[DUB-1] Sprint 1:13/02/2023 - 26/02/2023

Created: 09/Mar/23   Updated: 29/Mar/23

Status:	Done
Project:	DublinbikeGroup9
Components:	None
Affects versions:	None
Fix versions:	None

Type:	Task	Priority:	Medium
Reporter:	shanie wang	Assignee:	Unassigned
Resolution:	Unresolved	Votes:	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original estimate:	Not Specified		

Rank:	0|hzzzzz:
Start date:	13/Feb/23

Description

Sprint 1:

- Set up EC2 instance and RDS, and allow MySQL to connect to RDS via inbound rules in RDS security group.
- Retrieve bike station static and real-time data from JCDecaux through API.
- Retrieve current weather data and hourly/daily weather forecast data from Open Weather through API.
- Create database tables: bike station static data, bike station dynamic data, bike station availability, current weather, and weather forecast. For the current weather table, features to be displayed in the real-time weather section were selected. For the weather forecast table, two time intervals, hourly and daily, were used, features to be displayed in the weather forecast section were selected, and features that might affect the bike station availability prediction were also included.

[DUB-2]	**Sprint 1 Meeting 1: 14/02/2023** Created: 09/Mar/23 Updated: 09/Mar/23
Status:	Done
Project:	DublinbikeGroup9
Components:	None
Affects versions:	None
Fix versions:	None

Type:	Task	Priority:	Medium
Reporter:	shanie wang	Assignee:	Unassigned
Resolution:	Unresolved	Votes:	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original estimate:	Not Specified		

Rank:	0|i00007:
Start date:	14/Feb/23

Description

Project Outline:

In this meeting, the team discussed the project outline and defined the following steps:

a. Collect "DublinBikes" dynamic station occupancy data from JCDecaux API every 5 minutes and aim to have several weeks of continuous data.

b. Store the collected data in a MySQL database on Amazon RDS, which includes both static and dynamic data.

c. Display the station data on a Google map using the API, and encode the occupancy and availability information in the color and size of the markers.

d. Implement simple map interactivity that shows more detailed occupancy (hourly, daily) bar chart when a station is clicked. The

user can also view the weather forecast from OpenWeather by clicking on the station, and this data will be displayed and put into the machine learning model.

e. Implement an ML model to predict occupancy based on the collected data. Predictions will be updated regularly as new occupancy data is collected.

Data Needed:

To achieve the project goals, the following data is required:

Static Data:

- Station position
- Number of bike stands

Dynamic Data:

- Station state
- Number of available bikes
- Number of free bike stands

The team plans to collect this data every 5 minutes and aim to have several weeks of continuous data.

Other Tools:

- Google Maps API
- OpenWeather API

The team will also utilize these tools to achieve the project goals.

[DUB-3] Sprint 2: 27/02/2023 - 12/03/2023

Created: 09/Mar/23   Updated: 29/Mar/23

Status:	Done
Project:	DublinbikeGroup9
Components:	None
Affects versions:	None
Fix versions:	None

Type:	Task	Priority:	Medium
Reporter:	shanie wang	Assignee:	Unassigned
Resolution:	Unresolved	Votes:	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original estimate:	Not Specified		

Rank:	0|i0000f:
Start date:	27/Feb/23

Description

Sprint 2:

- Set up the framework of the web app using Flask, and present the backend functionality on the web page.
- Use Google Maps API to display the map of Dublin on the web page and mark the locations of all bike stations on the map.
- Write HTML, CSS, and JavaScript code to build the web page.

[DUB-4] Sprint 3: 27/03/2023 - 09/04/2023

Created: 09/Mar/23   Updated: 29/Mar/23

Status:	In Progress
Project:	DublinbikeGroup9
Components:	None
Affects versions:	None
Fix versions:	None

Type:	Task	Priority:	Medium
Reporter:	shanie wang	Assignee:	Unassigned
Resolution:	Unresolved	Votes:	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original estimate:	Not Specified		

Rank:	0|i0000n:

Description

Sprint 3:

- Data analysis
- Machine learning
- Present the results of this part on the web page

[DUB-5]	Sprint 4: 10/04/2023 - 21/04/2023 Created: 09/Mar/23 Updated: 09/Mar/23
Status:	To Do
Project:	DublinbikeGroup9
Components:	None
Affects versions:	None
Fix versions:	None

Type:	Task	Priority:	Medium
Reporter:	shanie wang	Assignee:	Unassigned
Resolution:	Unresolved	Votes:	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original estimate:	Not Specified		

Rank:	0|i0000v:

Description

Sprint 4:

- Refine and improve the project.

