# CS7CS3 Advanced Software Engineering Group Project

# Requirements/Use Cases

# Project Name: *Please enter here*

**Group: *<Group Number>***

***<List of Group Members>***

# 1. Use Case Diagram

Please include a UML Use Case Diagram (see slides on Blackboard) for the project.

*Diagram here.*

*<From <single use case description start> to <single use case description end> contains the structure of the information that should be here for* ***each*** *use case. Copy and fill all sections for* ***EACH******USE CASE****>*

*<single use case description start>*

### Use Case Name: Environmental Impact of current bus use in the city

1. Description

*Describe the goals and responsibilities of the Use Case*

*Goals:*

1. To estimate the number of buses in the area
2. To calculate the CO2 emission on the basis on number of buses

*Responsibilities:*

1. The use case will visualize the live CO2 emission levels which can be used by city mangers to check environmental impact.

Actors

*List the actors that are involved, and their roles in the Use Case*

1. City Managers – When selecting the ‘Buses’ view of the site, It will show CO2 emissions levels throughout the city.

Triggers and Inputs

*List and describe the triggers that start this use case executing, and the subsequent inputs*

Triggers:

1. User logs in to application.
2. User selects the ‘Buses’ dashboard view to display the visualization.

Inputs:

1. User can select an area to view the CO2 levels

2. Flow of Events

|  |  |  |  |
| --- | --- | --- | --- |
| Basic Flow | | | |
| User | | System | |
| 1 | User selects the ‘Buses’ dashboard view in the application. |  |  |
|  |  | 2 | The system retrieves the most-recent Buses data from local database. |
|  |  | 3 | Map of Dublin city is displayed, with the Buses locations and CO2 emission levels. |
| 4 | User selects Max and Min CO2 levels view-filter. |  |  |
|  |  | 5 | System shows the areas which has highest and lowest CO2 levels. |

3. Special Requirements

* 1. This data requires the existence of live Buses data sources and average emission of bus.

4. Preconditions

User must have logged in to the system and have sufficient privileges to view the CO2 emissions.

Live and predicted data must have been pushed to the local data buffer.

We are considering the only impact of buses on CO2 emissions.

5. Postconditions

Once this use case has been completed, the CO2 visualization has been rendered with information based on:

1. the most recent live data
2. the filters selected by the user.

These are subject to change as the live location of buses will change thus data generated will be dynamic and it must be refreshed.

*<single use case description end>*

### Use Case Name: Estimation of crowd size for events

**1. Description**

***Goals:***

1. To get list of all the events.
2. To get estimation of size of crowd from historic data.
3. Visualize the data on city map.

***Responsibilities:***

The use case is used to estimate the crowd size for events. Which can be leveraged by city managers for crowd handling.

**Actors**

1. City Managers – When selecting the ‘Events/Incidents’ view of the site, City Managers will visualize the events and crowed size.

**Triggers and Inputs**

**Triggers:**

1. User logs in to application.
2. User selects the ‘Events/Incidents’ dashboard view to display the crowd size on the map.

**Inputs:**

1. User can select a date range to display all events within the selected range.

2. Flow of Events

|  |  |  |  |
| --- | --- | --- | --- |
| Basic Flow | | | |
| User | | System | |
| 1 | User selects the ‘Events/Incidents’ dashboard view in the application. |  |  |
|  |  | 2 | The system retrieves the most-recent Events data from local database. |
|  |  | 3 | Map of Dublin city is displayed, with the Events locations and crowd size. |
| 4 | User selects a date range. |  |  |
|  |  | 5 | Map will only display events and crowd size in the date range. |

3. Special Requirements

This data requires the existence of live Events data sources and history data of crowd size

4. Preconditions

User must have logged in to the system and have sufficient privileges to view the Events.

Size of the crowd are subjective to various conditions (Covid-19, Raining etc.)

5. Postconditions

*Describe the state of the system, or what should be seen to have been achieved, when this use case has completed its processing.*

Once this use case has been completed, the Events map has been rendered with information based on:

1. the most recent live or predicted data and
2. the date range selected by the user.

*<single use case description end>*

*<single use case description end>*