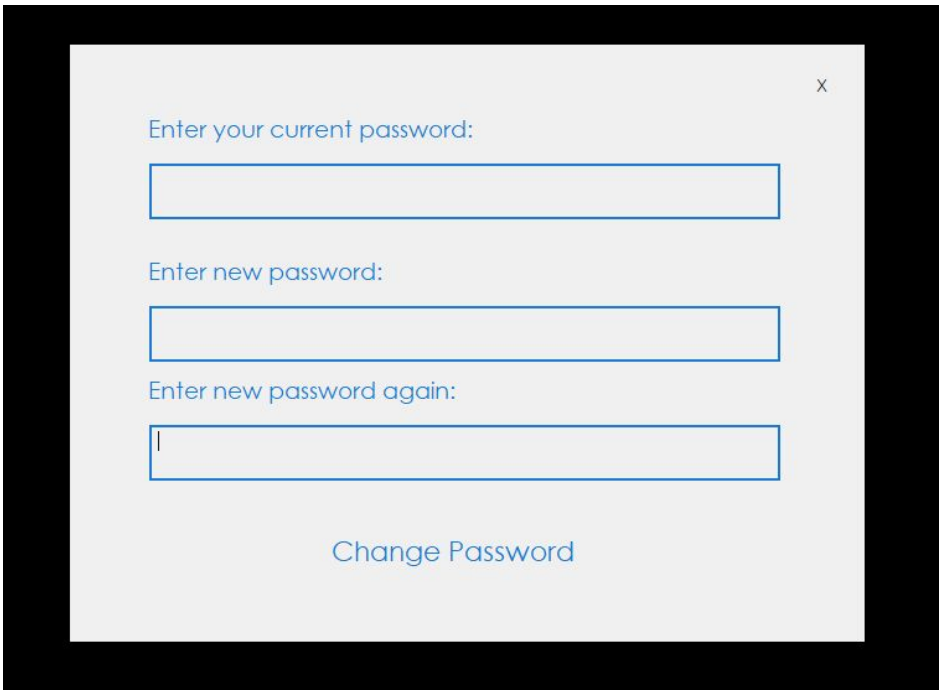


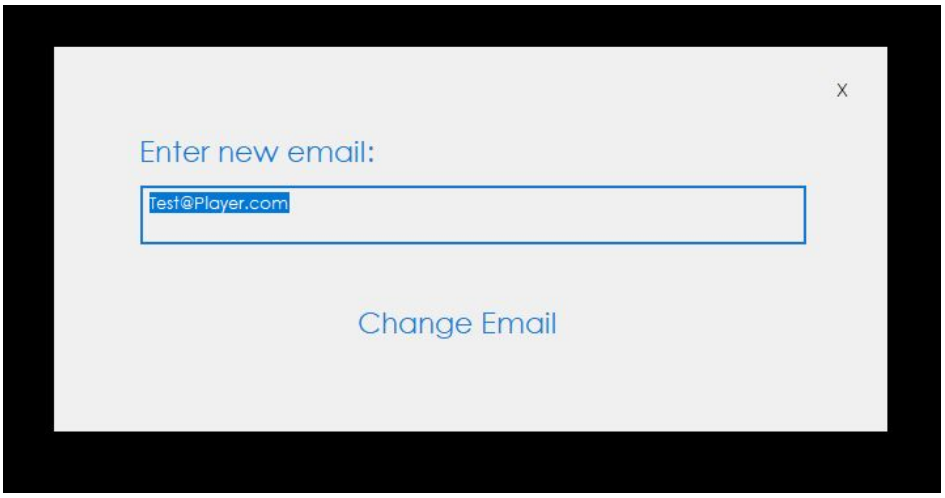
Player Interface (Enquire player information and game progress)

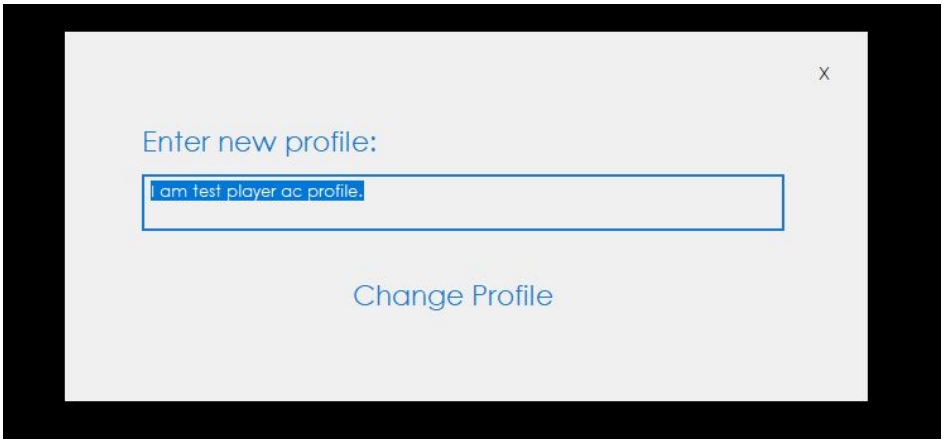
After player login their account and choose to enquire their profile, they can see their account name, name, password, email, gold coins, profile and game progress. Also, they can change their name, password, email and profile as they want.



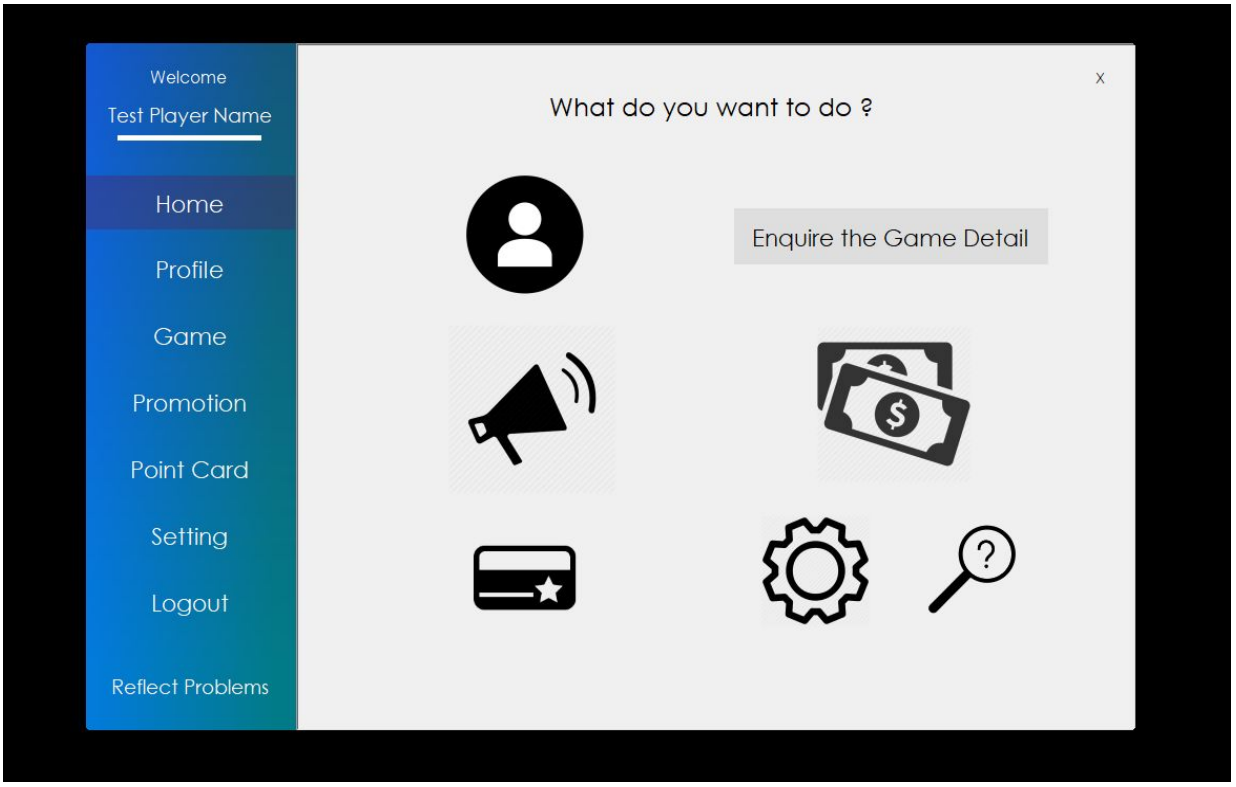


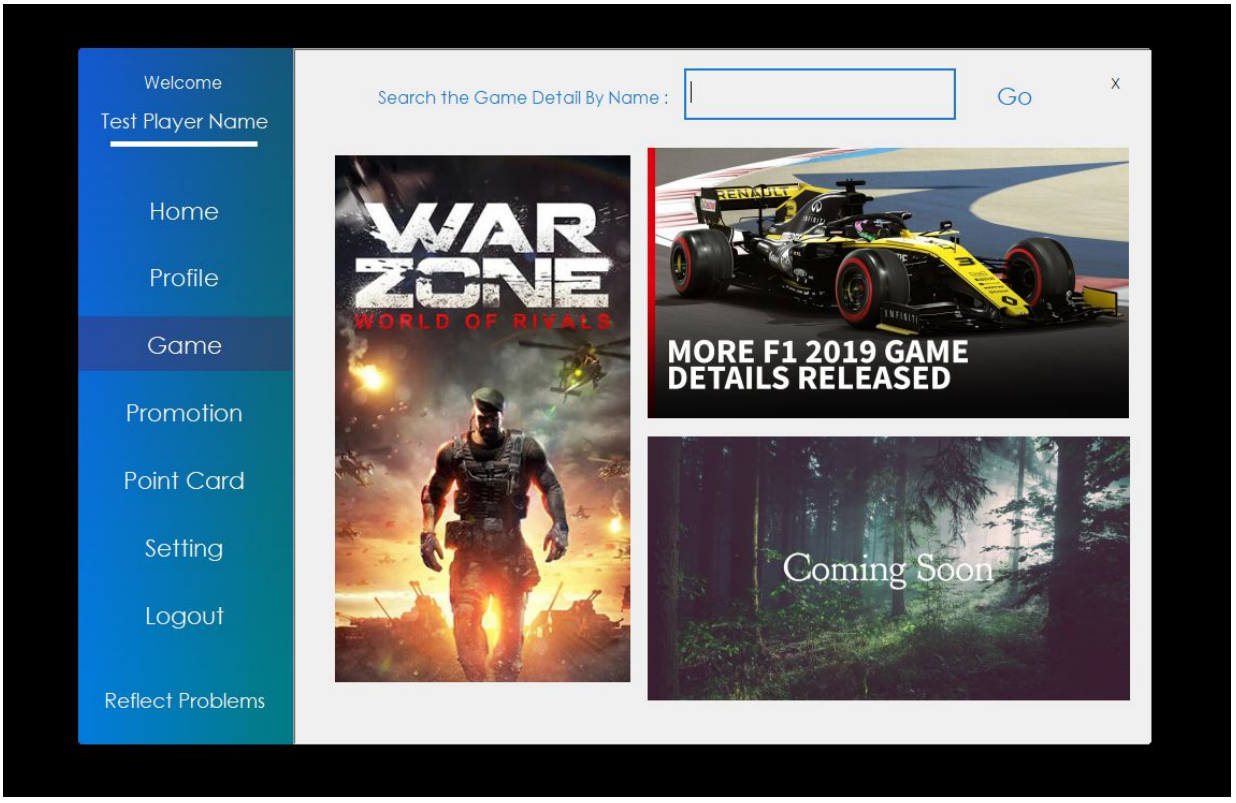

x
Enter your current password:
Enter new password:
Enter new password again:
Change Password

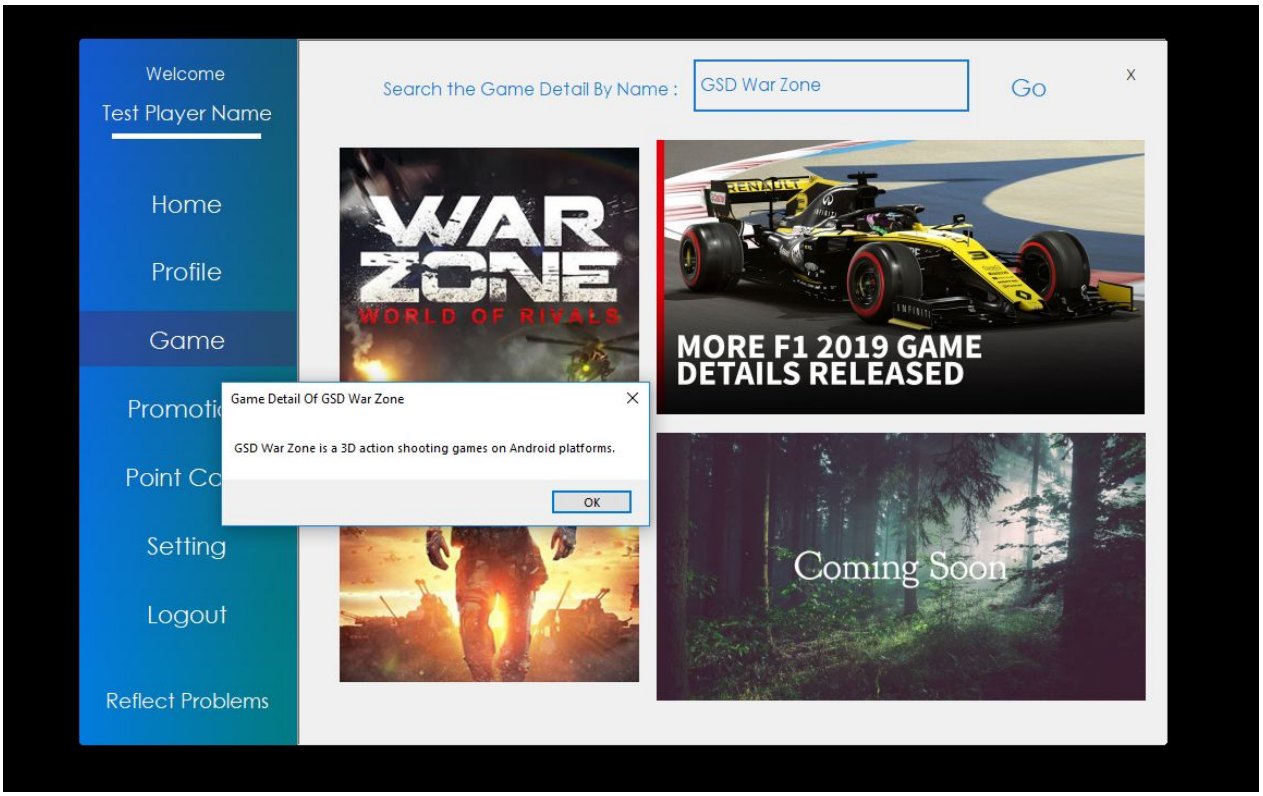

x
Enter new email:
Test@Player.com
Change Email


x
Enter new profile:
I am test player ac profile.
Change Profile

Player Interface (Enquire the game detail by name)
After player login their account and choose to enquire the game detail, they can see three games, which are GSD War Zone, GSD F1 Race. The third game is coming soon. Moreover, player can search each game detail by name, then it will show the related game description.

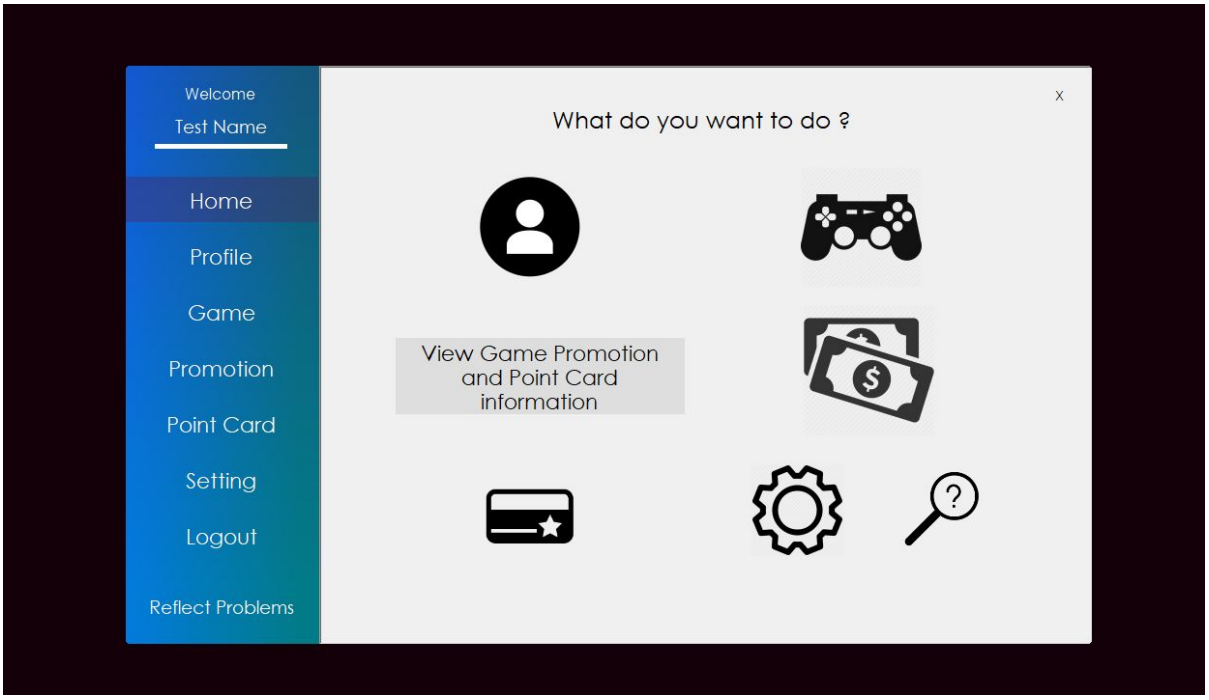


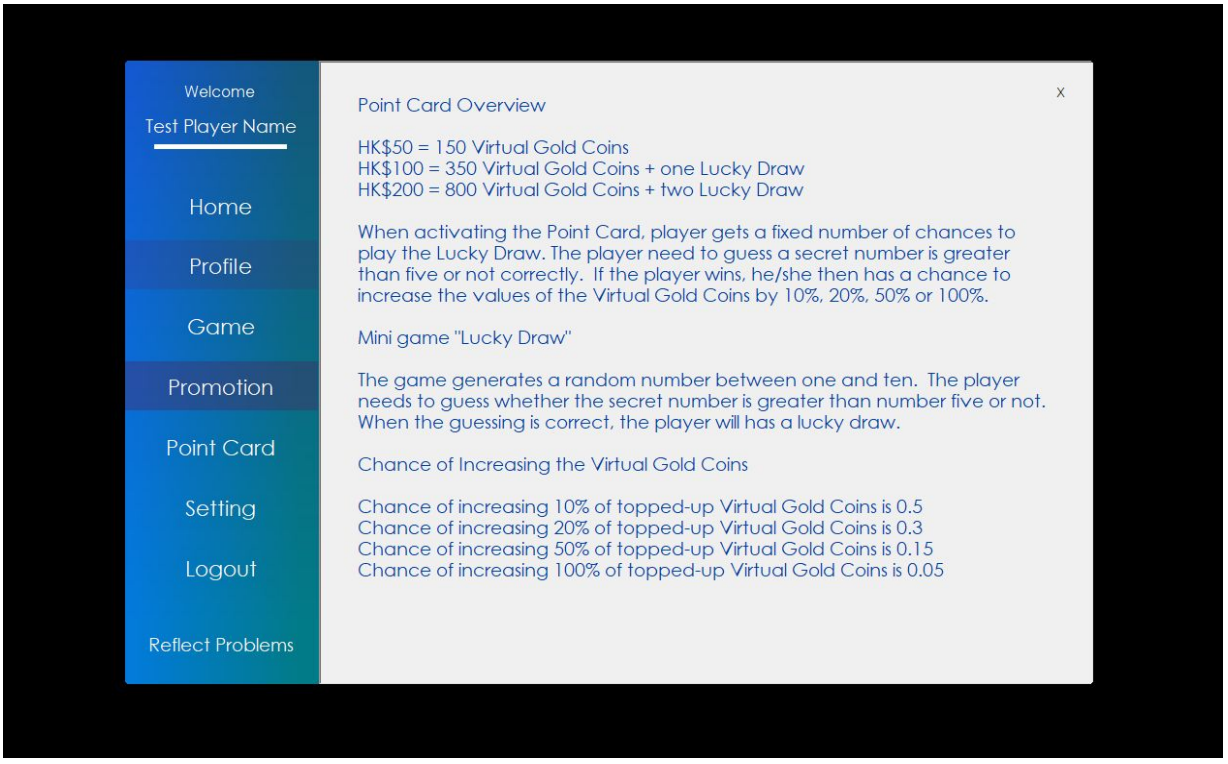



Welcome
Test Player Name
Home
Profile
Game
Promoti
Point Co
Setting
Logout
Reflect Problems
Search the Game Detail By Name :
GSD War Zone
Go
X
WAR ZONE
WORLD OF RIVALS
MORE F1 2019 GAME DETAILS RELEASED
Coming Soon
Game Detail Of GSD War Zone
GSD War Zone is a 3D action shooting games on Android platforms.
OK

Player Interface (View Game Promotion and Point Card information)

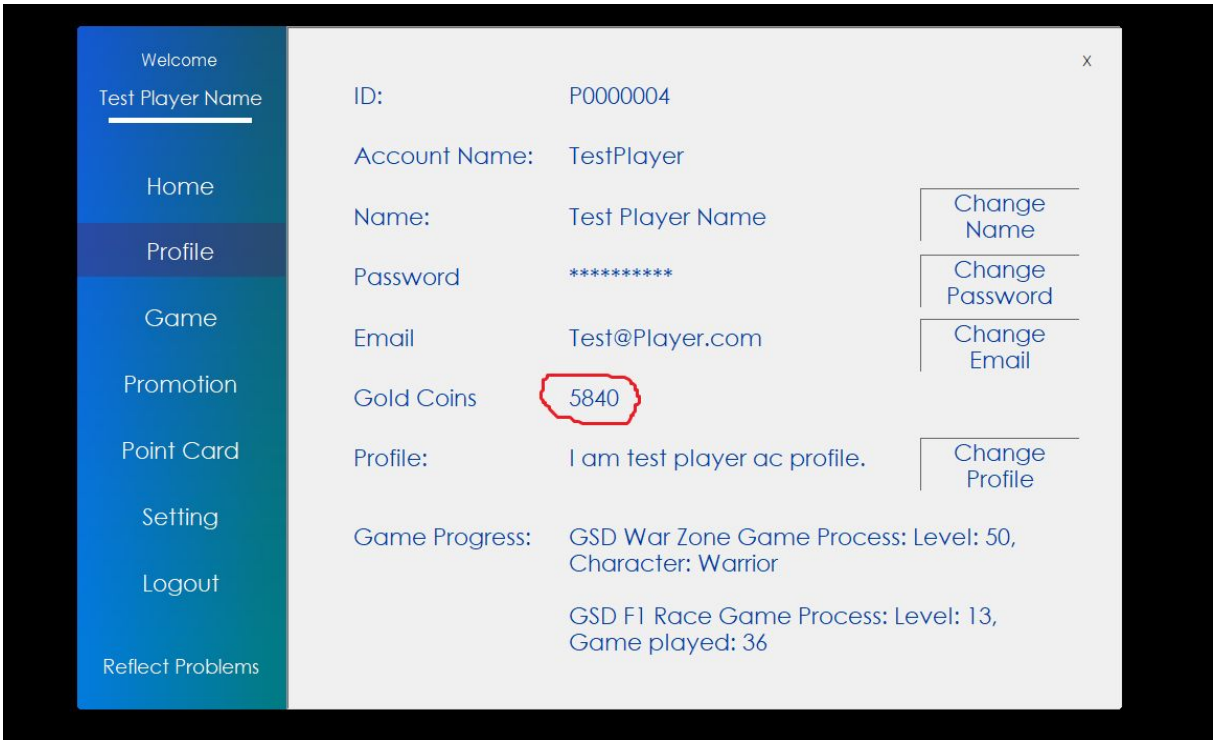
After player login their account and choose to view Game Promotion and Point Card information, they can see the Point Card overview. For the Point Card detail, they can see the detail of Point Card and the lucky draw information.

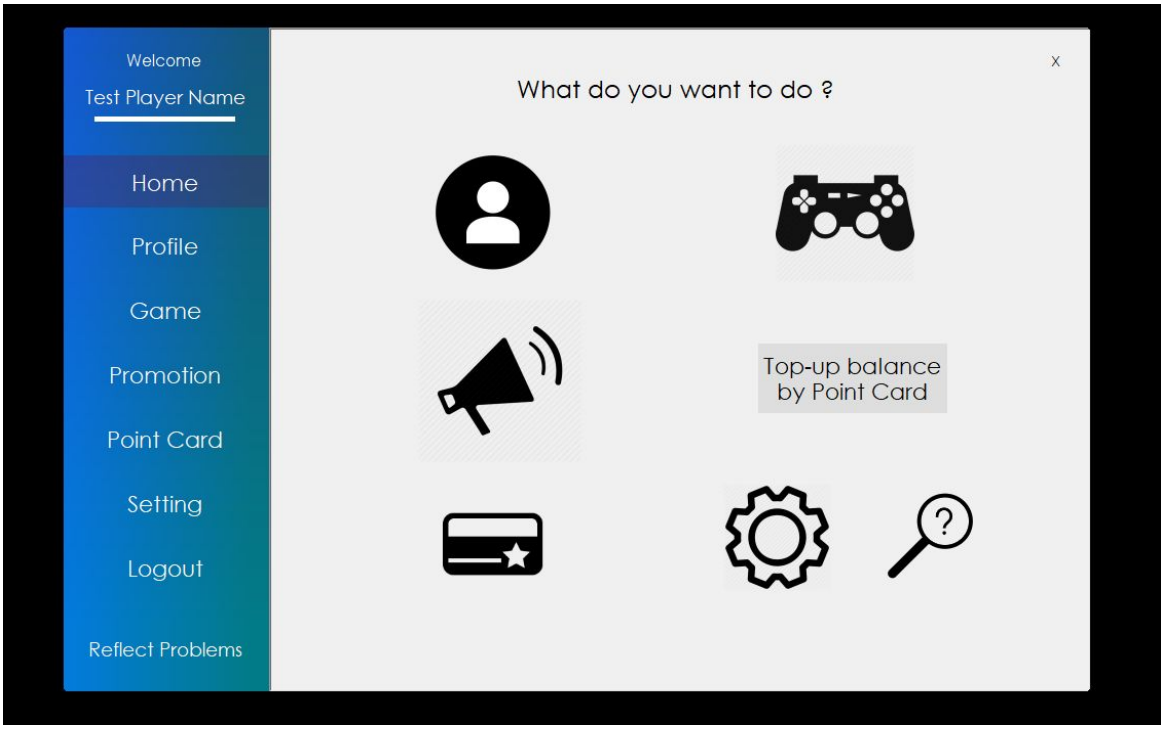


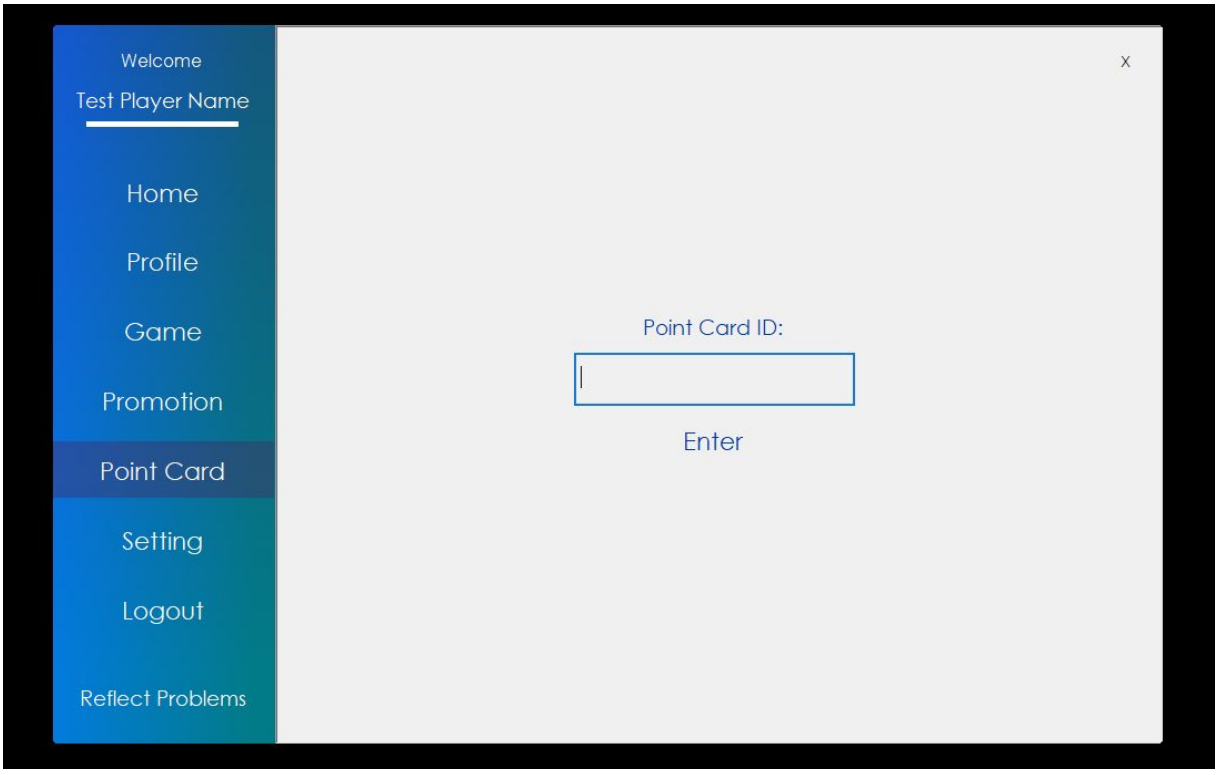


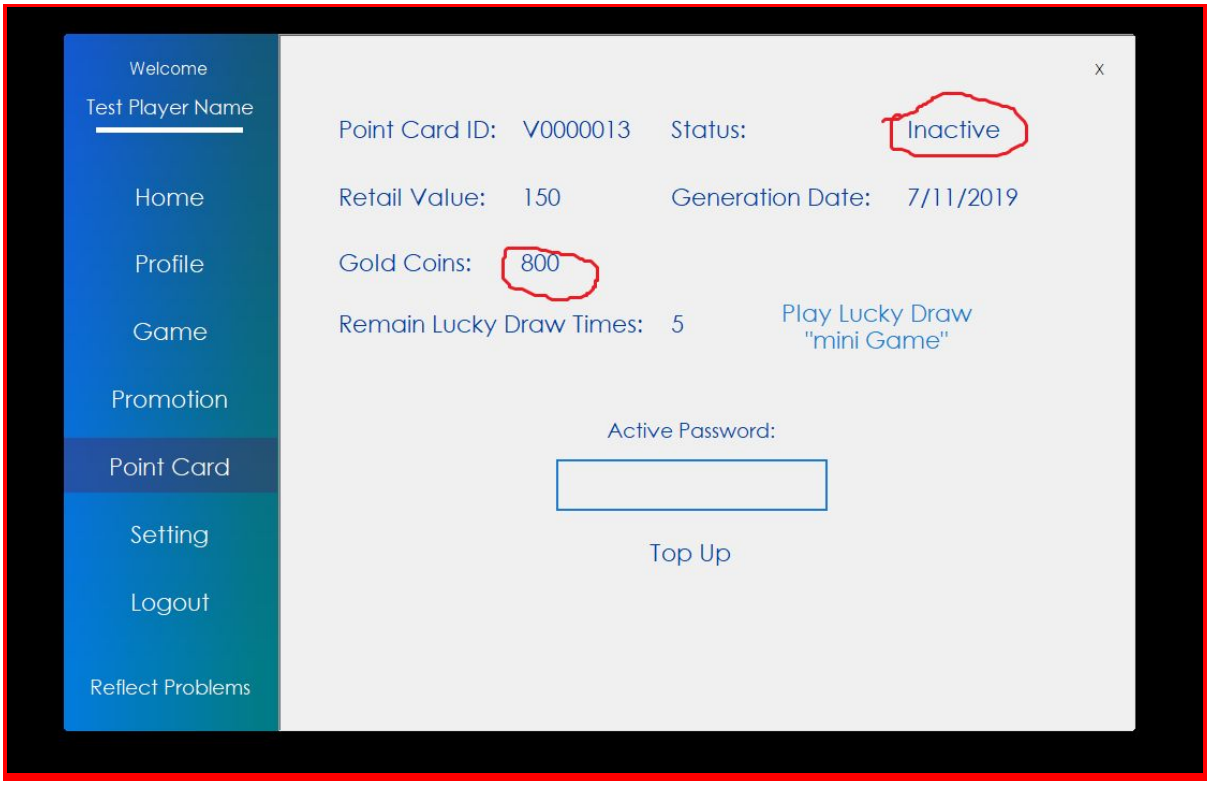
Player Interface (Top-up balance by Point Card & View own Point Card information)

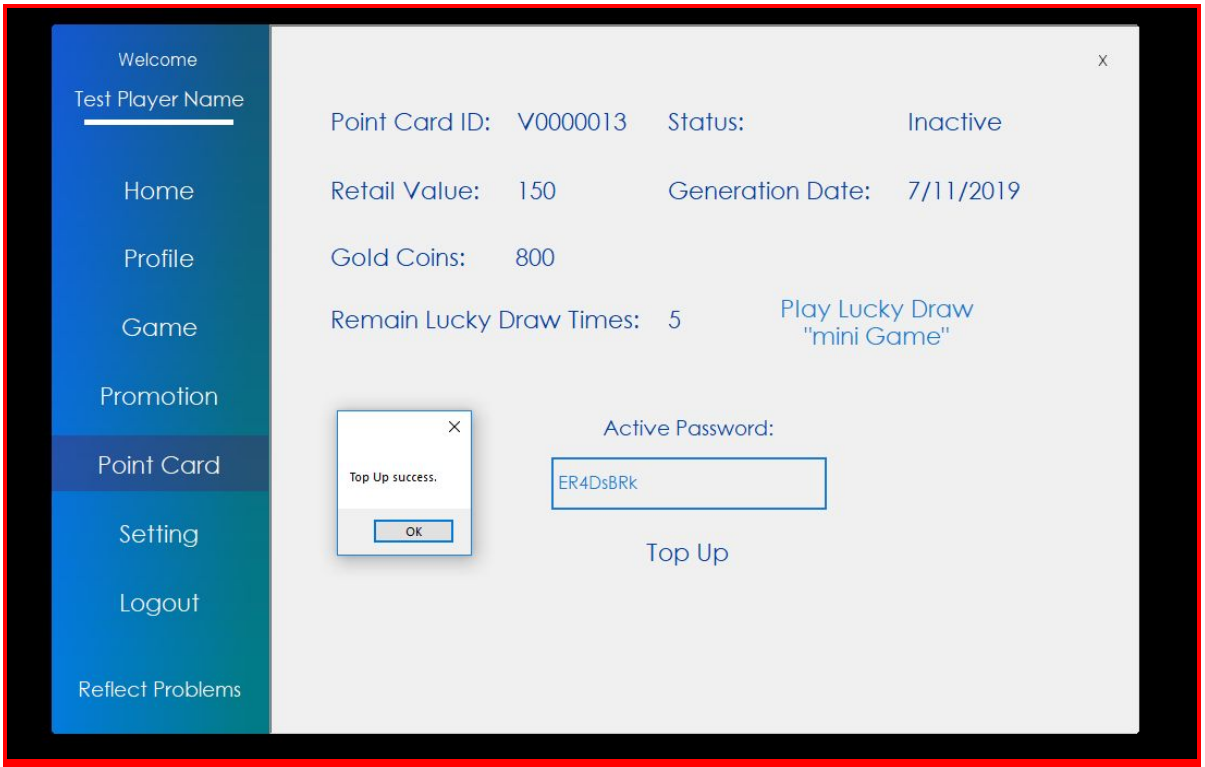
After player login their account and choose to top-up balance by Point Card, player need to enter the Point Card ID first. Then they will see the own Point Card ID, retail value, remain lucky draw times, status and generation date. After that player continue enter the active password to top-up. Then the top-up balance will be successful, and the player's remain gold coin will be update.

