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Modeling Applications

The DriverPass project is a plan for a system that provides drivers with a platform in which they can work towards attaining their driving certification through courses, testing, and in person training and driver test completion. Creating models to show the functionality of the system is crucial in the design process, as models give a detailed overview of how the system will function statically as well as a framework for constructing the application.

A process model is important, as it shows how the flow of the interactions that will happen in the system. Each time the user or an administrator accesses the system, they will have a flow of interactions, from opening the application and logging in, to how they interact with each component, and what happens to the data from there. When the user clicks on a button to schedule a meeting, the system will send data to another component which will store the schedule data and match the student with an instructor

An object model can give a high-level overview of how the system is actually going to be structured. When creating an object model, you will define objects and classes within the system, as well as methods that will be used to create interaction between the different classes of the system. This model can be extremely useful in planning and organizing the final code for the system

For the application of DriverPass, a process model would be used to show the interaction that the student user would have with the different elements of the system. It would show how the student will take a test, which will communicate with the database to display questions, and after the completion of the test, show the student results of the test. It would show the flow of how a student scheduling a meeting with an instructor would work with a matchmaking system to find a driver in the students’ area. It would also describe the flow of the students’ creation of a user profile and password to access the system. Having a high-level view of the logic for how actions work throughout the system will be important in optimizing the development of the system itself.

There are some advantages, as well as disadvantages of process modeling in software development. As for advantages, a process model can offer a good way to visualize the tasks that the user will be able to perform and that will be completed by the system. Using a process model gives you the ability to see where you might have flaws in the way data flows through the system. Though there are many advantages to using process models, it can also cause problems when they don’t show the more nuanced behaviors of the system, like data types and methods.

Object models are a great way to show the elements that will be used to construct the application as well. An object model is going to describe the different elements of the system. For one, it represents the different classes that will be used in the system, and how each class is connected to the other classes. An object model will also have the different methods that are created within each class, as well as its variables that will be used to store the classes data.

Object models also have their advantages and disadvantages. The object model is a great method for representing each element of a system in an approachable and understandable way for those stakeholders that might not be well versed in the technical aspects of a software system. However, an object model can also make a system look way more complex than it needs to if it is not an overly complicated system to begin with.

It is important to choose the right models while developing your application, depending on the size of your team, the complexity of the project itself, and the skill level of those involved in the development process. In the case of DriverPass, I would recommend both the process model as well as the object model. The process model will help those stakeholders with a non-tech background understand the project better, while the object model will be the framework for the development team to use as a foundation for the project.

Resources:

Valacich, J. S., & George, J. F. (2025). *Modern Systems Analysis and Design*. Pearson Education, Inc.

Booch, G., Maksimchuk, R. A., Engle, M. W., Young, B. J., Conallen, J., & Houston, K. A. (2007). *Object-oriented analysis and design with applications Chapter 2*. Addison-Wesley.