

VIETNAM NATIONAL UNIVERSITY, HO CHI MINH CITY
UNIVERSITY OF TECHNOLOGY
FACULTY OF COMPUTER SCIENCE AND ENGINEERING



SOFTWARE ENGINEERING (CO3001)

Assignment

Urban waste collection aid UWC 2.0

Task 2: System modeling

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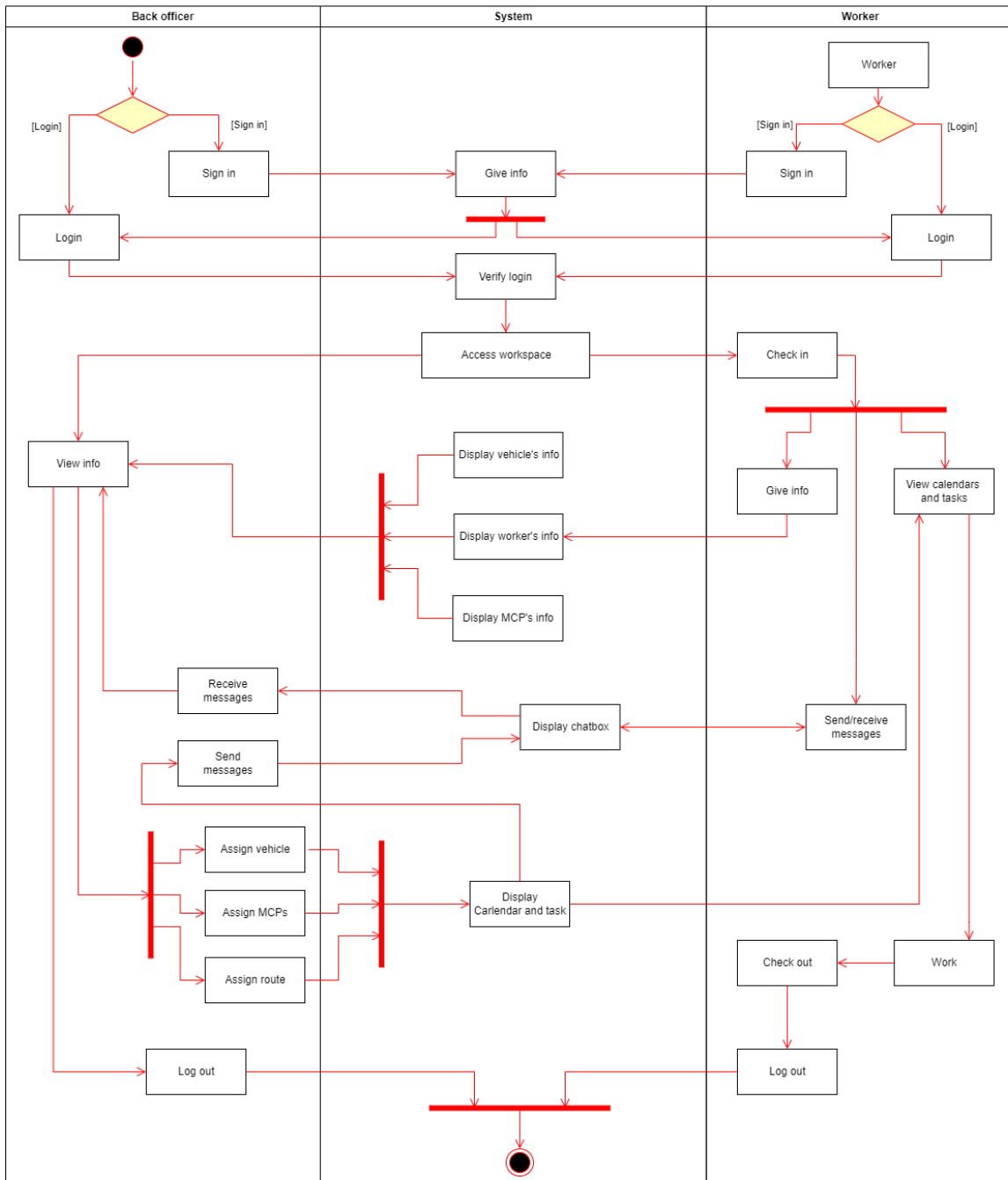
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2.1 Draw an activity diagram to capture the business process between systems and the stakeholders in Task Assignment module



2.2 Propose a conceptual solution for the route planning task and draw a sequence diagram to illustrate it.

The **back officers** must have successfully logged into the app with their account and password.