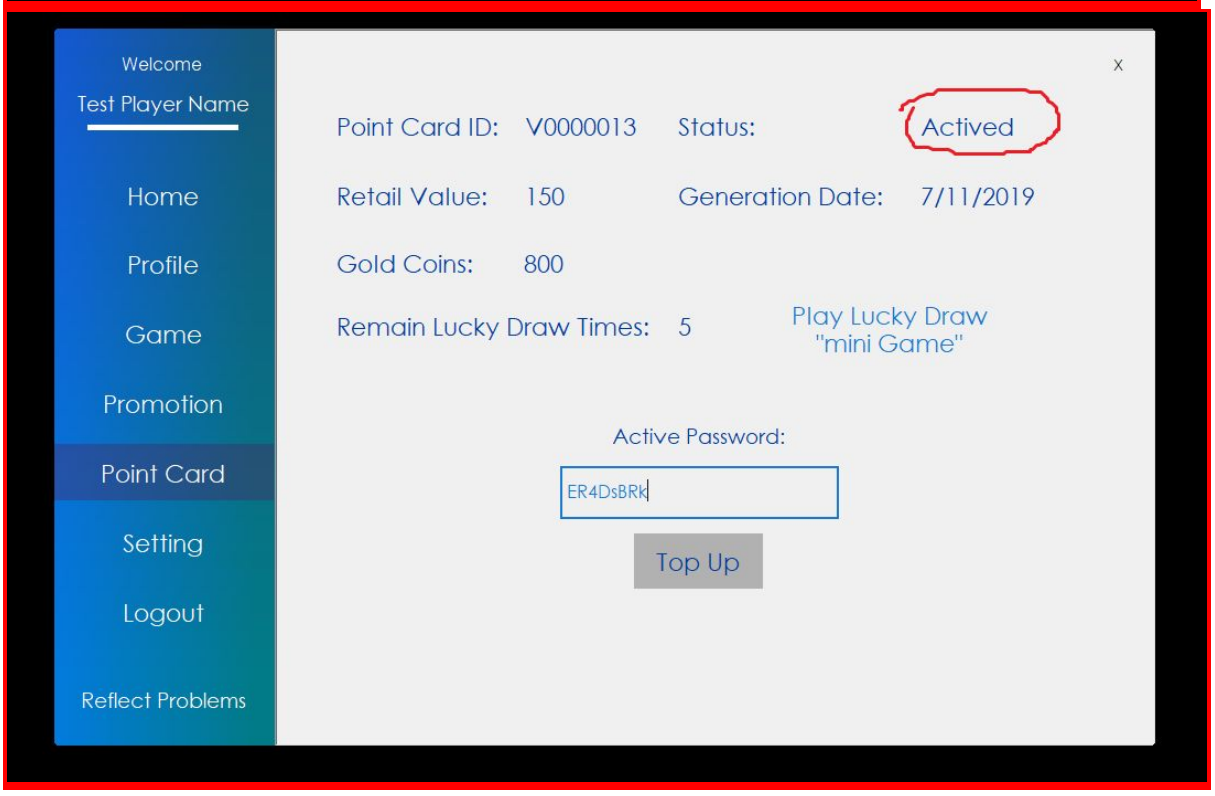


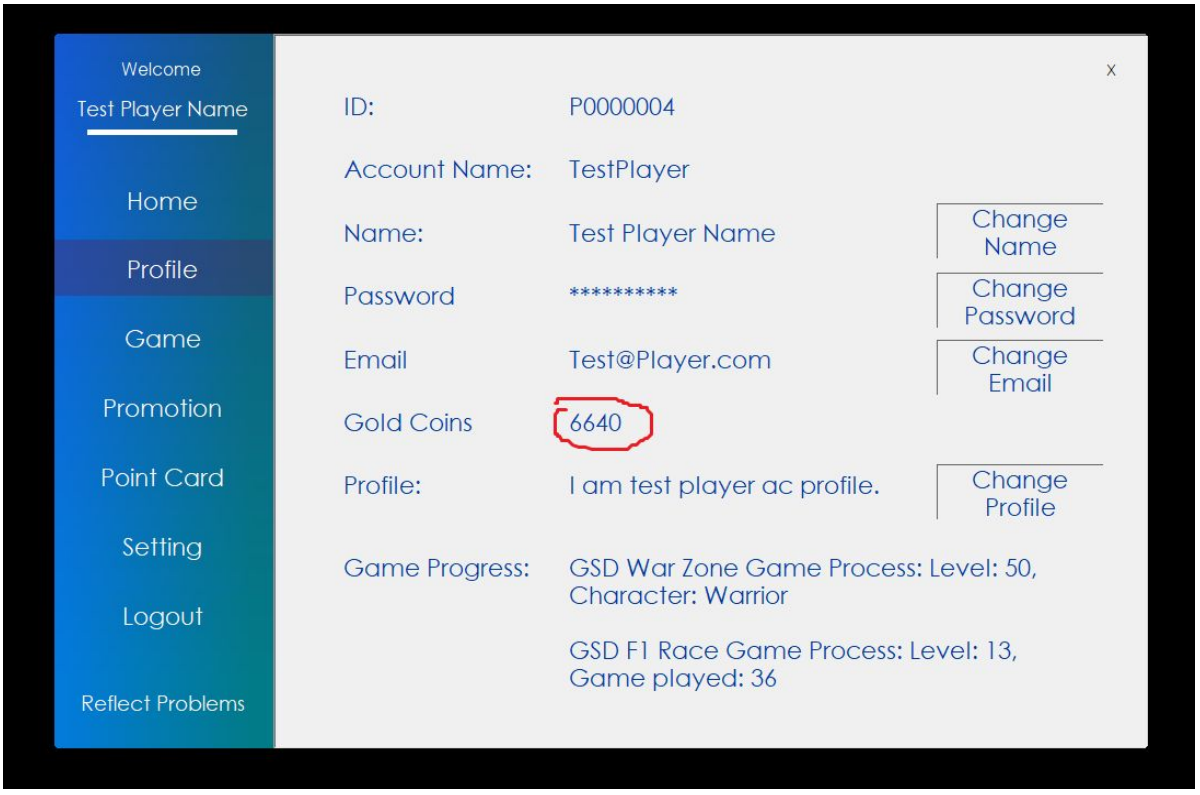



Welcome
Test Player Name
Home
Profile
Game
Promotion
Point Card
Setting
Logout
Reflect Problems
x
Point Card ID:
Enter


Welcome
Test Player Name
Home
Profile
Game
Promotion
Point Card
Setting
Logout
Reflect Problems
x
Point Card ID: V0000013
Status: Inactive
Retail Value: 150
Generation Date: 7/11/2019
Gold Coins: 800
Remain Lucky Draw Times: 5
Play Lucky Draw "mini Game"
Active Password:
Top Up

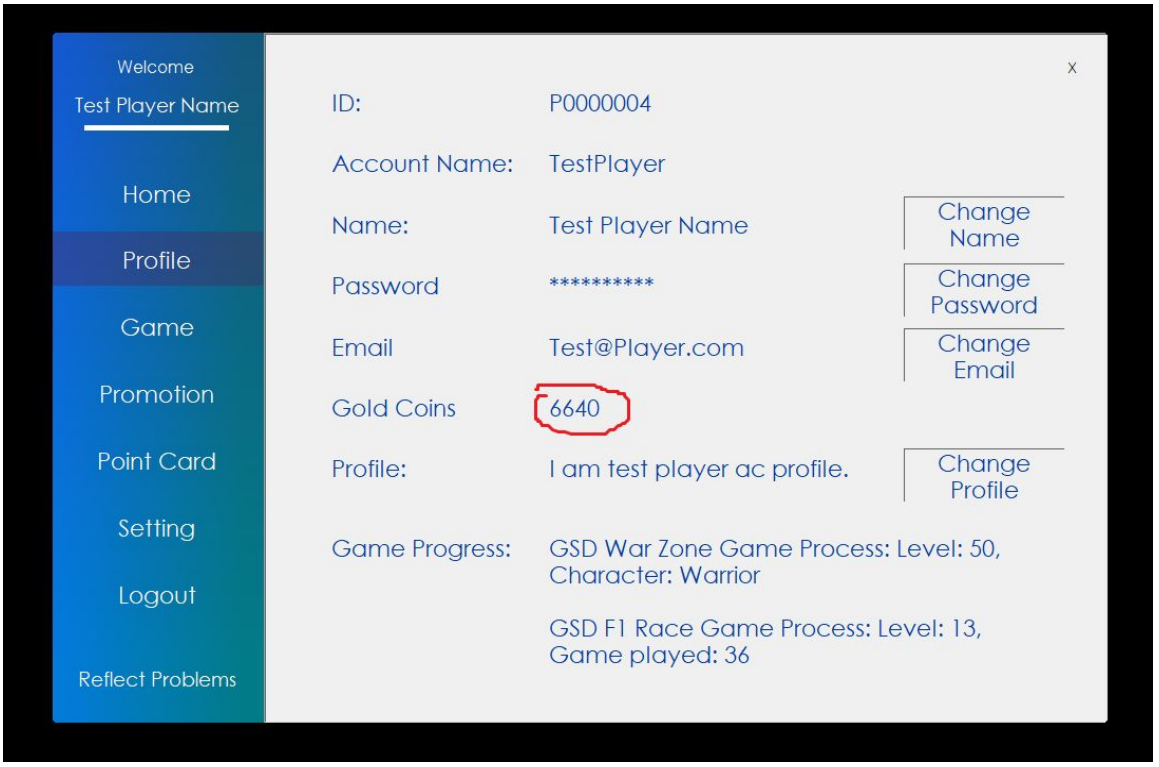

Welcome
Test Player Name
Home
Profile
Game
Promotion
Point Card
Setting
Logout
Reflect Problems
Point Card ID: V0000013
Status: Inactive
Retail Value: 150
Generation Date: 7/11/2019
Gold Coins: 800
Remain Lucky Draw Times: 5
Play Lucky Draw "mini Game"
Top Up success.
OK
Active Password:
ER4DsBRk
Top Up

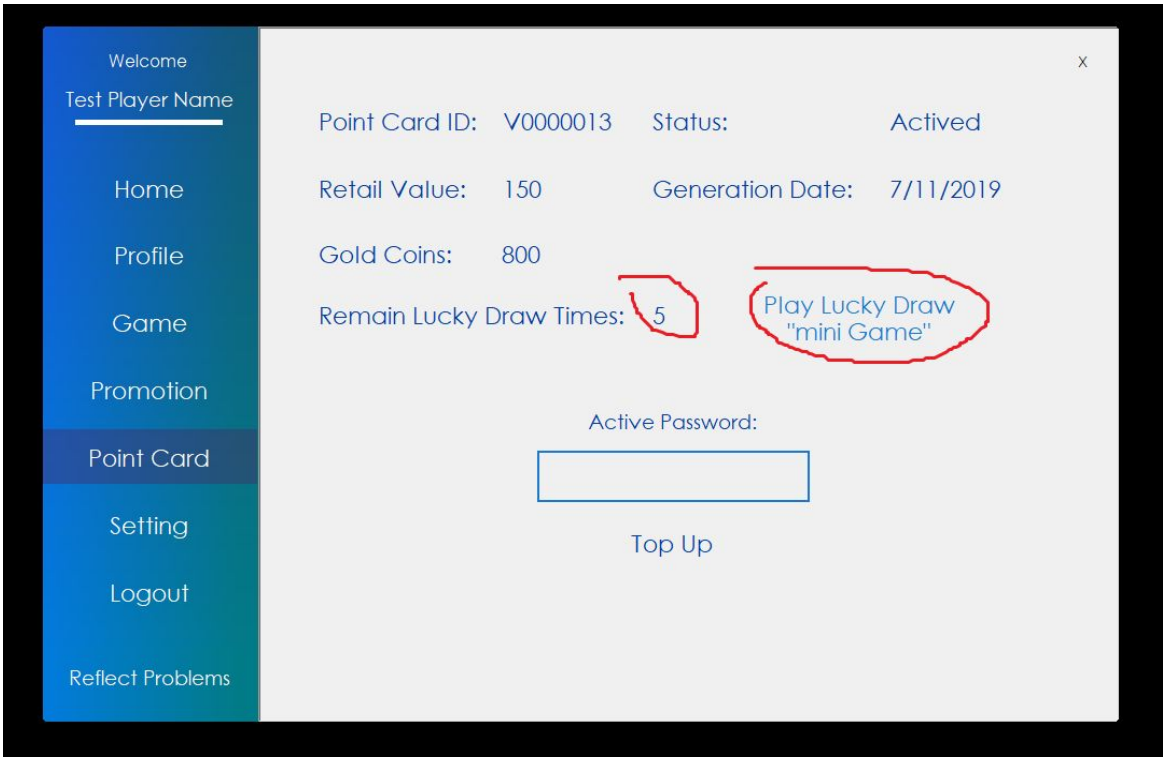

Welcome
Test Player Name
Home
Profile
Game
Promotion
Point Card
Setting
Logout
Reflect Problems
Point Card ID: V0000013
Status: Actived
Retail Value: 150
Generation Date: 7/11/2019
Gold Coins: 800
Remain Lucky Draw Times: 5
Play Lucky Draw "mini Game"
Active Password:
ER4DsBRk
Top Up

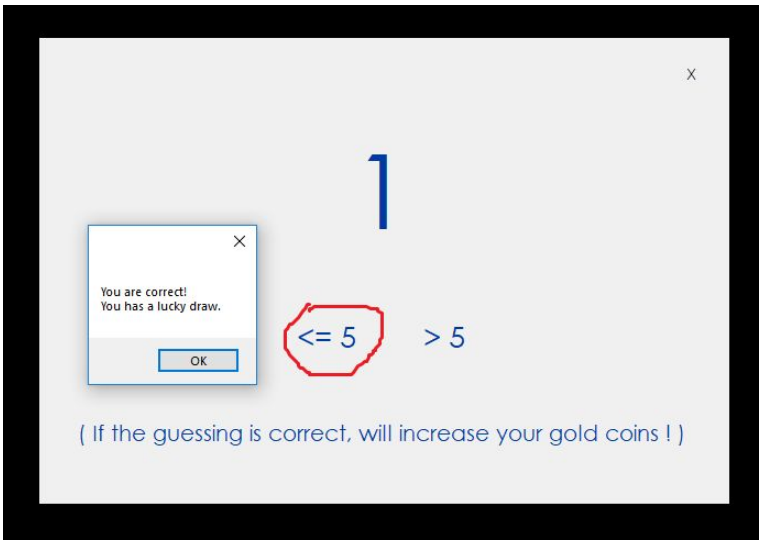

Welcome
Test Player Name
Home
Profile
Game
Promotion
Point Card
Setting
Logout
Reflect Problems
x
ID:
P0000004
Account Name:
TestPlayer
Name:
Test Player Name
Change Name
Password
****
Change Password
Email
Test@Player.com
Change Email
Gold Coins
6640
Profile:
I am test player ac profile.
Change Profile
Game Progress:
GSD War Zone Game Process: Level: 50, Character: Warrior
GSD F1 Race Game Process: Level: 13, Game played: 36

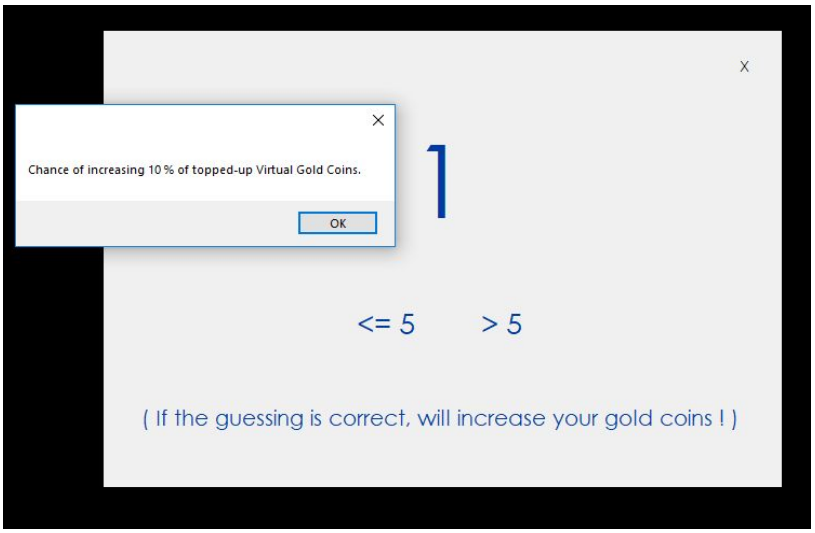
Player Interface (Lucky draw)

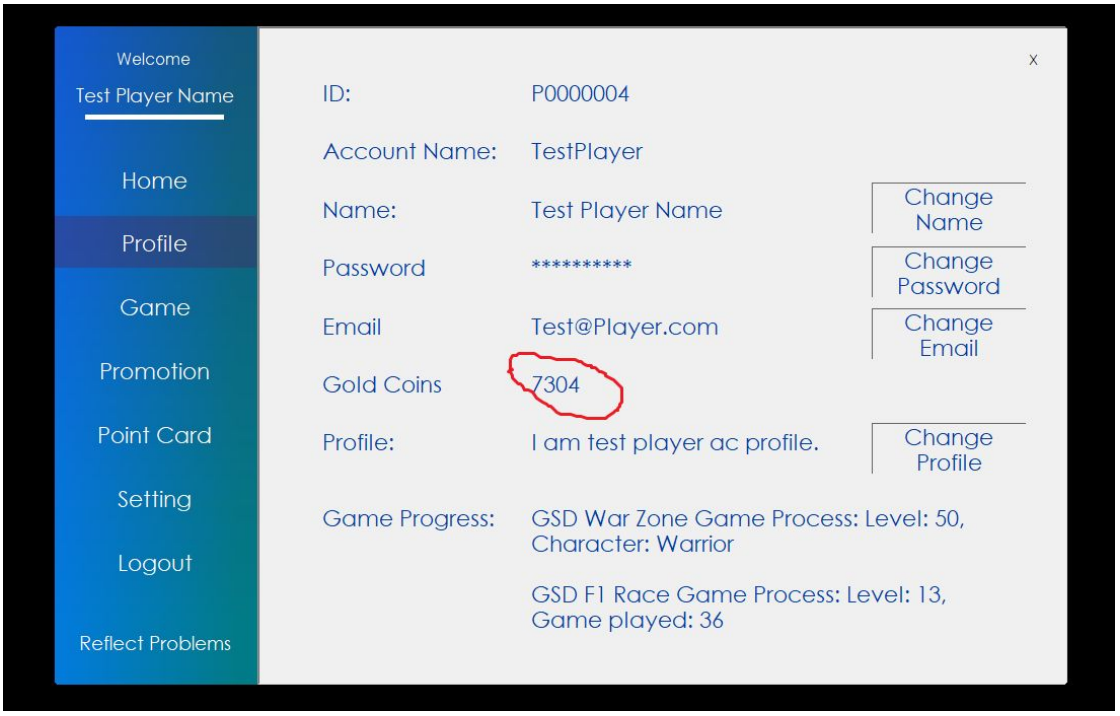
After player login their account and choose to play lucky draw after topped-up, they first enter their own Point Card ID, then click the “Play Lucky Draw” button. On the left hand side, the system has shown the remain lucky draw times. After that player can play the lucky draw. If player guess the number from 1 to 10 correctly, they can get the bonus gold coins related to different retail value.





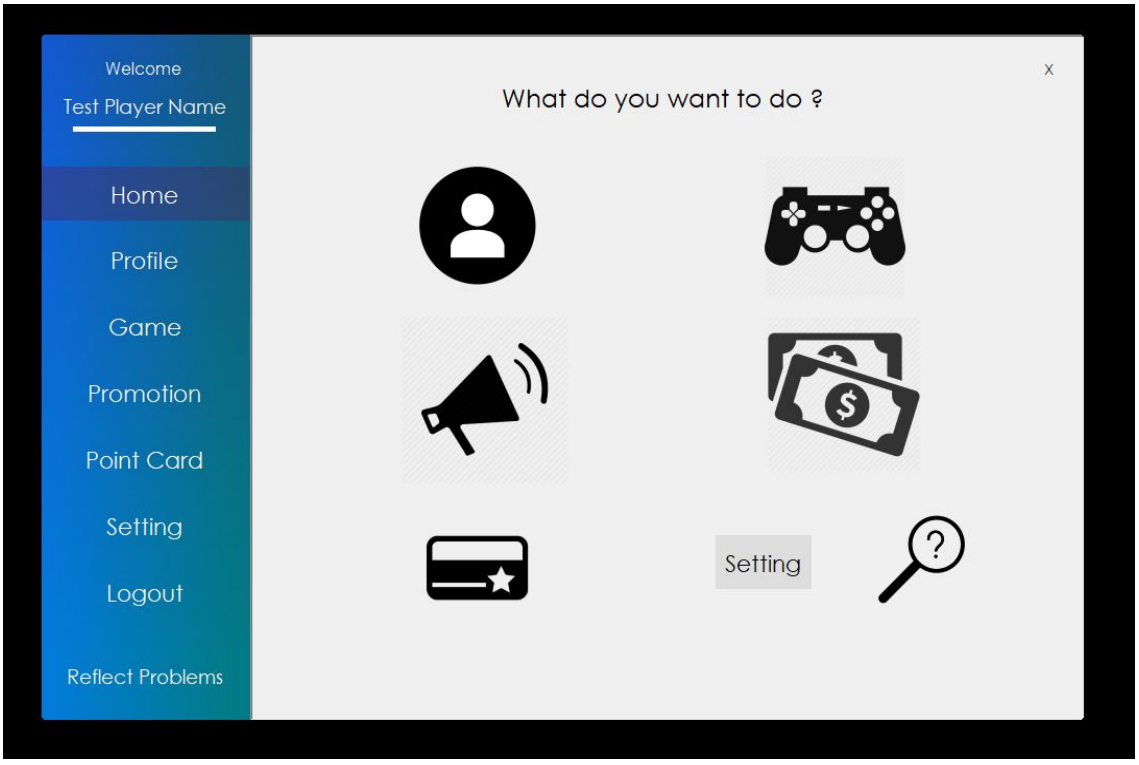

X
1
You are correct!
You has a lucky draw.
OK
<= 5
> 5
(If the guessing is correct, will increase your gold coins !)

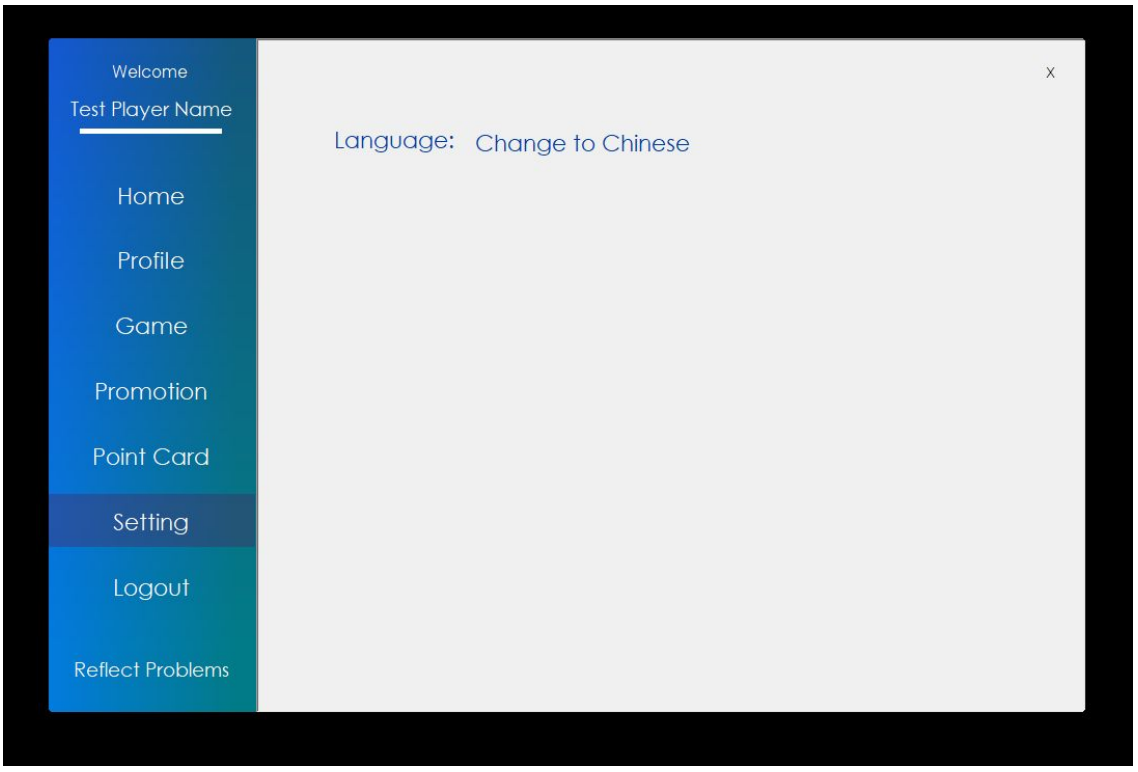

X
Chance of increasing 10 % of topped-up Virtual Gold Coins.
OK
1
<= 5
> 5
(If the guessing is correct, will increase your gold coins !)

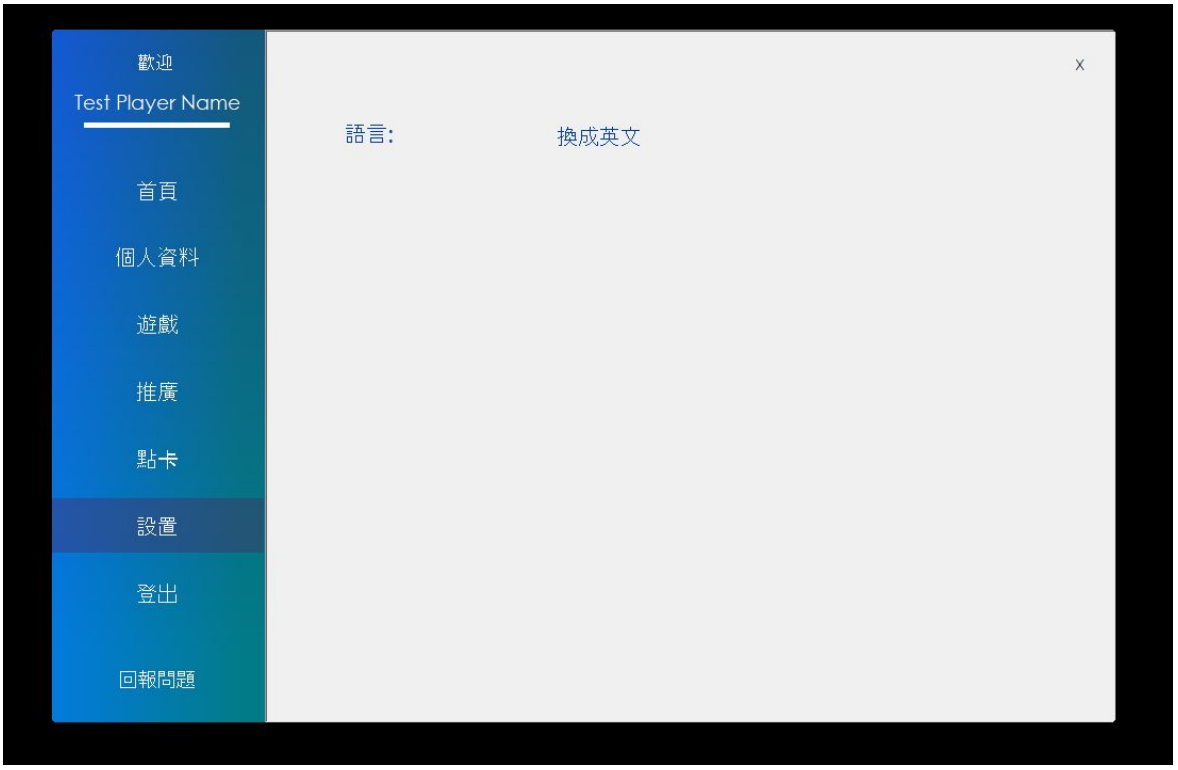

Welcome
Test Player Name
Home
Profile
Game
Promotion
Point Card
Setting
Logout
Reflect Problems
X
ID:
P0000004
Account Name:
TestPlayer
Name:
Test Player Name
Change Name
Password
****
Change Password
Email
Test@Player.com
Change Email
Gold Coins
7304
Profile:
I am test player ac profile.
Change Profile
Game Progress:
GSD War Zone Game Process: Level: 50, Character: Warrior
GSD F1 Race Game Process: Level: 13, Game played: 36

Player Interface (Translate language)

After player login their account and choose to translate language, such as english to chinese. They first need to choose setting, and then it shows an option, which is to translate the words to chinese. As a result, the whole system translate successful.



