Criterion A: Planning

Defining the problem

My client will be referred to as Mr. X. In the IB, the Geography IA is about collecting different types of data and then analyzing it to reach certain conclusions. The current methods are inadequate because it's all on paper, and my client wants the student to be able to manage the data more easily and efficiently. So my client, Mr. X, a geography teacher, has asked me to develop the software to meet his needs, an application which will make it easier for IB geography students to collect data of:

- The number of pedestrians and traffic on a street at a given time; *(see line 18 in Appendix)*
- Rating the quality of the surrounding environment; and assessing different aspects of buildings based on criteria. *(see line 22 in Appendix)*

He asked me if I could develop an Android application for his data collection. The program must be able to save the inputted data and later save it to a google spreadsheet that way Mr. X can gather all of is students' data. Mr. X has agreed to be the tester for this application and will give further feedback and advice on improving the product.

Word Count: 200

Rationale for the proposed solution

The proposed application, *GeoCollect*, is the application which will facilitate Mr. X's IB Geography students to collect all of the necessary data for them to be able to do their internal assessment. Using such an application would be much easier than using paper to write down all of the required data, it is easier to access, view and modify the data than if it was on a piece of paper. The students must be able to store the data that they input according to each objective.

Java was used because Mr. X suggested that would be ideal to make an Android application and Java is the language for creating Android apps. Initially, this application was going to be a simple GUI (Graphical User Interface), but then Mr. X went with the idea of the Android application simply because it's easier to collect the data. An advantage of a GUI is that less code goes into making the GUI itself, and it's easier to handle data. On an android app, there is much more code that goes towards building the interface, and there are more ways to handle data, SQL database, internal storage or external storage.

In the implementation of this application, a different variety of abstract data structures will be used depending on the context and how the data will be stored into the device internally. Structures such as:

- 1 dimensional arrays
- 2 dimensional arrays
- ArrayLists

For the last two parts of the data collection which require criteria, these never change therefore they can be part of the code itself, and will be its own separate Java class. The interface as well as every java class will be implemented in Android Studio, an IDE (Integrated Development Environment) for developing android-based applications.

Word Count: 291

Criteria for success

- Slide-in menu to switch from the different objectives
- 2 Counters in objective 1: for pedestrian and traffic count
- Be able to write different letter according to different criteria for each street of a map for objective 2
- Display criteria for objective 3 and have a number from 1-5 for each building assessed
- Display criteria for objective 4 and be able to write the number of storeys for each building and a number from -2 to +2 according to criteria, then add up the numbers for each building.
- Be able to see the saved data text files internal storage in the device(requires external app)
- Text files can then be sent/exported by the student and can be easily read