Project Week 5 Tutorial

Xeon- Group

# User Requirement

**User requirement**: Interface design– **Yuze Li – s306890**

**User requirement definition**

1. The client wants to get an App that is looking sample and including the whole features. (Login page, map gage, skips details page, user profile, and navigation page).

**System requirement specification**

* 1. Every Monday meet with client and show our interface design to get feedback.
  2. This App’s interface design should follow the client’s ideas.
  3. Whole App should have high security to prevent privacy leaks.
  4. Whole App’s interface design should look friendly and nice.
  5. If the client has other additional interface requirements, it also needs to be completed.

**User requirement**: Record skips state – **Kang Yinrui (S299806)**

**User Requirement definition:**

1. The client manna be able to see the state of every skips (red: full, yellow: intermediate state, green: empty state) on the app.

**System requirement specification**

* 1. Every Monday meet with client and show our interface design to get feedback.
  2. This function should follow the client’s ideas.
  3. Whole App should have high security to prevent privacy leak
  4. The App can receive and display the data from Data Base
  5. If the client has other additional interface requirements, it also needs to be completed

**User Requirement:** Integrated Google maps API **– Joel Benesha (s280615)**

**User Requirement definition:**

1. Client would like to like the mobile application to integrate with the google maps API. The application should be able to utilize Google API for the location, destination of the skips.

**System requirement specification**

* 1. When loaded the application should open up scanning the maps, detecting and mapping out the precise location of each skips. This process of scanning should be automatic are a short interval of approximately 5 to 10 seconds.
  2. The mobile application system through google maps of the smart skips should be able to differentiate the full and empty skips.
  3. Automatic detection following the shortest path algorithm implemented into the google API to select the full skips destination the to the skip dump.
  4. The system automatically scanning all types of skips and provides automated details the selected skips.
  5. Mapping the path of skips destination to the dump to empty the waste or path to the nearest empty skip for replacement.

**User Requirement:** Use shortest path – **Yuchu Han()**

**User Requirement definition:**

1. Find the shortest route when you query the current location and target location.

**System Requirements**

* 1. The navigation system should be searchable, quickly find location.
  2. The map can zoom in and out.
  3. Calculate multiple line schemes and select the shortest route display.
  4. Global position system should be as accurate as possible.
  5. Maps and road conditions should be updated in time.

**User requirement**: Secure the database – **Chao Liang (s304935)**

**User requirement definition**:

5. The database of mobile application should use some security measures and protect data from being leaked and altered.

**System requirements specification:**

* 1. The software shall do both browser side and server side validation for any user input so as to make sure that unauthorized users cannot see and alter any information.
  2. The system should automatically generate the logging report which can be used to detect abnormal behaviour.
  3. Authorized users cannot deny any action and every action will be recorded.
  4. Database administration portals shall be hidden from users.
  5. The password shall be encrypted before adding into database.

# Functional and Non-functional requirements

Yuze Li – s306890 – 1 to 5,Han, 6-10 , chao(jack) 11-15, JERRY- 16-20-joel

## Functional requirement

**ID: FR1**

**TITLE**: Administrator and drivers login

**DESC**: Given that the administrator and drivers has registered, then they should be able to login to the App. The login information should delete automatically when user closes App.

**DEP**: NONE

**ID: FR2**

**TITLE**: User profile page

**DESC**: On the App, a user should have a profile page. On the profile page a user can find whole information about themselves, including user name, user ID, level, count of emptying skips.

**DEP**: FR1

**ID: FR3**

**TITLE**: User logout

**DESC**: Given that the user has login, when they want logout or switch user, they can use logout function.

**DEP**: FR1 FR2

**ID: FR4**

**TITLE**: Skips map view

**DESC**: On the App map page, there will should a google map which include all skips location.

**DEP**: FR1

**ID: FR5**

**TITLE**: Skips detail page

**DESC**: On the App skips details page, user can easy find all information about skips details that user will be choice.

