VIET NAM NATIONAL UNIVERSITY HO CHI MINH CITY
HO CHI MINH UNIVERSITY OF TECHNOLOGY

Software Engineering
Assignment – Task 2

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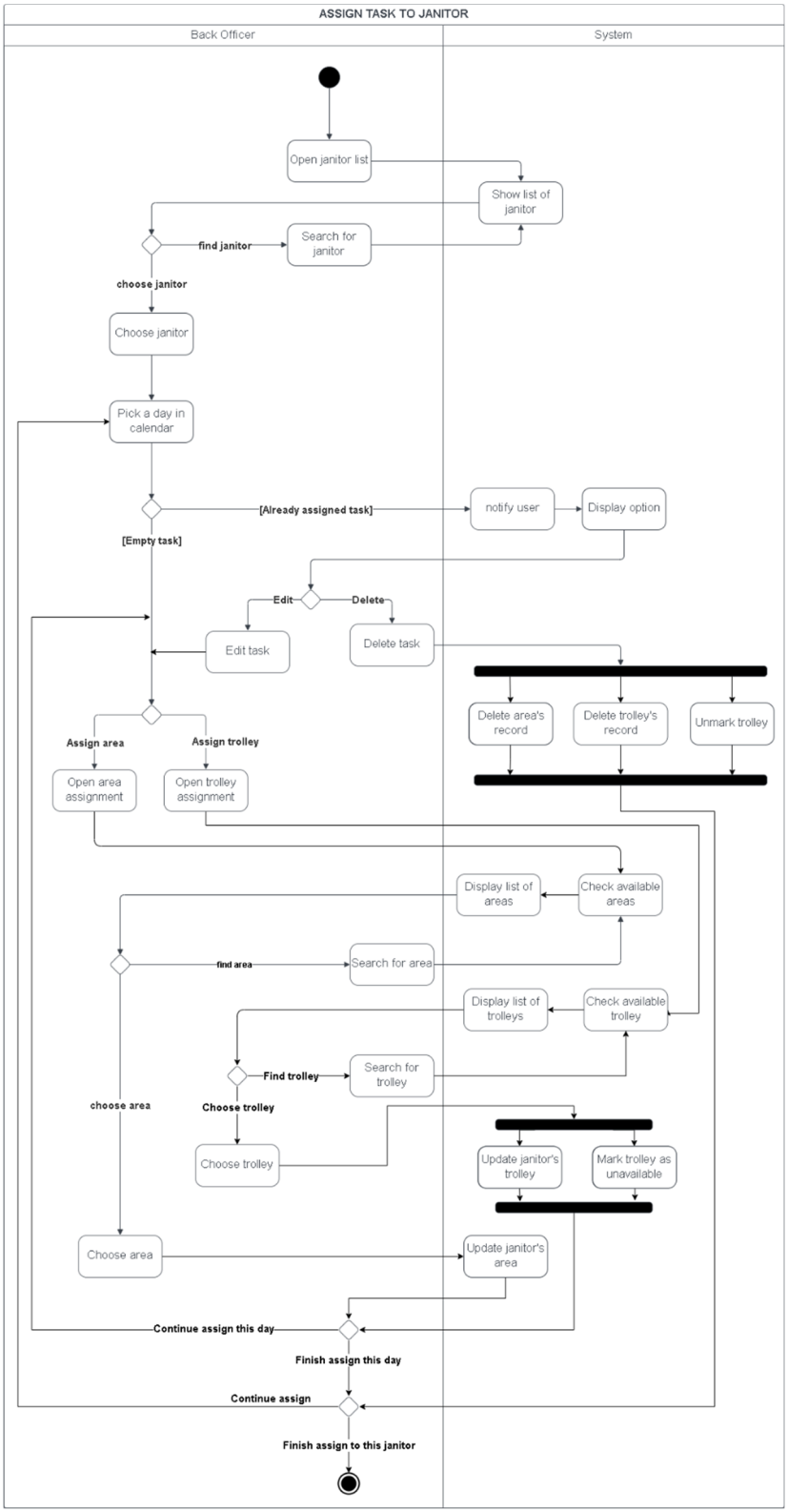
2.1 Activity diagram for Task Assignment module