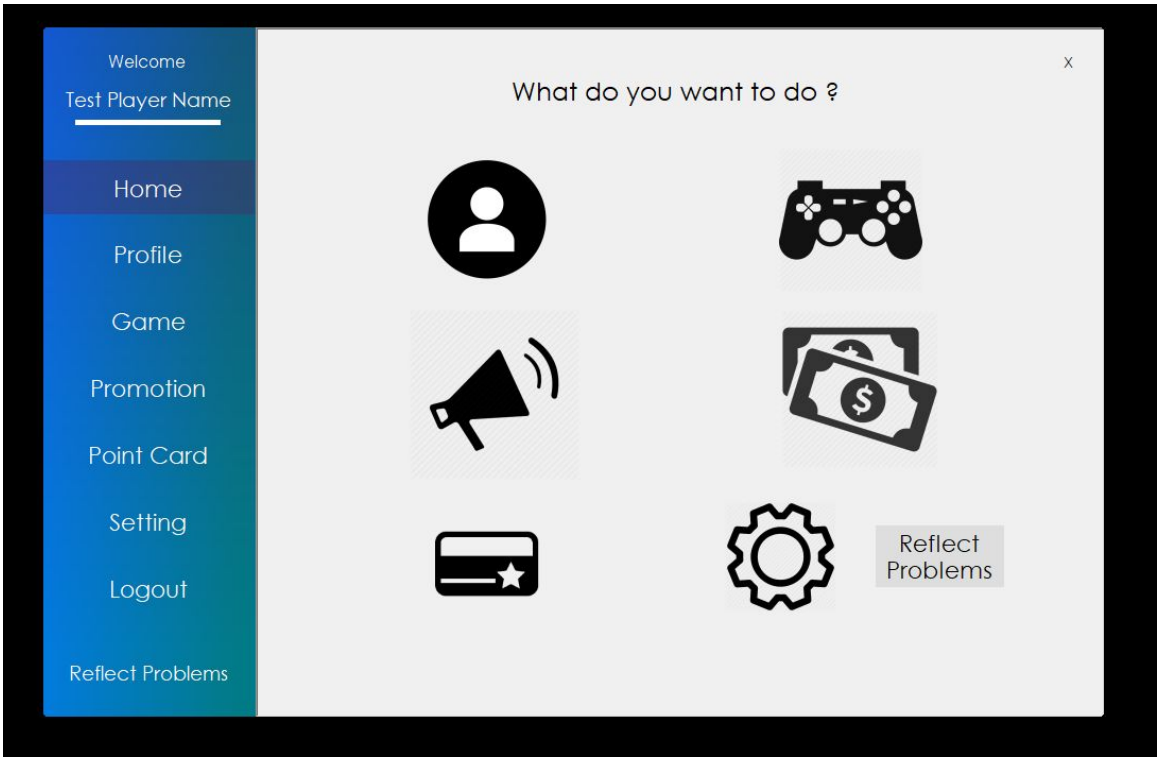


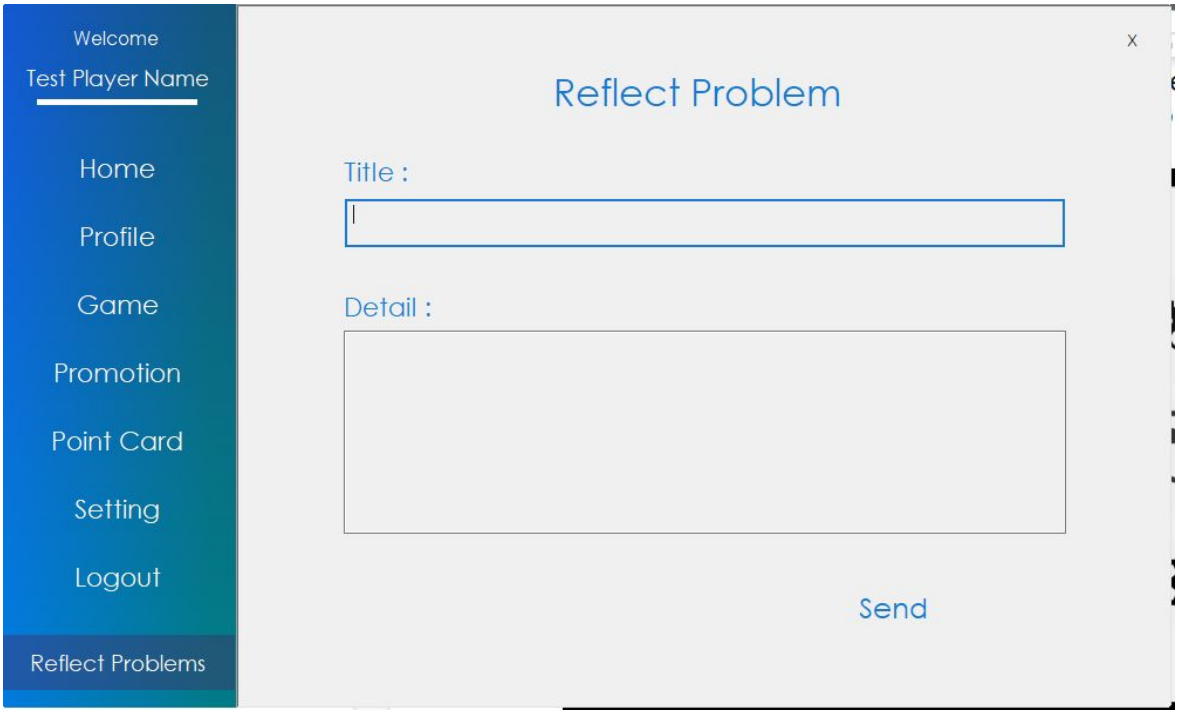

歡迎
Test Player Name
首頁
個人資料
遊戲
推廣
點卡
設置
登出
回報問題
x
語言:
換成英文

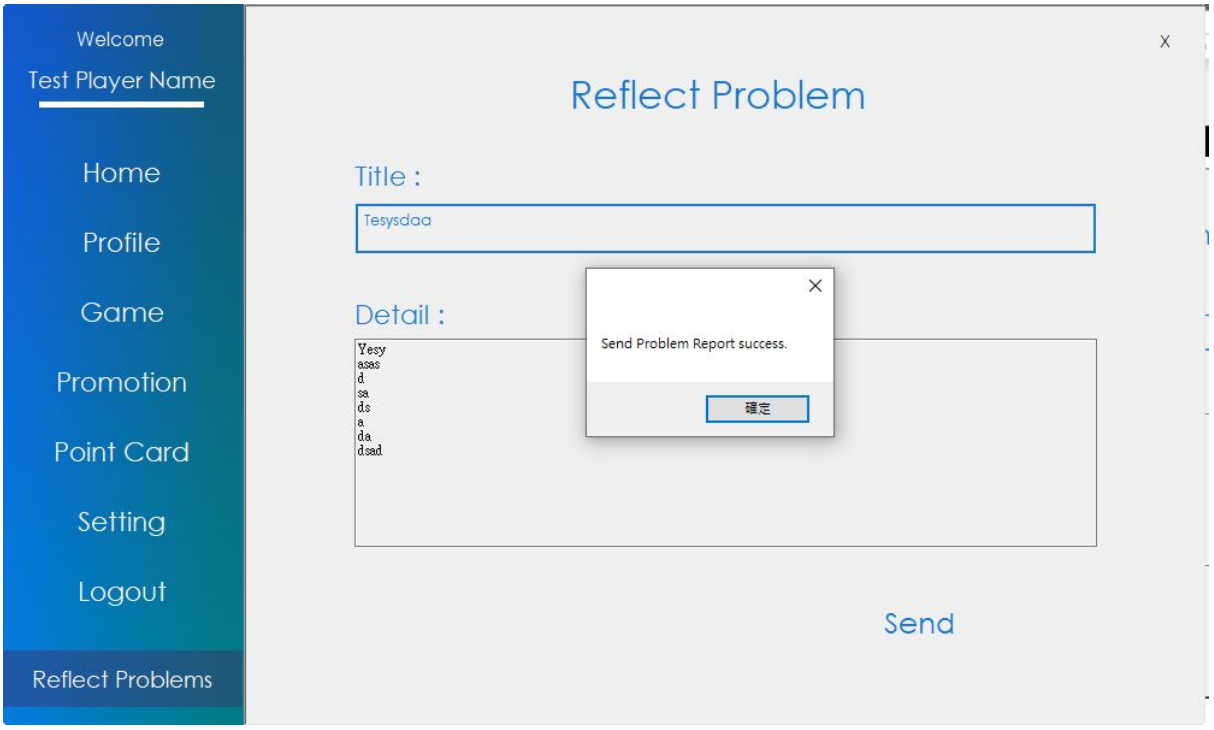
歡迎
Test Player Name
首頁
個人資料
遊戲
推廣
點卡
設置
登出
回報問題
x
ID:
P0000004
用戶名:
testPlayerAc
名稱:
Test Player Name
密碼:
****
電子郵件:
TestPlayer@test.com
金幣:
50
個人資料:
I am test player ac profile.
遊戲進度:
GSD War Zone 遊戲進度: 等級: 50, 角色: 戰士
GSD F1 Race 遊戲進度: 等級: 13, 已玩場數: 36

Player Interface (Reflect problems)

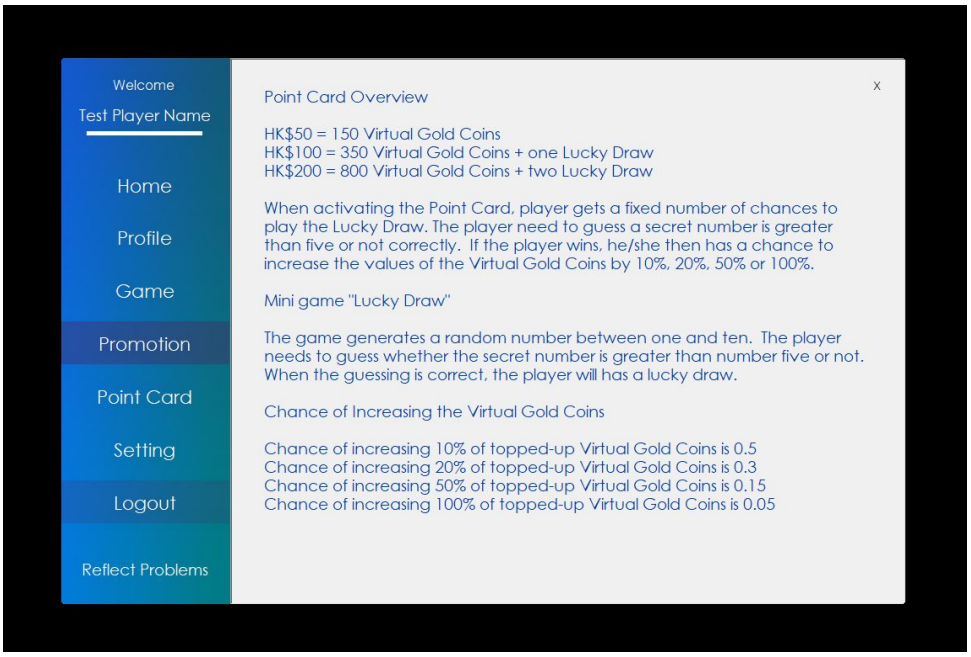
After player login their account and choose to reflect problems, they can type the problem title and detail respectively, and then submit it.

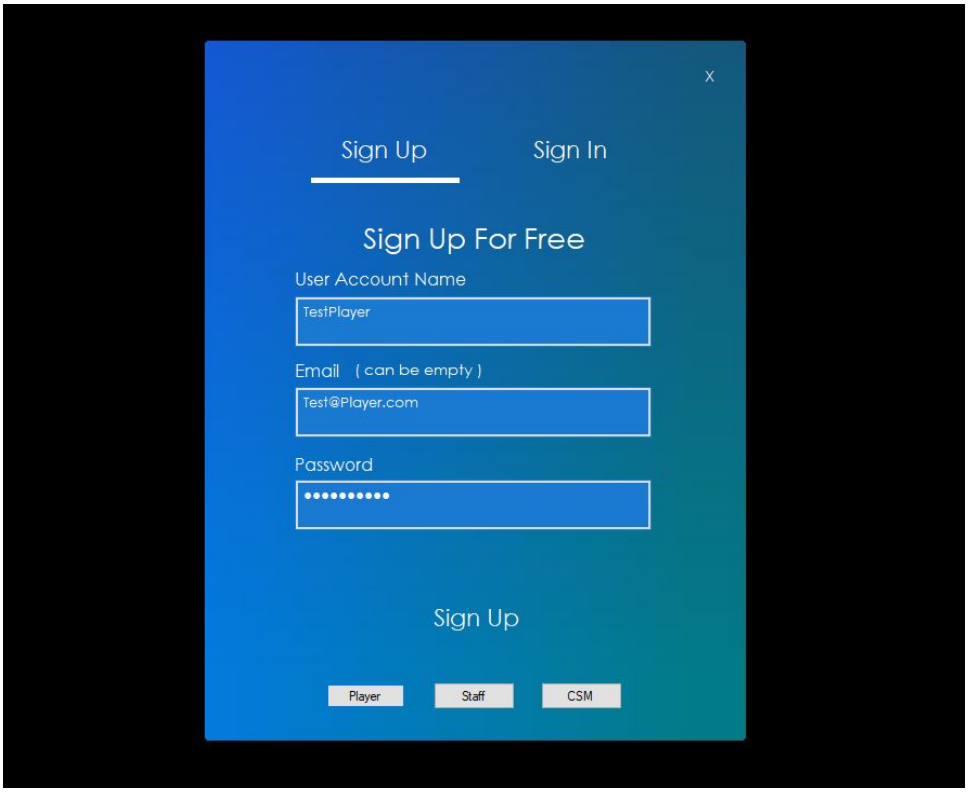





Welcome
Test Player Name
Home
Profile
Game
Promotion
Point Card
Setting
Logout
Reflect Problems
Reflect Problem
Title :
Tesysdaa
Detail :
Yesy
asas
d
sa
ds
a
da
dsad
Send Problem Report success.
確定
Send

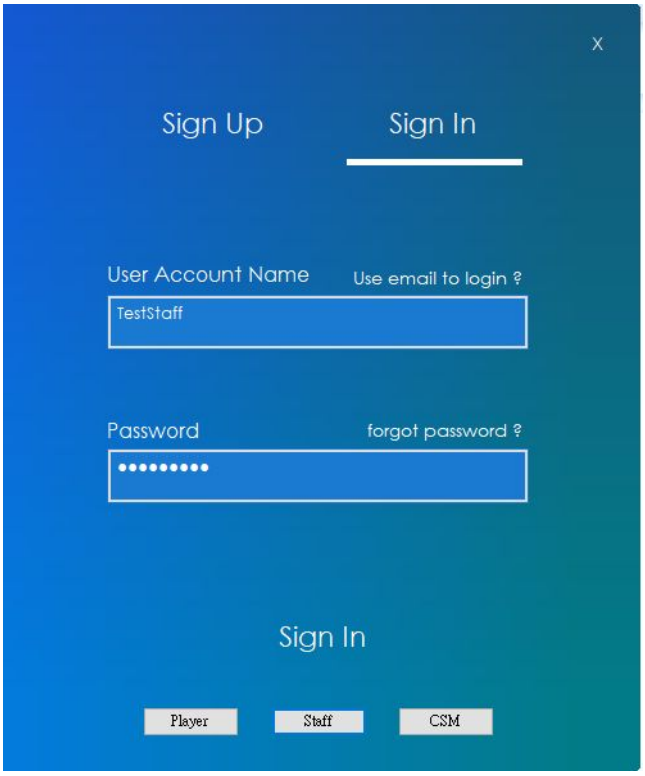
Player Interface (Logout)
When player want to logout, they just click the logout button and then it will logout successful.





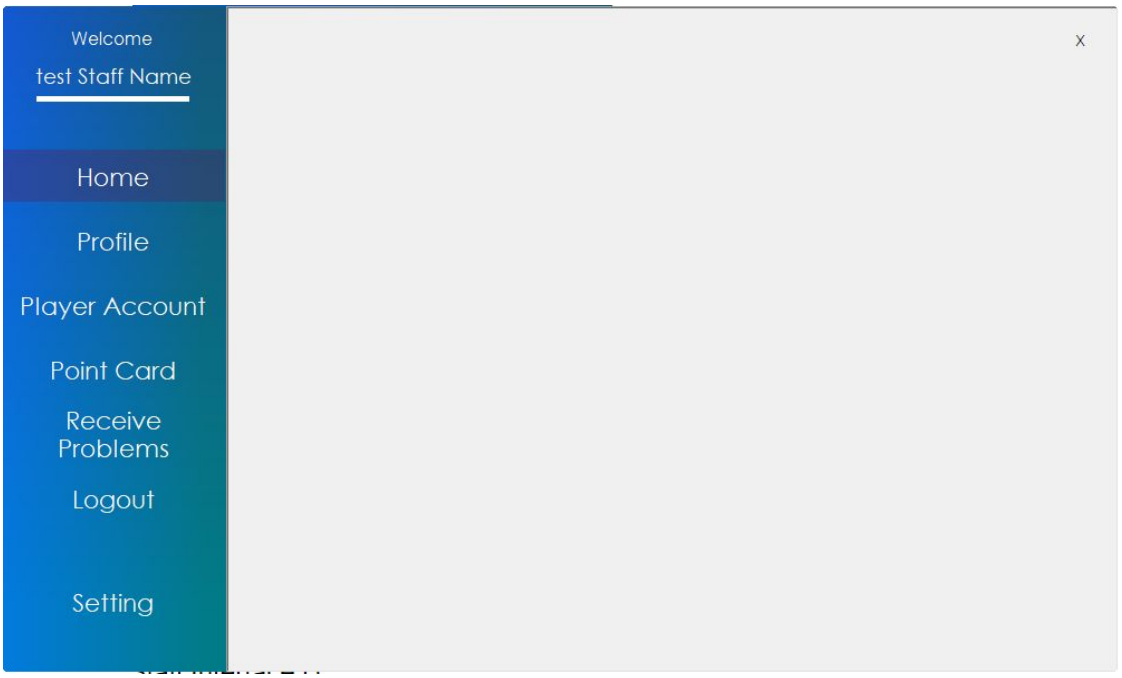
Staff Interface (Sign in)

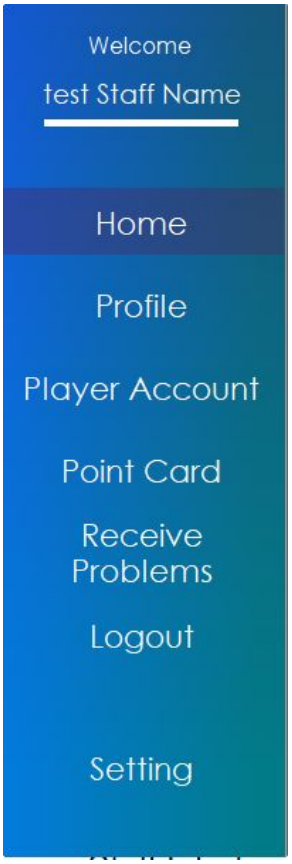
The Player, Staff and CSM use the same UI to Login, the system will automatically distinguish its identity based on account password.



Staff Interface (Main Menu)

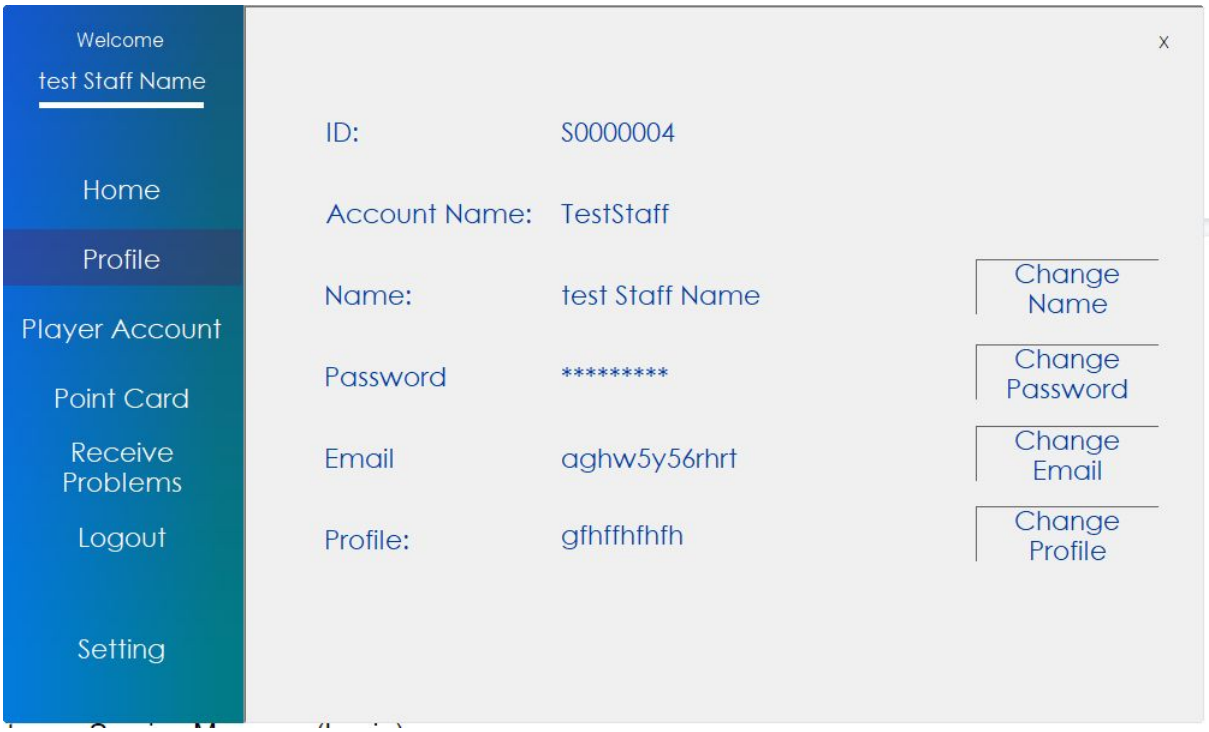
It is the Staff Main Menu, function selection like profile, player account, point card, receive problem and setting.

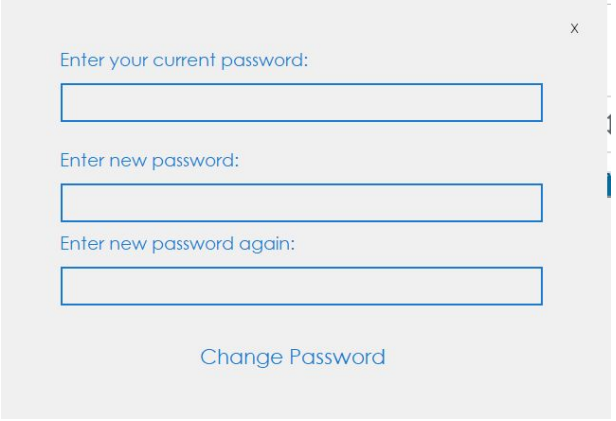


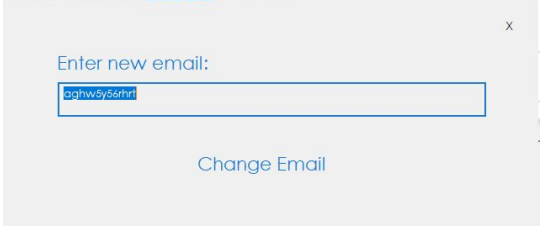


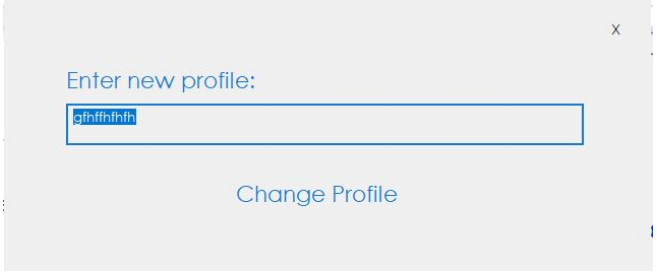
Staff Interface (Profile)

you can see the staff profile and staff can change/ maintain the Name, Password, Email and Profile.



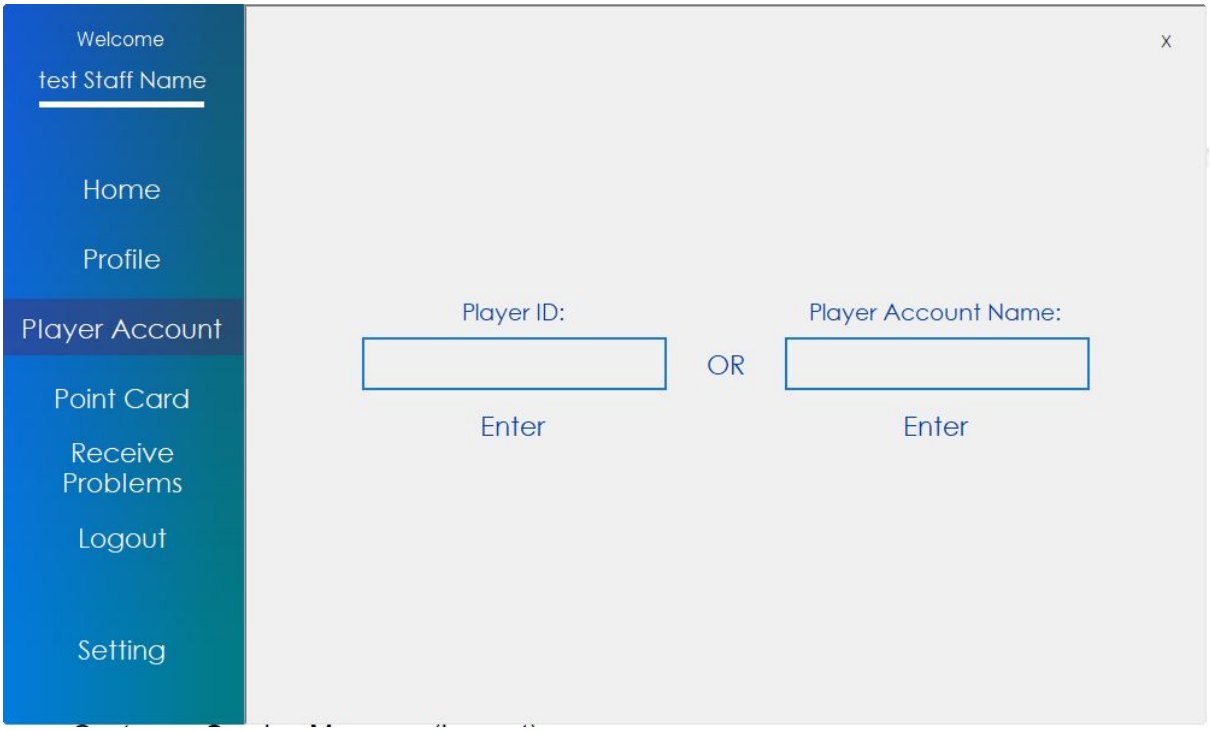


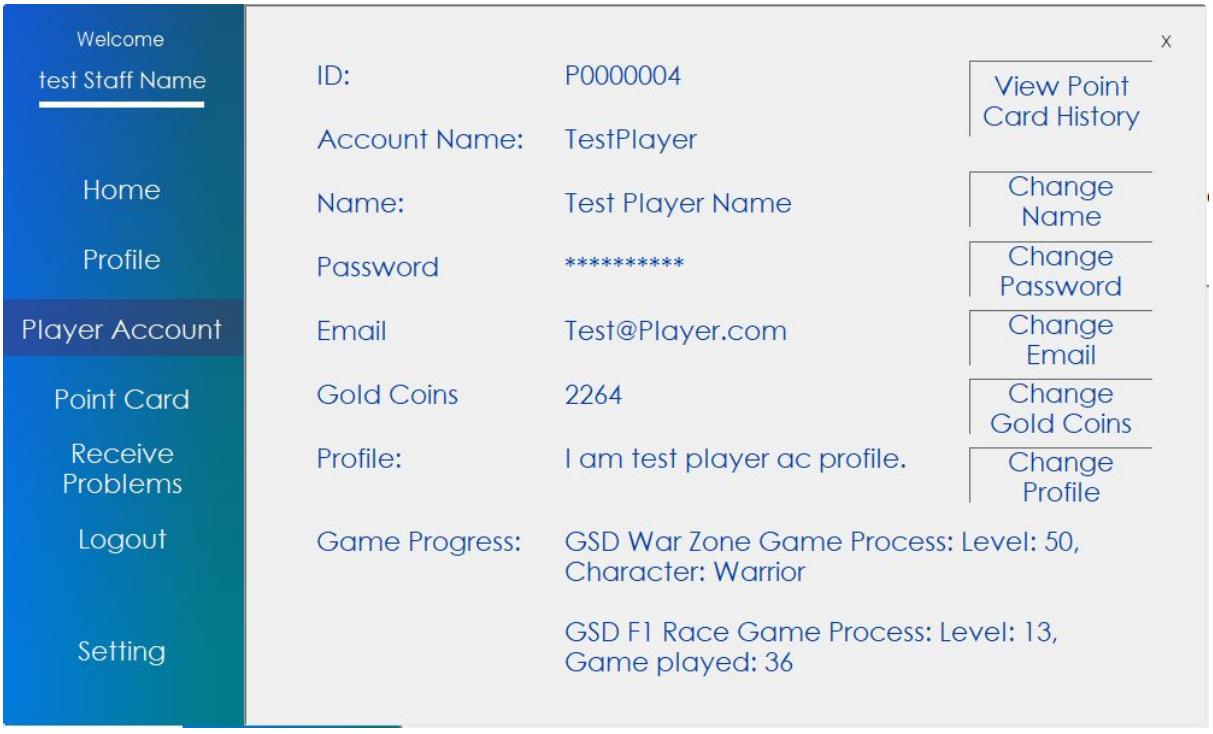




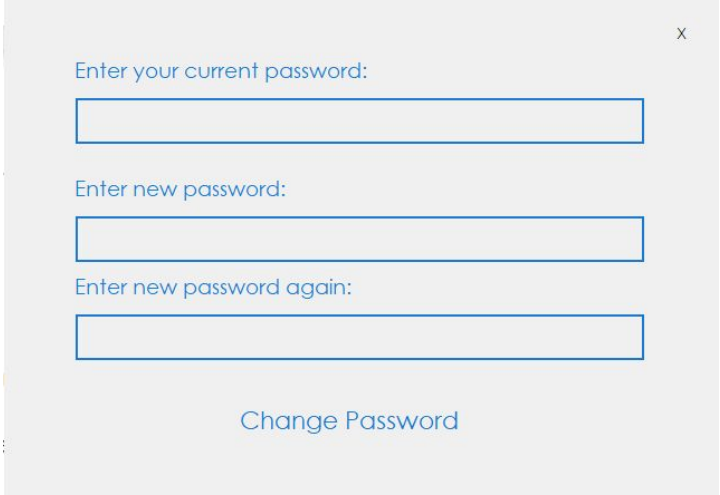
Staff Interface (Player Account)

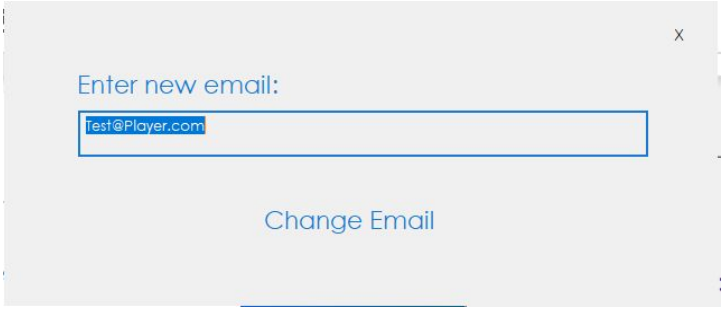
Staff can use this function to maintain player account, to view or change the player information include Name, Password, Email, GoldCoins and Profile.

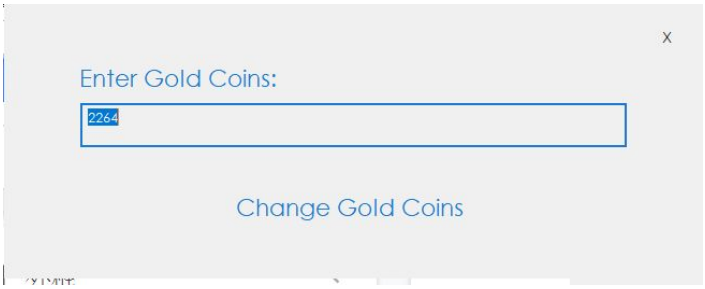


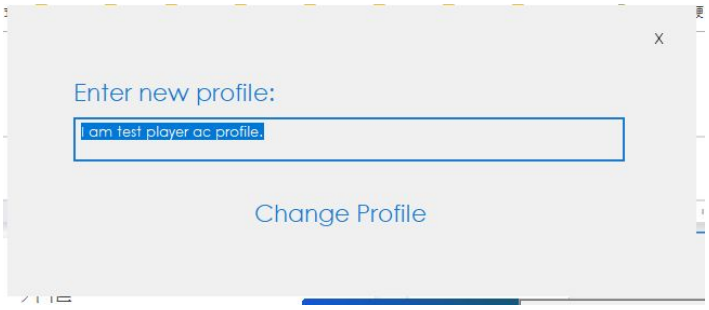


x
Enter new Name:
Test Player Name
Change Name

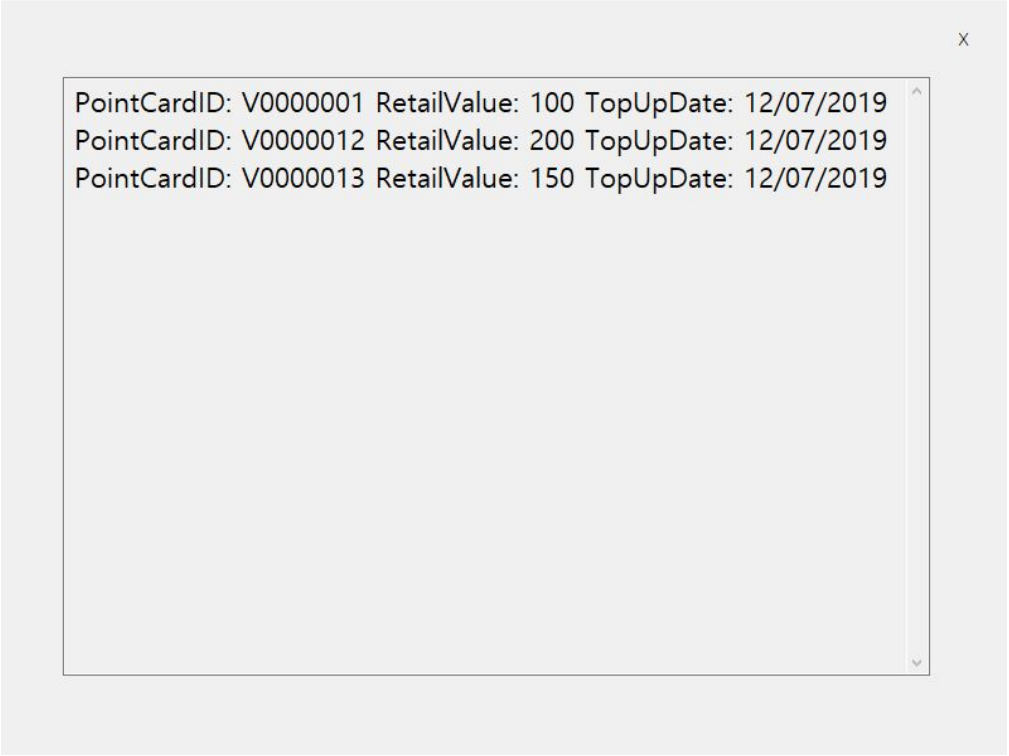

x
Enter your current password:
Enter new password:
Enter new password again:
Change Password


x
Enter new email:
Test@Player.com
Change Email


x
Enter Gold Coins:
2264
Change Gold Coins


x
Enter new profile:
I am test player ac profile.
Change Profile

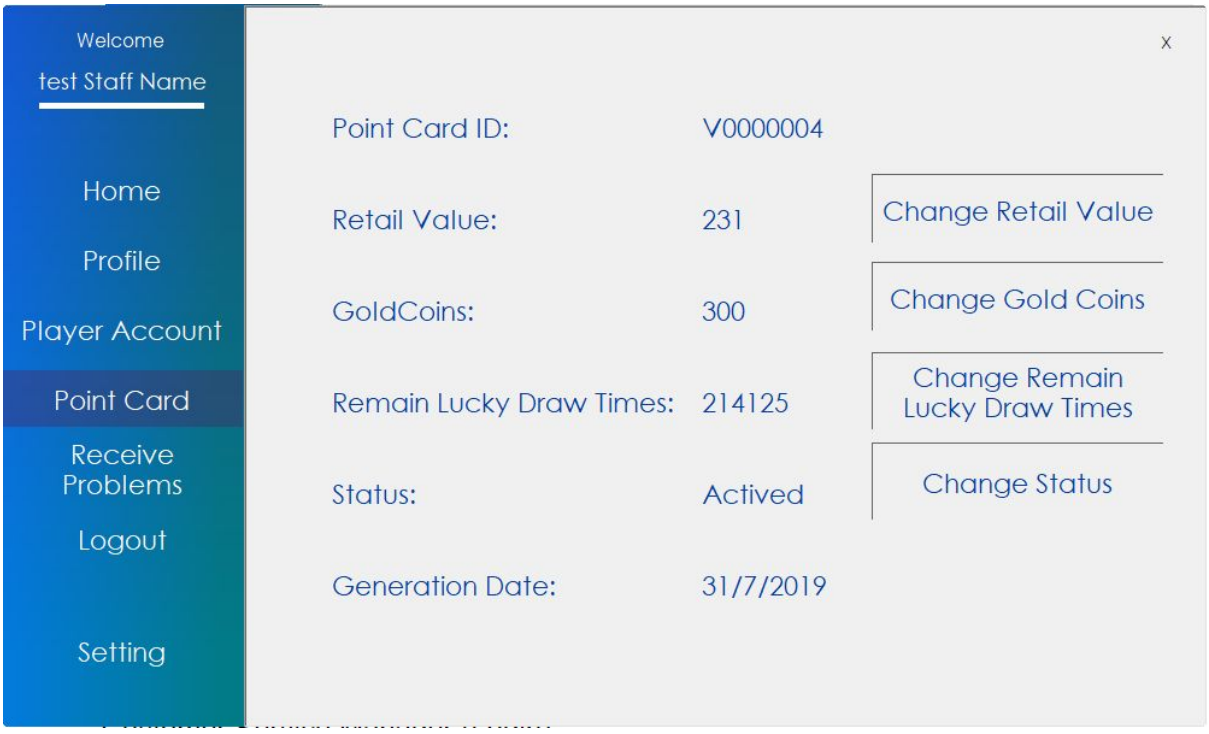
Also, the Staff can view to player Top-Up History.



