ASSIGNMENT 4: URBAN COMPUTING APPLICATION

CS7NS4, Trinity College Dublin

Deadline: 22:00 28/11/2021
Submission Submit via blackboard:

1. the short assignment report in pdf or word
2. your source code (.zip), including instructions how to run it.

Goals:

- Use analytics techniques in a practical setting
- Finalise a practical urban computing application

For this assignment, you should build a full urban computing application, which incorporates some real-time sensor data, some analysis and reasoning and some visualisation or actuation. Note that the actuation can be emulated.

Task 1 – Data fusion and analysis data (6 marks)

For this task, you are required to perform some fusion and/or analysis of your data (ideally both the data you collected and the open data you imported) on the cloud service. Note that it should support several instantiations of the sensor you used (ie support several users uploading readings simultaneously).

You should explain clearly the processing that you are doing, the motivations behind using these steps and the specific algorithms chosen.

Task 1 mark allocations	
Motivation for the data processing steps required and the algorithms used	2
Overview diagram of the analysis, indicating the algorithms that you use, and highlighting your own individual work in addition to the packages you use.	1
Data fusion and analysis algorithm implementation	3

Task 2 – Data visualisation and actuation (5 marks)

For this task, you are expected to visualise the data processed (output of task 1) and/or actuate (or emulate actuation) based on this data.

Task 2 mark allocations	
Succinct description of the data visualisation and/or actuation goal	1
Data visualisation and/or actuation	4

Task 3 – Extra task (3 marks)

You are free to design this task as suitable for your application. Use it to focus on an existing part or add an extra feature that might be required for, or might enhance, your application.

Task 3 mark allocations	
Succinct description of the motivation for, and the significance of, the work undertaken – make sure to identify your extra task explicitly in your report	1
Extra task implementation description	2

Task 4 – Demonstration (11 marks)

For this part, you are expected to demonstrate your application. You should prepare a 2-minute demonstration of your application, highlighting it's motivation, the challenges you faced and demonstrating its features. These demonstrations will take place during the last week of term.

Task 4 mark allocations	
Demonstration scenario (including motivation and challenges). Adherence to 2 minutes	1
Working demonstration	6
Extra task – how relevant and elaborate it is	4

Plagiarism and code reuse

This assignment is to be performed individually. Students are allowed to discuss their understanding of the assignment instructions, and their general approach. They are not allowed to share, or look at each other's code. Sharing code will result in reduced marks for all students involved and the consequences described in the College rules [2]. If you discuss an assignment with fellow students then you must write the names of the students in your report. All students must complete the College's online seminar about plagiarism before submitting any assignment.

Similarly, students are allowed to look at existing code, but should either:

- Reuse the code (potentially with small adaptations), and identify clearly in the report which components or pieces of code come from existing code. In this case, students should demonstrate significant effort in addition to the existing work, potentially by going beyond the requirements of the assignment.
- Or use the code only as inspiration and write their own code without looking at the online code.

In either case, students should list any piece of code consulted (with a link if appropriate) in their report [2] http://tcd-ie.libguides.com/plagiarism/levels-and-consequences