DriverPass Model Application Short Paper

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# Introduction

DriverPass is a company that seeks to address the high failure rates of DMV driving exams by creating a system that combines online practice exams and on-the-road training. As the assigned systems analyst, my responsibility is to evaluate how different modeling approaches can support the design and development of this system. This paper will discuss how a process-modeling approach and an object-modeling approach can be applied to DriverPass, then compare their advantages and disadvantages.

# Process Model Application

The process-modeling approach focuses on the workflows and activities within a system. For DriverPass, this approach would involve creating use case diagrams and activity diagrams to represent how different users interact with the system.  
  
 For example, a process model would show how a customer registers for an account, schedules a driving lesson, or takes a practice test. Similarly, it would capture how a secretary schedules appointments via phone calls, and how the IT administrator resets accounts. Each flow could be illustrated step-by-step, making the customer experience and internal operations clear.  
  
 By applying process modeling, the development team ensures that all functional requirements—such as lesson reservations, test tracking, and DMV update integration—are mapped out as workflows. This helps identify dependencies, such as how scheduling a lesson requires matching a student to both a car and a driver without double-booking.

# Object Model Application

The object-modeling approach emphasizes the structure and relationships of the system. This would involve defining the main entities (objects) of DriverPass and their attributes and behaviors.  
  
For instance, objects in DriverPass might include:  
- Customer: name, address, payment info, scheduled lessons.  
- Lesson: date, time, instructor, car, status.  
- Instructor: driver ID, assigned vehicle, schedule.  
- Package: hours of training, test access, DMV prep materials.  
- Test: test name, score, status, completion time.  
  
 These objects would also represent relationships. A Customer books multiple Lessons, each Lesson connects to one Instructor and one Car, and Packages define what services the customer has access to.  
  
 This approach allows the design to mirror real-world entities in software. It also provides scalability, since new objects or attributes (such as new package types or DMV rule updates) can be added more easily than redesigning entire processes.

# Model Comparison

Both process and object modeling provide unique benefits to the DriverPass project, but they also have limitations.  
  
Process Modeling  
- Advantages: Clear visualizations of workflows, easy communication with nontechnical stakeholders, highlights dependencies between actions.  
- Disadvantages: Focuses on steps rather than underlying structure, less adaptable if new features are introduced, less reusable over time.  
  
Object Modeling  
- Advantages: Strong structural design, scalable and modular, aligns with object-oriented programming (C++, Java), encourages encapsulation and reuse.  
- Disadvantages: Can be abstract and harder for stakeholders to understand, requires strong upfront planning and design.  
  
 A hybrid approach is ideal: using process models early to gather stakeholder feedback and confirm workflows, followed by object models to implement a robust, maintainable system structure.

# Conclusion

DriverPass requires a system that balances usability, flexibility, and scalability. The process-modeling approach will ensure all stakeholders understand how the system will work, while the object-modeling approach will create a strong structural foundation for development. By applying both, DriverPass will have a system that not only meets its current needs but can also adapt to future requirements such as customizable packages and additional training features.

# References

CS 255 Course Materials  
DriverPass Interview Transcript  
Sommerville, I. (2015). Software Engineering (10th ed.). Pearson.