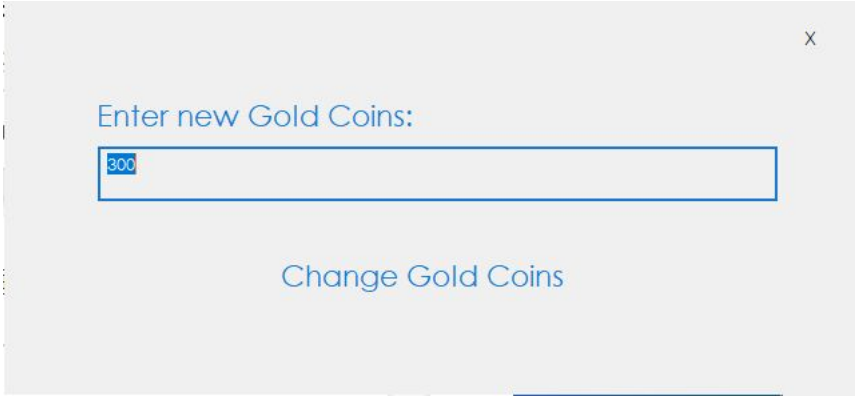
It had vertical scroll bar to avoid that the data is too many.

Staff Interface (Point Card)

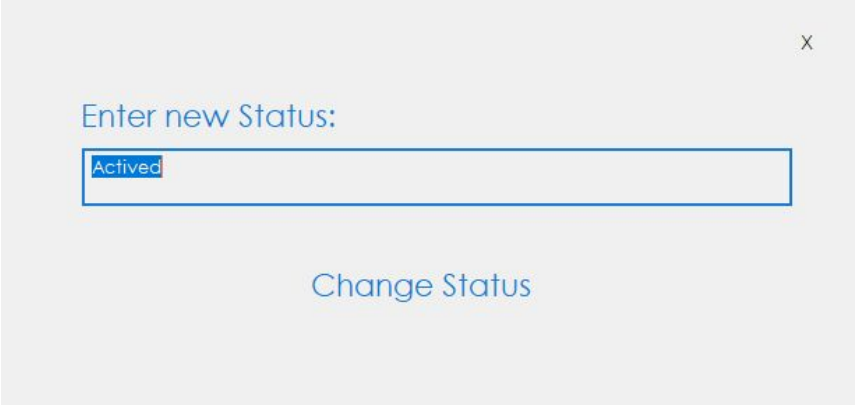
Staff can view and maintain Point Card by input Point Card ID.



x
Enter new Retail Value:
231
Change Retail Value

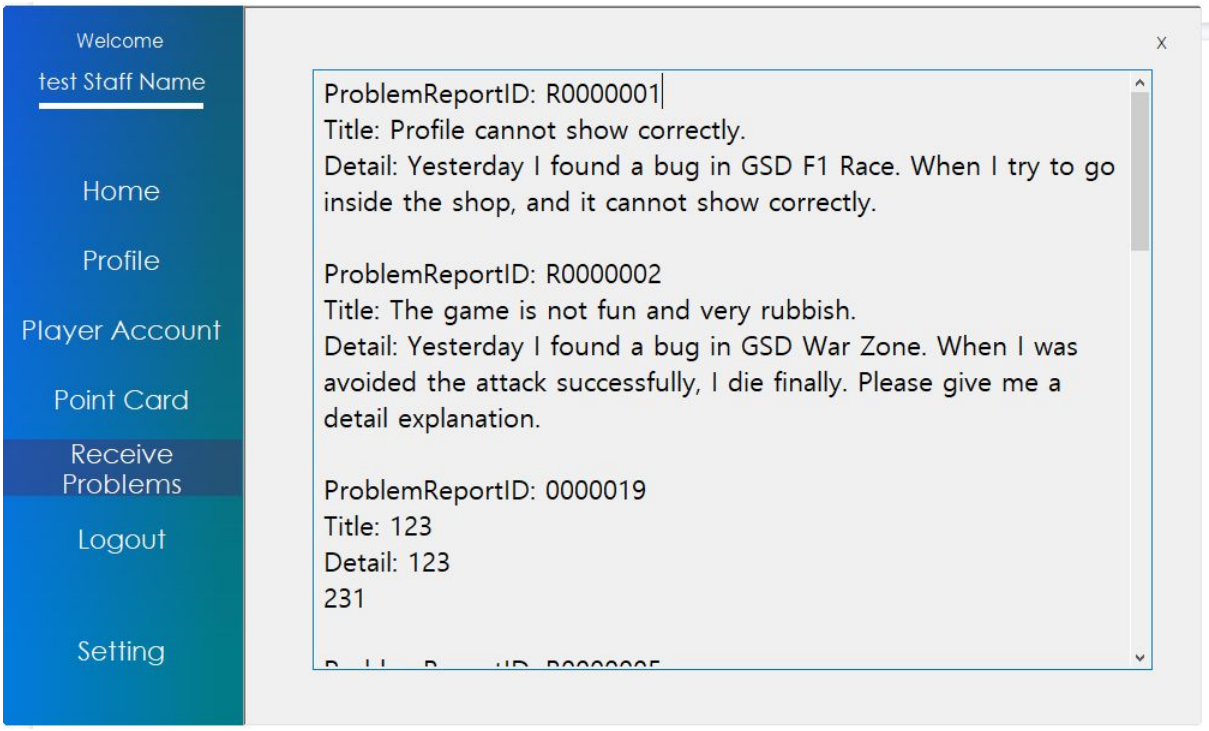

x
Enter new Gold Coins:
300
Change Gold Coins

x
Enter new Remain Lucky Draw Times :
214125
Change Remain Lucky Draw Times


x
Enter new Status:
Actived
Change Status

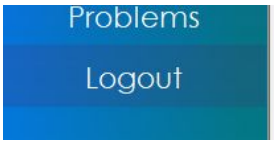
Staff Interface (Receive Problem)

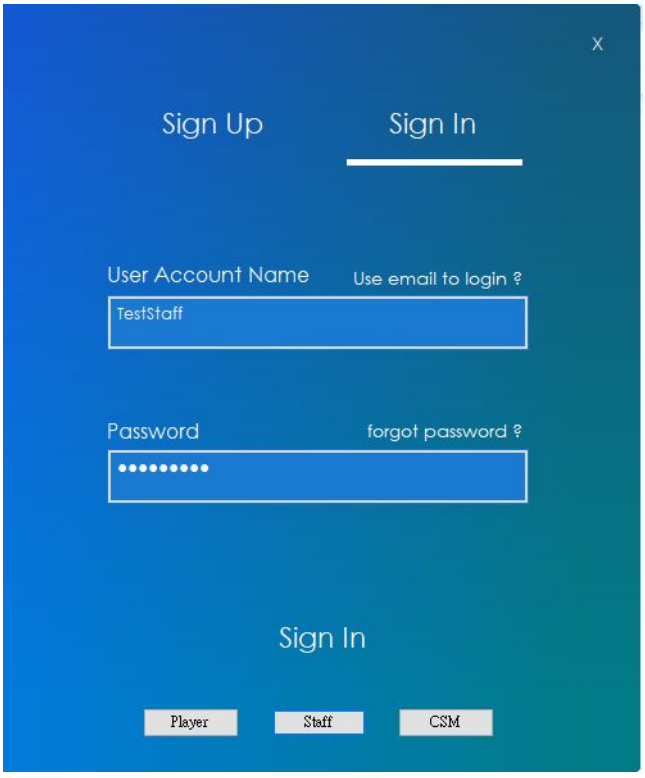
Staff can check the Problem Report by player sended.



Staff Interface (Logout)

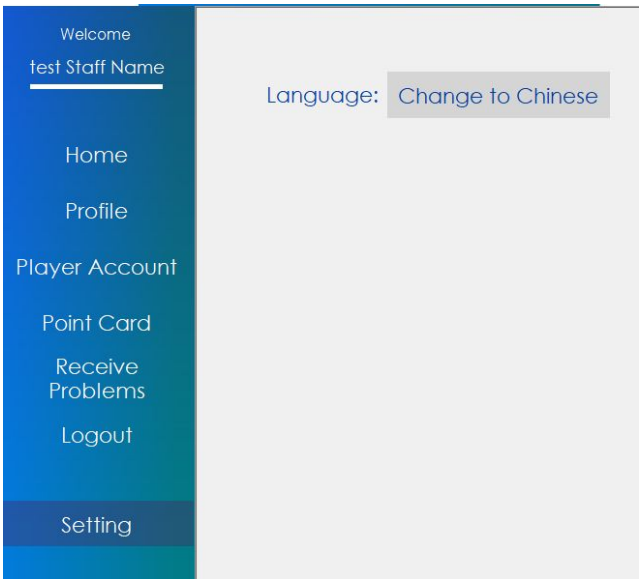
Staff click logout, and back to the Sign In UI.





Staff Interface (Setting)

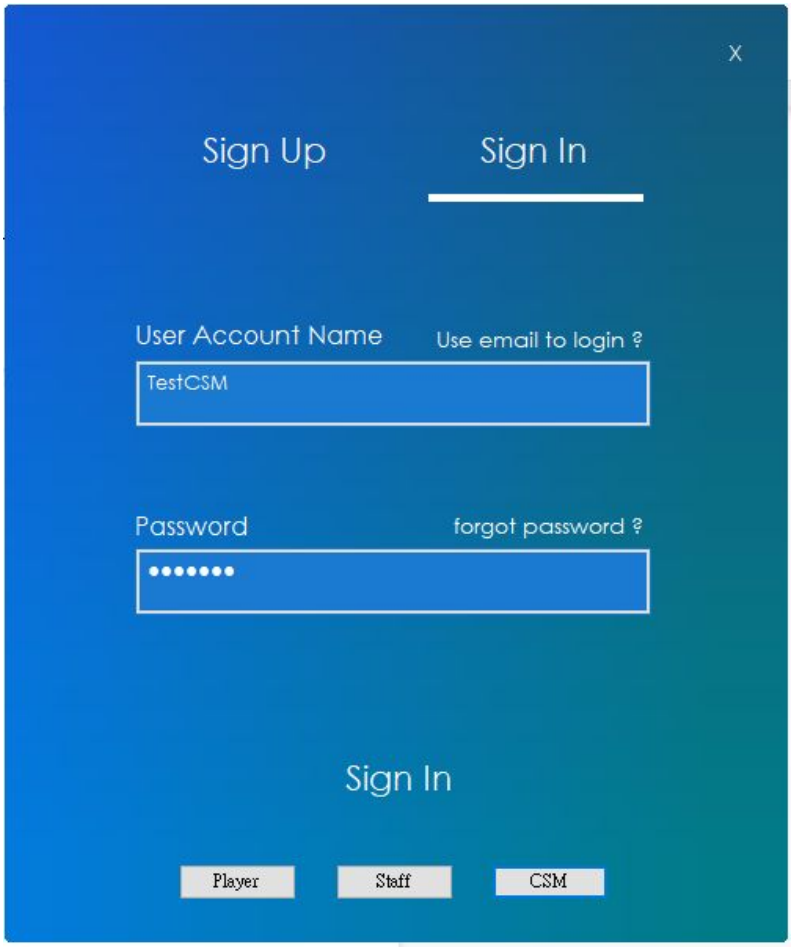
Staff can change the language (between english and chinese)



the Profile language will change together.

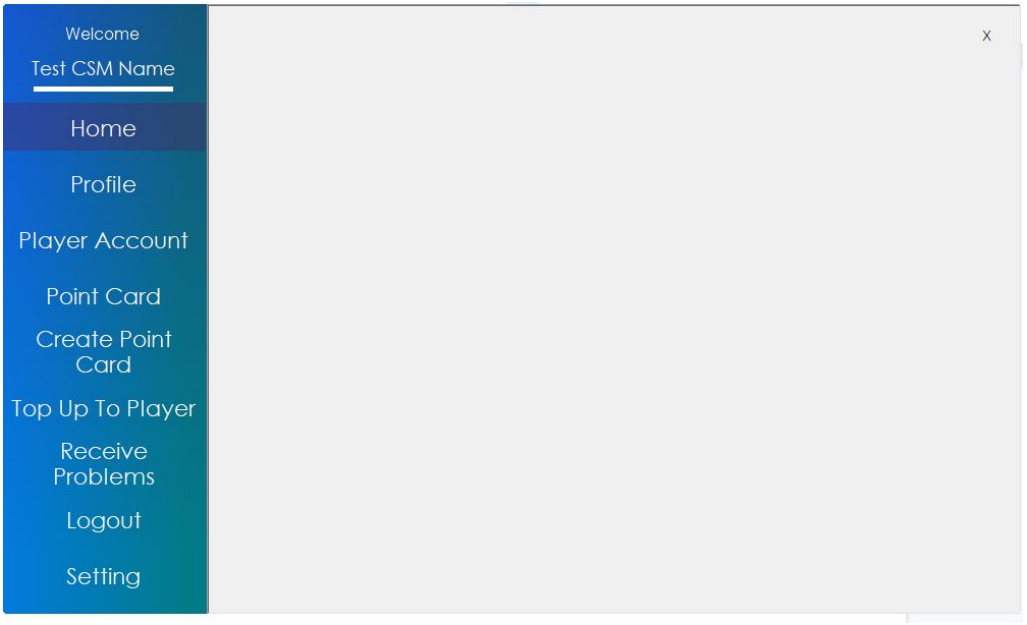
Customer Service Manager (Login)

The Player, Staff and CSM use the same UI to Login, the system will automatically distinguish its identity based on account password.



Customer Service Manager (Menu)

The Customer Service Manager Menu, the function selection include Profile, Player Account, Point Card, Create Point Card, Top Up To Player, Receive Problems, Logout, Setting.

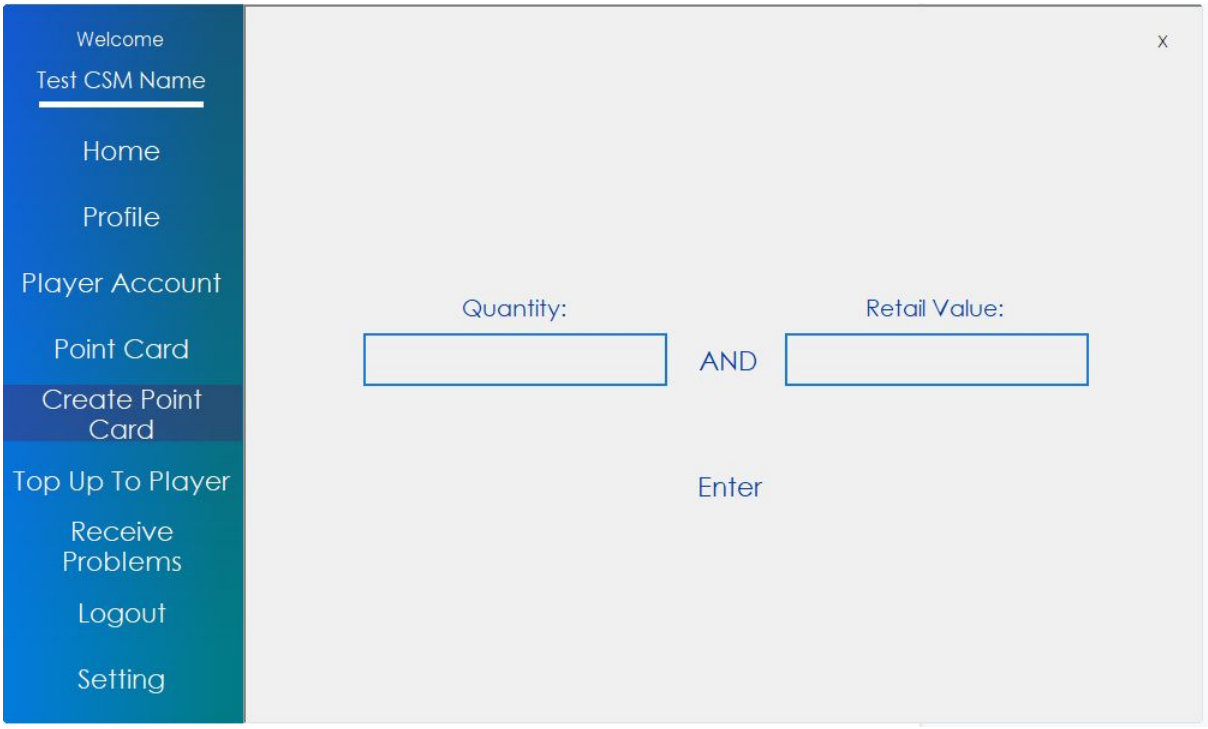


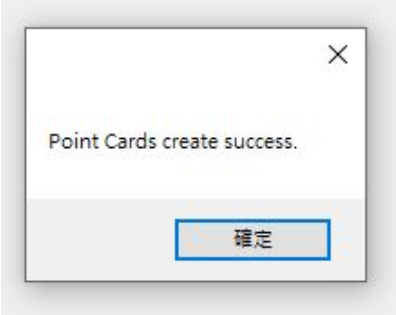
Please note that the function of Profile, Player Account, Point Card, Receive Problem, and Setting are same to Staff UI.

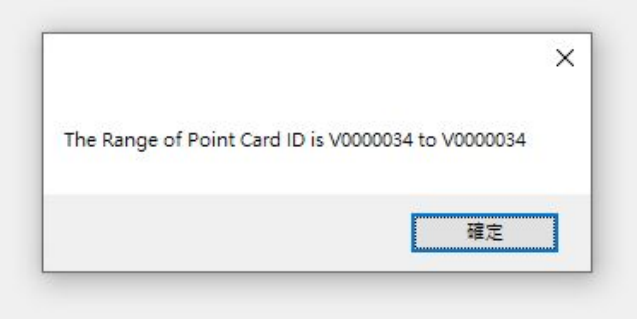
So that Customer Service Manager UI is only Create Point Card and Top Up To Player parts are new.

Customer Service Manager (Create Point Card)

Customer Service Manager can create some Point Card by input Quantity and retail value.

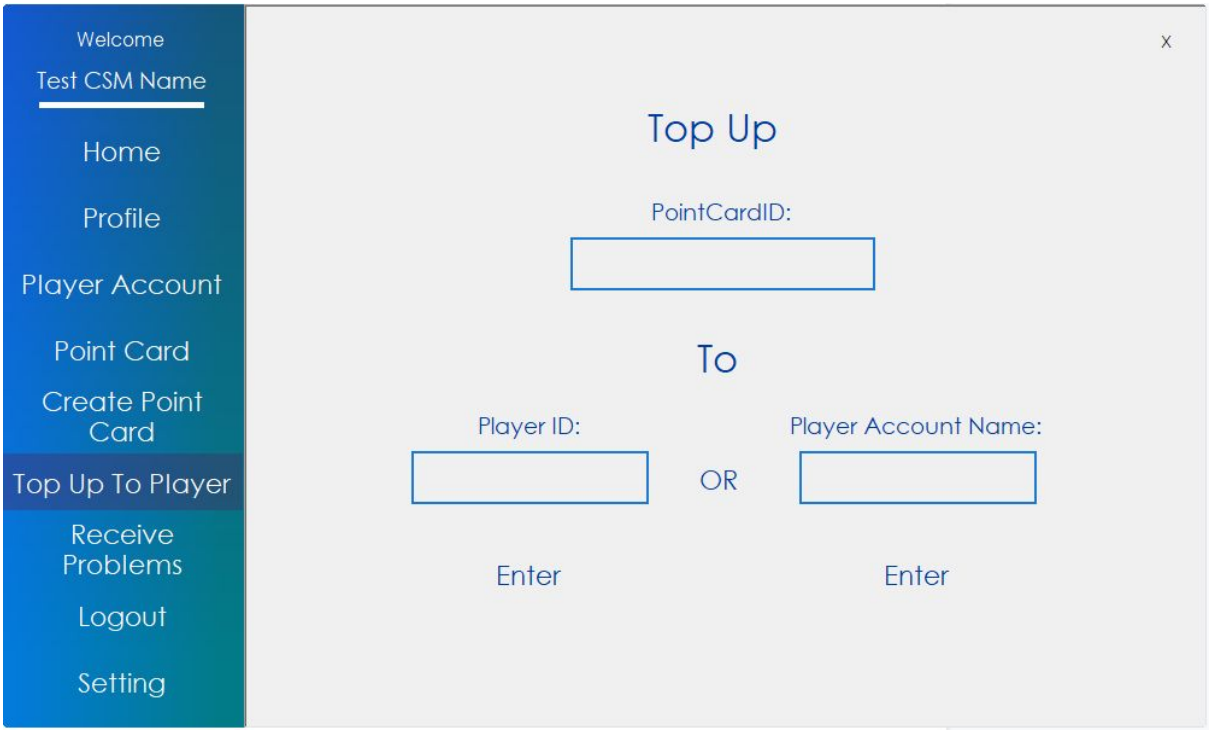


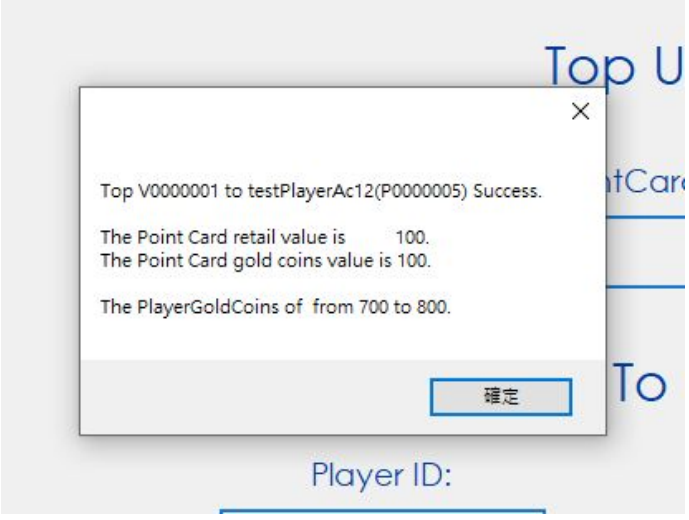




Customer Service Manager (Top Up To Player)

Customer Service Manager can Top Up Point Card to Player by input Point Card ID and Player ID or Player Account Name.

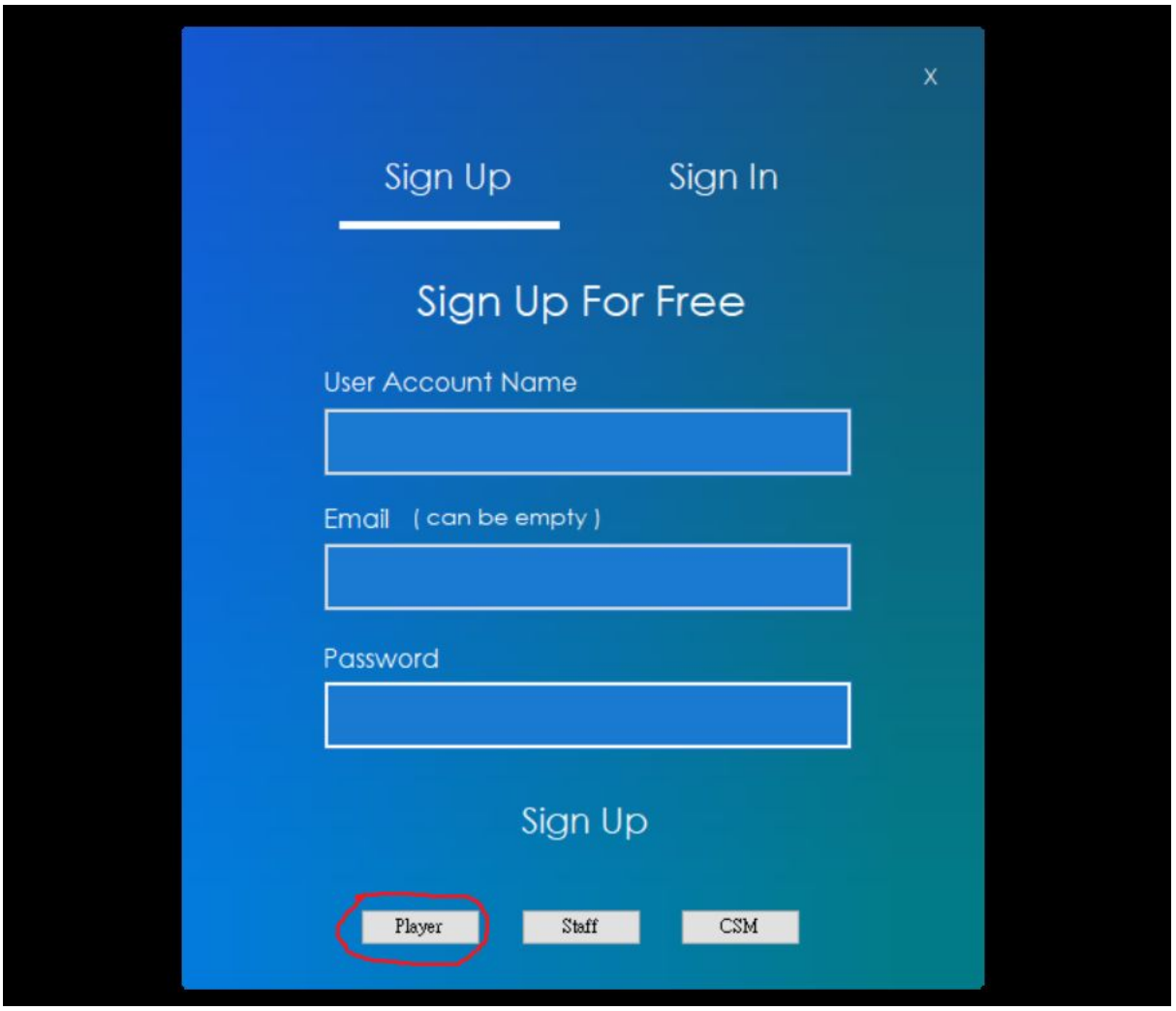


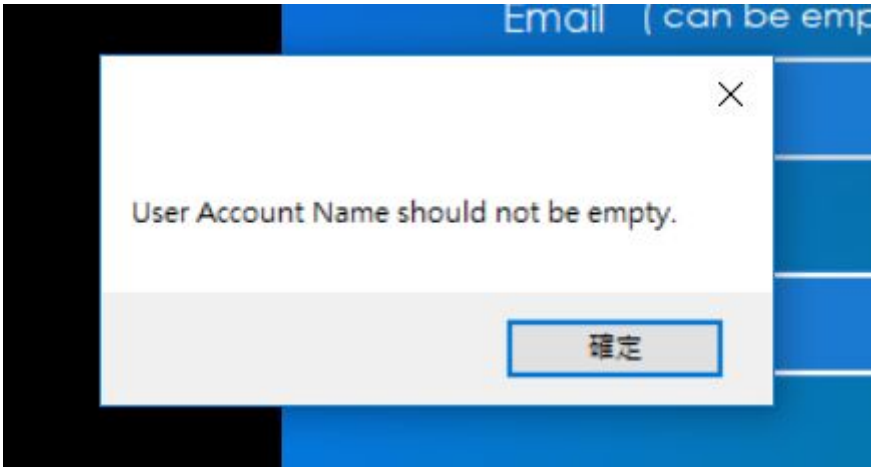


All test cases and test data

Player Interface (Sign up)

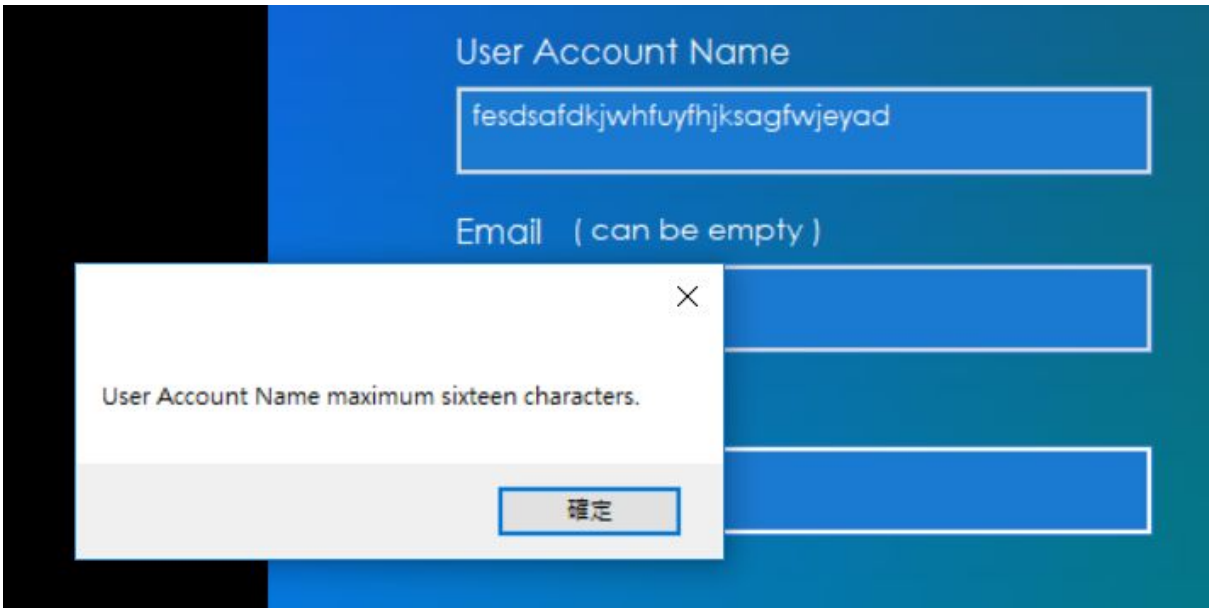
Empty case:



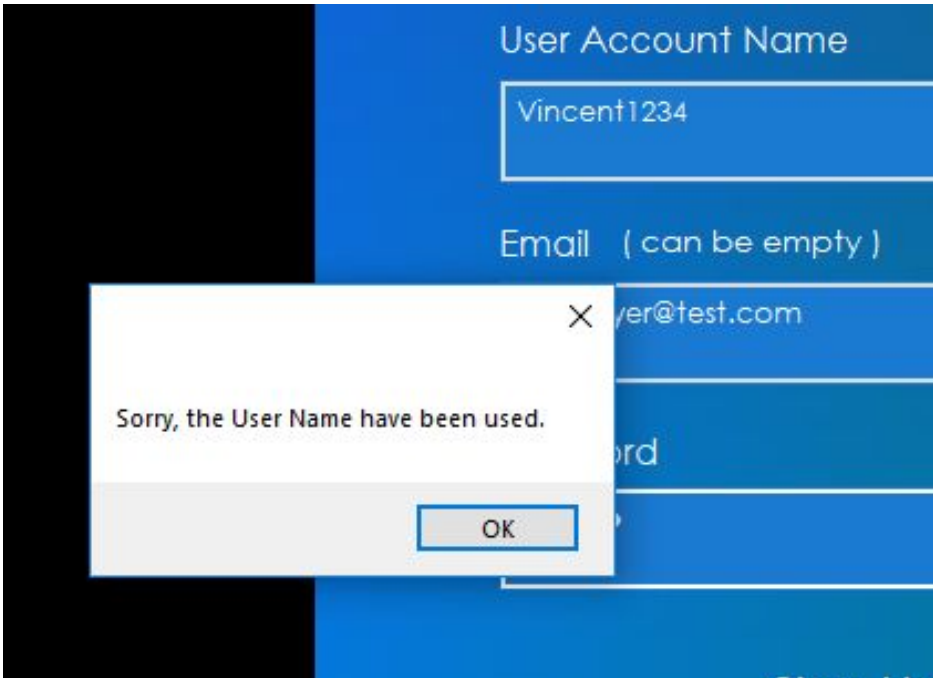


It will show a message box about “User Account Name should not be empty.” when player enter nothing.

User account name case:



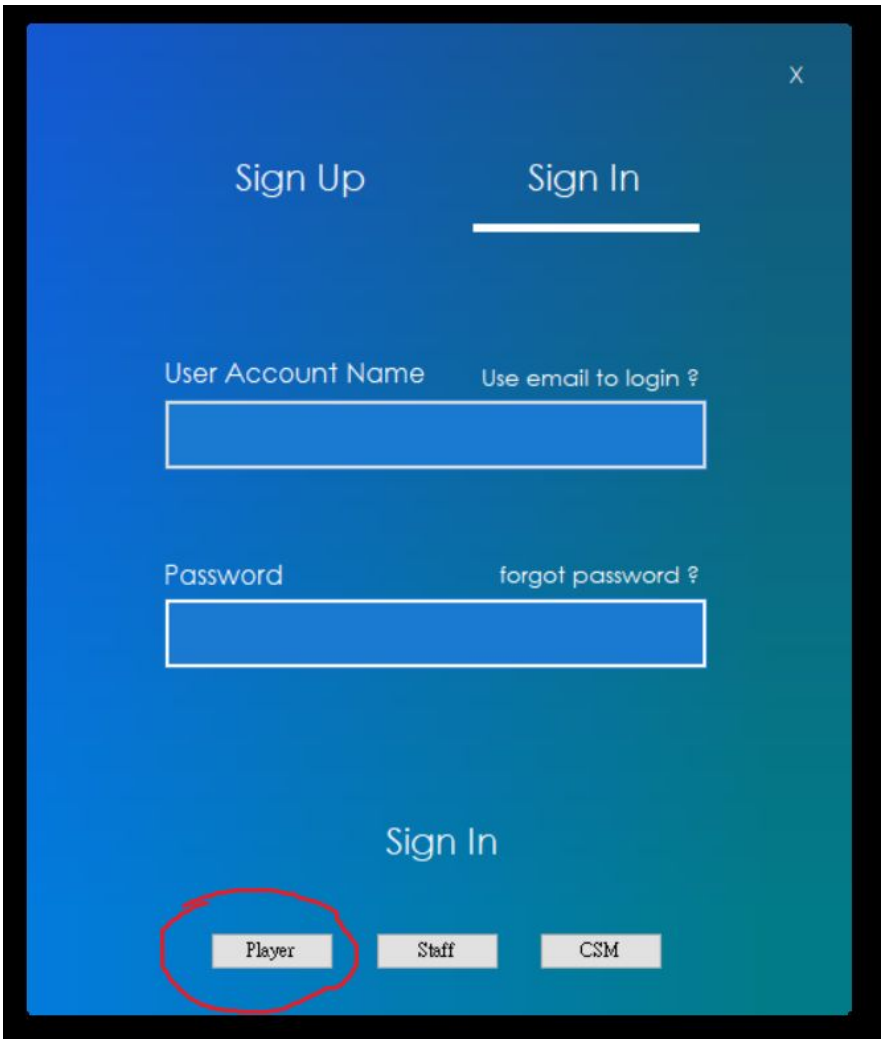
It will show a message box about “User Account Name maximum sixteen characters.” when player enter the user account name is more than sixteen characters.

