

Defining the Problem

Mr. Samtani is an average car owner who monitors his fuel usage. Currently, this is in a notebook, noting crucial information including the amount of fuel, cost of the fuel and the date. This has proven to be difficult to keep track of and stay consistent with. Additionally, he expressed his concern that there is no way to interpret or view summaries of the information (see Appendix 1.1 for client interaction). Hence, this technique proved ineffective. Mr. Samtani also tried other fuel applications however they did not provide the desired summaries.

After hearing of the computer science IA, Mr. Samtani requested if building a computer application to store and interpret this data was possible. **Mr. Samtani** is the client for this program application and Mr. May/Mr. Freeman is my advisor. Mr. Samtani expressed requirements for the program, including a GUI allowing him to enter car and fuel related information. Due to need for secure long-term storage of data, the data and data structures within the project will be serialized. Additionally, he requested some forms of graphs or charts to display the data.

Word Count: 175

Rationale for Development

Justification of Product

As per Mr. Samtani's request to build a program that stores his fuel usage data, a Java GUI computer application will be built. Prominently, the application, **Atlantis Fuel, will ensure once the user enters their data, they can access, edit, view, and interpret it through various graphs.** As opposed to Mr. Samtani's previous method of storing fuel data, the application will minimize human error, through constant verification of entered values. It should primarily address Mr. Samtani's concern that his data is unable to be interpreted.

Additionally, the application should also provide a holistic view of all the user's entries and allow them to export this data. The application will be advantageous due to its ability to organize fuel usage data and interpret it through graphing. These graphs may include fuel usage data with regards to cost, time and type. Overall, it should provide Mr. Samtani with a more efficient way to store and access fuel usage data.

Other programs and existing options were considered, including spreadsheet software and existing fuel data apps however, these did not offer graphed summaries of fuel data, which was one of Mr. Samtani's requirements.

Justification of Language

Java will be used to develop this computer application as it is a suitable language to manage Graphic User Interfaces and control user-data interaction. Java is most appropriate because it allows for Object-Oriented Programming including facilitation of modularity and efficient coding, such as code reusability. Modularity will allow the separation of code which will allow future extensibility. I also have sufficient knowledge of OOP to develop an effective Java program that will satisfy this client's requirements.

Word Count: 265

Success Criteria

The following success criteria were adapted from Lines 7-20 of the First Interview with Client (Appendix 1.1).

1. The user is able to signup and login to the application.
2. The user is able to edit personal information.
3. The application enables users to enter and edit vehicle related data.
4. The application enables users to enter and edit fuel related data.
5. Users are able to view the data entries about fuel and sort the entries categorically.
6. Users are able to download a PDF of the fuel data.
7. Users can view graphs of fuel data that is shown in relation to cost of fuel, timely usage of fuel and the type of fuel consumed.