# BOILER LABS

## Sprint 2 Retrospective

## Team 5

Team Members:
Rishabh Ahluwalia
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Abhinav Kumar
Shalin Shah
Ayan Singh

**1. Tasks Implemented and Working:**

**A. TASK:** Develop the front end user interface for the online mode. This interface will pass information back and forth between the client side and the database to obtain the relevant data. **(Shalin Shah)**
**Why and How:** A new XML file activity_ll_online was created for the Online interface. A check is made to see if the user has selected the Online/Offline mode and then load the appropriate layout. The online information is retrieved using the Scraper and Parser created before in a new thread in the LabView Activity class. A new thread is used as per Android specifications for Network connections.

**B. TASK:** Once the user selects a lab as his/her preferred lab, the information of the lab is saved in a separate class named ‘Preferences’. Lab information will include the location, number of available computers. **(Ayan Singh)**
**Why and How:** A new Button was created in LabView. Upon clicking this button, the name of the lab is saved in the class called SharedPreferences.A key containing the name of the lab is saved in the SharedPreferences class. Finally, the saved lab names are loaded in the Preferences class, by checking if the key present in SharedPreferences. These saved lab names are available to browse and select once the user clicks ‘Favorite Labs’ on the main menu.

**C. TASK:** User can select whether he/she wants to use the app in online or offline mode. An option will be provided to the user to select the mode in the ’preferences’ tab which would change the interface of the application to the appropriate model. **(Ayan Singh)**
**Why and How:** A new Button was created in MainActivity to toggle the online and offline modes. A function was created in the MainActivity class to set the button text to ‘Offline’ once the online mode had been toggled and to ‘Online’ once the Offline mode had been toggled. This was implemented using a boolean to test what mode the system was in currently.

**D. TASK:** Implement a function that will find the distance of each lab from the user and then use an algorithm to find the closest ITaP lab. **(Abhinav Kumar)**
**Why and How:** The function computeClosestDistance(double userLat, double userLng, double labLat, double labLng) was implemented in LabClosest.java class. This function takes four arguments of type double where first two arguments are the user longitude and latitude and other two arguments are the latitude and longitude of the different buildings. This function returns the distance of each building from the user which is stored in a array

list. Selection algorithm was used to find the minimum distance, then latitude and longitude of that building with the minimum distance was used to display the directions to the closest lab.

**E. TASK:** Implement a function that will provide the user with accurate directions to the ITaP lab that is closest to him. **(Akshit Gupta )**
**Why and How:** The feature is implemented in MapDirection.java. It is responsible to find the direction of the closest lab from the user's current location. MapDirection.java uses Map.java to get the the latitude and longitude of the closest lab. Map.java then uses polylines to display the driving directions to the lab on the map.

**F. TASK:** Establish a connection to the public webcams' site and display the live feed on the application. **(Chen Gong)**
**Why and How:** The activity that displays the live camera in Lawson labs is implemented in CSlab.java class. This activity parses different camera video url and use Intent to view the dynamic video streams. The live camera will be directly displayed inside the application. The Lawson lab cameras use a RTSP stream and MPEG4 file format. Since Android's webView doesn't support this format an Intent is called to use Android's native video player within the application

**G. TASK:** The list of the labs will be displayed in a better manner. The list will be reorganized according to the name of the buildings. **(Rishabh Singh Ahluwalia )**
**Why and How:** This feature was implemented in the StableArrayAdapter class. A function is created that iterates through the list of the labs and a new entry is created for each new building. This new entry contains just the name of the building and has a light blue color to differentiate it from the rest of the entries.

**H. TASK:** The name, address and picture of a particular building will be made available to the user when he/she clicks on the marker of that particular building in the map tab.
**(Akshit Gupta )**
**Why and How:** The feature is implemented using CustomPopUp.java. CustomPopUp.java has been used to create a custom marker to display the address, name and the picture of the lab. Map.java uses 'geocoder' to get the address of each and every lab, and then passes that info to CustomPopUp.java. CustomPopUp.java uses the provided information, and the pictures that have been downloaded and saved in drawable's section, to create a custom pop up and display it when user clicks on a marker.

**I. TASK:** A small map will be displayed with the location of that particular lab whose details are being displayed. **(Rishabh Singh Ahluwalia )**

**Why and How:** This feature was implemented in LabView.xml and in the LabView class. A map fragment was added to LabView.xml which adds a map to the LabView with attributes that place and size the map. Then, in LabView.java, the map is zoomed in to the user location and a marker is placed on the lab currently selected in LabView. Then, driving directions from the users current location to the marker are displayed.

**2. How to improve:**

a) We could comment our code more often to ensure all team members understand what each function/class does and how it works

b) We could use a bit more of a top down approach while designing the software. Currently a completely bottom up approach is used which is sometimes leading to confusions and unnecessary functions

c) We could interview students around campus after showing them the current app to get feedback of the usability of the app. This will help us improve the features and the UI of the app.

**3. The tasks that were not implemented or did not work well**

All the tasks for sprint 2 were implemented on time and work well.