The **back officer** will manage and assign tasks for **collectors** based on:

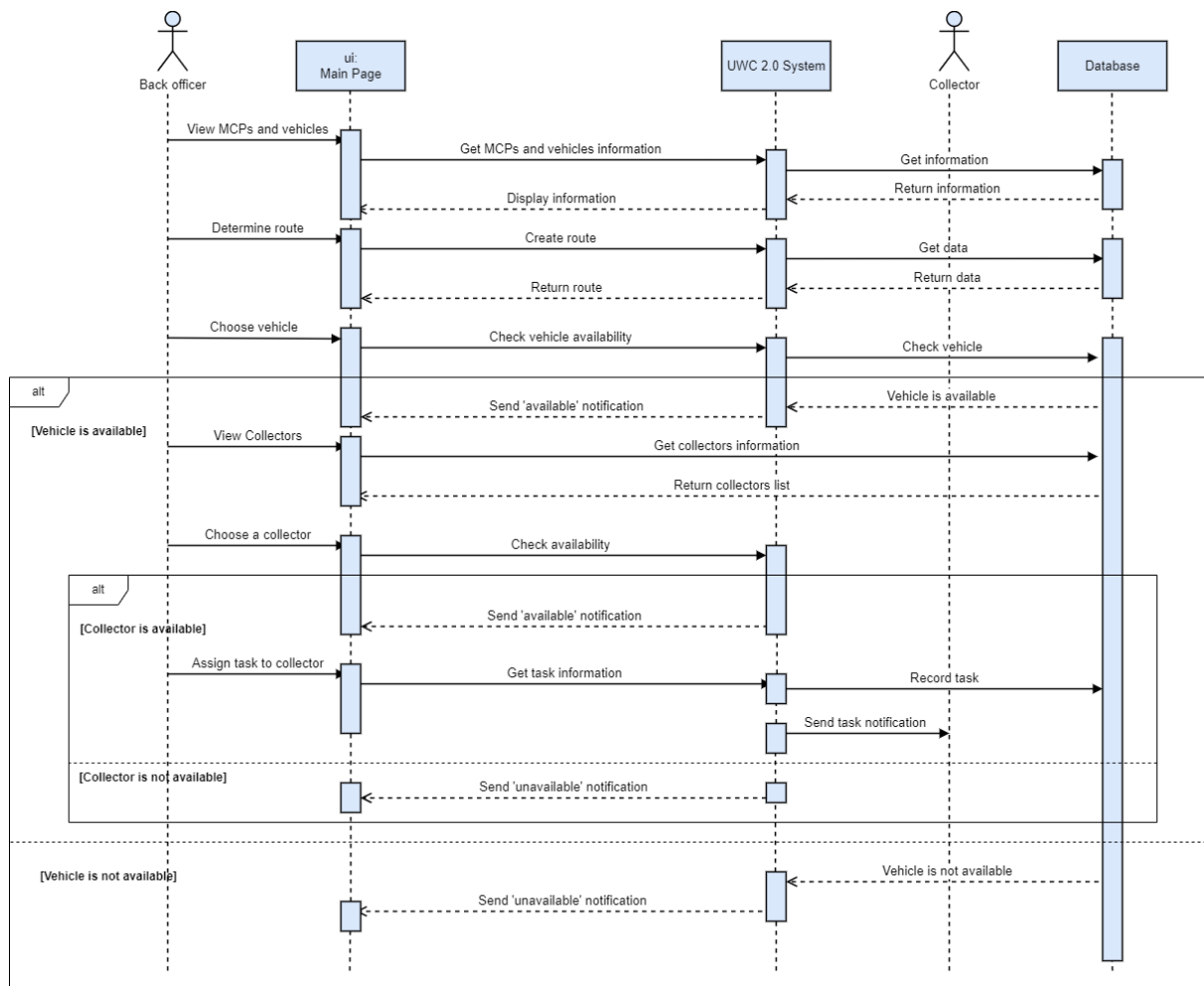
- Available vehicles and their technical details.
- The capacity of the MCPs at the moment and the distance from the **collectors** to the MCPs. (Updated every 15 minutes with the availability of at least 95% of their operating time)
- **Collectors'** information. The **back officer** will check the vehicle and assign it to each **collector**. Then, according to the MCPs' capacity at the moment, the **back officer** will have the system to create a route for each **collector** by optimizing fuel consumption and travel distance. After that, the tasks will be sent to **collectors** by the system through the app and the **back officer** will watch their process in case of any problems.

When the **back officer** requests to see the **collectors'** information from the database, a list of **collectors** will be displayed including:

- **Collectors'** work calendar and their contact information for emergency cases.
- Availability of **collectors** at the moment.
- How many MCPs have been collected by each **collector** at a specific time.
- Whether the **collectors** check in/check out on time. They will be chosen if they have their shift or need to implement their KPI that day.
- Assign route button to each **collector**.

If there are any problems(broken vehicle, traffic jam, etc.) or **collectors** are not available at the moment. The system will send messages to the **back officer** so as to change the plan.

Sequence Diagram:



2.3 Draw a class diagram of Task Assignment module as comprehensive as possible