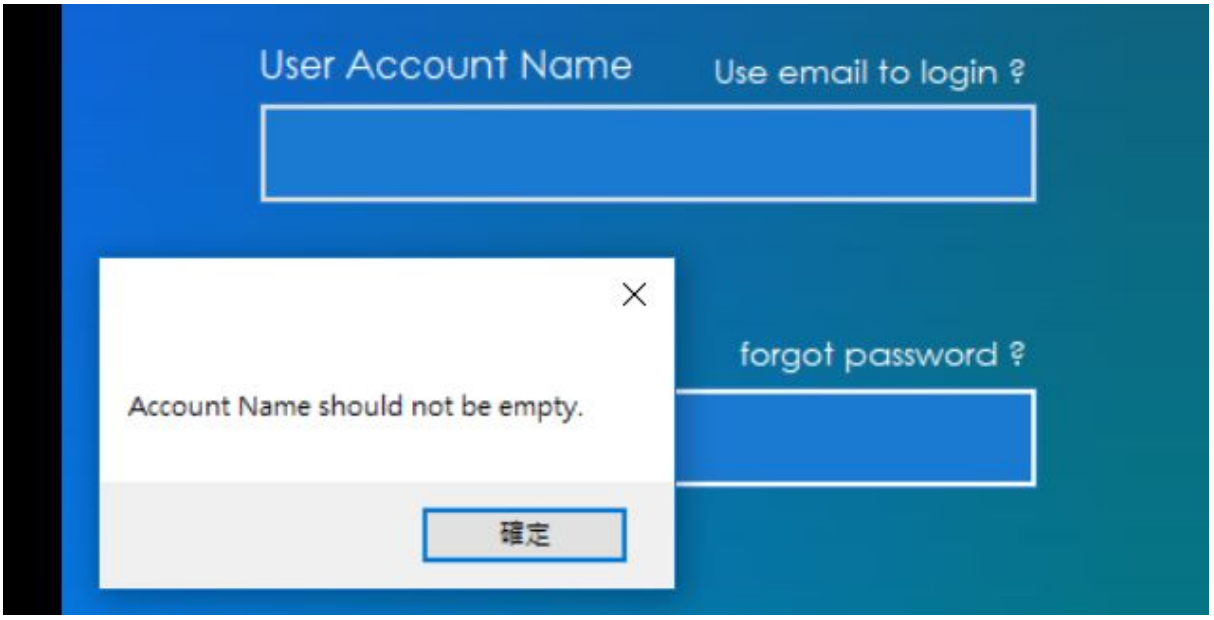


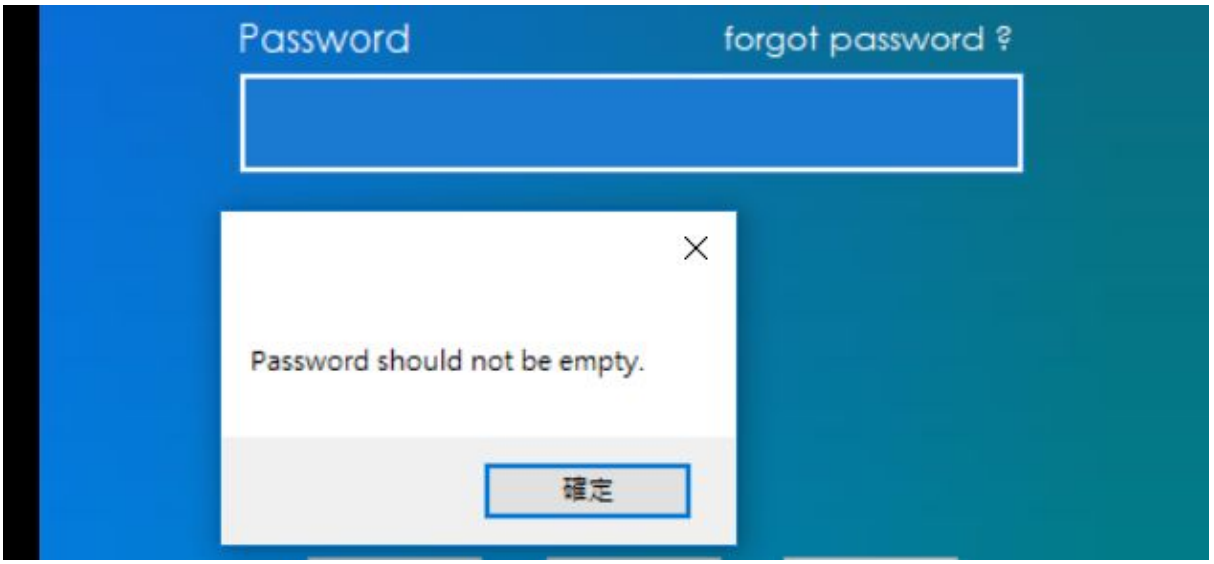
It will show a message box about “Sorry, the User Account Name has been used.” when player enter the user account name is used by others.

Player Interface (Sign in)

Empty case:

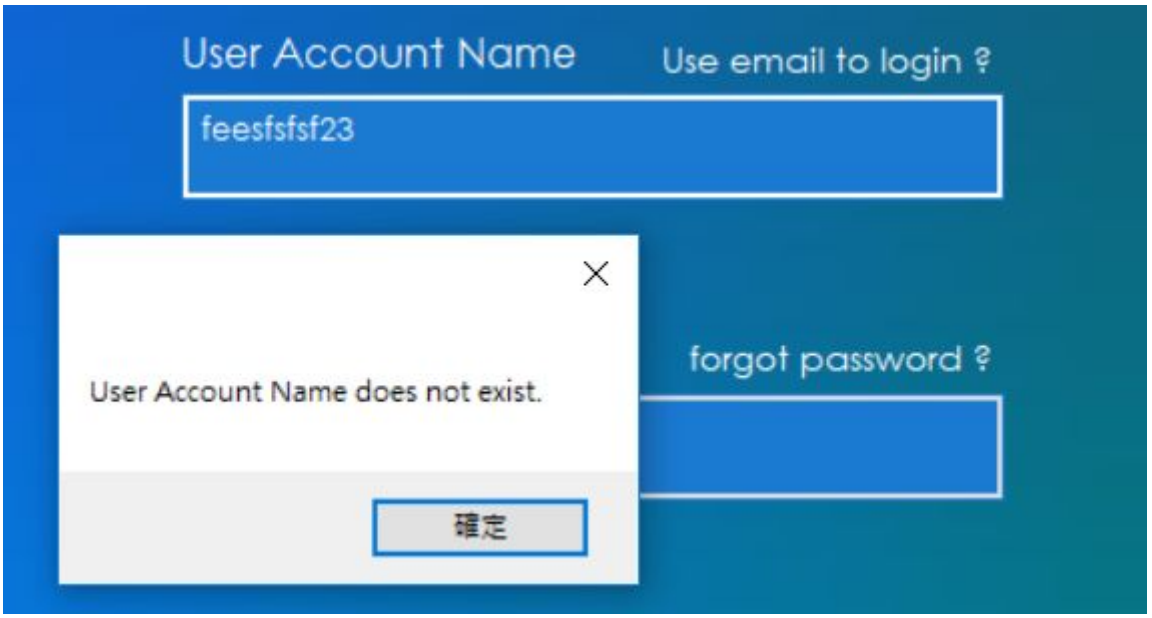




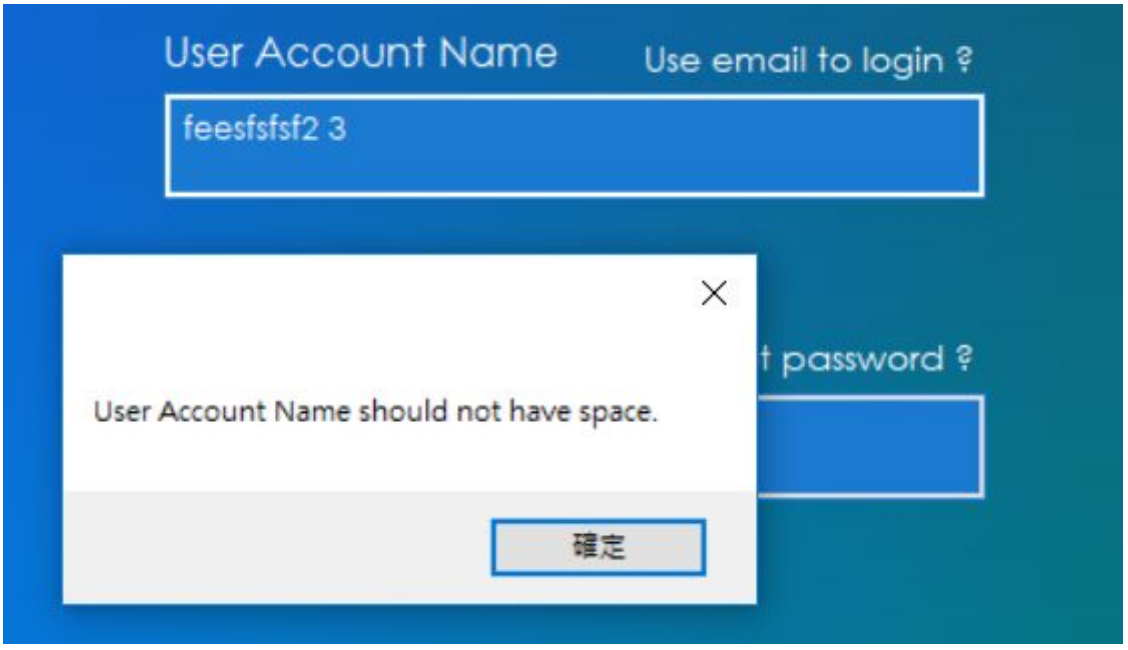


It will show a message box about “Account Name should not be empty.” and “Password should not be empty.” when player do not enter anything.

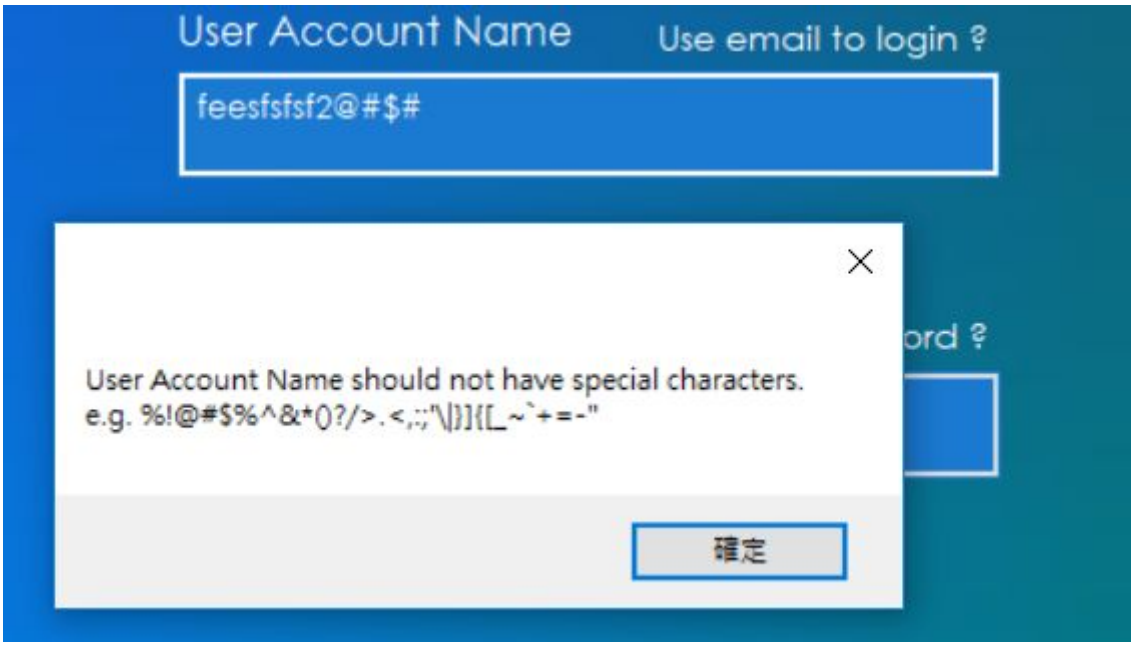
User Account Name case:



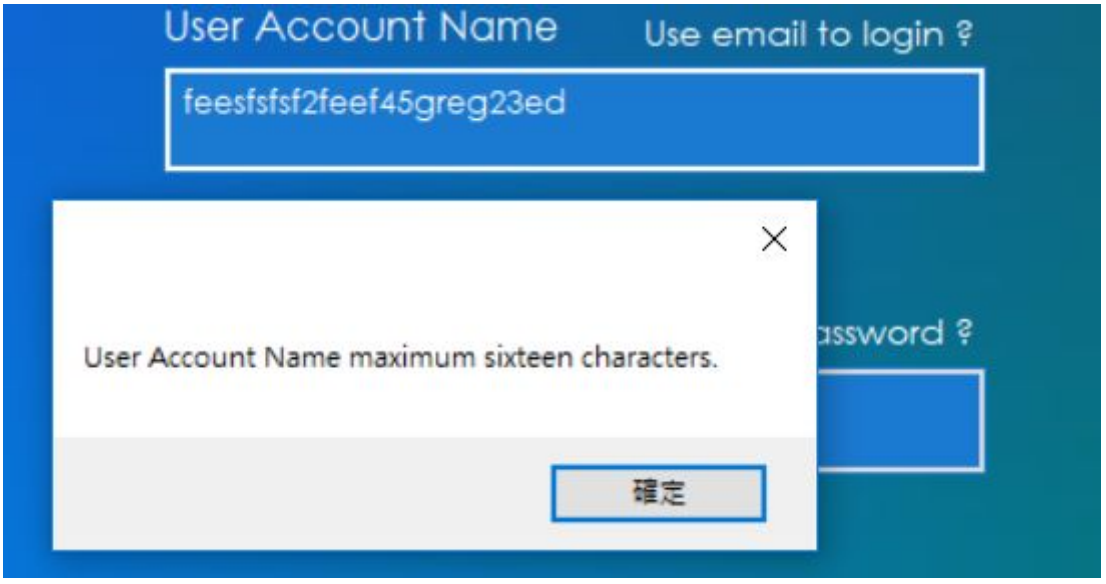
It will show a message box about “User Name does not exist.” when player enter the wrong user account name and right password.



It will show a message box about “User Account Name should not have space.” when player enter the user account name with space.

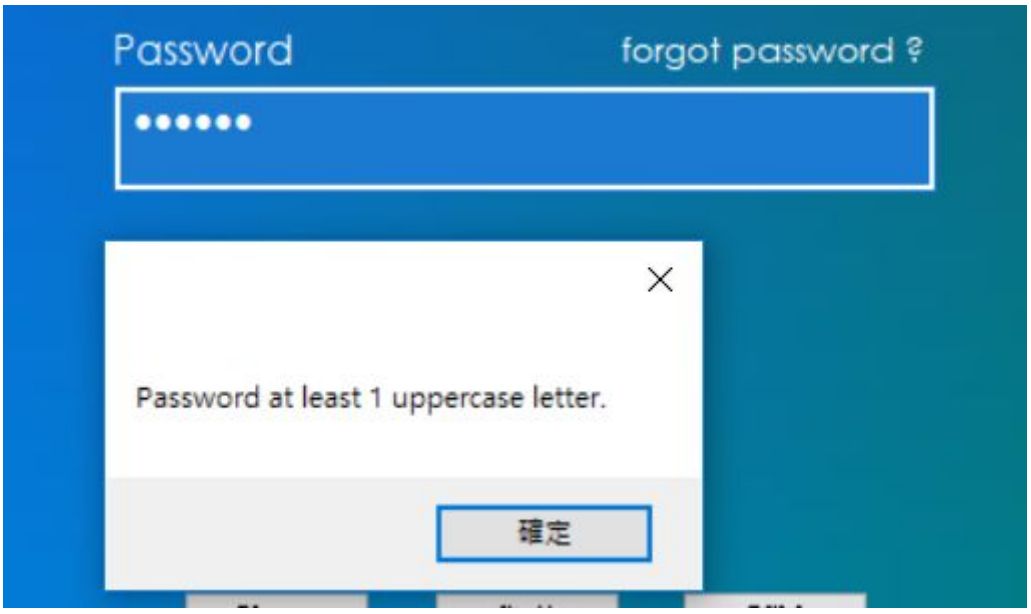


It will show a message box about “User Account Name should not have special characters. e.g.e.g. %!@#$%^&*()?/>.<,:;'\|}]{[_~`+=-” when player enter the user account name with special characters.

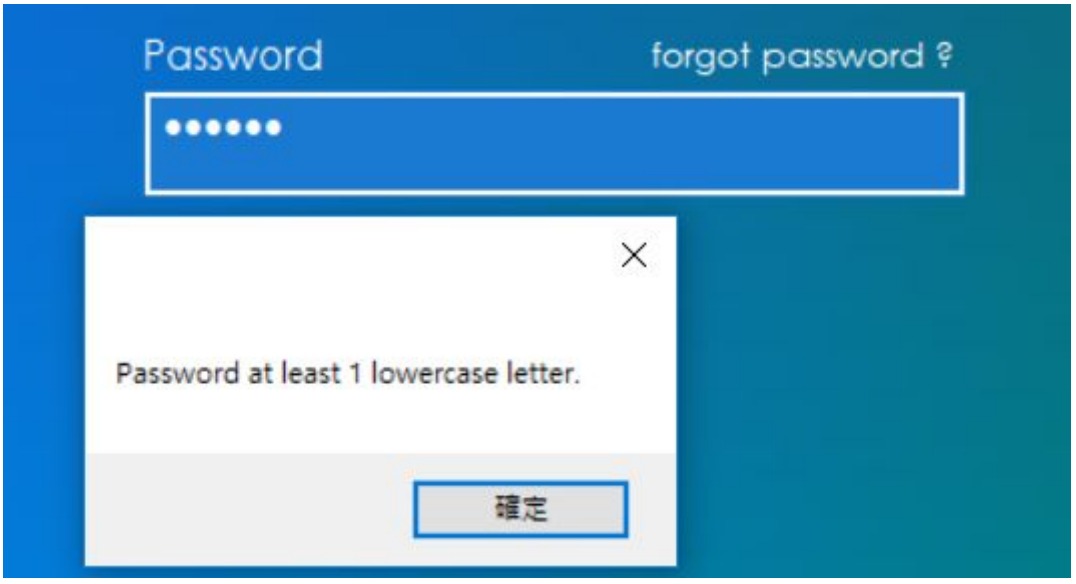


It will show a message box about “User Account Name maximum sixteen characters.” when player enter the user account name is more than sixteen characters.

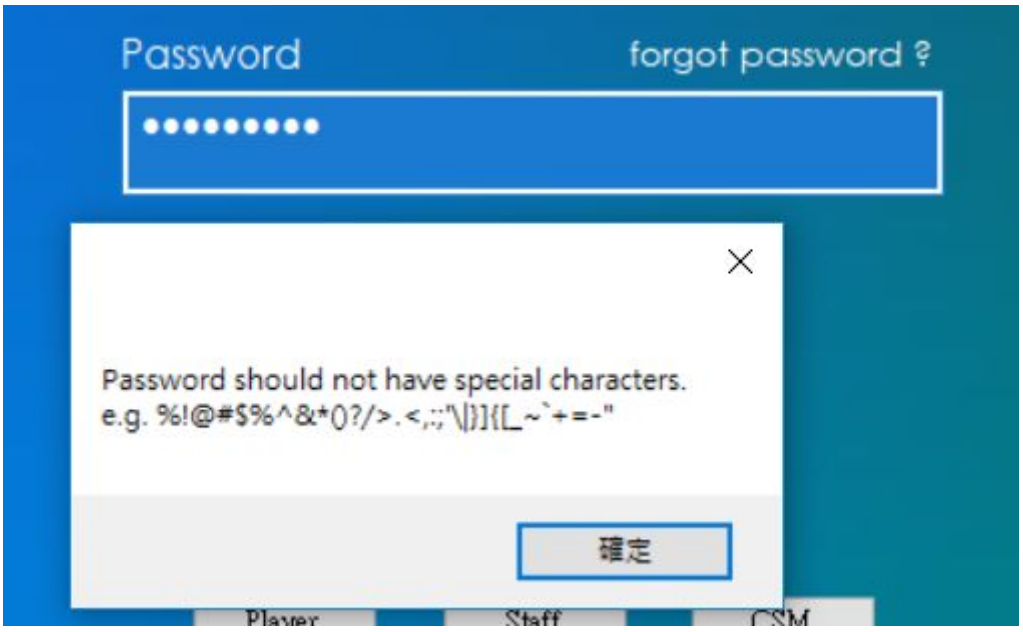
Password case:



It will show a message box about “Password at least 1 uppercase letter.” when player enter the password without 1 uppercase.

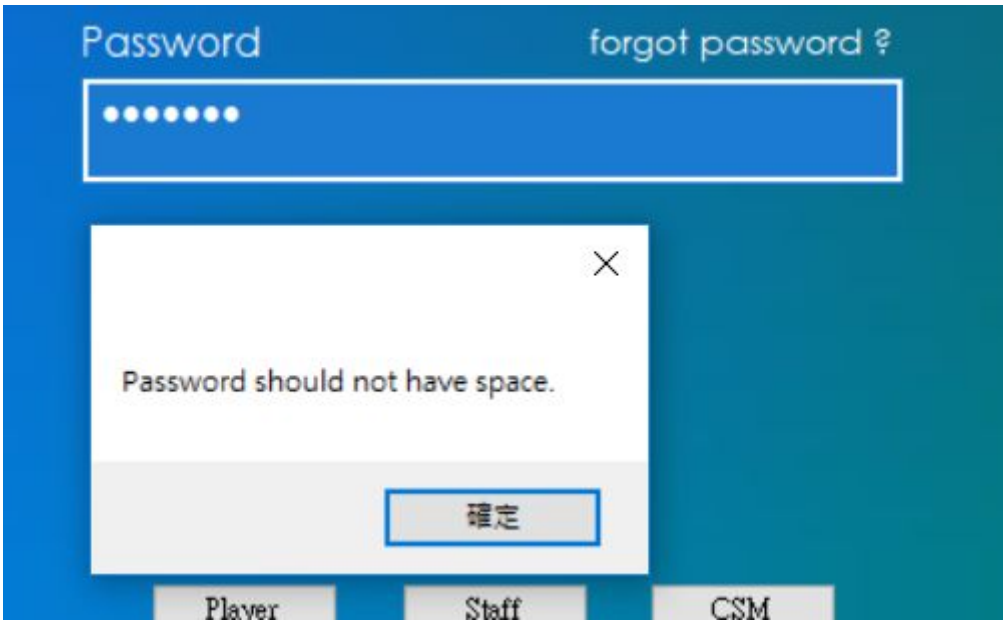


It will show a message box about “Password at least 1 lowercase letter.” when player enter the password without 1 lowercase.



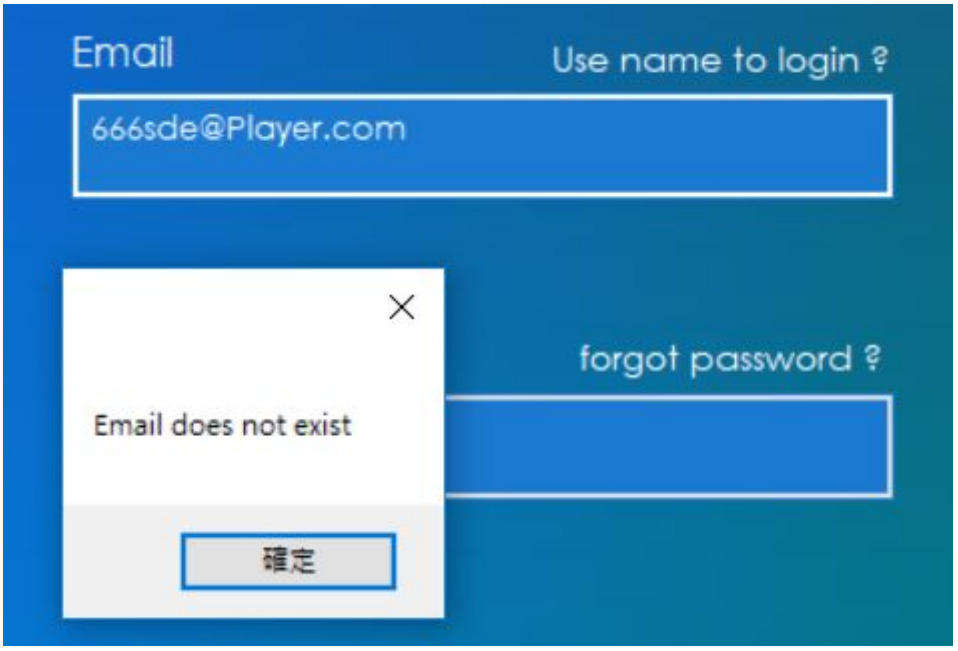
It will show a message box about “Password should not have special characters. e.g.e.g. %!@#$%^&*()?/>.<,:;'\|}]{[_~`+=-” when player enter the password with special characters.

It will show a message box about “User Name or Password is wrong.” when player enter the right user account name and wrong password.



It will show a message box about “Password should not have space.” when player enter the password with space.

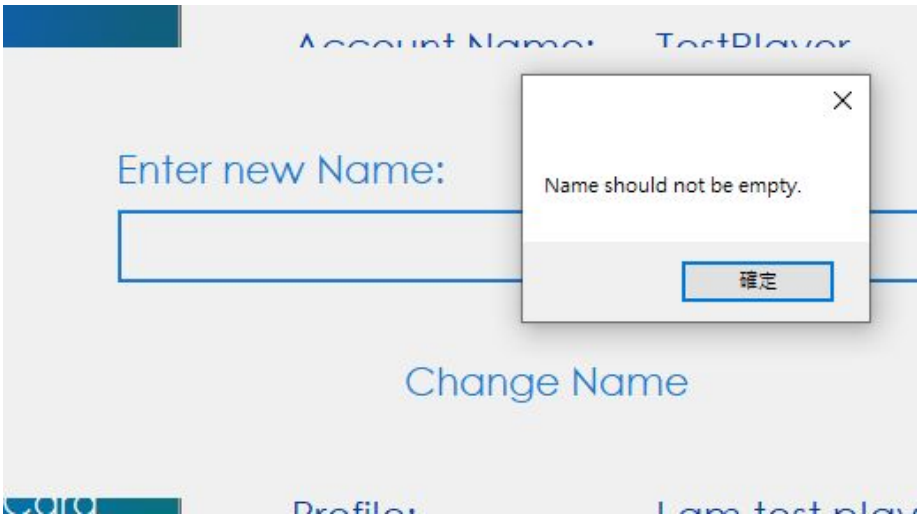
Email case:



It will show a message box about “Email does not exist.” when player enter the wrong email and right password, email with space, and email with special characters.

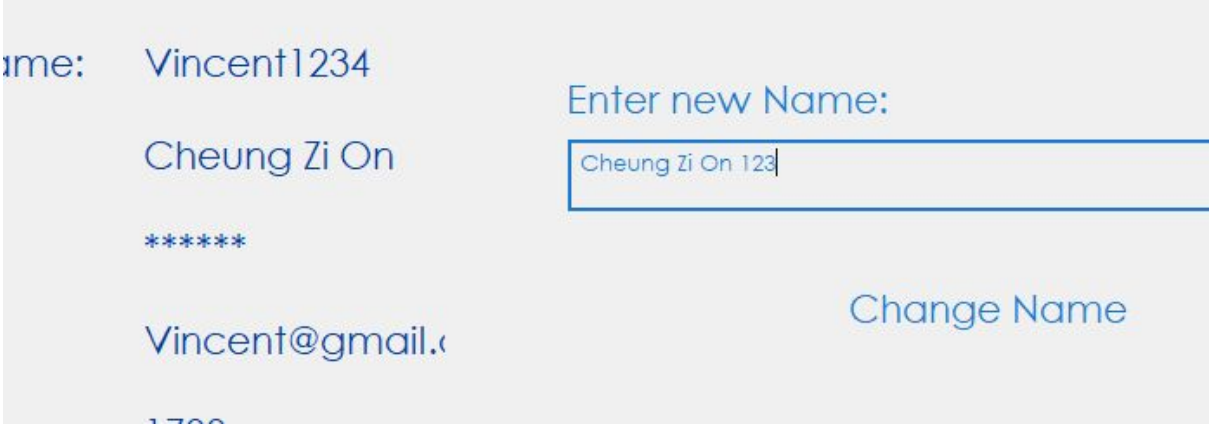
Player Interface (Enquire player information and game progress)

Change Name case:



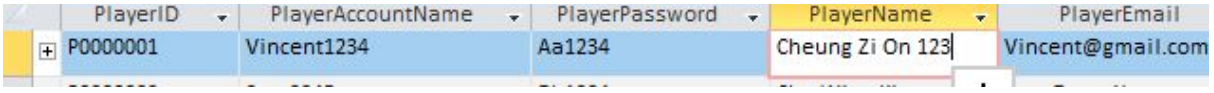
It will show a message box about “Name should not be empty.” when player enter nothing.

Let try to change to Name.
“Cheung Zi On” change to “Cheung Zi On 123”



the information has been refresh.

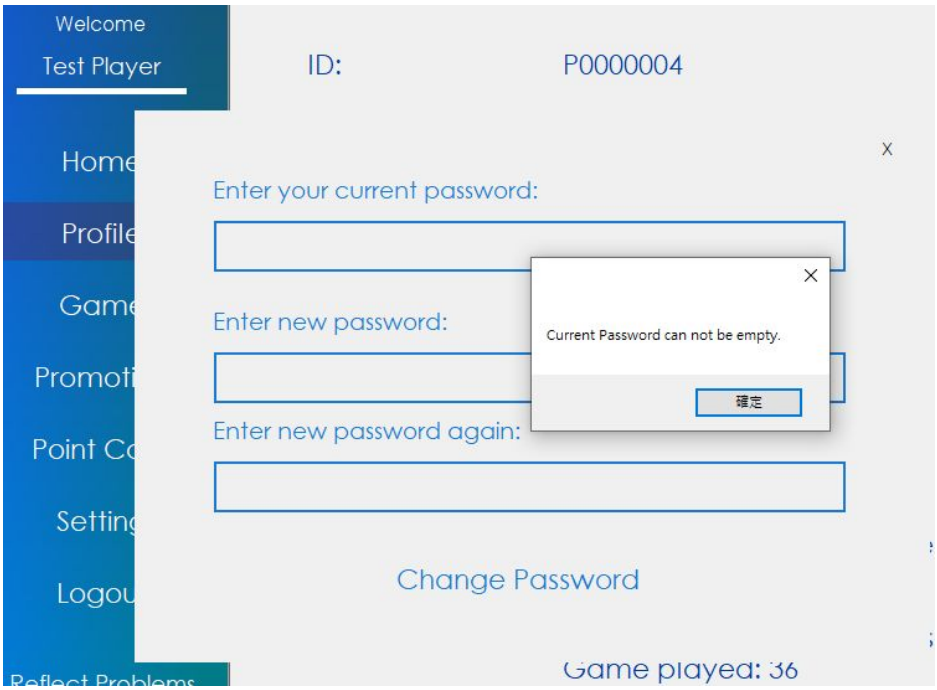
Is it really change in database ?



PlayerID	PlayerAccountName	PlayerPassword	PlayerName	PlayerEmail
P0000001	Vincent1234	Aa1234	Cheung Zi On 123	Vincent@gmail.com

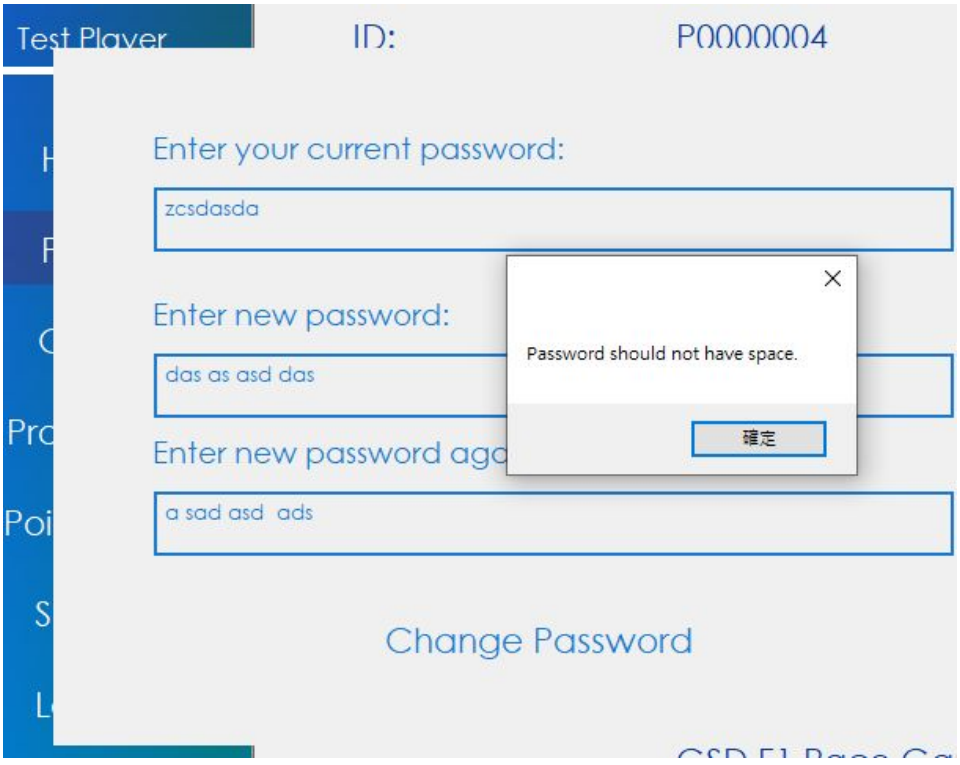
Yes.

