# CS 255 Model Application Short Paper

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## Process Model Application

*Process modeling involves graphically representing the functions, or processes, that capture, manipulate, store, and distribute data between a system and its environment and between components within a system. A common form of a process model is a data flow diagram (DFD). (Valacich and George, 2024).*

[How would you apply a process model to a design for the DriverPass scenario? Remember, you do **not** need to create diagrams for this paper.]

Starting with a data flow model, a good example would be to consider the data associated with a single customer. From the interview, the customer will ultimately need to be a collection of many bits of data including personally identifiable data (name, address, email, etc.), payment data, subscription type, a record of learning assets and status, comments to and from drivers, etc. It is reasonable to assume these data points will be stored in a variety of databases, and need to be brought together to form a complete customer object.

Generating this data will come in a number of sources and methods. As a new user, some fields will mandatorily be entered directly by the customer/client members, while other items such as subscription level, learning assets, etc., can be initialized with blank or default values as required. Once the minimum bits are established, the customer can then edit their profile data, upgrade subscription status, add learning assets, etc. thru other means. Once the need arises this data will ultimately be passed to the dashboards, or the report generators for consumption but not manipulations.

Another example of assets data flow will come from the DMV interactions, the DMV is presumed to be pushing testing criteria and other rules to the client’s system, so the client’s tool will consume these data pushes and then manipulate them respectively to update or create new learning assets in the client’s tool system. From this, additionally some assets may be set to expire due to obsolescence.

## Object Model Application

*An object model is a visual representation of a system’s objects, actions, and associated attributes. An object model can be used, in conjunction with a design system, to create a consistent experience across a system’s higher-level constructs. (Adkisson 2019)*

[How would you apply an object model to a design for the DriverPass scenario? Remember, you do **not** need to create diagrams for this paper.]

Using an object model, for example of the CAR, would generate a car object that can help to define all the needs of the car object, including creating relationships with calendar events, drivers, and customers, maintenance records, leasing and identification details, and creating methods associated with each of the respective details of each car in the fleet.

Having created each of these objects and defined their methods, a UML diagram can be formed to show how the data is utilized by each object. For example, showing the relationship for a car only being allowed a single driver, but also that a driver is required for the car to be usable for each time slot, and a customer being assigned to a car /timeslot combination to appear on a drivers daily itinerary report.

## Process and Object Model Comparison

[What are the advantages of each model for the DriverPass scenario? What are the disadvantages of each model for the DriverPass scenario?]

The advantage of using an object model allows getting a complete picture of everything associated with a given object, and showing its origins and destinations. This collectively will lead to optimized data flow patterns, eliminating redundancy, and leading to a less disorganized architecture.

The disadvantage of using an object model, is that while showing the data connectivity, it will not convey how the data will actually be used by the system. The user stories are not conveyed, so in isolation, it cannot effectively tell the story of what the system is being designed to do.

The advantage of using a process model is that it will provide a series of workflows that demonstrate what the system is intended to do and even how the client may want the data to be presented.

The disadvantage of the process model, is that many disjunctive workflows (stories) will likely be generated that do not easily describe all the relationships within the overall system that affect data flow and storage. This can easily lead to complicated data paths, redundancy that can lead to errors, and general disorganization within the overall architecture of the system.

## References

Valacich, J. S., & George, J. F. (2024). Modern Systems Analysis and Design (10th ed.). Pearson Education (US). <https://bookshelf.vitalsource.com/books/9780138180294>

Heidi Adkisson. (2019, MAR 30). **Object Modeling for Designers: An Introduction**. *Medium.com*. Retrieved from https://hpadkisson.medium.com/object-modeling-for-designers-an-introduction-7871bdcf8baf