[DUB-6] Sprint 1 Meeting 2: 16/02/2023 Created: 09/Mar/23 Updated: 29/Mar/23

Status:	Done
Project:	DublinbikeGroup9
Components:	None
Affects versions:	None
Fix versions:	None

Type:	Task	Priority:	Medium
Reporter:	shanie wang	Assignee:	Unassigned
Resolution:	Unresolved	Votes:	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original estimate:	Not Specified		

Rank:	0|i0000b:

Description

Sprint 1 Meeting 2:

Agenda:

- Discuss methods and steps for collecting Dublin Bike data
- Identify tasks for retrieving bike station static and real-time data from JCDecaux API
- Identify tasks for writing Python code for data analysis

Discussion Points:

- Reviewed the JCDecaux Developer page and identified the steps for registering and obtaining an API key
- Discussed the necessary HTTP libraries and Python code needed to send a GET request to the JCDecaux API endpoint for Dublin bike station data
- Outlined the parameters to include in the API endpoint URL to specify the desired data format and level of detail

- Discussed the need for regularly scheduled requests to retrieve real-time bike station data from JCDecaux API
- Identified the need to parse and store the retrieved data in SQL database for further analysis
- Discussed using Python libraries data analysis
- Identified the need to calculate summary statistics and create visualizations of the bike station data

[DUB-7]	Sprint 1 Meeting 3: 21/02/2023 Created: 09/Mar/23 Updated: 29/Mar/23
Status:	Done
Project:	DublinbikeGroup9
Components:	None
Affects versions:	None
Fix versions:	None

Type:	Task	Priority:	Medium
Reporter:	shanie wang	Assignee:	Unassigned
Resolution:	Unresolved	Votes:	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original estimate:	Not Specified		

Rank:	0|i0000d:

Description

- Set up EC2 instance and RDS to store data collected in the project.
  - Obtained the IP addresses of team members' computers and connected to RDS.
  - Configured inbound rules in RDS security group to allow MySQL to connect to RDS.
- Retrieved DublinBikes' bike station static and real-time data from JCDecaux through API.
  - Collected dynamic station occupancy data every 5 minutes to have several weeks of continuous data.
  - Stored the data in a database consisting of two tables: bike station static data and bike station dynamic data.
    - Bike station static data includes station position, number of bike stands, and payment terminal availability.
    - Bike station dynamic data includes station state, number of available bikes, and number of free bike stands.
  - Used Python to perform data analysis.

- Retrieved current weather data and hourly/daily weather forecast data from Open Weather through API.

Next Steps:

- Display the station data on a Google map and encode the occupancy and availability in the color/size of the markers.
- Implement simple map interactivity to display more detailed occupancy (hourly, daily) bar chart when a station is clicked and show the weather forecast (open weather) when a station is clicked.
- Develop a machine learning model to predict occupancy based on the collected data, and update the predictions regularly as new occupancy data is collected.

[DUB-9]　[Sprint 1 Meeting 4: 23/02/2023](#)　Created: 09/Mar/23　Updated: 29/Mar/23

Status:	Done
Project:	[DublinbikeGroup9](#)
Components:	None
Affects versions:	None
Fix versions:	None

Type:	Task	Priority:	Medium
Reporter:	[shanie wang](#)	Assignee:	Unassigned
Resolution:	Unresolved	Votes:	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original estimate:	Not Specified		

Rank:	0|i0000e:

Comments

Comment by [shanie wang](#) [09/Mar/23]

Reporting project progress to the project owner.

Our team has made progress in the project by setting up an EC2 instance and RDS, allowing MySQL to connect to RDS via inbound rules in the RDS security group. We have also obtained the IP addresses of team members' computers and connected them to RDS.