Change Password case:

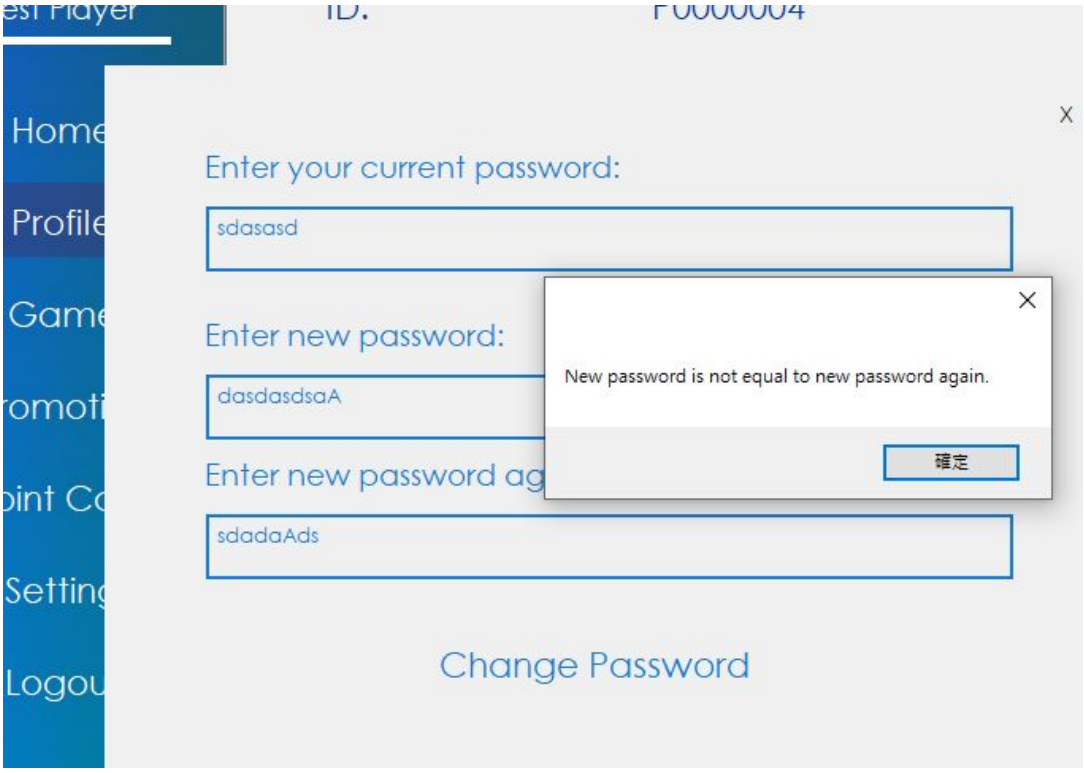


It will show a message box about “Current Password can not be empty.” when player enter nothing

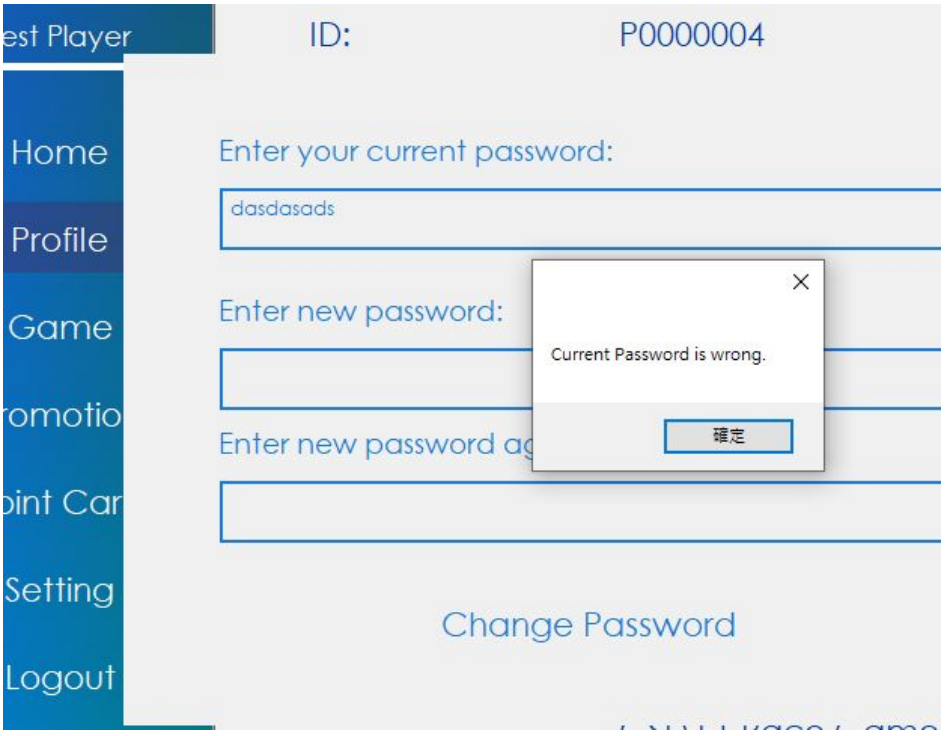
.



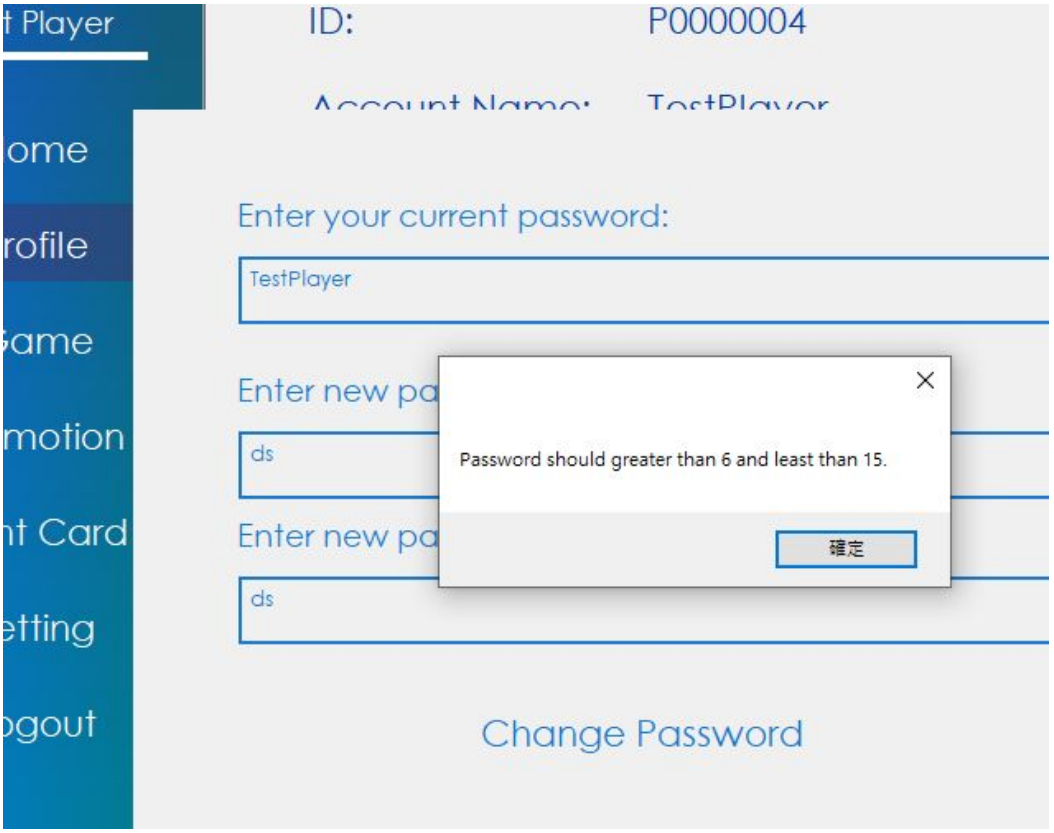
It will show a message box about “Password should not have space.” when player enter the new password with space.



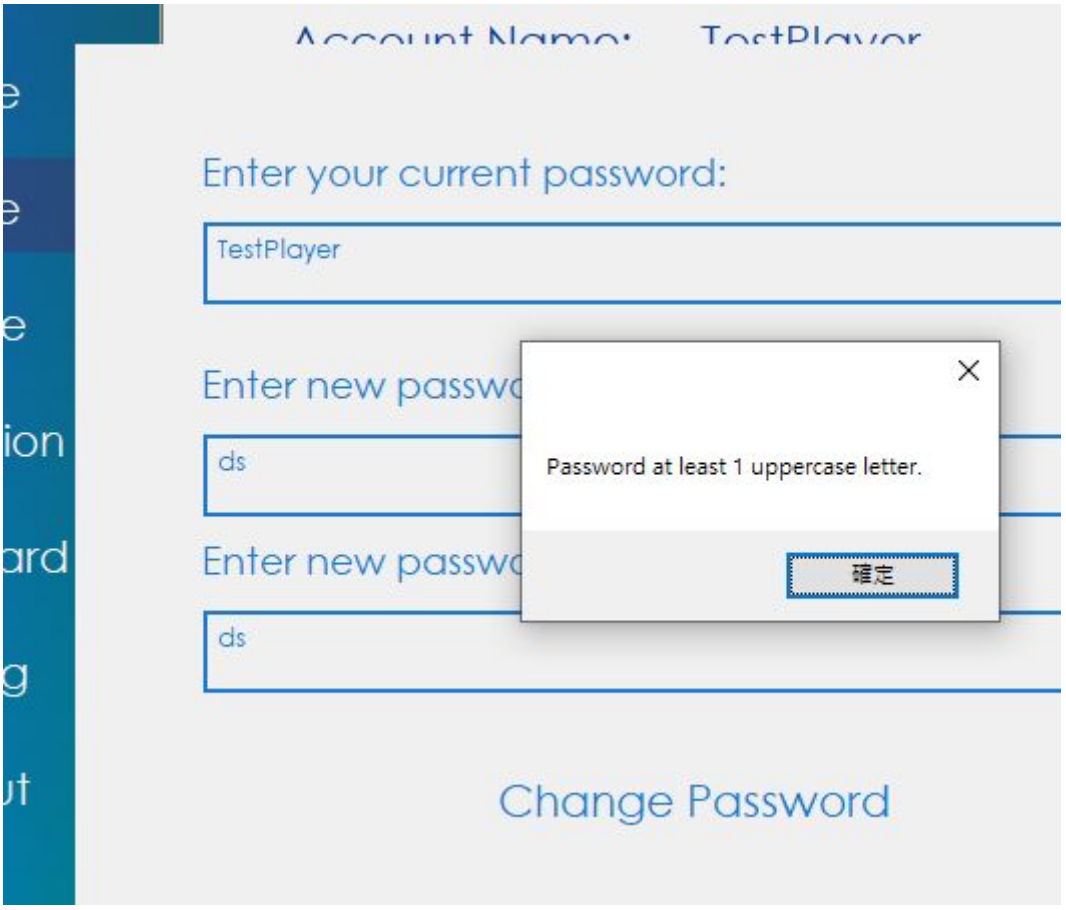
It will show a message box about “New password again is not equal to new password.” when player enter different new password.



It will show a message box about “Current Password is wrong.” when player enter the password is not equal to origin password.



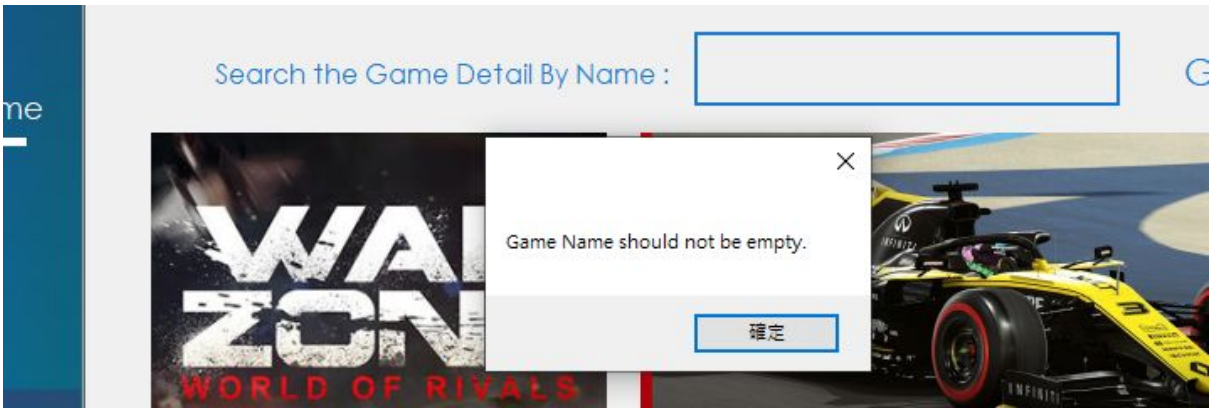
It will show a message box about “Password should greater than 6 and less than 15.” when player enter the wrong size password.



It will show a message box about “Password at least 1 uppercase letter.” when player enter the password without 1 uppercase letter.

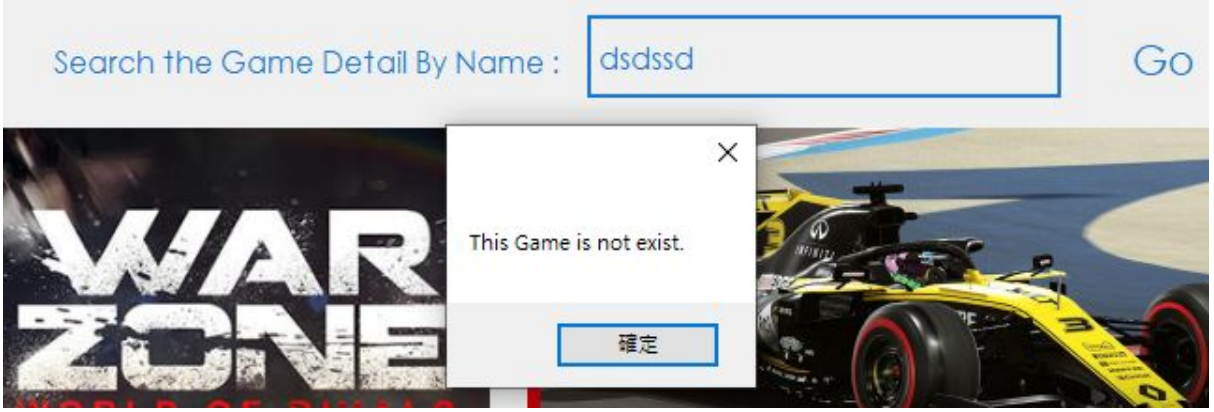
Player Interface (Enquire the game detail by name)

Empty case:



It will show a message box about “Game Name should not be empty.” when player enter nothing.

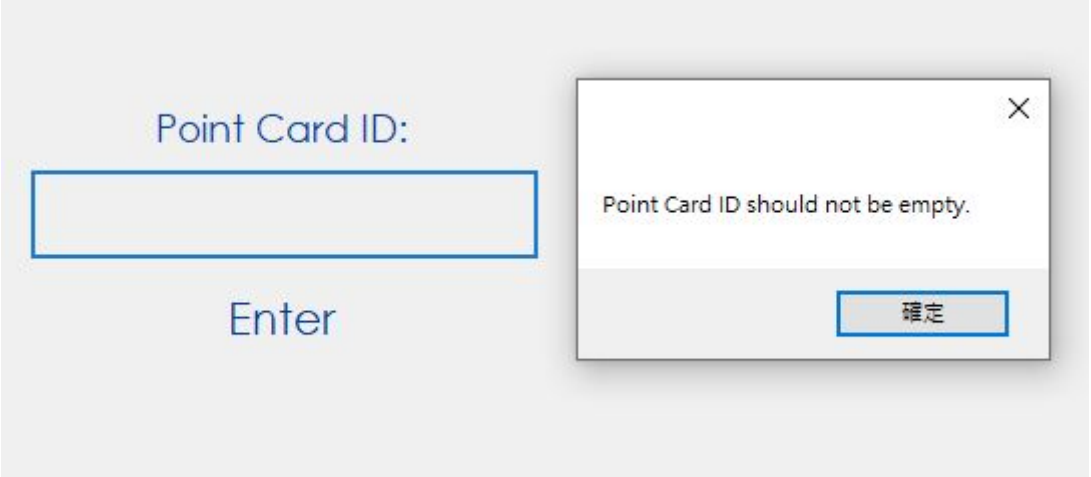
Other case:



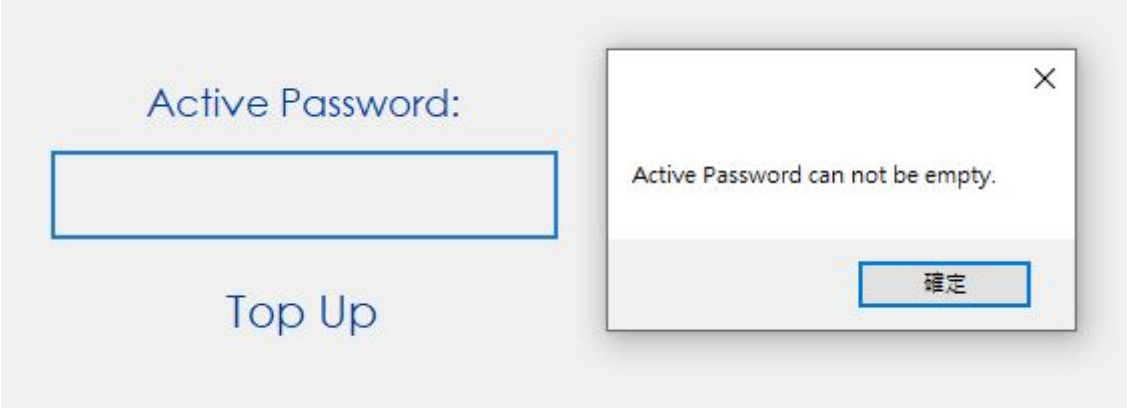
It will show a message box about “This game is not exist.” when player enter another game, which is not made by this company.

Player Interface (Top-up balance by Point Card & View own Point Card information)

Empty case:

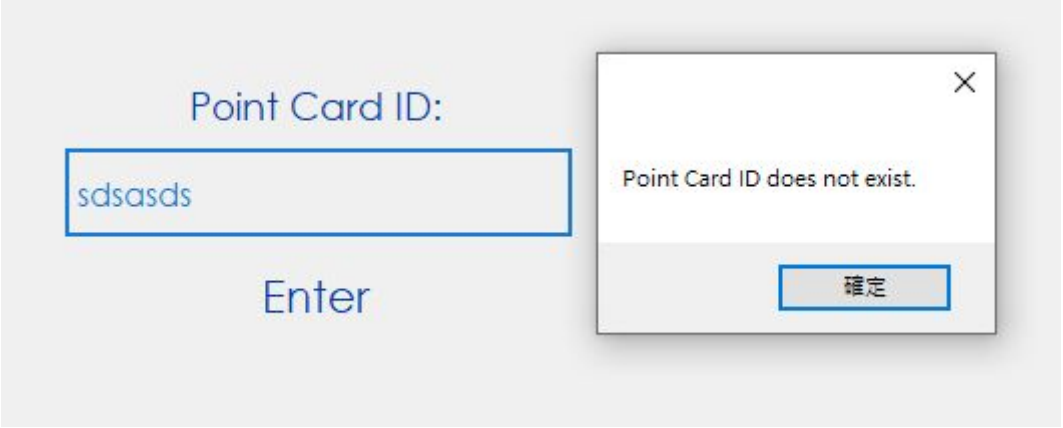


It will show a message box about “Point Card ID should not be empty.” when player enter nothing.



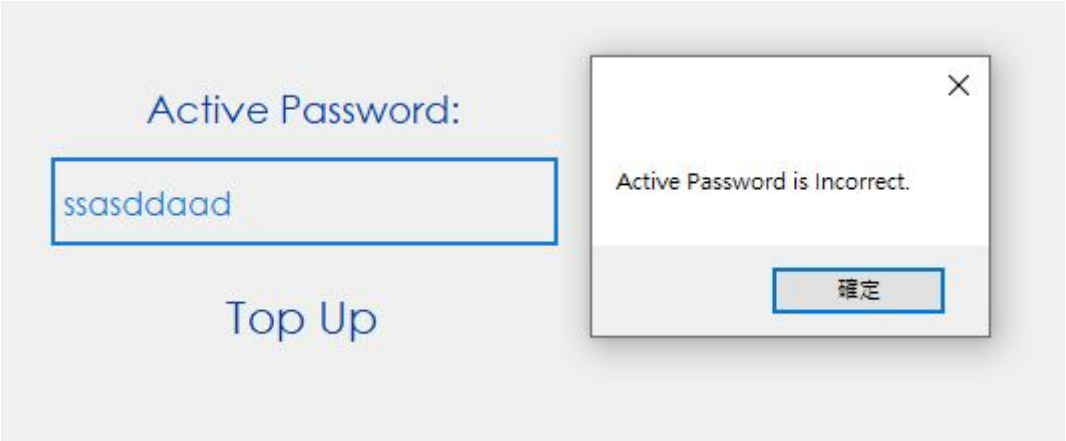
It will show a message box about “Active Password can not be empty.” when player enter nothing.

Point Card ID case:

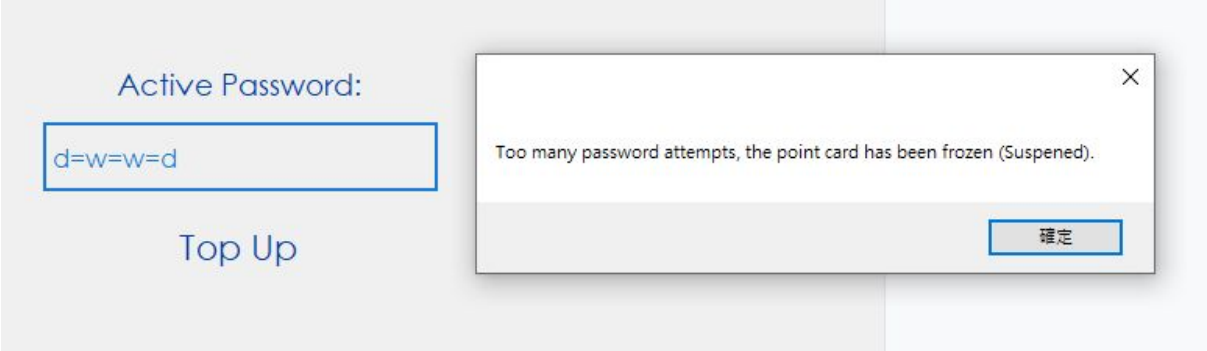


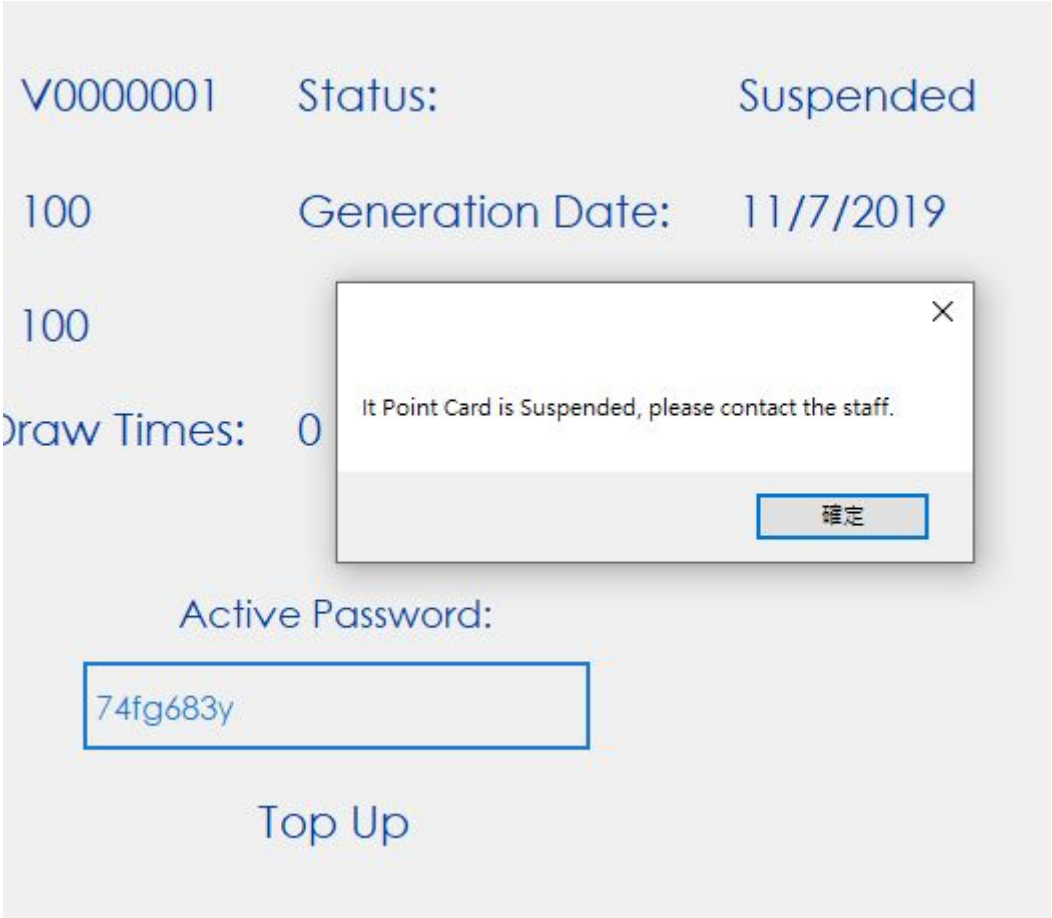
It will show a message box about “Point Card ID does not exist.” when player enter wrong Point Card ID.

Active Password case:



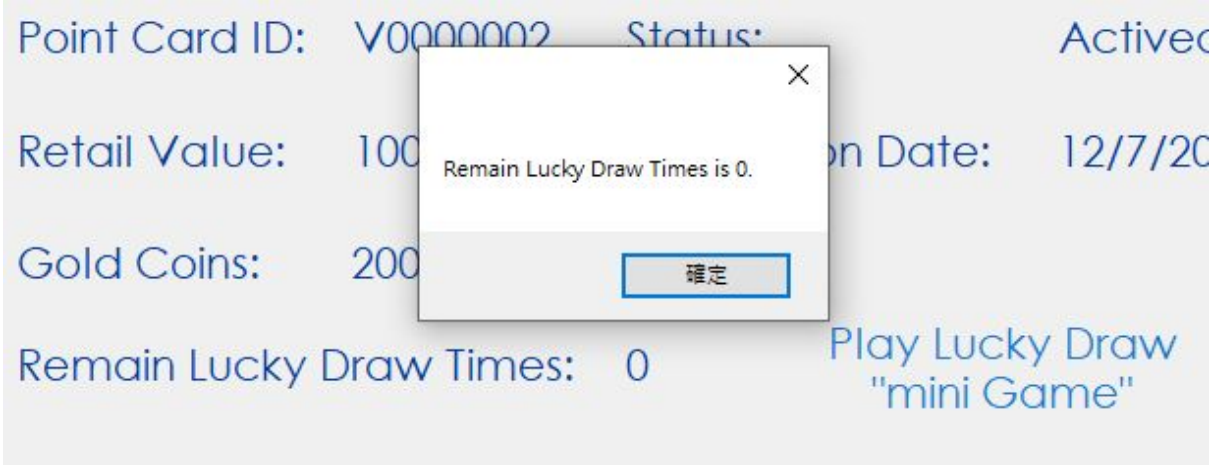
It will show a message box about “Active Password is incorrect.” when player enter the wrong Active password.



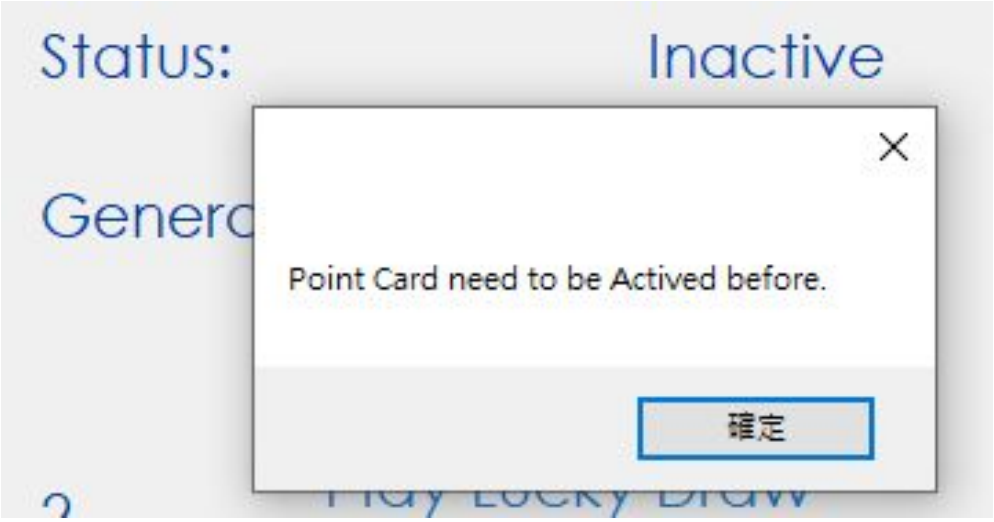


It will show a message box about It will show a message box about “Too many password attempts, the point card has been frozen (Suspended).” and “It Point Card is Suspended, please contact the staff.” when player enter the wrong active password after 3 times.

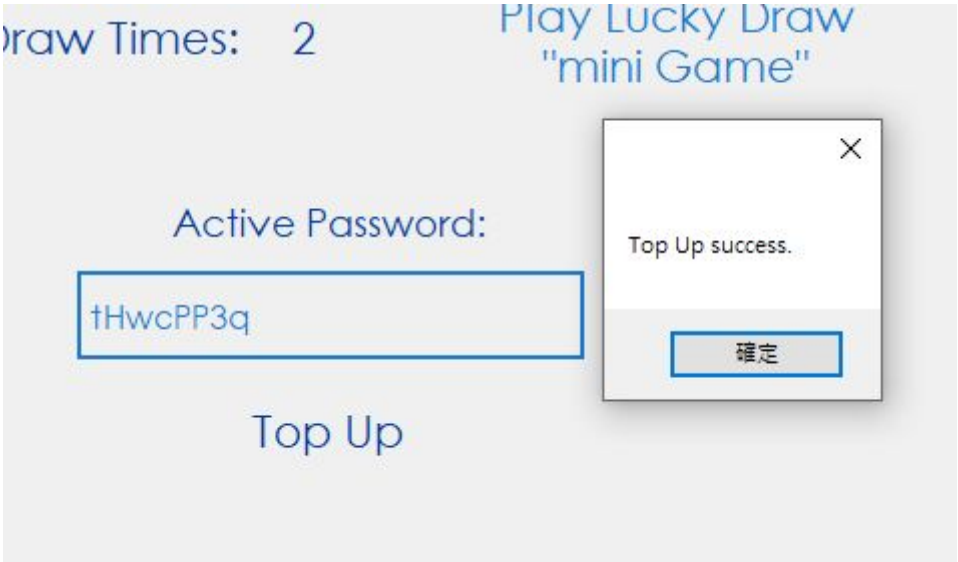
Lucky Draw case:



It will show a message box about “Remain Lucky Draw Times is 0.” when player do not have lucky draw times or already use all the Lucky Draw times.



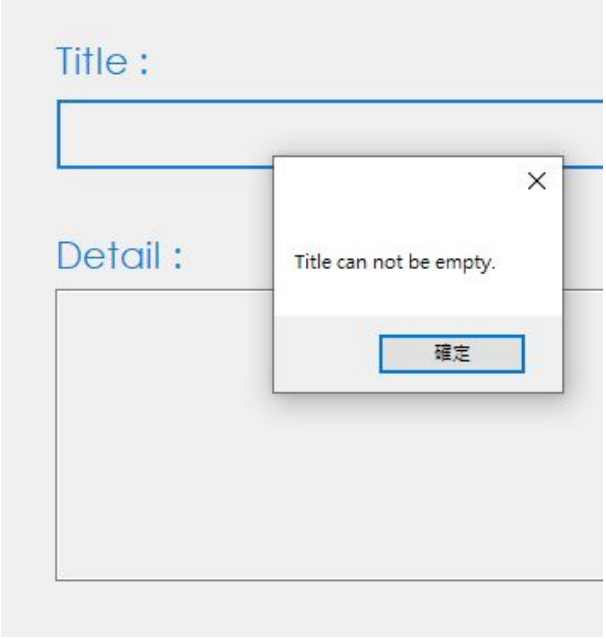
It will show a message box about “Point Card need to be Actived before.” when player has not actived Point Card before and want to play Lucky Draw.

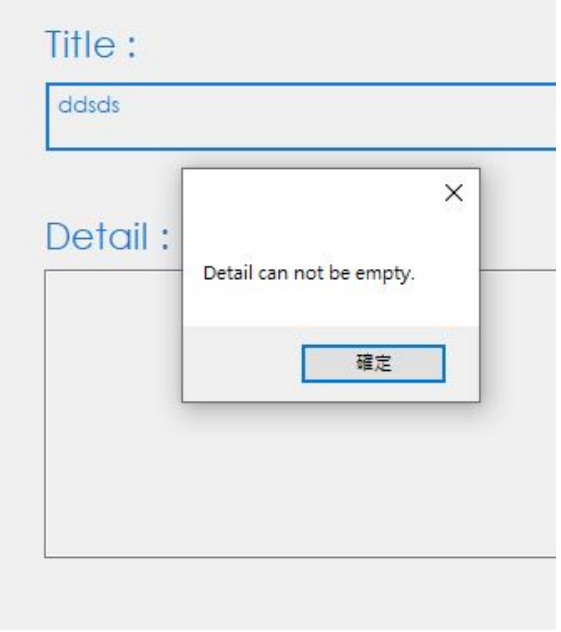


It will show a message box about “Top Up success.” when player enter the correct actived password and it will update the status in database.