**DEP**: FR1 FR4

**ID: FR6**

**TITLE**: Download mobile application

**DESC**: A user should be able to download the mobile application through an application store on the mobile phone. The application should be free to download.

**RAT**: In order for a user to download the mobile application.

**DEP**: None

**ID: FR7**

**TITLE**: Users login in and out smart skip application

**DESC**: A user should be able to login in his or her account and also can quickly log out through a button

**RAT**: In order for a user to have personalized experience

**DEP**: FR6

**ID: FR8**

**TITLE**: navigation system should be searchable, quickly find location

**DESC**: A user should be able to use global position system to find where he is and the best short path to the destination

**RAT**: In order for a user to use app with accuracy.

**DEP**: FR6

**ID: FR9**

**TITLE**: the map can be zoomed in and out

**DESC**: A user should be able to freely use the map by zooming in and out so that he can get the best navigation experience.

**RAT**: In order for a user to get the best navigation experience.

**DEP**: FR3

**ID: FR10**

**TITLE**: store history information

**DESC**: A user should be able to check the place he searched before.

**RAT**: In order for a user to quickly navigate history destination.

**DEP**: FR3

**ID: FR11**

**TITLE**: Mobile application - Profile page

**DESC**: On the mobile application, a user should have a profile page. A user can check their details and edit their password, phone number and email address.

**RAT**: In order for a user to have a profile page on the mobile application.

**DEP**: FR1

**ID: FR12**

**TITLE**: Mobile application – find the shortest path to the landfill

**DESC**: When a user clicks empty button, the back-end algorithm will use user and landfill’s location and skips’ states to find shortest path for dumping trash.

**RAT**: In order for a user to get shortest route to the landfill.

**DEP**: FR11

**ID: FR13**

**TITLE**: Mobile application – View skips states on the map

**DESC**: On the mobile application, a user should have ability to see states of nearby skips.

**RAT**: In order for a user to have ability to see states of skips on the mobile application.

**DEP**: FR11

**ID: FR14**

**TITLE**: Mobile application – Inform operator

**DESC**: After a user click empty button, the system will send a message to operator’s email.

**RAT**: In order for the operator to know that a full skip will come.

**DEP**: FR11

**ID: FR15**

**TITLE**: Mobile application – View details of skip

**DESC**: Details of skip should be shown on a new page that pops up on the map. There should be two buttons on the new page. Left button is to trigger empty skip function and another one is to close this page.

**RAT**: The way skip details are displayed.

**DEP**: FR11

**ID: FR16**

**Title**: Driver Login Page

**DESC**: Drivers can login and enter the home page of This App.

**DEP**: none

**ID: FR17**

**Title**: User Profile Page

**DESC**: Users can see details of their personal info on this page (such as: name gender age working hours)

**DEP**: FR16

**ID: FR18**

**Title**: User Logout

**DESC**: User can logout the personal account and exist the app on user profile page

**DEP**: FR16 FR17

**ID: FR19**

**Title**: Skips map View

**DESC**: There should be a google map on this page; user can see the location, the shortest path on this page.

**DEP**: FR16 FR17

**ID: FR20**

**Title**: Record skips state

**Desc**: a user should be able to know the state of every skips (red: full, yellow: intermediate state, green: empty state)

**RAT**: In order user get access to the details of every skip

**DEP**: FR16 FR17

**ID: FR21**

**TITLE:** Locating existing account

**DESC:** User should already have detailed stored in the system from their (Government) account and the application should synch user’s access directly.

**RAT:** In order for users account to synch directly from login.

**DEP:** FR7

**ID: FR22**

**TITLE:** Switch result view (switch from different skips)

**DESC:** User should be able to switch to a result view when selecting the skip which as been emptied or needs to be emptied.

