

Criterion A: Planning

Defining the problem:

My client, Ms. Trisha Dhakal, is a high school student who is enrolled in the IB Diploma Programme. Because she takes this curriculum, she is often met with deadlines for a lot of assignments, some being regular homework assignments, and others being very important graded assignments such as her IA components and Core essays. As such, she has often found herself being overwhelmed with the amount of work she was receiving because, on top of having to do a lot of assignments, she would also be expected to allocate time to each assignment according to its importance.

After observing this regular challenge of time allocation, I realized that being a Computer Science student, I could be of assistance. Not only would I be able to design a product to solve her dilemma, but I would also be able to fulfill my Computer Science Internal Assessment through this undertaking.

To get an initial idea of what my client would require, I initially asked her some questions through an interview. After the fact, I exchanged some ideas of myself and some sketches with her to ensure that we were on the same page in regards to this project.

My advisor for this project is my Computer Science teacher, Mr. Prayaschit Bhandari, and I am fully confident that he will greatly assist and guide me throughout this process.

Word Count: 226

The rationale for the solution:

After looking through the requirements presented by my client, I determined that using the Java programming language, along with a few of its libraries would be optimal for this circumstance.

Java is a language that heavily incorporates Object-Oriented Programming (OOP) which I thought was vital for my client's requirements. The creation of classes through OOP would enable abstraction, which combined with the features of Java would ensure a robust and efficient software product. This efficiency would be furthered through inheritance and polymorphism, the other cornerstones of OOP. By using Java, I would also be able to easily integrate SQLite into my program, introducing a powerful but lightweight database component to the product.

For this project, I will be creating a GUI-based desktop application using the Java Swing library and Apache Netbeans as my IDE. The main reasons I will be using Java Swing are:

- It is a stable and proven library, with good documentation.
- Features a large variety of GUI options, ranging from combo boxes to calenders.
- It is compatible across multiple platforms, such as Windows, OSX, and Linux.
- I have extensive experience with operating this library.

And, the main reasons I will be using the Netbeans IDE are:

- It has seamless integration with Java Swing Components and databases such as SQLite
- The autofill feature of Netbeans would allow me to easily fill in large volumes of code.
- Netbeans has very accurate and convenient debugging capabilities.
- I am very familiar with Netbeans since I have used it in past projects.

Word Count: 250

Success Criteria:

My product will be successful if it meets the following criteria:

1. Create a user-friendly GUI where all the functions will be easily accessible and instantly understandable.
2. Ensure privacy through the use of usernames and passwords, which can be easily created and used.
3. Have a function set in place to retrieve credentials if they are forgotten.
4. Use a two-step verification system, with the first step allowing for a hint of the password and the second step allowing the viewing of the full password.
5. Allow for the creation of multiple accounts to access the Assignment Tracker.
6. Have the ability to easily input new tasks and mark them as done.
7. Easily navigate through the UI so that adding and marking tasks as complete is done efficiently.
8. Store tasks in a database on the basis of subject, date due, and importance.
9. Allow for the immediate viewing of pending and completed tasks.
10. Highlight the urgency of doing certain assignments, using the time required and density of the assignments as a basis.
11. Show error messages when the wrong credentials are inputted into the system.
12. Inform the user when there are no assignments left to be completed.