Player Interface (Reflect problems)

Empty case:

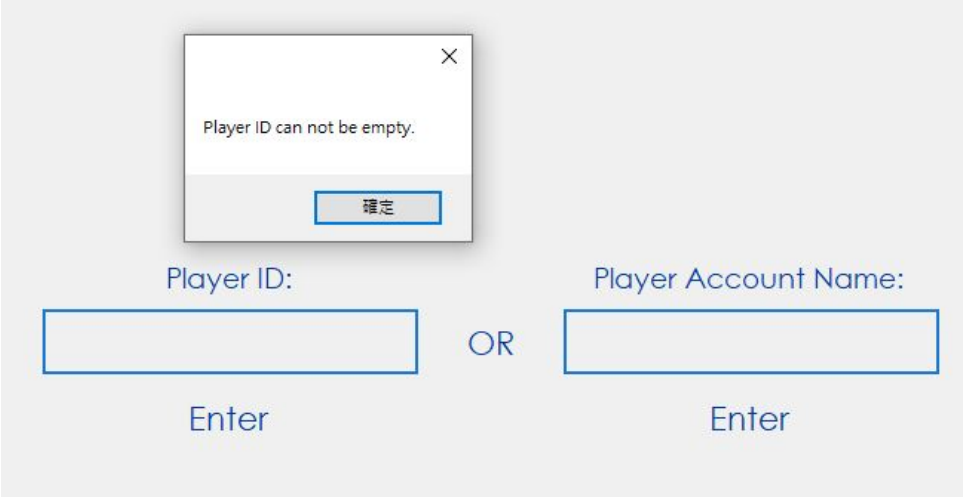


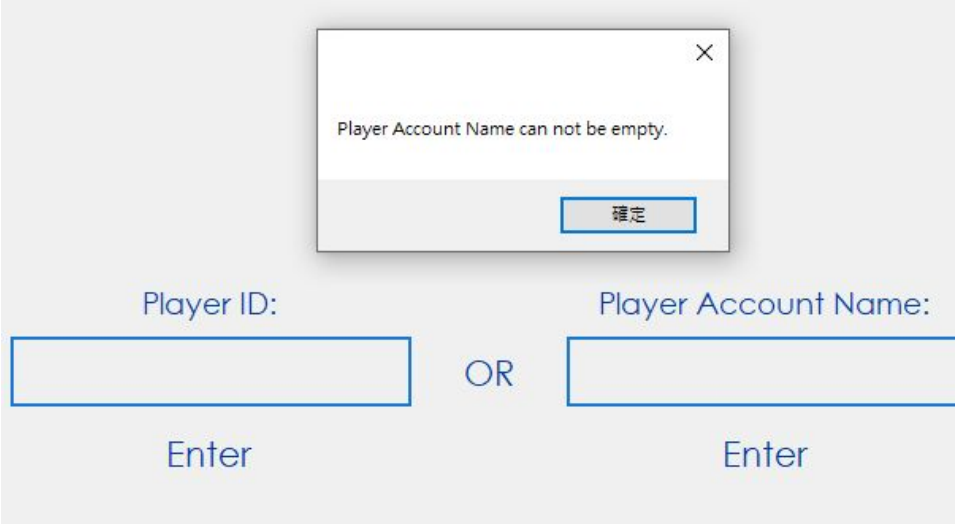


It will show a message box about “Title can not be empty.” and “Detail can not be empty.”when player enter nothing.

Staff Interface (Maintain player account)

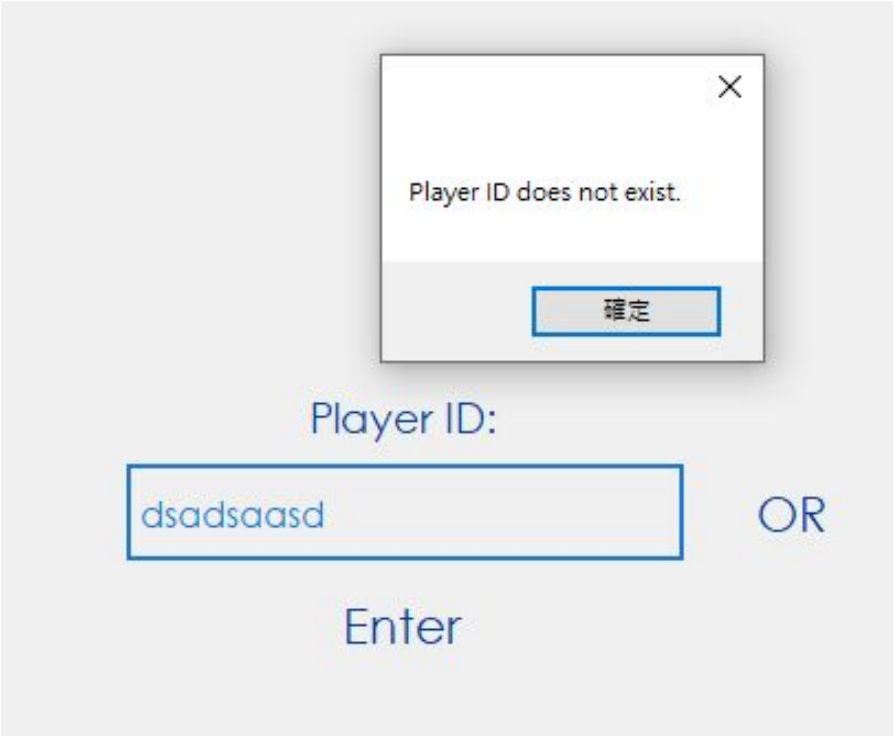
Empty case:



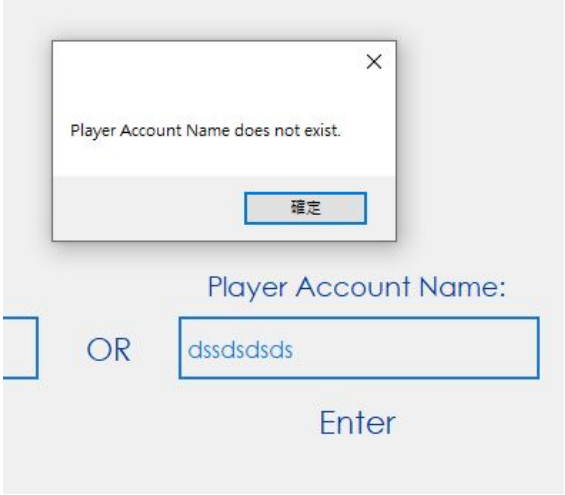


It will show a message box about “Player ID can not be empty.” and “Player Account Name can not be empty.”when staff enter nothing.

Player ID case:



It will show a message box about “Player ID does not exist.” when staff enter wrong Player ID.



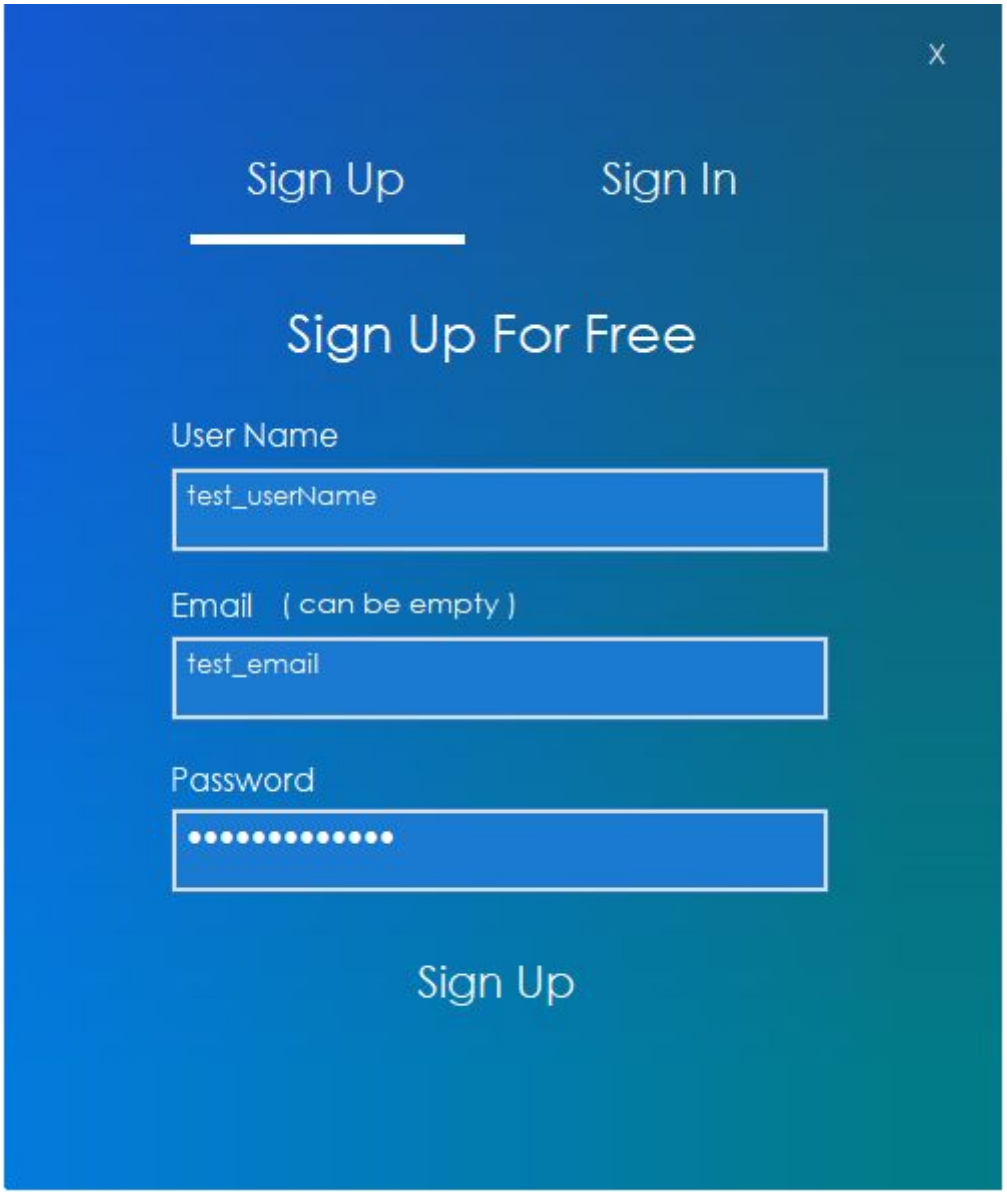
It will show a message box about “Player Account does not exist.” when staff enter wrong Player Account Name.

User Guide

Section 1: Player

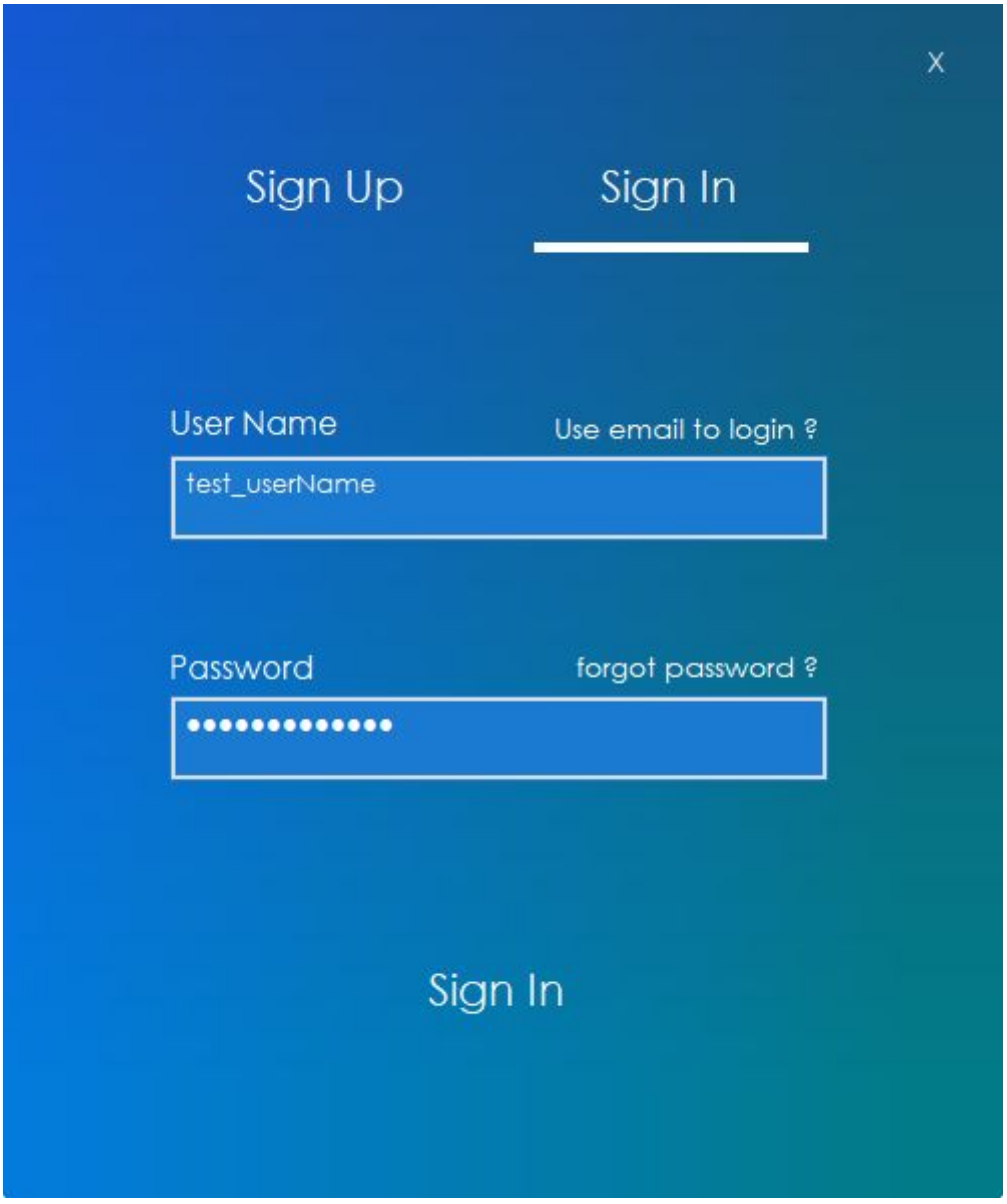
Sign up for new player

1. Input the user name into the textbox “text_username”.
2. Input the Email into the textbox “text_email”.
3. Input the password into the textbox “text_password”.
4. Click “Sign Up” to sign up and enter the Main Menu.



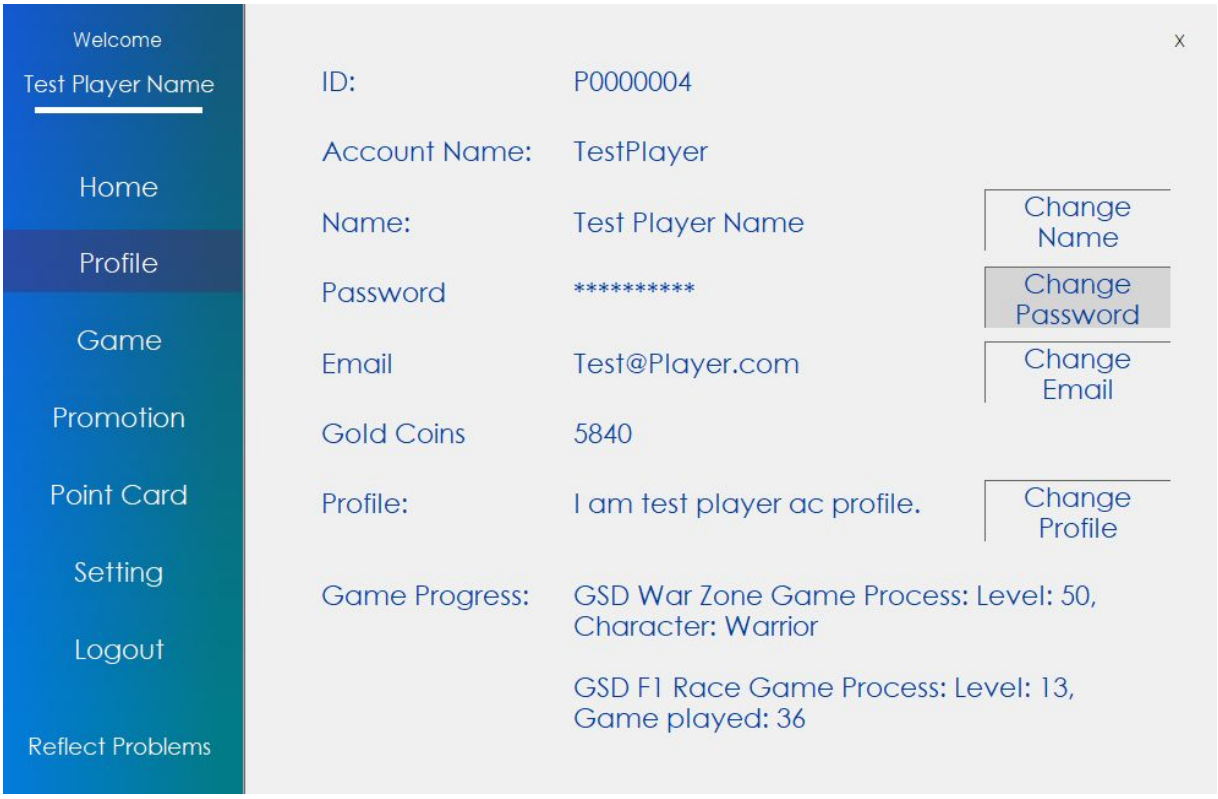
Sign in for registered player

1.Input the user name into the textbox “text_username”.
2.Click “Use email to login ?” to use Email login in
3.Input the password into the textbox “text_password”.
4.Click “Sign In” to enter the Main Menu.



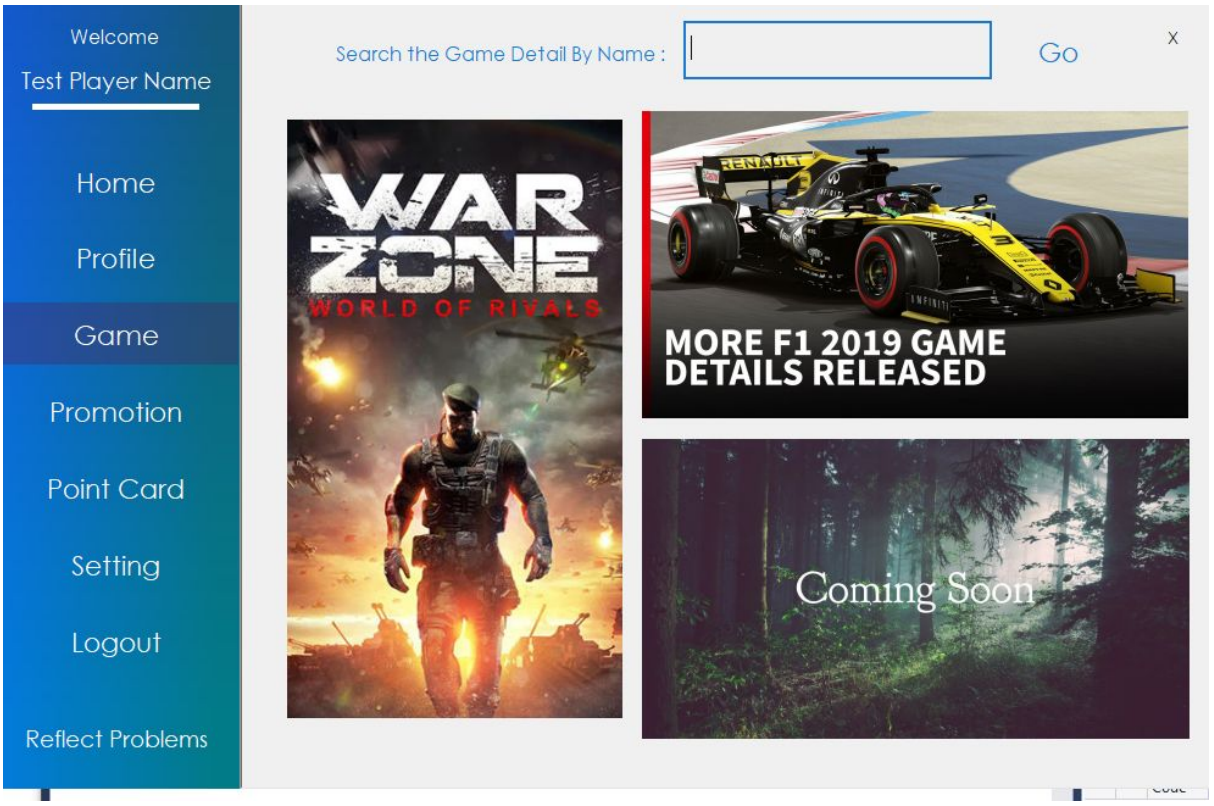
Check player own profile

1.Click “profile”on the left column OR click in Main Menu
2.Player can view ID, Account Name, Player Name, Email, Gold Coins, Profile and Game Progress in Profile menu.
2.Click “Change Name” to change the player name
3.Click “Change Password” to change the player’s account password
4.Click “Change Email” to change the player’s account Email
5.Click “Change Profile” to add some description on player profile



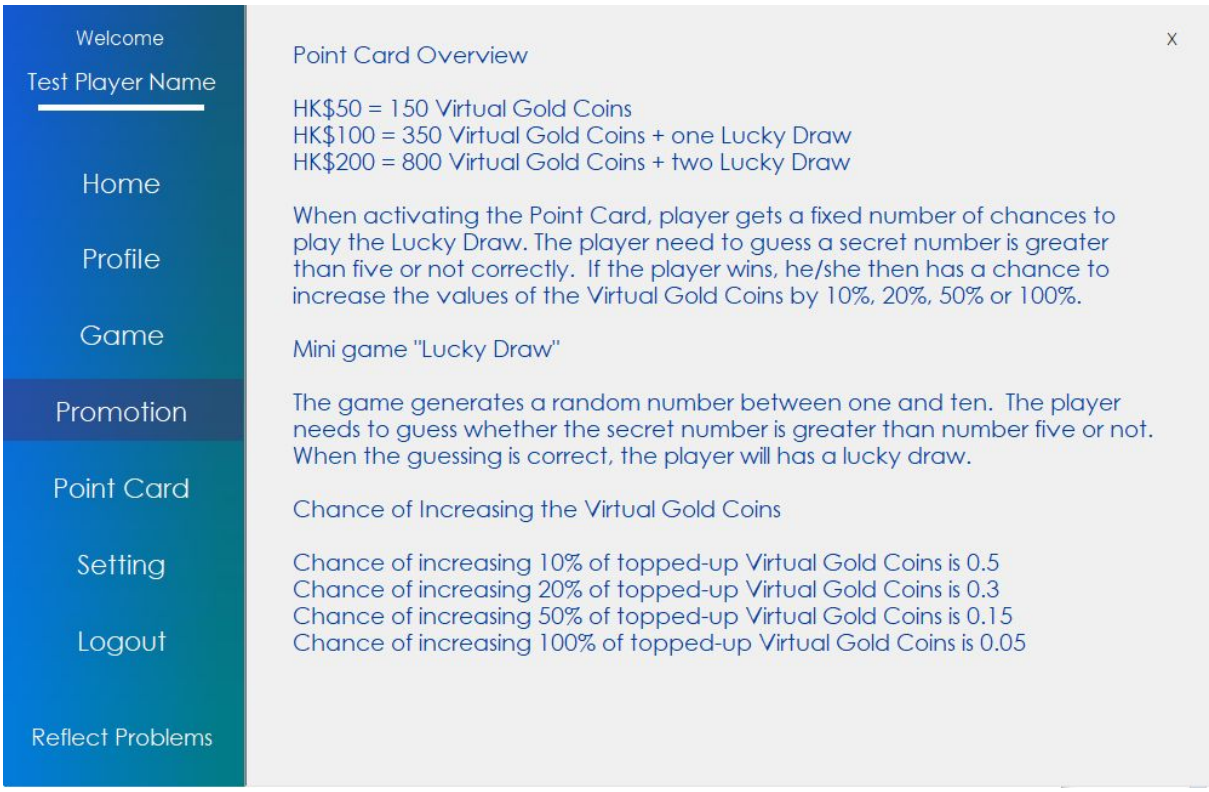
Check the games

1.Click “Game”on the left column OR click in Main Menu
2.Player can see what game we have
3.Player can search the game detail by name with input the game name.



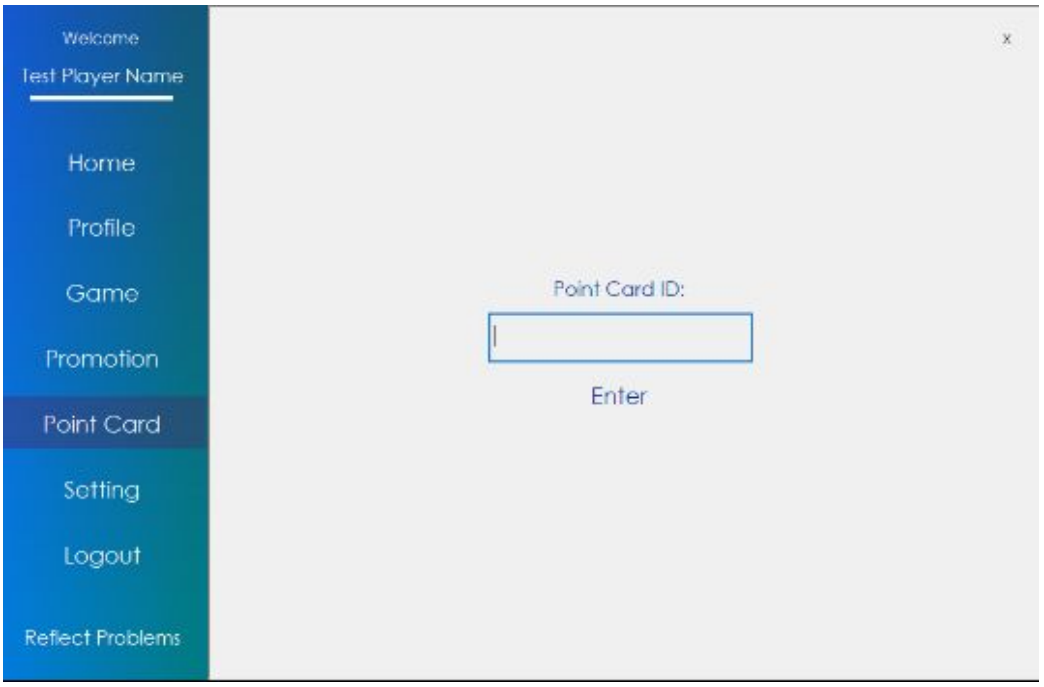
Check the game promotion

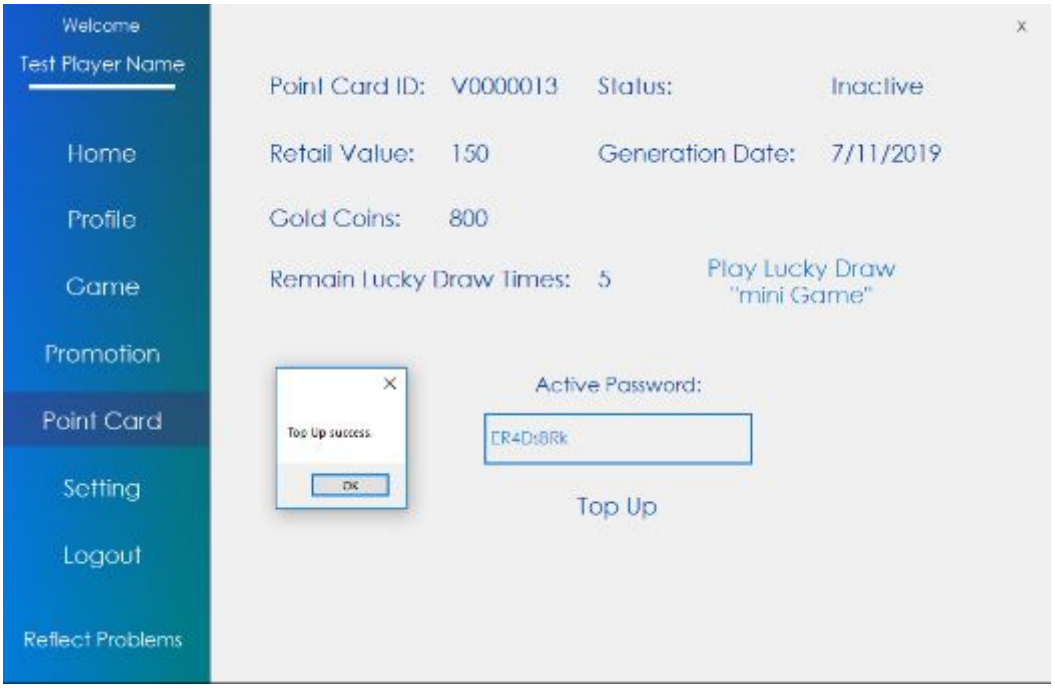
1.Click “Promotion”on the left column OR click in Main Menu
2.Player can see the newest game promotion on this page



Top-up point card

1.Click “Point Card”on the left column OR click in Main Menu
2.Input the Point Card ID and Click Enter
3.User can check the information of point card
4.Input the active password and Click Top up
5.The message box will show Top up success

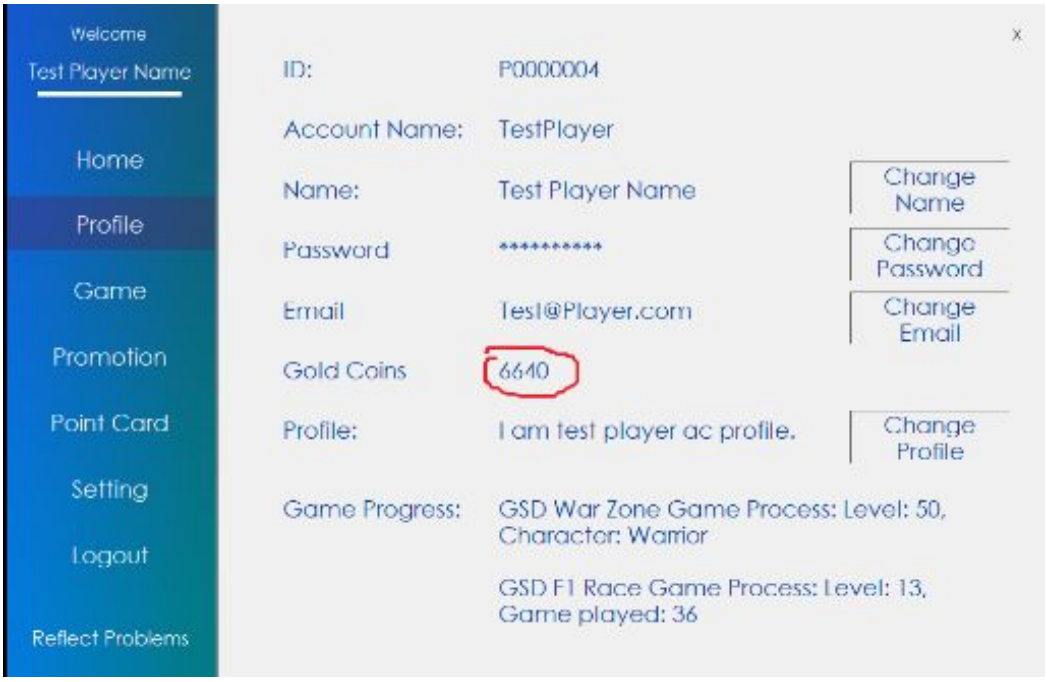


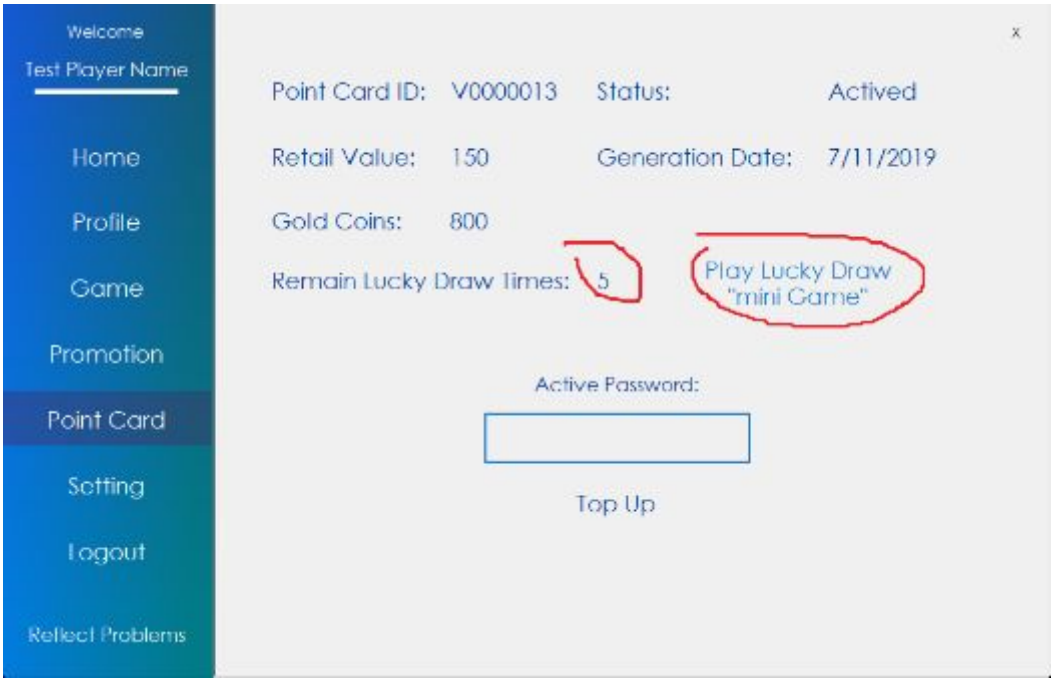


Play lucky draw

1.Check the remain lucky draw times in the point card menu

2.Click “Play Lucky Draw “mini Game””

