# Project One: Model Application Short Paper

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**Process Model Application**

A process model in systems analysis and design is a visual representation of a model that shows the development process of the system. The purpose of a process model is to help the development team and customer to have a better understanding of the process. They give an overall outline of what the system may look like when it is completed. To aid in the development of the DrivePass project, I would apply a process model that can outline the customers views and ideals of what they are looking for in this system. To design this model, we need to ensure that we keep a few key goals in mind. The model needs to be descriptive, prescriptive, and explanatory. For this specific project I would apply the ideas of the system outline by the customer in a Data Flow Diagram, or DFD, for short. The process model will need to cover three main groups, the customer, the administrators/instructors, and security.

We would begin with the Customer portion of the model. The customers, or students, would need to complete an application to register for the DriverPass student driving. This application would consist of their basic and necessary information about themselves. From there, the customer would need to select which of the packages that the company is offering. This would be market on the model as an “Order”. Once the order is placed and payment received, the customer will “Receive” their order and can begin planning to practice their on-the-road driving skills with instructors or begin taking their online practice tests. The process of “Train” will be conducted by the DriverPass instructors who will begin training their respected students based on their packages ordered and their scheduled times. As students take practice tests and driving lessons with their instructors, they will be given reports and updates on their progress. This can be presented as “Reporting Process” or “Progress Report”.

Administrators on the other hand will have very different aspects than the customers would. Administrators would implement new plans and packages into the DrivePass program. They would also be responsible for creating new accounts for newly registered users and assisting the customers with questions along the way. The goal of the administrative portion would be to help implement beneficial and attracting modifications and changes to the system that will keep the students engaged in their lessons and ensure that training goes smoothly. The instructors who give the on-the-road driving instructions can also be labelled under administrators or separated and given their own permissions of simply giving progress reports and updates to the system for the customers to see their progress.

Lastly, the security process will need to be thorough to help ensure that customer information is not leaked. As students will be entering most of their personal and debit/credit card information, the system will need to be secured to help prevent attackers from stealing customer information. This is where user passwords and two factor authentication can com into play. The online portions of DriverPass will need to use HTTPS and encryption keys to help ensure that information from the clients to the customers and back are secured and concealed from prying eyes. The process can be referred to as “Analyze Risk and Vulnerabilities” to help best determine the security measures to implement.

**Object Model Application**

For the object model, the three aspects of the process model mentioned above would be broken down into their own respected variables, functions, and objects to better define the system in a more technical term. Object models are logical interface that will focus more on object-oriented techniques. The object model creates a system model prior to the development. The object model will need to fully encapsulate interfaces, object references, actions, and exceptions. If we were to break down the three areas above, customer, administrator, and security in this model they would display their respected objects that are required or needed for each piece to operate correctly.

The customer and administrator would have some similarities in their objects as they are both technically users on the system. The customers and administrators will need their own accounts that will have their login id, passwords, emails, phone number, and the roles they play within DriverPass. These specific variables will allow the system to differentiate which user is a customer, instructor, and administrator. The customer object might have some functions as login, verify user, update account information, package order, and checkout. Administrator would have some functions such as change, modify, or delete packages, add new users, delete user, reset password, and system UI design and layout modifications.

The security object would possess variables and methods that would be similar in nature. The security side would need user id, passwords, two-factor authentication verification, and email address. There would need to be a function for encryption of user sensitive information. Administrators who will be working in the systems IT section will need a greater access to the system to allow for the proper implementation and system monitoring of threats and adversaries.

**Process and Object Model Comparison**

Both process models and object models come with their own advantages and disadvantages. Using a process model for DriverPass will allow for a visual representation of the layers of the system to understand and will give us an idea of the end product. The process model describes the behavior of the system to allow for an understand of patches or adjustments that may need to be conducted. It will describe the processes of the system to us on a more categoric level displaying the general concepts and the ways the system of data will work and flow. While understand the flow and process of the system it will not directly help the development team to understand exactly what, how, or why each process is being performed and conducted.

The object model on the other hand will allow for a more in-depth representation and understand of what, how, and why each process is doing exactly what it’s doing. The object model will further break down the components of the process into objects, methods, and functions that will allow the development team to visually see what each moving part will be. This model will not only show the team the process of the customer from applying/registering to taking lessons, but it will show them what functions and methods make one part move and what variables are being used and shared throughout the system. The object model will let the team visualize how the separate parts of the system will function individually, as well as together for the entire system.

Deciding which model to pick could be tricky as they each will carry their own weight to a team depending on the personnel involved in them. Utilizing both models could be a useful practice for development teams and could be most beneficial to the DriverPass project. However, this may not always be the logical case. If I had to opt for a single model for this system project, the object model might be the preferred choice. That is because of the information it provides in a more -in-depth understanding of the functions, methods, and objects that make up the system.