# 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: Display suggestions for increasing bus route frequency based on current events

1. Description

*Describe the goals and responsibilities of the Use Case*

*Goals:*

1. Display suggestions for increasing the number of busses in a route based on the events that are happening in the city on a map of Dublin city.
2. If live data is not available, simulate with most-recent historic data.

*Responsibilities:*

1. This use case is responsible for suggesting options to increase frequency of bus routes based on the events that are happening in that route on a map of Dublin city.

Actors

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

1. City Managers – When selecting the ‘Events’ view of the site, City Managers will request for suggestions on bus route frequency visualization to be created.

Triggers and Inputs

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

Triggers:

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

Inputs:

1. User can select option to show the bus frequency suggestions

2. Flow of Events

*Using a bulleted list, describe the sequence of steps that should occur (basic flow all going well) in order to complete the use case, and what should happen if there are any conditions that mean the basic flow will not happen as described.*

*NOTE FILLED IN PURELY AS AN EXAMPLE:*

| Basic Flow | | | |
| --- | --- | --- | --- |
| User | | System | |
| 1 | User selects the ‘Events’ dashboard view in the application. |  |  |
|  |  | 3 | The system retrieves the most-recent Events data from the local database. |
|  |  | 4 | Map of Dublin city is displayed, with the Events data overlaid |
| 5 | User selects option to show bus frequency suggestion |  |  |
|  |  | 6 | The system retrieves the most-recent Bus data from the local database. |
|  |  | 7 | Map of Dublin city is displayed, with bus route frequency suggestions |

3. Special Requirements

*Here is where you indicate if the use case has any special requirements or expectations as to the existence of other systems*

* 1. This data requires the existence of live Bus and Events data sources.

4. Preconditions

*Describe what must be have occurred previously for this use case to execute*

Users must be logged in to the system and have sufficient privileges to view the Events visualisation.

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

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 Bus map visualization has been rendered with bus route frequency suggestions based on:

1. the most recent live or predicted data

*<single use case description end>*

### Use Case Name: Predict CO2 emissions caused by buses in the following days.

1. Description

*Describe the goals and responsibilities of the Use Case*

*Goals:*

1. Display CO2 emission comparisons of the buses in the city on a graph for the following days.
2. If live data is not available, simulate with most-recent historic data.

*Responsibilities:*

1. This use case is responsible for visualizing CO2 emission comparison caused by the busses in Dublin city.

Actors

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

1. City Managers – When selecting the ‘Dublin Bus’ view of the site, City Managers will request for CO2 emission comparison.

Triggers and Inputs

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

Triggers:

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

Inputs:

1. User can select option to show the CO2 emission information

2. Flow of Events

*Using a bulleted list, describe the sequence of steps that should occur (basic flow all going well) in order to complete the use case, and what should happen if there are any conditions that mean the basic flow will not happen as described.*

*NOTE FILLED IN PURELY AS AN EXAMPLE:*

| Basic Flow | | | |
| --- | --- | --- | --- |
| User | | System | |
| 1 | User selects the ‘Dublin Bus’ dashboard view in the application. |  |  |
|  |  | 3 | The system retrieves the most-recent Bus data from the local database. |
|  |  | 4 | Map of Dublin city is displayed, with the bus data overlaid |
| 5 | User selects option to show bus frequency suggestion |  |  |
|  |  | 6 | The system calculates the CO2 emission comparison for the following days |
|  |  | 7 | Graph is displayed with CO2 emission comparison |

3. Special Requirements

*Here is where you indicate if the use case has any special requirements or expectations as to the existence of other systems*

1. This data requires the existence of live Bus data sources.

4. Preconditions

*Describe what must be have occurred previously for this use case to execute*

Users must be logged in to the system and have sufficient privileges to view the Dublin Bus visualisation.

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

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,Graph with CO2 emission comparisons for the following days based on:

1. the most recent live or predicted data

*<single use case description end>*