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**Activity Diagram and Use Cases Lab**

Use Cases

From this semesters case study, find 3 simple use cases and 3 complex use case. Please describe why you think that the use case is simple or complex.

Activity Diagram

Create an Activity Diagram for **one** of these processes:

1. Uploading a video to YouTube (or similar service)

2. Creating a group on Facebook (or similar service)

3. Create and save a Word document

You should include two swimlanes and start and end nodes. You may include decisions (diamonds), and bars to split and/or join concurrent activities if necessary.

Remember to include multiple paths through the logic. Do not focus on data.

Clearly indicate which of the above processes you have selected and submit a screenshot of your activity diagram here. Submit this completed document and your source .vpp file by the due date posted by your professor.

Answers:

**Simple use cases:**

1. **Maintain Boat Slips Inventory**

***Justification***:

This case doesn’t revolve anything overly complex considering it follows a simple set of simple CRUD operations. The system simply requires to evaluate and perform simple operations whether a boat is docked or not. It is also performed by a single actor in our case Alex or the staff. And to conclude, its a process that doesn’t have any dependencies, the system consists of simply a list of slips and their status.

1. Process Customer Payment

***Justification:***

This use case follows the basic workflow of a payment process. The user needs to enter the rental details(date, dock number...). After that the system takes care of calculating the total, processing the payment and generating its respective invoice/receipt. Henceforth not logic or decision making is relevant to this process.

1. Generate Payroll information for submission

***Justification:***

This use case relies on the actor entering data. More specifically hours worked and overtime hours and furthermore generating a report. So, the reason of its simplicity is because the formulas required to generate the report are automated. This is done by design in order to keep the process simple.

**Complex use cases:**

1. Schedule seasonal staff for boat slip maintenance

***Justification:***

Processing the necessary information of this specific case relies on many variables. The most important one is the staff, which is also tied to their hours available, their skill set and the needs of the boat slips. (e.g, repairs, cleaning, maintenance).

There is also some extra logic involved. For example, it is necessary for the system to check for any schedule collision (Before scheduling at a specific time, checking if that time was already booked for that member). It is also necessary to check if the staff skill set meets the needs of the job involved.

1. Generate Monthly Invoices for customers

***Justification*:**

One of the cases demonstrated in the case study is the process of charging the customers for a variety of services (e.g, restaurant, workshop). And process that into a report. This process is naturally complex given the requirements of this one. When pulling data from different sources these sources are required to independently process and persist the data of that specific source.

Therefore, the system heavily relies on other transactions to be completed previously. On top of that, the system must apply the respective discounts or offers that are available onto the total of the invoice.

1. Manage Boat Rentals for Excursions

***Justification:***

It is explained in the case study that Marlena oversees managing boat rentals for a diverse set of excursions, including some long-term rentals that involve staff/crew and other services.

Just like complex use case #1 we need to evaluate some conditions to process the transaction. More specifically the system needs to check for the size of the boat(also some specific details like size and type) relative to the number of customers involved in the excursion. It is also important to check the skills of the crew involved and Avoiding schedule collisions.

Then there are some extra details like the additional services required by the clients. All of these considerations must be processed and evaluated to determine the price of the rent.

(Activity Diagram contained in the next page)

YouTube Video Upload:

