

1. Project design:

In this sprint, we had a good discussion on this project's design and features, here is the design which we discussed during the plan meeting:

1.1 Data analyzing requirement:

1.1.1 Find the best station with available bikes to start a journey: The user should be able to get the current information on which Dublin bike station has the most amounts of available bikes. To get this data, it needs to get all current stations' available bikes' amount and compare each bike station with the amounts of available bikes. The necessary data will include: station names, current available bikes in each station. We use chart 1 to display the info.

1.1.2 Find the best station with free spaces to return the bike

The user should be able to get the current information on which Dublin bike station has the most amounts of available bike stands. This analyzed results needs the source data on: station names, current available bike stands in each station. We use chart 2 to display the info.

1.1.3 Should display relevant and useful information learned from recent occupancy trends

The top 10 amounts of bike usage stations (We will search the top 10 stations with the highest number of available bike stands per 5 minutes for a week. As a result, the 10 stations are the most popular stations in the week). We use chart 3 to display the info.

1.1.4 Incorporate weather information as it affects the occupancy

In this case, we will illustrate proportion bike usage on the days which have the different weather conditions (rain & sunny day). The methodology is collecting one month data and separate the days into rain days and sunny days, we calculate the sum of used bike amounts within the days and calculate the proportion bike usage with formulation: Sum of used bikes/n (5mins-interval). Also, we will make statistics on the popularity of car rental relatively. We use chart 4 to display the info.

1.1.5 Possibly include other sources of information

Beside the above information, in this sub-section, we will add more useful information onto the map from APIs, such as:

Banking: indicates whether this station has a payment terminal

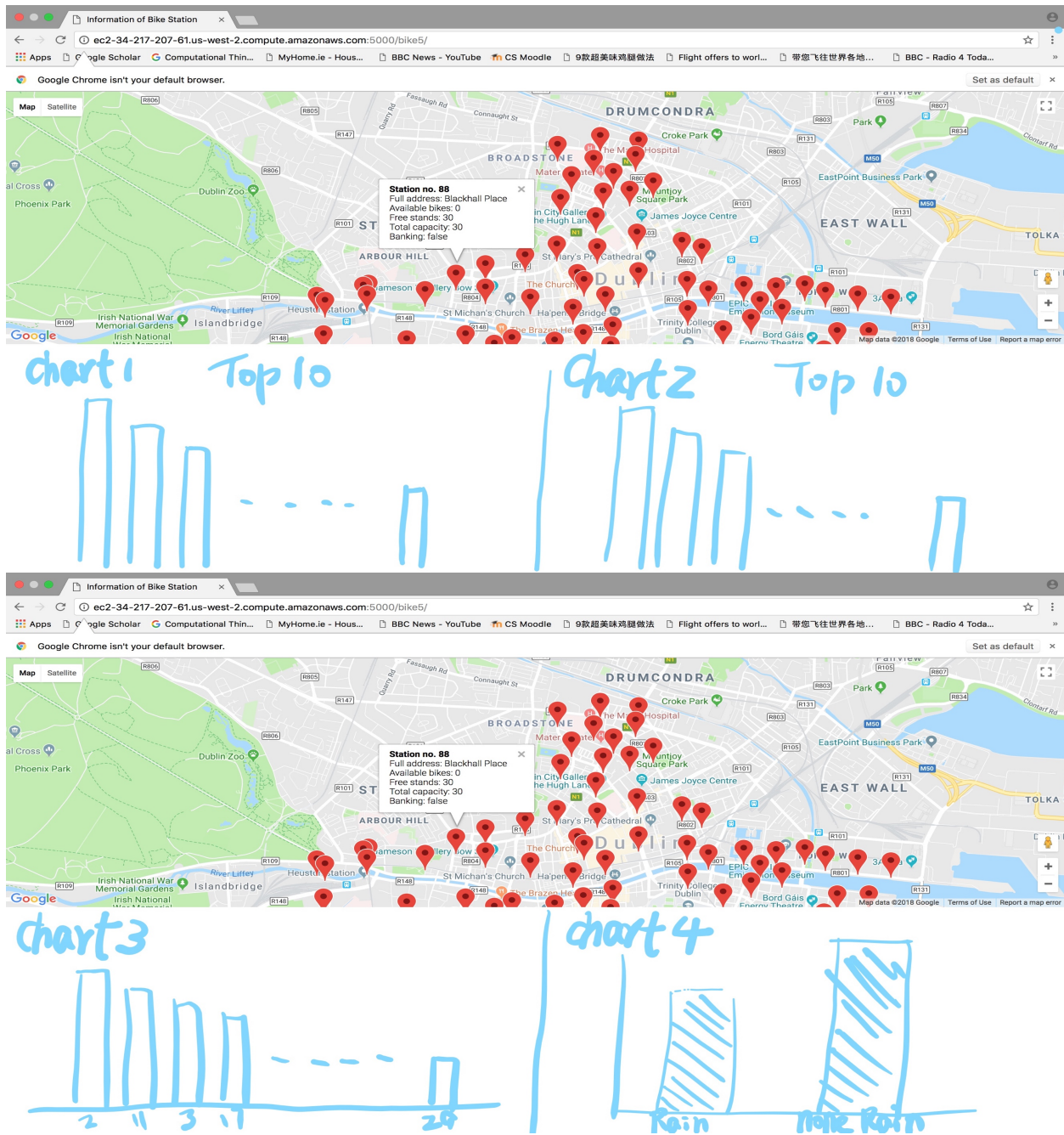
Bonus: indicates whether this is a bonus station

Status: indicates whether this station is CLOSE or OPEN

The Information can be displayed on the google map.

