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# CS 255 Model Application Short Paper

Reice Morgan

reice.morgan@snhu.edu

Southern New Hampshire University

## Process Model Application

## If I were to apply a process modeling approach to the DriverPass project, I’d start by focusing on how users interact with the system in real-world steps. Process modeling is all about mapping out the flow of tasks or activities in a system. In this case, that means identifying how students register, sign up for lessons, take practice tests, and receive feedback. It also includes how instructors manage their lesson schedules, how secretaries assist with appointments, and how administrators oversee everything from the backend.

## For example, a process model might begin with a student registering for an account. Then, it would flow into package selection, followed by scheduling a lesson. Each of these steps could be visualized using something like a data flow diagram or a business process model. These diagrams help show what happens at each step, what data is involved, and which users or systems are responsible for each part.

## Using a process model in the early stages helps ensure we’re building something that lines up with how DriverPass operates in real life. It helps clarify what’s supposed to happen, who does what, and when. It’s also really useful for catching missing steps or redundancies in a process before anyone starts coding. That makes it a great tool for planning and communicating with stakeholders who may not have a technical background.

## Object Model Application

## On the other hand, using an object modeling approach for DriverPass means breaking the system down into real-world “things” that interact with one another. In object modeling, we focus less on steps and more on structure. We’d look at the different users and items in the system and define them as objects, like students, instructors, lesson packages, schedules, vehicles, and so on.

## Each object would have specific attributes and behaviors. For example, a student object might have a name, contact info, and lesson history. It might also include actions like scheduleLesson() or takePracticeTest(). Lessons might be linked to both students and instructors, and instructors would have their own profiles and schedules. Object modeling helps show how these different parts are connected and what kinds of data they handle.

## This type of modeling is especially helpful when it comes to building the system using object-oriented programming languages like Java or C++. It provides a clear, modular structure that makes the system easier to maintain and expand later. And since many of the real-world elements in the DriverPass system, like users and vehicles can naturally be represented as objects, this approach feels like a great fit.

## Process and Object Model Comparison

Both process and object models are valuable in their own ways, and they each have strengths and weaknesses depending on the situation. With process modeling, one of the biggest advantages is how easy it makes it to see the big picture. It’s great for helping non-technical stakeholders understand how everything flows, and it helps identify gaps or problem areas in the system before development starts. The downside is that it doesn’t show much about how the system is actually built or how the data is organized internally.

Object modeling is the opposite it gives a clear look at how the system is structured, how different pieces of data relate to each other, and how different users and parts of the system interact. It’s perfect for developers who need to think in terms of classes, methods, and data management. But it can be a little too abstract or technical for people who just want to understand how the system works from a user or business perspective.

For a project like DriverPass, I think it makes the most sense to use both models together. The process model helps nail down the workflows and user experience, while the object model ensures the system is well-structured behind the scenes. When combined, they provide a full view of what the system needs to do and how it should be built to support those needs.

## References

Dennis, A., Wixom, B. H., & Tegarden, D. (2021). *Systems analysis and design* (7th ed.). Wiley.