**RAT:** User should be able to view skip clearly with more details.

**DEP:** FR15

**ID: FR23**

**TITLE: Skip’s daily record**

**DESC: User should be able to select a skip and see how many times a certain skip has been emptied on that day.**

**RAT: To ensure user keeps track of skips record and not overuse a certain skip.**

**DEP:** FR20

**ID: FR24**

**TITLE:** Automatic refreshing of the google maps

**DESC:** Application map needs to constantly refresh to remain updated which skip is full or empty.

**RAT:** Increase efficiency and usability

**DEP:** FR13

**ID: FR25**

**TITLE:** Time taken to destination

**DESC:** User should be able to view the location and time it will take for skip to be emptied.

**RAT:** Increase efficiency and usability by providing user feedback

**DEP:** FR4

## Non- functional requirement

1-4 -rex , 5-7 HAN , 8 to 11 chao(jack), JERRY- 12-15- , Joel – 16- 19

**ID: NFR1**

**TITLE**: User login response time

**DESC**: Given users a good login experience, accelerating response time.

**ID: NFR2**

**TITLE**: Logout/switch user response time

**DESC**: Given users a good logout/switch user account experience, accelerating response time.

**ID: NFR3**

**TITLE**: Failure in login

**DESC**: When user failure in login, they cannot do anything. If this problem occurs, you need to find the cause of the problem and fix it

**ID: NFR4**

**TITLE**: Missing interface functions

**DESC**: Missing inter face functions will lead to a lot of problems, such as no login button, no logout button, no user profile button, no skips details button.

**ID: NFR5**

**TITLE**: compatibility

**DESC**: The app can be used in different type of mobile phones and system version.

**RAT**: In order for all users can use the application.

**ID: NFR6**

**TITLE**: Backup

**DESC**: copying data in a file system or database system. In case of disaster or error operation, it is convenient and timely to restore the effective data and normal operation of the system

**RAT**: In order for all users can get back data in case of disaster.

**ID: NFR7**

**TITLE**: Performance

**DESC**: The reaction time of the application shall be more and quicker.

**RAT**: In order to make application have excellent performance.

**ID: NFR8**

**TITLE**: Availability

**DESC**: Users can get access to the mobile application anytime and anywhere. Denial of service should not happen.

**ID: NFR9**

**TITLE**: Database response time

**DESC**: Adding, updating, querying and deleting data should take less than 3 seconds and take less than 5 seconds on peak time.

**ID: NFR10**

**Title**: Scalability

**DESC**: Database should have enough room for saving data and avoid overloading and data overflow. Data volume will grow, as the number of registered users increase.

**ID: NFR11**

**TITLE**: Compatibility

**DESC**: Operation system of this mobile application is Android. The mobile application should be compatible for most types of mobile phone.

**ID: NFR12**

**TITLE**: User login response time

**DESC**: Users can receive the response in a short time.

**ID: NFR13**

**TITLE**: Logout/switch user response time

**DESC**: users should have good logout/switch user account experience, short response time.

**ID: NFR14**

**TITLE**: Failure in login

**DESC**: When user failure in login, they cannot do anything. If this problem occurs several times, the app should be locked

**ID: NFR15**

**TITLE**: Missing interface functions

**DESC**: Missing interface functions will lead to a lot of problems, such as no login button, no logout button, no user profile button, no skips details button.

**ID: NFR16**

**TITLE**: The software requiring a lot of memory to run

**DESC**: The application requires a large amount of memory to be able to run smoothly due to feature such as google map.

**ID: NFR17**

**TITLE**: Failure in detecting the shortest path

**DESC**: The application failing to detect the shortest path could lead to several levels of inefficiency and affecting the user’s time. The algorithm needs to be integrated correctly.

**RAT**: In order to increase user travel efficiency

**ID: NFR18**

**TITLE**: Failing to locate full and empty skips

**DESC**: The system should be able to constantly scan the map and identify which skips are full or empty.

**RAT**: The effectiveness of the application depends on the ability to scan for skips.