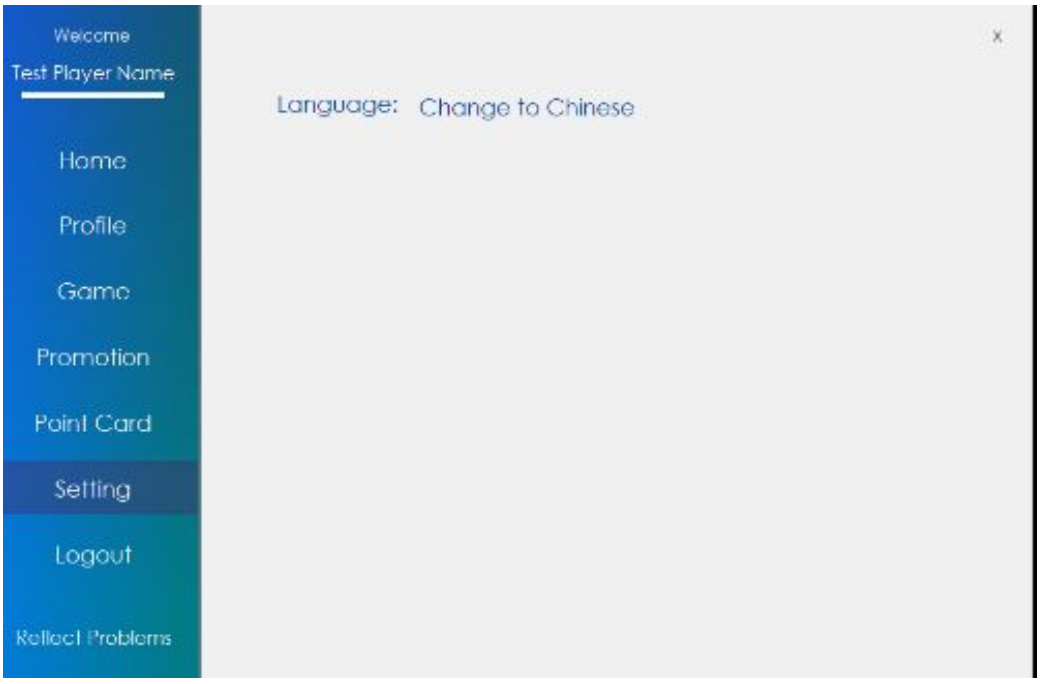




Change language

1.Click “Setting”on the left column OR click ⚙ in Main Menu

2.Click Language : Change to Chinese OR 語言：換成英文



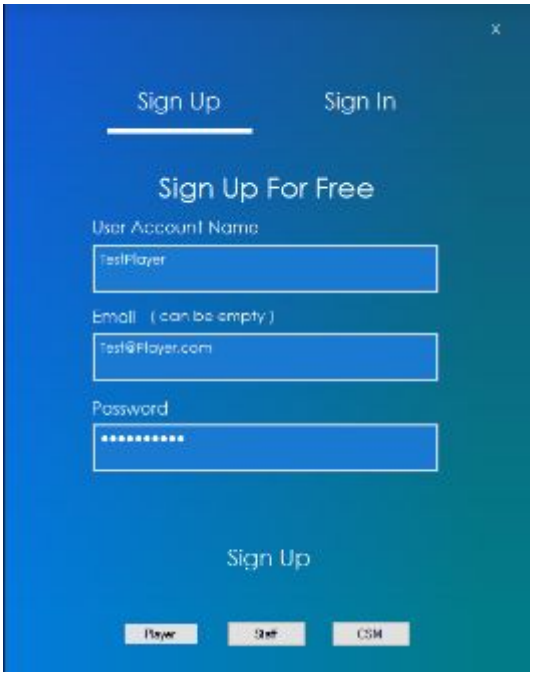
Reflect problems

1.Click “Reflect Problems”on the left column OR click in Main Menu
2.Input the Title and Detail
3.Click “Send” to send the problem

Log out

1.Click “Logout”on the left column

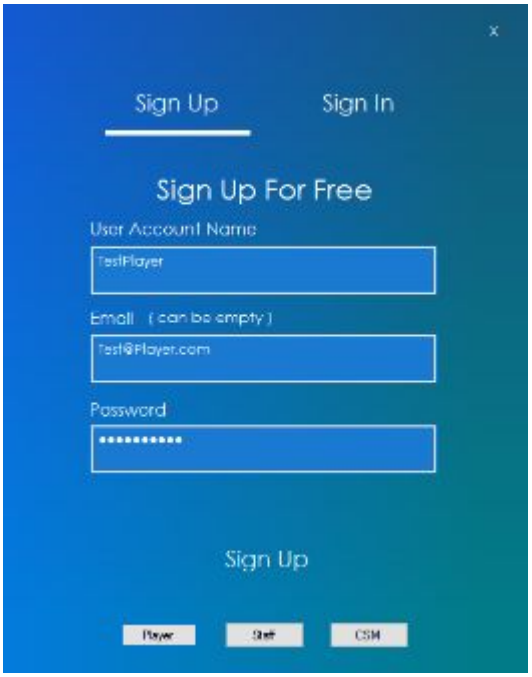
2.Logout successfully



Section 2: Staff

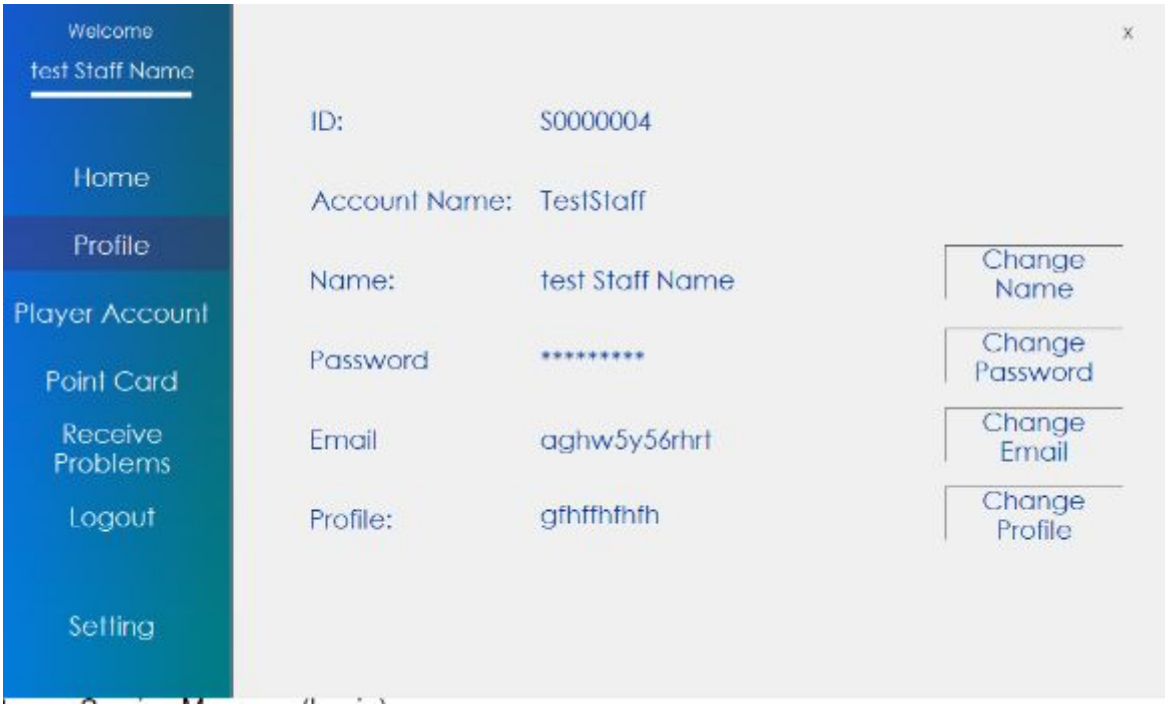
Sign in

1. Input the user name into the textbox “text_username”.
2. Click “Use email to login ?” to use Email login in
3. Input the password into the textbox “text_password”.
4. Click “Sign In” to enter the Main Menu.



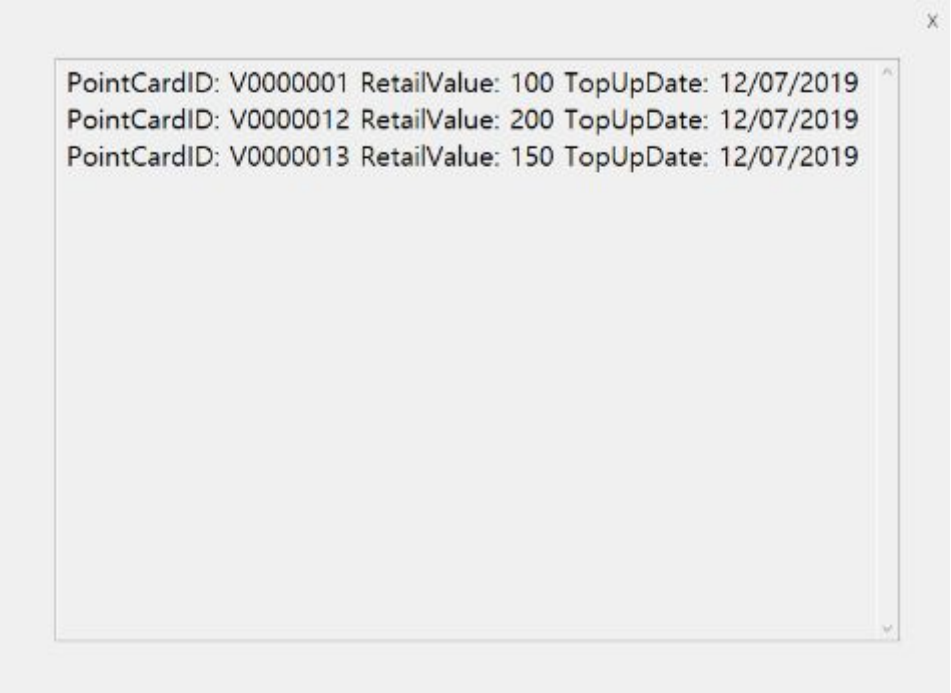
Check Staff own profile

1.Click “profile”on the left column
2.Staff can view ID, Account Name, Staff Name and Email in Profile menu.
2.Click “Change Name” to change the name
3.Click “Change Password” to change the account password
4.Click “Change Email” to change the account Email
5.Click “Change Profile” to add some description on staff profile



Maintain player account

1. Click “Player Account”on the left column
2. Input Player ID or Input Player Account Name and click Enter
3. Staff can view Player ID, Account Name, Player Name, Email, Gold Coins, Profile and Game Progress in Player Account menu.
4. Click “Change Name” to change the player name
5. Click “Change Password” to change the player’s account password
6. Click “Change Email” to change the player’s account Email
7. Click “Change Profile” to add some description on player profile
8. Click “View Point Card History” to view player Top-up history



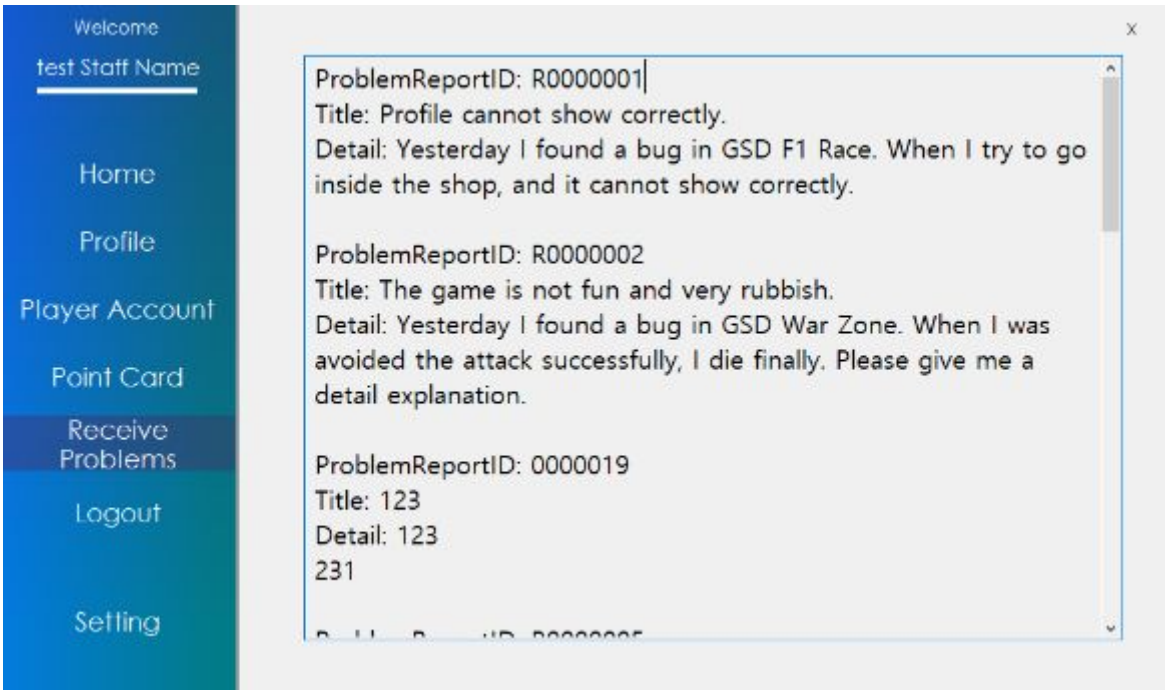
View and maintain Point Card

1.Click “Point Card”on the left column
2.Input the Point Card ID and Click Enter
3.Staff can view and maintain the information of point card
4.Click “Change Retail Value” to change retail value
5.Click “Change Gold Coin” to Change Gold Coin
6.Click “Change Ramain Lucky Draw Times” to change ramain lucky draw times
7.Click “Change Status” to change the point card status

Receive Problem

1.Click “Receive Problem”on the left column

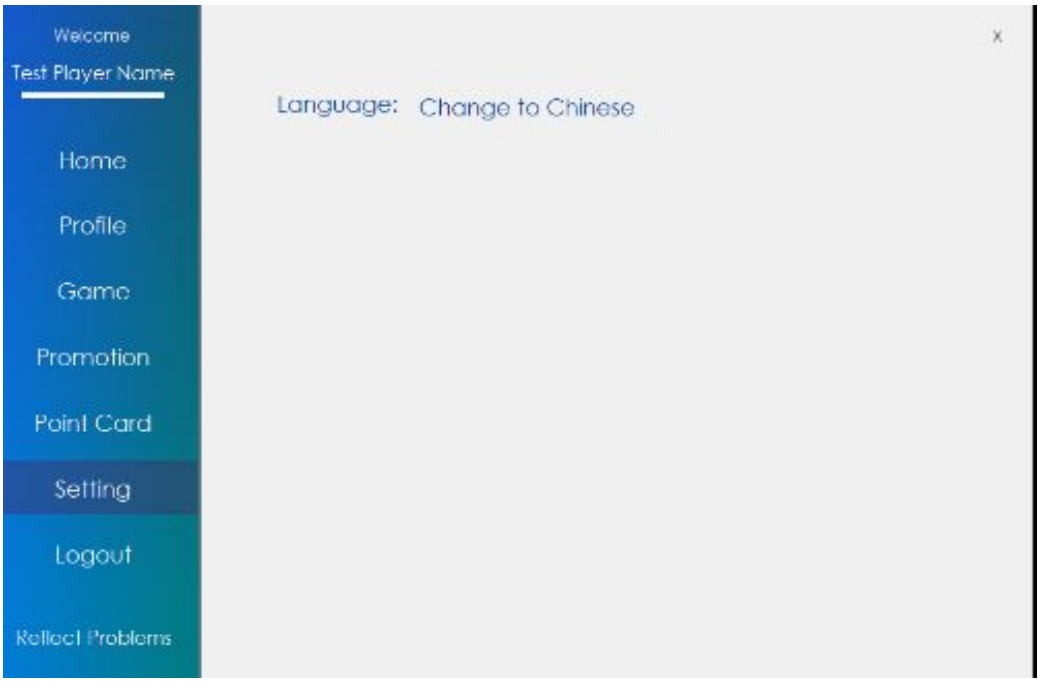
2.Check the Problem Report by player sended.



Change language

1.Click “Setting”on the left column OR click ⚙ in Main Menu

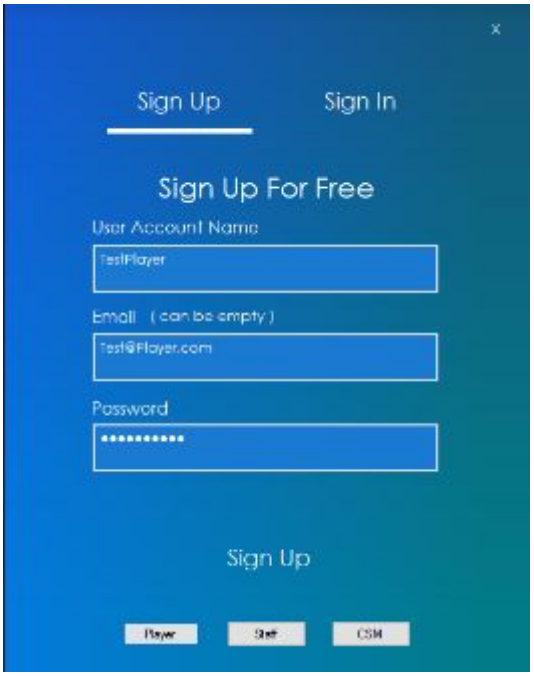
2.Click Language : Change to Chinese OR 語言：換成英文



Log out

1.Click “Logout”on the left column

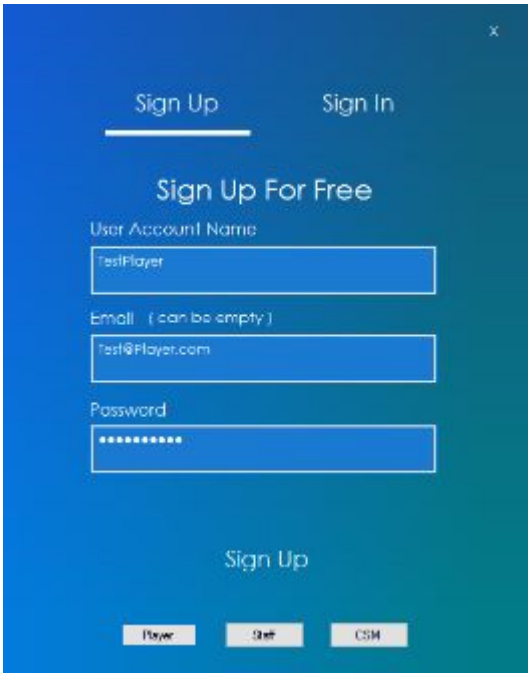
2.Logout successfully



Section 3: Customer Service Manager

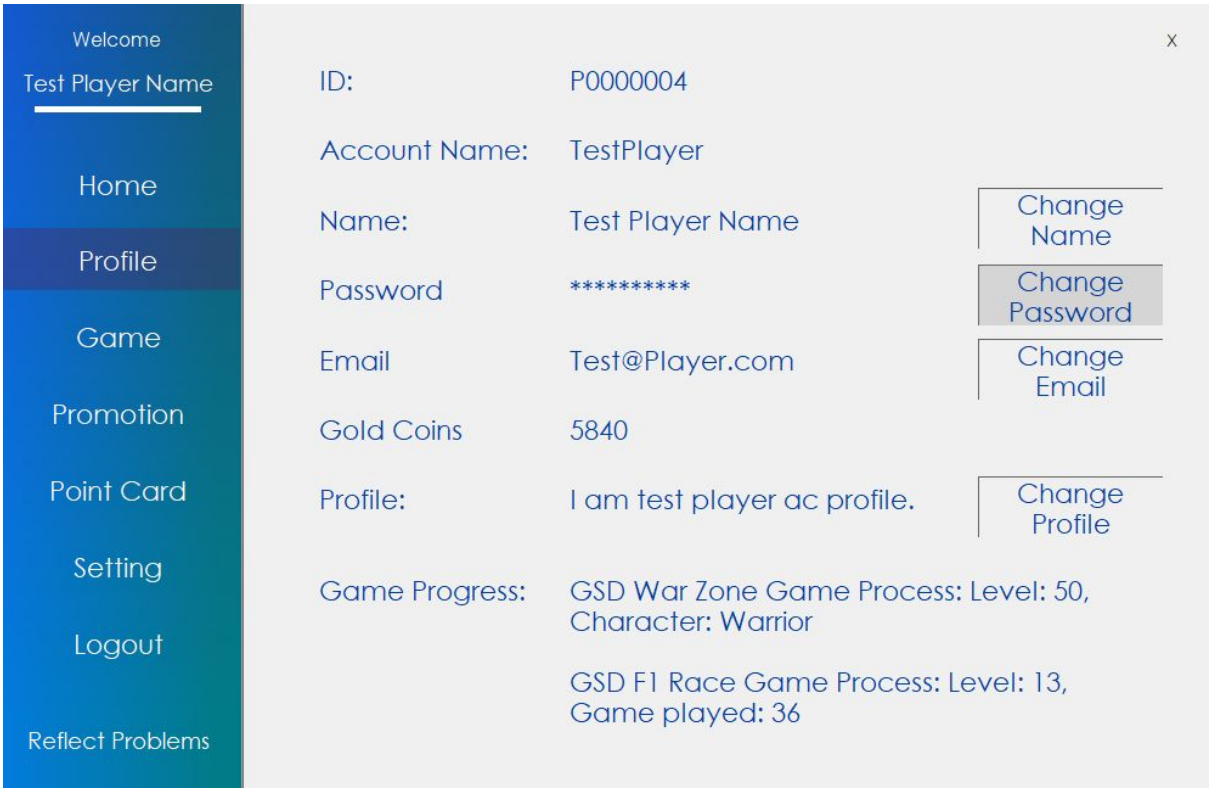
Sign in

1. Input the user name into the textbox “text_username”.
2. Click “Use email to login ?” to use Email login in
3. Input the password into the textbox “text_password”.
4. Click “Sign In” to enter the Main Menu.



Check Customer Service Manager own profile

1.Click “profile”on the left column
2.CSM can view ID, Account Name, CSM Name and Email in Profile menu.
2.Click “Change Name” to change the name
3.Click “Change Password” to change the account password
4.Click “Change Email” to change the account Email
5.Click “Change Profile” to add some description on CSM profile

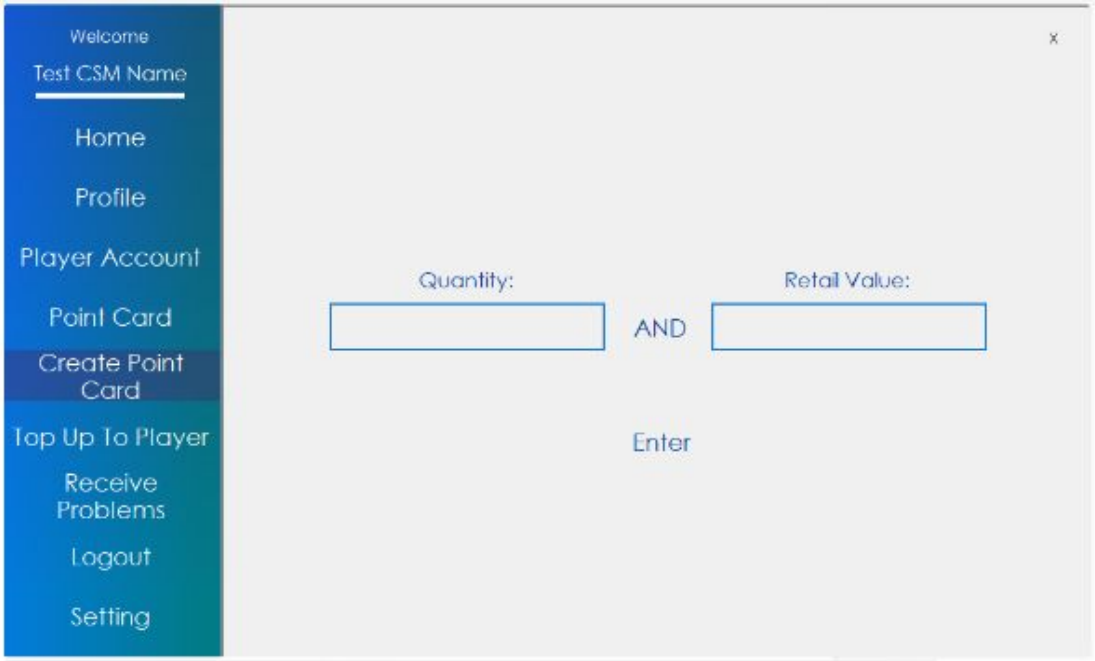


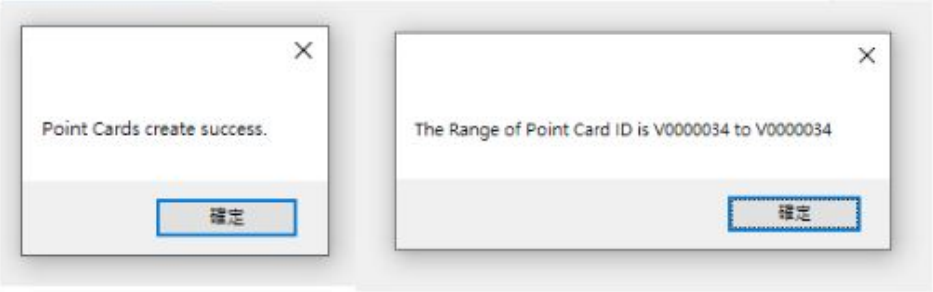
Create Point Card

1.Click “Create Point Card”on the left column

2.Input Quantity and Retail Value and Click “Enter”

3.The message box the show the information that create success



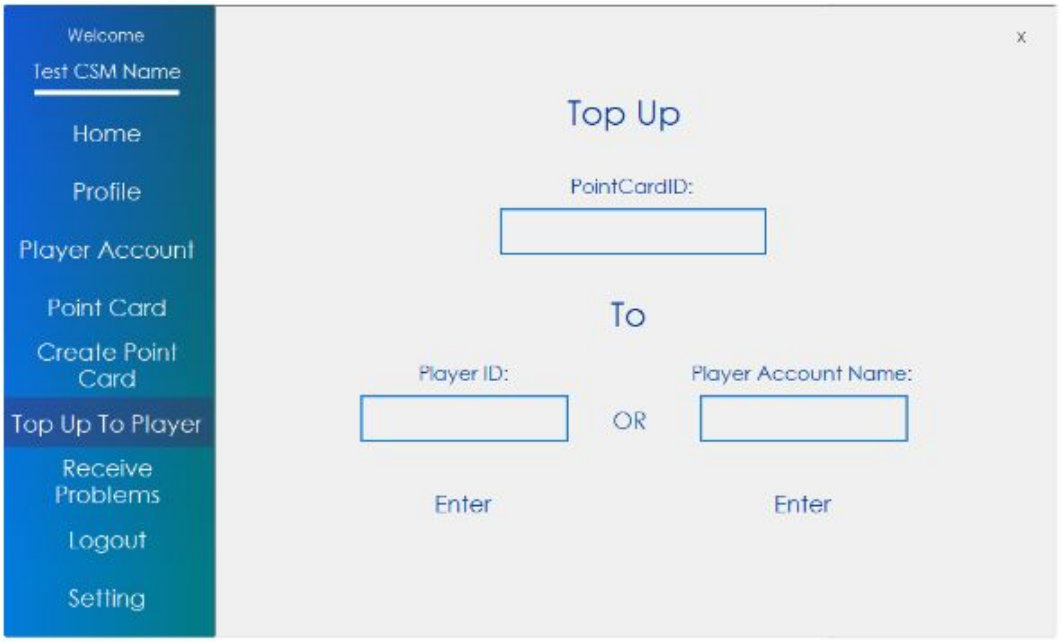


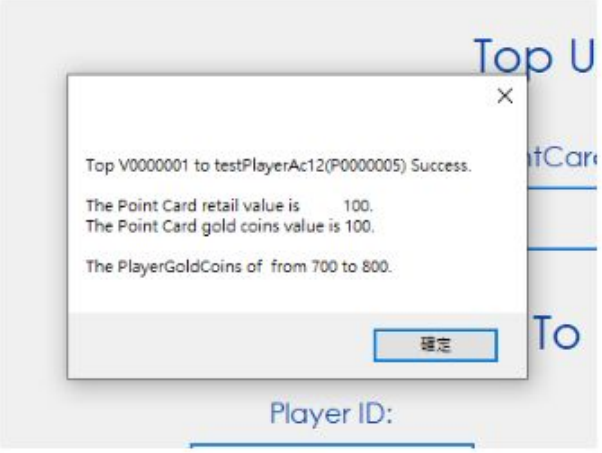
Top Up to Player

1.Click “Top Up to Player”on the left column

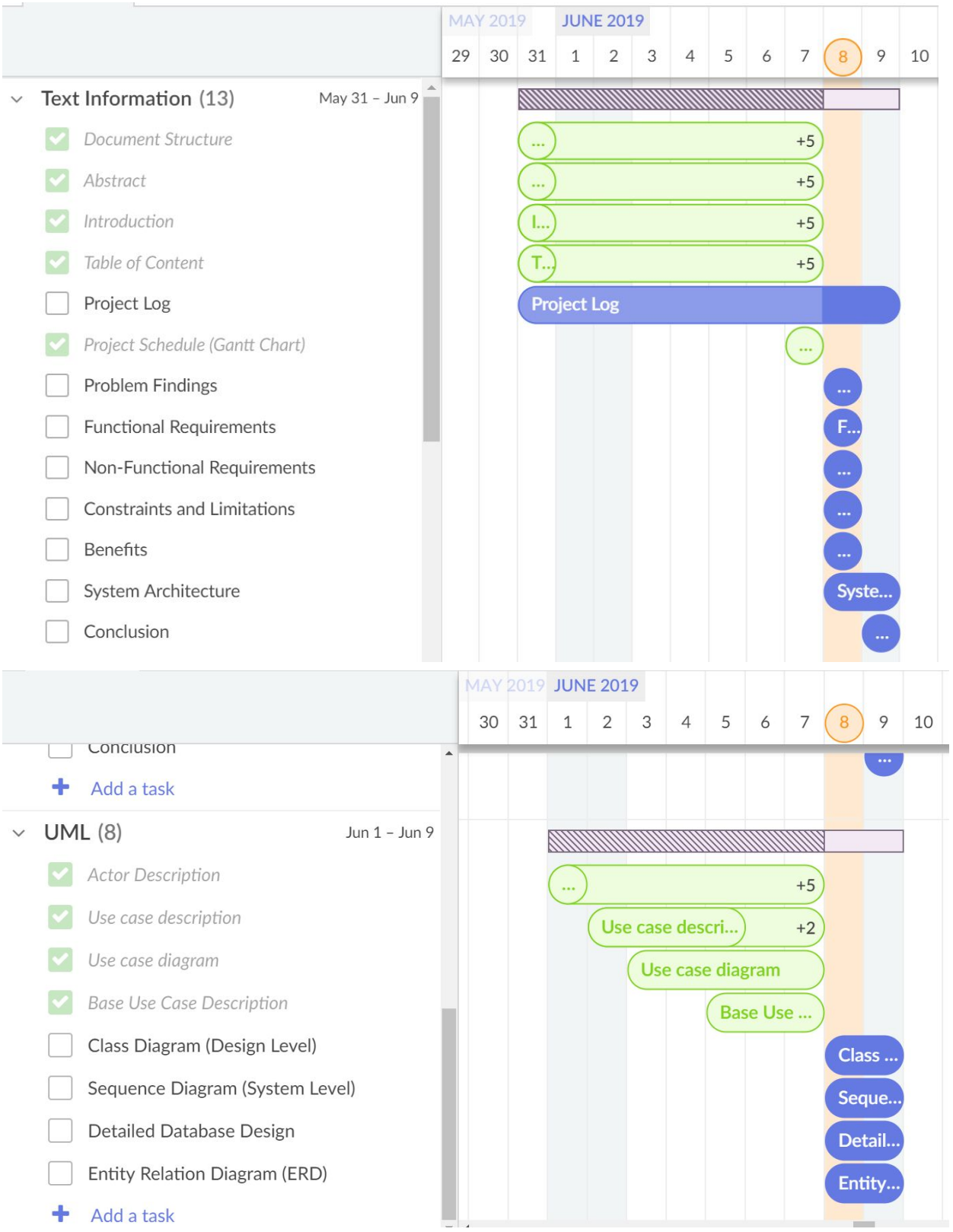
2.Input the Point Card ID and Player ID or Player Account Name and Click“Enter”

3.The message box the show the information that top-up success





Project Schedule (Gantt Chart)



	A	B	C	D	E	F
1	Task	List	Workspace	Status	Start	Due Date
2	Introduction	Text Information	SDP	resolved		05/31/2019
3	Abstract	Text Information	SDP	resolved		05/31/2019
4	Document Structure	Text Information	SDP	resolved		05/31/2019
5	Table of Content	Text Information	SDP	resolved		05/31/2019
6	Actor Description	UML	SDP	resolved		06/01/2019
7	Use case description	UML	SDP	resolved	06/02/2019	06/05/2019
8	Project Schedule (Gantt Chart)	Text Information	SDP	resolved		06/07/2019
9	Base Use Case Description	UML	SDP	resolved	06/05/2019	06/07/2019
10	Use case diagram	UML	SDP	resolved	06/03/2019	06/07/2019
11	Problem Findings	Text Information	SDP	active		06/08/2019
12	Benefits	Text Information	SDP	active		06/08/2019
13	Constraints and Limitations	Text Information	SDP	active		06/08/2019
14	Non-Functional Requirements	Text Information	SDP	active		06/08/2019
15	Functional Requirements	Text Information	SDP	active		06/08/2019
16	Project Log	Text Information	SDP	active	05/31/2019	06/09/2019
17	Conclusion	Text Information	SDP	active		06/09/2019
18	System Architecture	Text Information	SDP	active	06/08/2019	06/09/2019
19	Class Diagram (Design Level)	UML	SDP	active	06/08/2019	06/09/2019
20	Sequence Diagram (System Le	UML	SDP	active	06/08/2019	06/09/2019
21	Entity Relation Diagram (ERD)	UML	SDP	active	06/08/2019	06/09/2019
22	Detailed Database Design	UML	SDP	active	06/08/2019	06/09/2019

Conclusion

At present, our company is expanding in Hong Kong and is planning to enter the Greater China market. It seems that our company is growing and become competitive. However, if a company wants to be the most popular in the world, improvement is the most important for a business. Therefore, a user-friendly, functional and useful system will become a force to make company success.

As a user, when the system is completed and executing successfully, player can translate the words to their readable language. It shows how our system become user-friendly to player, and it is important for player in Greater China. On the other hand, player can know our Point Card information and other functional options easily and clearly. Moreover, player can report some problems they found, and our staff will provide the relative solution to player, to show how our company pay attention to player's comments.

As a company, staff can receive player's comment and held a meeting to discuss about the related problems with other staff. For instance, some player reflected that the system interface is inconvenient. Therefore, our company can discuss a way to improve the interface. Our company believes player's opinions are most important to force our business being successful. The system can be a good way to collect player's comments.

Overall, the new system is worth developing that our company can get lots of advantages in it, and our business will become more success.

Project Log

Task	Start	Due Date
Introduction		05/31/2019
Abstract		05/31/2019
Document Structure		05/31/2019
Table of Content		05/31/2019
Actor Description		06/01/2019
Use case description	06/02/2019	06/05/2019
Project Schedule (Gantt Chart)		06/07/2019
Base Use Case Description	06/05/2019	06/07/2019
Use case diagram	06/03/2019	06/07/2019
Problem Findings		06/08/2019
Benefits		06/08/2019
Constraints and Limitations		06/08/2019
Non-Functional Requirements		06/08/2019
Functional Requirements		06/08/2019
Project Log	05/31/2019	06/09/2019
Conclusion		06/09/2019
System Architecture	06/08/2019	06/09/2019
Class Diagram (Design Level)	06/08/2019	06/09/2019
Sequence Diagram (System Level)	06/08/2019	06/09/2019
Entity Relation Diagram (ERD)	06/08/2019	06/09/2019
Detailed Database Design	06/08/2019	06/09/2019