

SE2030 – Software Engineering

Department of Information Technology, Faculty of Computing

Year 2 semester 1 (2025)

Tutorial 04

Activity 01 – Use Case Analysis: Research Rabbit System

Duration: 20 minutes

Note: You have already discussed and partially completed this activity during the lecture. Now, you are expected to analyze all concepts together and complete it independently.

“Research Rabbit” is one of the popular systems for undergraduate students to find supervisors for their research interests. The Sri Lanka Institute of Information Technology has decided to implement a web application to register student interests and find relevant and experienced supervisors from the university. Analyze the partial requirements given and answer the subsequent questions given.

Any user can search research groups that are available. If they are interested in knowing more information, they could request more details of the research group. Also, when they search, if an interested research area isn’t available, they can suggest the research area to the system.

Then the user can submit an expression of interest (EOI) to the system to proceed with finding the research and the supervisor. If EOI is not properly filled, the system will reject the request of the user. The system will categorize according to AI, DS, and IT for successful EOIs and provide the prospect registration link.

Moreover, registered users can submit proposals to the system, and consequently, the system will send an acknowledgement to the proposal. Every research proposal will be forwarded for review. The research lead will contribute to reviewing the proposal, and if it isn’t at an average level, the system will send the feedback. Also, in the reviewing process, the system will send the reviewer’s comments to the user. Furthermore, the research lead will assign a supervisor to each proposal.

Task:

Draw a Use Case Diagram for the above system. Clearly state any assumptions you make.

Activity 02 – Use Case Analysis: Mondy Car Mobile App

Duration: 40 minutes

“Mondy Car” is one of the popular car rental companies in Sri Lanka. Renting vehicles plays a higher role in rural areas like Dambulla, Anuradhapura, with higher demand and the development of hotels and tourism. Therefore, directors at “Mondy” have decided to implement a mobile application that serves all of Sri Lanka. analyze the partial requirements of the “Mondy.” And answer the subsequent questions given.

Any user can download the mobile application and search for vehicles available in their preferred area. Also, if they prefer, they can check the price plan for selected vehicles. Also, users can rent a car using the mobile application.

The renting process can be divided into two processes: normal renting and loyal renting. When loyal members rent a vehicle, the system will calculate loyalty points for each rental. When renting a car, if it is for an unregistered user, the system needs a loyal user’s recommendation to proceed with the rental process. When renting, the system will check the background and ask to keep the deposit to proceed regardless of the user. When checking the background details, if the system identifies any issues, rental requests will be rejected by the system. Moreover, when checking the background, the system will request to upload the NIC image. For any foreign users who need to rent vehicles, they must upload the passport bio page instead of the NIC image. If they want to become loyal users, they need to register with the system by providing personal details and renting history of two. Any user can rent a maximum of one vehicle.

Loyal users can recommend users to the system. Also, he or she can rent multiple vehicles, which he or she can do using his or her loyalty points. Also, loyal members can claim discount suggestions that appear on the system. Furthermore, he or she can make comments, suggestions, or feedback regarding renting a car. Also, they can do everything that normal users do.

Moreover, any car owner can register his or her vehicle for rent. When registering, each owner must submit the valuation of the car and an ownership-proven document to the system. The system will validate the ownership documents with the motorcar department using a third-party system. Registering a vehicle can be divided into luxury, semi-luxury, and normal vehicle categories. As part of the registration process, the system will suggest monthly rent for the owner. If the owner accepts it, owner can proceed with the account details submission and e-contract signing.

Furthermore, the operational manager can generate reports through the system. Also, he can check the feedback and suggestions of the loyal users and respond to them through email if needed. Also, he can perform all the tasks that loyalty members do.

Tasks:

- i. Draw a **Use Case Diagram** for the “Mondy Car” mobile application. Make suitable assumptions.
- ii. State **three (03) non-functional requirements** relevant to this system.