The next steps of the project include scraping bike data and storing it in the database on AWS. We will retrieve "DublinBikes" dynamic station occupancy data from JCDecaux every 5 minutes and aim to have several weeks of continuous data. We will store the data in the Amazon RDS (MySQL) database. In addition, we will also scrape weather data and store it in the database on AWS. We will retrieve current weather data and hourly/daily weather forecast data from Open Weather through API.

Once the data is successfully stored in the database, we will work on displaying the station data on a Google Map using API. We will

encode the occupancy and availability in the color/size of the markers and add simple map interactivity. When a station is clicked, we will display more detailed occupancy (hourly, daily) bar chart and the weather forecast (display and put into the machine learning model).

Finally, we will develop a machine learning model to predict occupancy based on collected data. The predictions will be regularly updated as new occupancy data is collected.

Data needed includes station position, number of bike stands, payment terminal availability (static), and station state, number of available bikes, number of free bike stands (dynamic). We will obtain this data from https://developer.jcdecaux.com/#/opendata/vls?page=getstarted . Additionally, we will use Google Maps and Open Weather to retrieve necessary information for our project.

[DUB-10]	Problem	Created: 29/Mar/23	Updated: 29/Mar/23
Status:	Done		
Project:	DublinbikeGroup9		
Components:	None		
Affects versions:	None		
Fix versions:	None		

Type:	Task	Priority:	Medium
Reporter:	shanie wang	Assignee:	Unassigned
Resolution:	Unresolved	Votes:	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original estimate:	Not Specified		

Rank:	0|i0001b:

Description

Problem: The program for retrieving data is not running in the background, leading to incomplete data collection.

Solution: Deploy the data retrieval program on an EC2 instance to ensure that the data retrieval process runs in the background.

Process:

1. Create an EC2 instance and establish a connection with the RDS instance. Modify the outbound rules of the EC2 instance to allow API calls in the EC2 instance.
2. Organize the DataScrapper code and upload it to GitHub. Clone the repository to the EC2 instance.
3. Use the "onhup" command to ensure that the stationdata.py and weatherdata.py programs keep running.

[DUB-11] Sprint 2 Meeting 1: 29/02/2023 Created: 29/Mar/23   Updated: 29/Mar/23

Status:	Done
Project:	DublinbikeGroup9
Components:	None
Affects versions:	None
Fix versions:	None

Type:	Task	Priority:	Medium
Reporter:	shanie wang	Assignee:	Unassigned
Resolution:	Unresolved	Votes:	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original estimate:	Not Specified		

Rank:	0|i0000j:

Description

Agenda:

Review progress of Sprint 1 and identify any issues encountered.

Discuss plans for displaying the station data on a Google map and implementing map interactivity.

Identify tasks for developing the machine learning model.

Discussion Points:

Reviewed progress made in Sprint 1 and identified some minor issues with data collection and storage that were resolved.

Discussed plans for displaying the station data on a Google map and implementing map interactivity. Decided to use the Google Maps API to display the data and implement interactivity using JavaScript.

Outlined the steps needed to retrieve data from the MySQL database and display it on the map, including encoding the occupancy and availability information in the color and size of the markers.

Identified tasks for developing the machine learning model, including deciding on the appropriate model and programming language to use, and preparing the data for training the model.

[DUB-12]	Sprint 2 Meeting 2: 01/03/2023 Created: 29/Mar/23 Updated: 29/Mar/23
Status:	Done
Project:	DublinbikeGroup9
Components:	None
Affects versions:	None
Fix versions:	None

Type:	Task	Priority:	Medium
Reporter:	shanie wang	Assignee:	Unassigned
Resolution:	Unresolved	Votes:	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original estimate:	Not Specified		

Rank:	0|i00001:

Description

Agenda:

Review progress on displaying the station data on a Google map.

Discuss plans for implementing map interactivity.

Identify tasks for developing the machine learning model.

Discussion Points:

Reviewed progress made on displaying the station data on a Google map using the Google Maps API. The team encountered some issues with the API and decided to consult the documentation and forums for help.

Discussed plans for implementing map interactivity, including showing more detailed occupancy (hourly, daily) bar chart and the

weather forecast (display and put into the machine learning model) when a station is clicked.

Identified tasks for developing the machine learning model, including researching different machine learning models and algorithms, and preparing the data for training the model.