1.2 Data Analytic illustrations:

We also draw a layout which showing above 4 charts:



Google Map: Display all bike stations in Dublin with Red Points. When the user moves the mouse onto the Red Marker, the page will pop up a box showing the detailed information about this Bike station.

Chart1: Display top10 stations which have the current most available bikes.

Chart2: Display top10 stations which have the current most available bike sands.

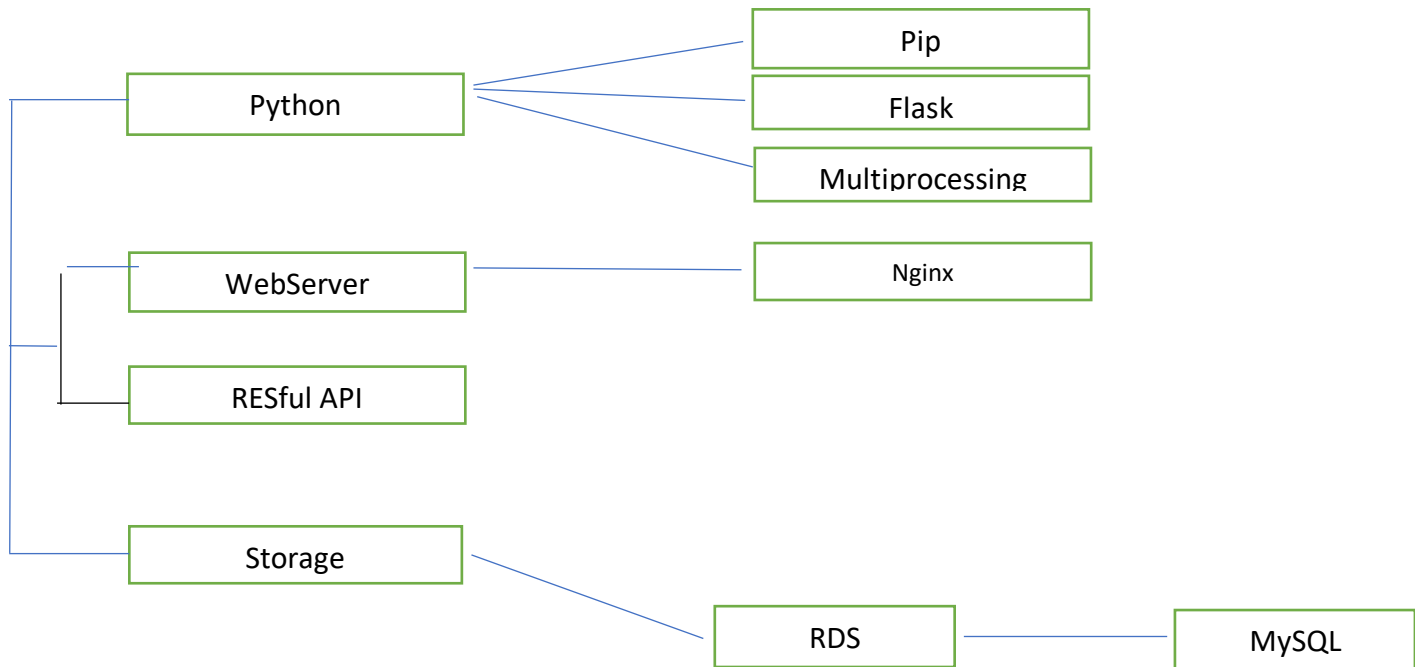
Chart3: Display top10 stations which have the most proportion usage of bikes over last 1 weeks

Chart4: Display 2 columns, in which one is the bike usage proportion within rain weather condition (Rain days and Snow days), the other column is the bike usage proportion within non-rain (Sunny days, Cloud days, Wind days) weather condition.

Chart6: Same like Chart 4, but will display based on the historical data (1 week or 1 month)

1.3 The necessary components for constructing this project on the machines.

As we did not have a chance on constructing this project in Sprint1, we went reviewed on this during the plan meeting, the following figure is our outcome based on the discussions. (There are several components which have been implemented, such as Python (PIP, Flask, Multiprocessing programming) and Storage (RDS and MySQL).



2. Project features and plan:

2.1 Data Storing and Querying

- * Development on Data Query Automation and Flask major scripts (view.py)
- * Deploy Flask Server

2.2 Front-end development:

- * Add markers on bike station locations
- * Add banking, bonus and status
- * Use station chart to display bike avail - Chart1
- * Use station chart to display return avail - Chart2
- * Chart to display Non-rain vs rain in one day– Chart4

* Chart to display Non-rain vs rain in 1 week/1 month – Chart 6

* Weather information bar

2.3 Backlog plan

Project Front-end Backlog Group 18										
Backlog Item	Priority	Responsible	Status	Original Estimate	Day 1	Day 2	Day 3	Day 4	Day 5	Sprint Review
Sprint 2	P1	Peng/Anna/Chen	Completed							
Development on Data Query Automation and Flask major scripts (view.py)	P1	Peng	Completed	1	0	1	1	0	0	
Add markers on bike station locations	P1	Chen	N/S	3						
Add banking, bonus and status	P1	Chen/Peng	N/S	1						
Use station chart to display bike avail - Chart1	P1	Chen	N/S	2						
Use station chart to display return avail - Chart2	P1	Chen	N/S	1						
Chart to display trips vs rain - Chart6	P1	Peng	N/S	2.5						
Use station chart to display - Chart 4	P1	Anna	N/S	3						
Weather information bar	P2	Anna	N/S	3						
Total				16.5	0	1	1	0	0	0