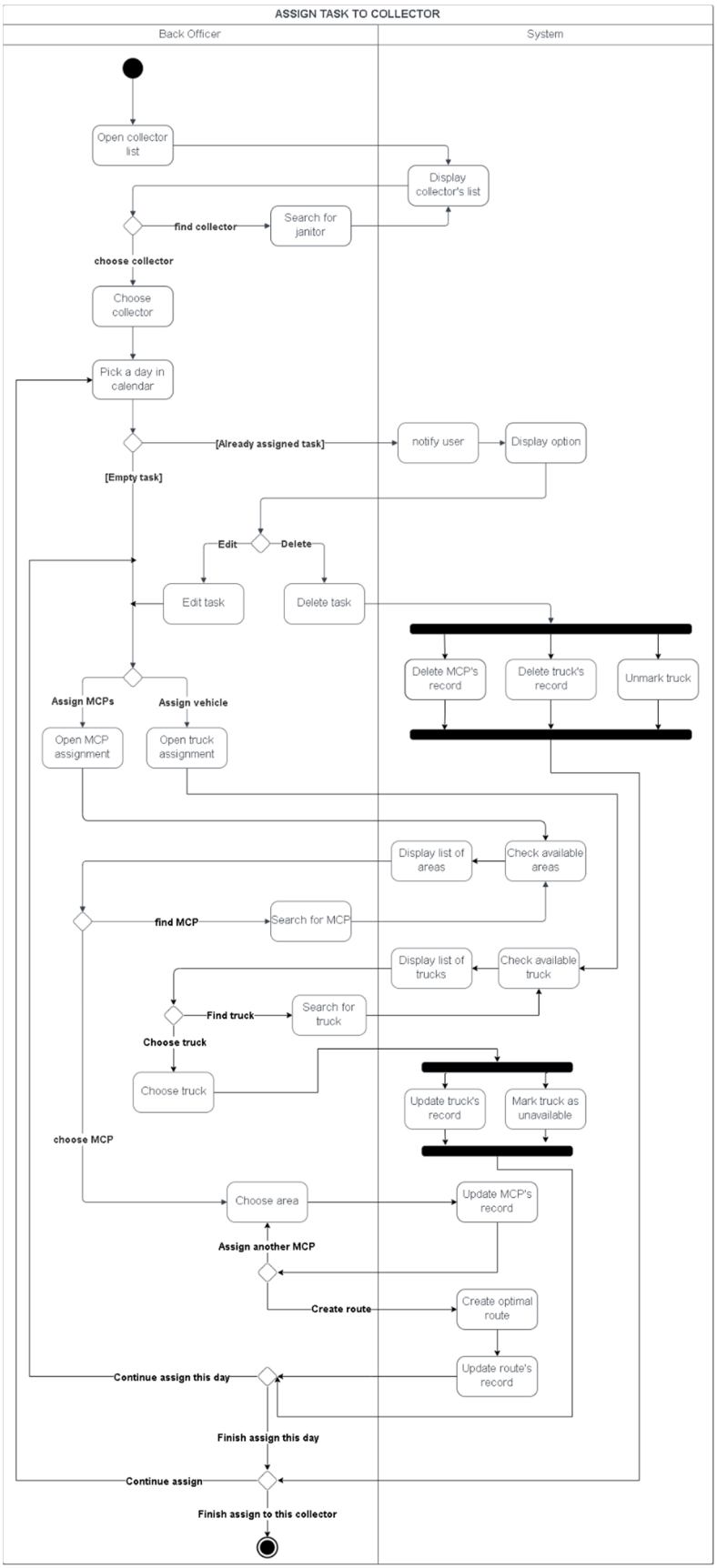
Description:

- Back officer start assigning task to janitor by open the janitor list, the system will display the default list of janitors.
  - If back officer wants to find janitor, he will input ID to search janitor and system return a result list.
  - If back officer finds the janitor, he clicks on that janitor.
- Back officer chooses a day in janitor's calendar.
  - If that day is already assigned, system notifies "Task is assigned" and displays 2 options: Edit or Delete:

    + If choose Edit, back officer can choose to edit area or trolley

    + If choose Delete, system deletes all record for that day.

  - If that day is empty, back officer will choose to assign area or trolley.
- Back officer start assigning area to janitor by open the area assignment, the system will display the default list of area.
  - If back officer wants to find area, he will input ID to search area and system return a result list.
  - If back officer finds the area he wants, he clicks on that area and system save janitor's area.
- Back officer start assigning trolley to janitor by open the trolley assignment, the system will display the default list of trolley.
  - If back officer wants to find trolley, he will input ID to search trolley and system return a result list.
  - If back officer finds the trolley he wants, he clicks on that trolley and system save janitor's area as well as mark that trolley unavailable for other janitors .
- After assigning area and trolley, back officer can choose to assign another task or finish assigning to this janitor and leave.


ASSIGN TASK TO COLLECTOR
Back Officer
System
Open collector list
Display collector's list
find collector
Search for janitor
choose collector
Choose collector
Pick a day in calendar
[Already assigned task]
notify user
Display option
[Empty task]
Edit
Delete
Edit task
Delete task
Delete MCP's record
Delete truck's record
Unmark truck
Assign MCPs
Assign vehicle
Open MCP assignment
Open truck assignment
Display list of areas
Check available areas
find MCP
Search for MCP
Display list of trucks
Check available truck
Find truck
Search for truck
Choose truck
Choose truck
Update truck's record
Mark truck as unavailable
choose MCP
Choose area
Update MCP's record
Assign another MCP
Create route
Create optimal route
Update route's record
Continue assign this day
Finish assign this day
Continue assign
Finish assign to this collector

Description:

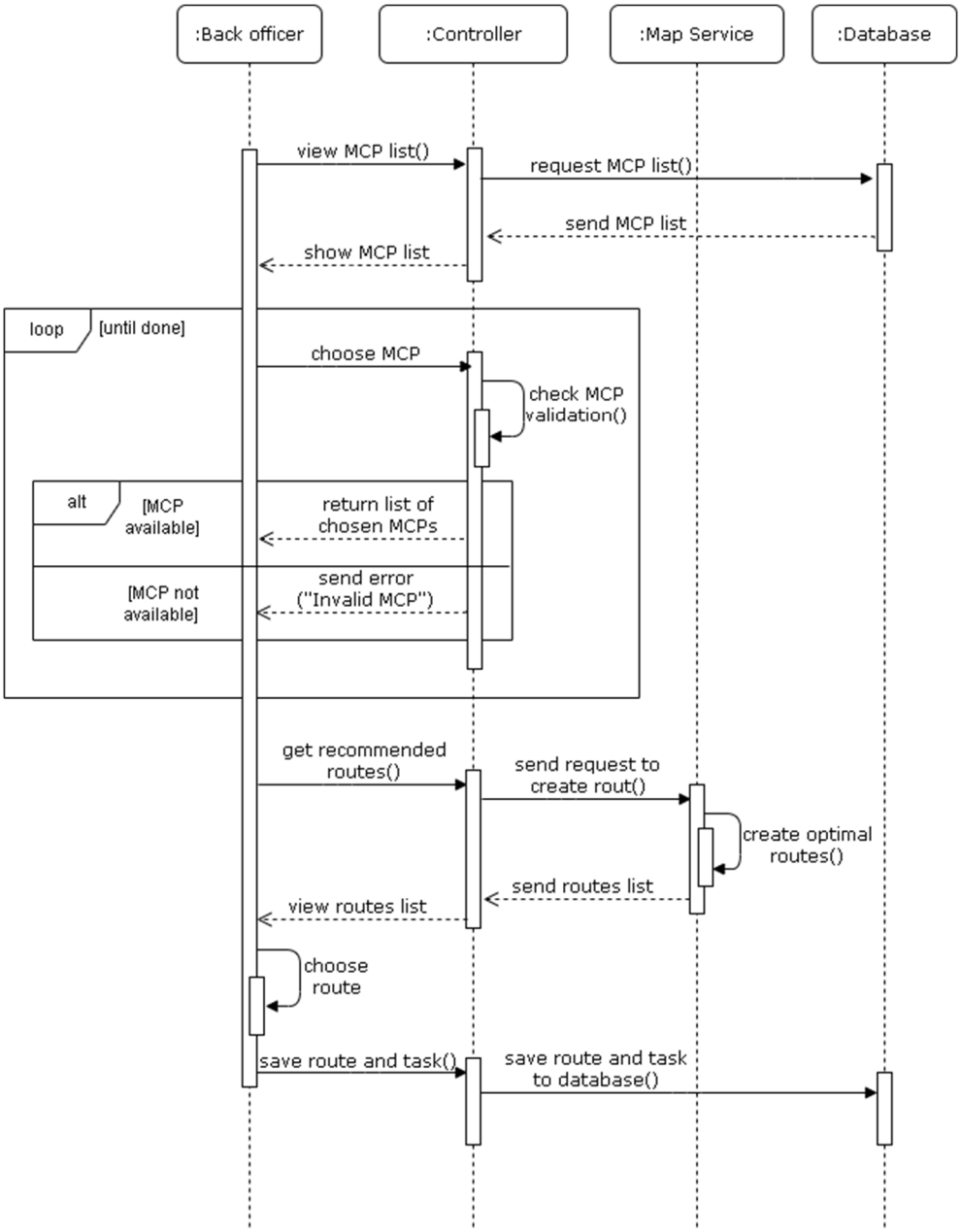
- Back officer start assigning task to collector by open the collector list, the system will display the default list of collectors.
  - If back officer wants to find collector, he will input ID to search collector and system return a result list.
  - If back officer finds the collector, he clicks on that collector.
- Back officer chooses a day in collector's calendar.
  - If that day is already assigned, system notifies "Task is assigned" and displays 2 options: Edit or Delete:

    + If choose Edit, back officer can choose to edit MCP or vehicle

    + If choose Delete, system deletes all record for that day.

  - If that day is empty, back officer will choose to assign MCP or vehicle.
- Back officer start assigning MCP to collector by open the MCP assignment, the system will display the default list of MCP.
  - If back officer wants to find MCP, he will input ID to search MCP and system return a result list.
  - If back officer finds the MCP he wants, he clicks on that MCP and system save collector's MCP.
  - If back officer wants to assign more MCP, he continues to choose from the MCP list.
  - When back officer doesn't want to add more MCP, system will calculate and update the optimal route for collector.
- Back officer start assigning vehicle to collector by open the vehicle assignment, the system will display the default list of vehicles.
  - If back officer wants to find vehicle, he will input ID to search vehicle and system return a result list.
  - If back officer finds the vehicle he wants, he clicks on that vehicle and system save collector's MCP as well as mark that vehicle unavailable for other collectors .
- After assigning MCP and vehicle, back officer can choose to assign another day or finish assigning to this collector and leave.

2.2 Sequence diagram for route planning task



Description:

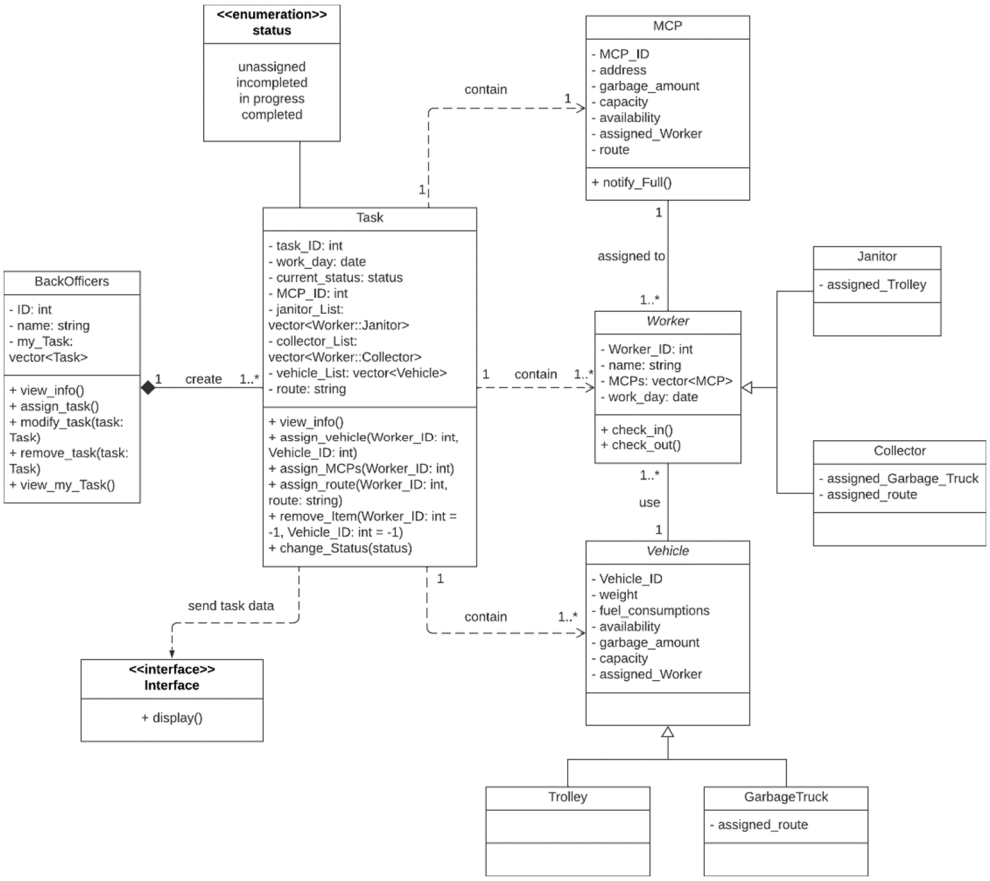
Route planning task includes these objects:

- Back officer
- Controller
- Map service
- Database

Description of module interaction:

- Back officer tells the controller to get list of MCPs
- Controller gets a list of MCPs from the database and returns the list to the back officer
- Back officer then starts choosing MCP(s) from the list:
  - Chosen MCP(s) will be verified by the controller. If they are invalid, controller outputs an error and ceases operation
  - The MCP selection will repeat until the back officer finishes choosing MCP(s)
- Back officer tells the controller to get recommended routes from the chosen MCP(s)
- Controller passes the request with list of chosen MCP(s) to the map service
- Map service creates one or more optimal routes and returns it to the controller
- Controller returns list of optimal routes to the back officer
- Back officer selects one of the optimal routes
- Back officer tells the controller to save the chosen route and task into the database
- Controller sends the route and task into the database

2.3 Class diagram for Task Assignment module



Description:

- Back Officers can view information, assign tasks, modify tasks and delete tasks.
- During assigning tasks, Back Officers can see relevant information. These information can be Janitors and Collectors' information, MCPs and vehicles' details.
- After every Task Assignment, every tasks will be stored in my_Task. Back Officers can always check their current assigned tasks using view_my_Task().
- Back Officers can assign multiple tasks and can only modify tasks had been assigned, which are stored in my_Task.
- Each task is about assigning Janitors, Collectors and vehicles to each MCPs. Therefore, each contains one MCP, one or many Workers and one or many vehicles.
- Back Officers can remove Workers or vehicles from the task's list using remove_Item(), removing one may affect of removing the other. For example, removing a vehicle causes all Workers using that vehicle to be removed.
- Workers can check in/ check out and change task's status. Back Officers can check task's current_status to track their current progress.