CS 255 Model Application Short Paper

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Process Model Application

A process model shall be used to track the process and workflow of the procedures of DriverPass. The process model that shall be used for the project is a data flow diagram (DFD). In the data flow diagram, there will be many data storage, process elements and details used to represent the data, and dataflow process that will be used in the new DriverPass system.

A database or entity in the diagram shall be titled “User” and will be represented on the diagram in a rectangle; to represent that the element is a database/entity. The next important element of the DFD will be represented by an arrow leading from the “User” element and pointing to a process element titled and enclosed in an oval as “Login/ Create Account”. Next, an arrow leading from the “Login/Create Account” element will point to another process element titled and enclosed in an oval as “Check User Validation.” There will also be another arrow pointing back to the “Login/Create Account” element and can be labeled something like “invalid request” to represent user authentication. There will be different arrows leaving the “Check User Validation” element, and they will be labeled as “Current customer”, “New Customer” and “Admin”. The “Current customer” and “New Customer” arrows will point to the process element “Account information” which will be enclosed in an oval. The process will allow the customer to access all available programs, all personal information, current enrollment, test progression, notes, and needs etc. The arrow that will be labeled “Admin” will also point to the process “Account information” but will also access another process that will be labeled as “Account access”, which is a process that will allow the admin or whoever is granted rights to access user information to handle tasks such as updating personal information and updating program status. The last database and process that will be included in the DFD is the database titled “DMV

Standards" and the process labeled as "Get DMV Standards" which will relate to the processes and databases involving program courses.

Object Model Application

Object Models

The object model that will be used for the DriverPass project is a UML diagram. The use of a UML diagram will represent relationships between different classes and objects that will make up the DriverPass system.

One object that will be represented in the UML diagram will be labeled "Account". The object will have many attributes related to what type of user will be accessing the Driver Pass website. The variables that will be included in the "Account" are "user_name" and "password". There will also be a Boolean method in the class that will verify account access. The class "Account" will be at the top of the diagram or at the center of the diagram and there will be many other objects that will be composition elements connected by black arrows with black solid rhombuses at the ends. One class that will compose the "Account" class will be labeled "Customer" and will have attributes "phone_number", "dob", "credit_card_info", "address", "state", "current_classes", "awards_and_certificates" . There will be another class that will compose the "Account" class and will be labeled "Admin". The "Admin" class will also have all the same attributes in the "Customer" class. The "Customer" class will be connected to another class that will be labeled "Programs". The attributes that will be listed in the "Programs" class will represent information about program selection methods such as "Package_One", "Package_Two", "Package_Three". There will be methods that allow the different users to choose and enroll in the different programs. There will also be lines connected from the class back to the classes of "Customer" and "Admin" because there will

be methods in the class “Program” that will update user enrollment status in account information. Lastly, there will be an object labeled “Maintenance” that will be connected to the “Admin” class. The attributes and methods that will be included will allow administrators to do things such as change available courses, access, and change customer information.

Process and Object Model Comparison

There are different advantages and disadvantages with using Process models and Object models for the DriverPass scenario. Although, both provide unique and specific information that allows a team of developers to handle project design in an organized and detailed matter.

An advantage of using a process model to help represent the system design of the DriverPass scenario, is the method’s ability to show the actual direction and flow of the entire project. A DFD provides details about a project’s activities and processes without expending too much information that could make the graph hard to read or interpret. Although, the lack of object and process information that is included in DFD’s could also be a disadvantage because it can also make the model hard to read or understand at the same time. Without good intuition and background knowledge about the entire project a DFD can be very confusing when trying to understand why some processes and databases are interlinked.

The disadvantages of DFD’s and other process models are accommodated for in object models. In a object model such as a UML diagram, objects or classes and their assigned attributes and methods are used to represent a project. An object model focuses on the details of the different types of objects and methods that make up the processes and databases that would be listed in a process model. The advantage with a object model is that if all possible objects are represented and enough information is in them, the reader can understand what each step of the

system process and database represents. Also, with enough information about each object and the methods in each object and some time to study the model, a reader may be able to determine the system process or project flow just by the sheer amount of information and some intuition. Although determining the project flow or process of a project will inevitably take more time to interpret with an object model. than with a process model. This is the biggest disadvantage of object models. Another disadvantage is that sometimes an object may be very complex and so overloaded with information that it can be hard to comprehend.