[DUB-13] Sprint 2 Meeting 3: 06/03/2023 Created: 29/Mar/23 Updated: 29/Mar/23

Status:	Done
Project:	DublinbikeGroup9
Components:	None
Affects versions:	None
Fix versions:	None

Type:	Task	Priority:	Medium
Reporter:	shanie wang	Assignee:	Unassigned
Resolution:	Unresolved	Votes:	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original estimate:	Not Specified		

Rank:	0|i0000m:

Description

Agenda:

Review progress on implementing map interactivity.

Identify tasks for developing the machine learning model.

Discussion Points:

Reviewed progress made on implementing map interactivity using JavaScript. The team encountered some issues with showing the weather forecast when a station is clicked and decided to consult the OpenWeather API documentation and forums for help.

Identified tasks for developing the machine learning model, including selecting the appropriate machine learning algorithm to use and preparing the data for training the model.

Discussed plans for testing and validating the machine learning model once it is developed.

Status:	Done
Project:	DublinbikeGroup9
Components:	None
Affects versions:	None
Fix versions:	None

Type:	Task	Priority:	Medium
Reporter:	shanie wang	Assignee:	Unassigned
Resolution:	Unresolved	Votes:	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original estimate:	Not Specified		

Rank:	0|i0000m:i

Description

Agenda:

Review progress on developing the machine learning model.

Discuss plans for testing and validating the machine learning model.

Identify tasks for Sprint 3.

Discussion Points:

Reviewed progress made on developing the machine learning model, including selecting the appropriate machine learning algorithm (decision tree) and preparing the data for training the model.

Discussed plans for testing and validating the machine learning model, including splitting the data into training and testing sets and evaluating the performance of the model using appropriate metrics.

Identified tasks for Sprint 3, including refining the implementation of map interactivity, further testing and validation of the machine learning model, and preparing for the final presentation and demonstration of the project.

[DUB-15]　Sprint 3 Meeting 1: 28/03/2023　Created: 29/Mar/23　Updated: 29/Mar/23

Status:	Done
Project:	DublinbikeGroup9
Components:	None
Affects versions:	None
Fix versions:	None

Type:	Task	Priority:	Medium
Reporter:	shanie wang	Assignee:	Unassigned
Resolution:	Unresolved	Votes:	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original estimate:	Not Specified		

Rank:	0|i0000r:

Description

Agenda:

Review progress made during Sprint 2

Identify tasks for displaying data on Google map

Identify tasks for implementing simple map interactivity

Discussion Points:

Reviewed progress made during Sprint 2, including successfully scraping bike data and storing it in the MySQL database on Amazon RDS.

Discussed methods for displaying the bike data on a Google map using the Google Maps API.

Outlined the parameters to include in the API endpoint URL to specify the desired data format and level of detail for the bike data.

Discussed how to encode the occupancy and availability information in the color and size of the markers.

Identified the need to implement simple map interactivity that displays more detailed occupancy (hourly, daily) bar chart when a station is clicked.

Discussed the need to show the weather forecast from OpenWeather by clicking on the station and how this data will be displayed and put into the machine learning model.

Identified tasks for implementing these features, including writing Python code to retrieve the data and updating the front-end of the application to display it.

Next Steps:

Write Python code to retrieve the bike and weather data and implement it in the application.

Update the front-end of the application to display the bike data on a Google map and encode the occupancy and availability information in the color and size of the markers.

Implement simple map interactivity that displays more detailed occupancy (hourly, daily) bar chart when a station is clicked and show the weather forecast when a station is clicked.

Work on developing the machine learning model to predict occupancy based on collected data, and update the predictions regularly as new occupancy data is collected.

Identify any potential issues that may arise and plan for them accordingly.

[DUB-16]	Sprint 3 Meeting 2: 30/03/2023	Created: 29/Mar/23	Updated: 29/Mar/23	
Status:	To Do			
Project:	DublinbikeGroup9			
Components:	None			
Affects versions:	None			
Fix versions:	None			

Type:	Task	Priority:	Medium
Reporter:	shanie wang	Assignee:	Unassigned
Resolution:	Unresolved	Votes:	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original estimate:	Not Specified		

Rank:	0|i0000t: