



Assignment 2
MLB_09.01_7

Automated Parking System

Software processing Model -IT1060

CASE STUDY NAME	Automated Parking System
PROJECT ID	MBL_09.01_07

Group Details:

	Student Registration Number	Student Name
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2	Asmitha Thiraviyarasa	IT21176210
3	Abiramy Kumaresan	IT21176142
4	Kodithuwakku K.G.K.M.J	IT21173936
5	G.G.P.N. De Davin	IT21174612

I hereby certify,



The attached is my own work and no further changes will be made.



I have contributed in this assignment to the best of my ability.

And I understand,



I may be subject to student discipline processes in the event of an act of academic misconduct by me including an act of plagiarism or cheating.

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BSc (Hons) in Information Technology

Assignment 2 – Marking Scheme

2022 May

Project ID: MBL_09.01_07

Case Study Name: Automated Parking System

<i>Use Case Diagram</i>	<i>Max. Mark</i>	<i>IT Number-IT21175398</i>	<i>IT Number-IT21176210</i>	<i>IT Number-IT21176142</i>	<i>IT Number-IT21173936</i>	<i>IT Number-IT21174612</i>
1. Use Case Scenario	5 Marks					
2. Identifying Actions (at least 10)	10 Marks					
3. Use of correct notations	5 Marks					
4.. Use of additional features a) Decision and Merge b) Fork and Join c) Iterations d) Call Actions	40 Marks					
	60 Marks					
Comments	10 Marks					

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1. Identifying sub-systems a. Level 1 b. Level 2 and further	10 Mark s 10 Marks					
2. Correct use of Swim Lanes	5 Mark s					
3.Partitioning actions into correct Swim Lanes	10 Mark s					
4.Creativity	5 Mark s					
Total Marks (Part II)	40 Mark s					
Total Marks	100 Mark s					
Comments						

Introduction

An automated parking system enables people to acquire a parking space in a much more convenient way. Every day people spend a lot of time searching for a place to park their vehicles.

Therefore, they need to search for available places to park their vehicles and it is only a waste of time and fuel and it also increases the traffic congestion. This automated parking system is dedicated for customers to check available parking area and book them for a limited time. We have enhanced the service to provide customers with the solution to lack of parking space in modern cities.

The automated parking system is dedicated for customers to check available parking and reserve for a certain period of time. There are two types of users who can access this system: registered and unregistered. The system allows users to both view and use the system for reservations. Users who have registered can gain access to the system by logging in. If unregistered users wish to register, they can do so by signing up for the system.

Users can choose and reserve a preferred parking space ahead of time. The parking fee is calculated based on the locations and time slots chosen by the users. Users can pay using any online transaction method they prefer. To complete the payment, a QR code is generated. Users must contact support service agents to update reservations

Assumptions regarding the following use case:

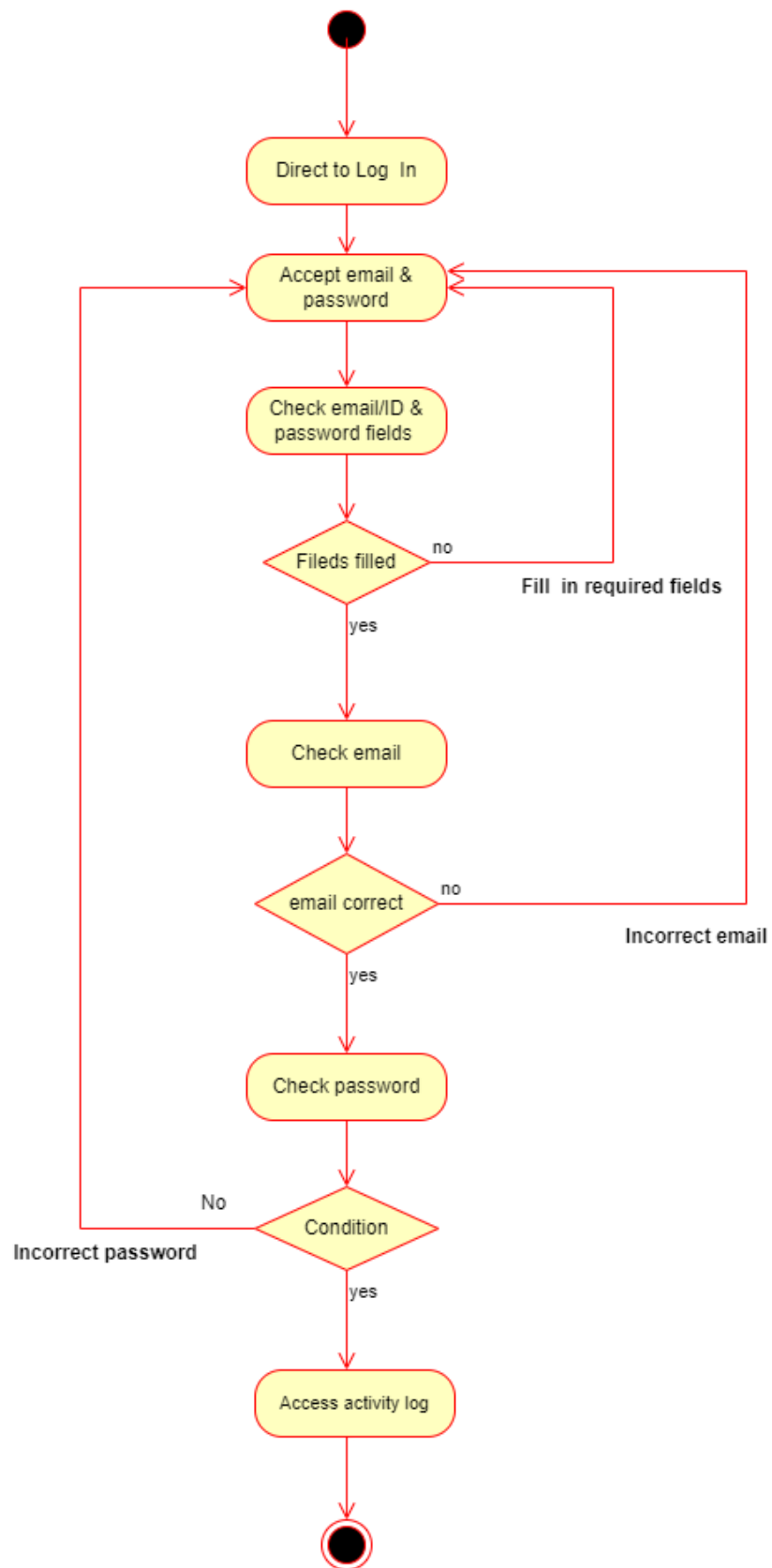
- The use case scenario and activity diagram are designed only considering the general procedure followed by a customer and discarding the different step takes taken by registered and non-registered customer.
- Customers need to contact the support service agent to update the already reserved parking and to cancel the parking.
- Once the reservation is confirmed a barcode will be generated by the sensor network. This will be scanned at the entrance at exit of the parking lot.

IT21175398 – Godage D.N.P

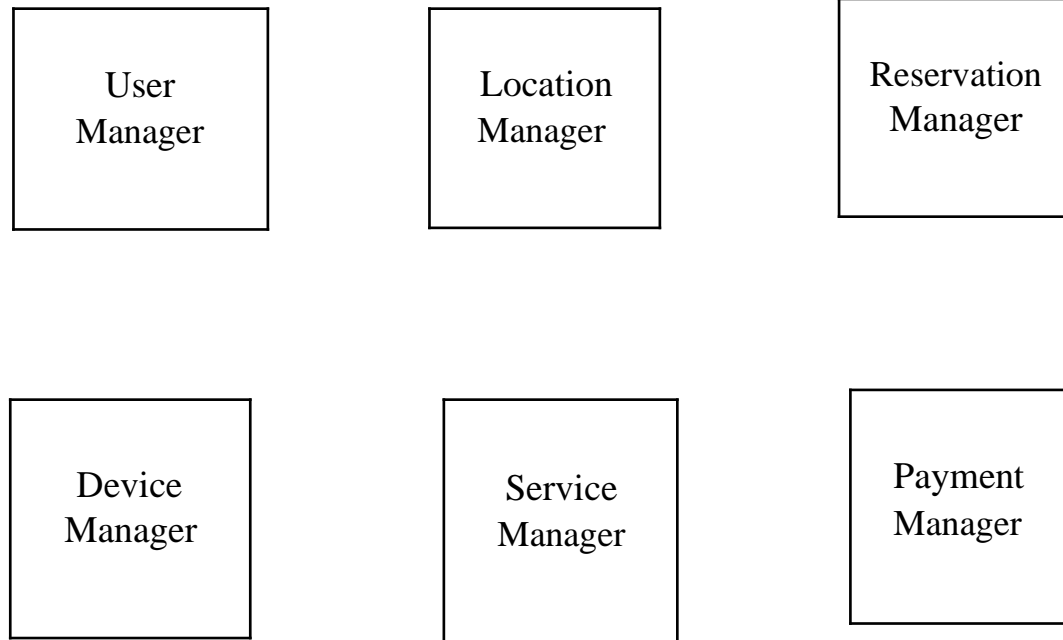
Number	APS1	
Name	Login as Admin	
Summary	Web Editor logs in	
Priority	1	
Preconditions	Editor on any page of the website	
Postconditions	Accessing the activity log	
Primary Actor(s)	Web Editor	
Trigger	Editor had decided to log in	
Main Scenario	Step	Action
	1	Display home page
	2	Editor clicks on 'Login' icon on webpage
	3	System redirects to login page
	4	Editor enters following information as required on the webpage <ul style="list-style-type: none"> • Password • Email address or ID
	5	Editor clicks the Login button
	6	Editor is redirected Activity log page
Extensions	Step	Branching Action
	3a.	If Admin doesn't fill required fields, System highlights fields in red and display the following message. "Please fill in the required fields"
	3b.	When Admin enters incorrect email address or ID, system displays following message, "Email or ID is invalid"
	3c.	When Admin enters password incorrectly, System display, "The Password you entered is incorrect"

Login

- Admins will be able to login in using their email, ID and password.
- After login in, the admin can control all vehicle number, parking spot, and parking fee activities. The diagram demonstrates how the system's login page works. Here, the web editor can look at previous interactions and make the system more interactive and user-friendly and update it



Level 1



User Management

- Search Parking Place
- Add Customer Profile

System Management

- Add or Remove Customer Details
- Update Details
- Analysis Report
- Parking and Reservation Details

Reservation Management

- Request to the customer Details and payment

Location Management-

- Check the Parking Availability
- Display the Parking Place

Location Manager

- Hourly
- Monthly

Reservation Manager

- Reservation Details

Device Manager

- Sensor network
- Computer

System Manager

- Support service agent
- Manager
- Owner

User Management

- Update User Details

System Management

- Support service agent
- Manager
- Owner
- Computer

Reservation Management

- Reservation Details

Location Management

- Parking spots
- Parking duration

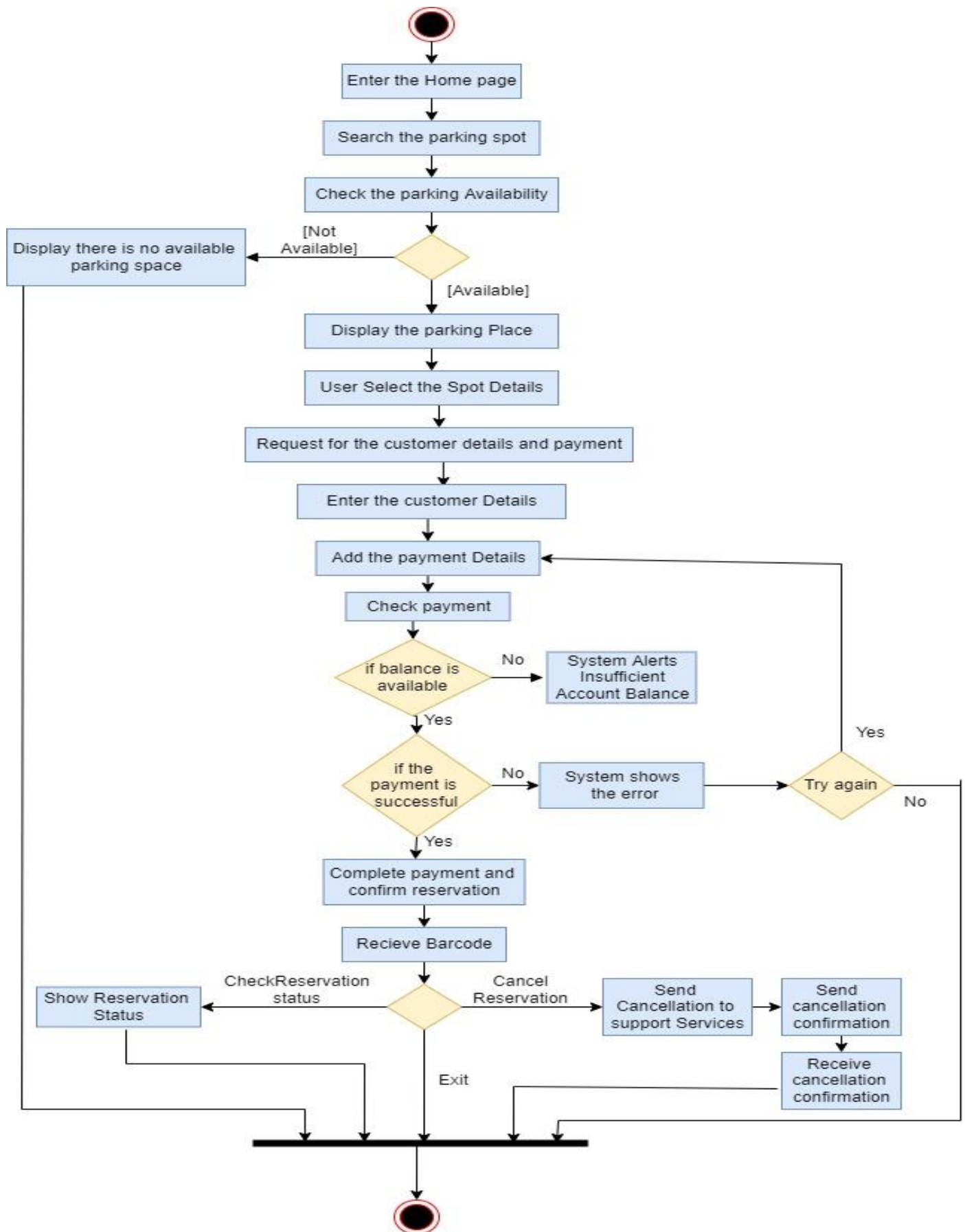
Device Management

- Sensors
- Computers

IT21176210 – Asmitha Thiraviyarasa

Part 1

Number	APS 6	
Name	Receive Barcode and reservation	
Summary	Receive the automated parking reservation	
Priority	3	
Pre-conditions	User Should Search for Parking spots	
Post-conditions	User should receive Reservation	
Primary Actor	Unregistered user	
Main Scenario	Step	Action
	1	Enter the Home page
	2	Search for Parking spots
	3	Checks available parking locations
	4	User Reserve a Parking place
	5	Pay the payment
	6	Complete payment and Confirm Reservation
	7	Receive barcode and Reservation
Extensions	Step	Branching Action
	3a	If there are no parking spots display the following message “There is no available parking space”
	5a	System alerts that there is no insufficient account balance
	5b	If an error is found in the user payment details, system asks re-enter details



2) Part II

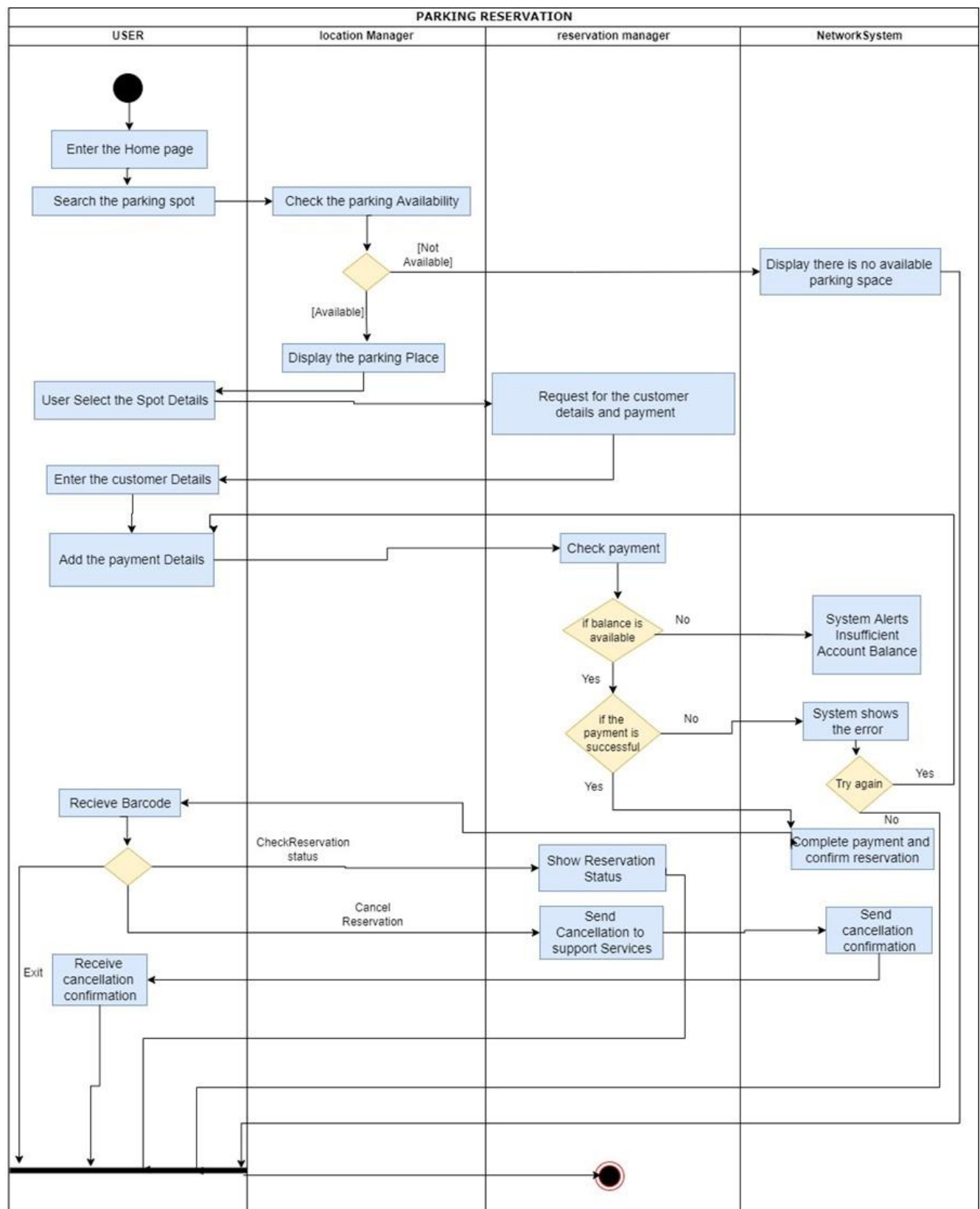
Level 1

- Sub Systems
 - a) User Management –
 - Search Parking Place
 - Add Customer Profile
 - b) System Management -
 - Add or Remove Customer Details
 - Update Details
 - Analysis Report
 - Parking and Reservation Details
 - c) Reservation Management-
 - Request to the customer Details and payment
 - d) Location Management-
 - Check the Parking Availability
 - Display the Parking Place

Level 2

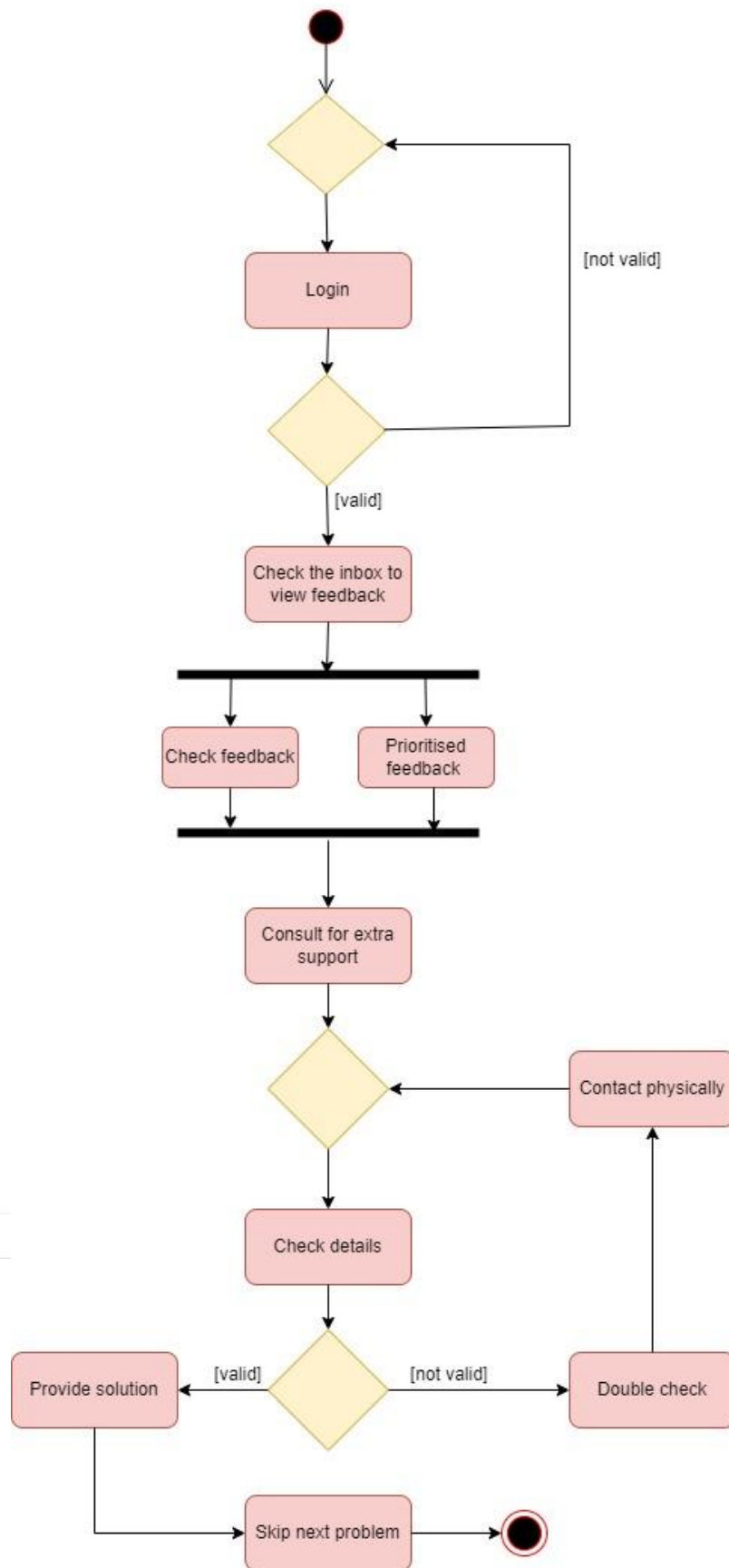
Parking reservation system provides information about parking availability for both drivers and parking providers in a certain area through continuous monitoring.

- a) User Management
 - Update User Details
- b) System Management
 - Support service agent
 - Manager
 - Owner
 - Computer
- c) Reservation Management
 - Reservation Details
- d) Location Management
 - Parking spots



Part 1

Number	APS4	
Name	Help and support desk	
Summary	Provide necessary support and help for the users	
Priority		
Preconditions	Should be a member of support and help desk panel	
Postconditions	Resolved user queries and issues.	
Primary Actor	Registered User	
Main Scenario	Step	Action
	1	Login to the system after entering login credentials
	2	Check the inbox for the feedback of the users
	3	Find the critical problems and prioritize them
	4	Consult the panel if extra support is needed
	5	Check the identity of the user
	6	Provide the necessary solution
	7	Skip to the next problem and work with it
Extensions	Steps	Branching
	1.1	Check the credentials correctly if login gets failed
	5.1	Double check the membership of the user
	5.2	If the problem continues contact them physically

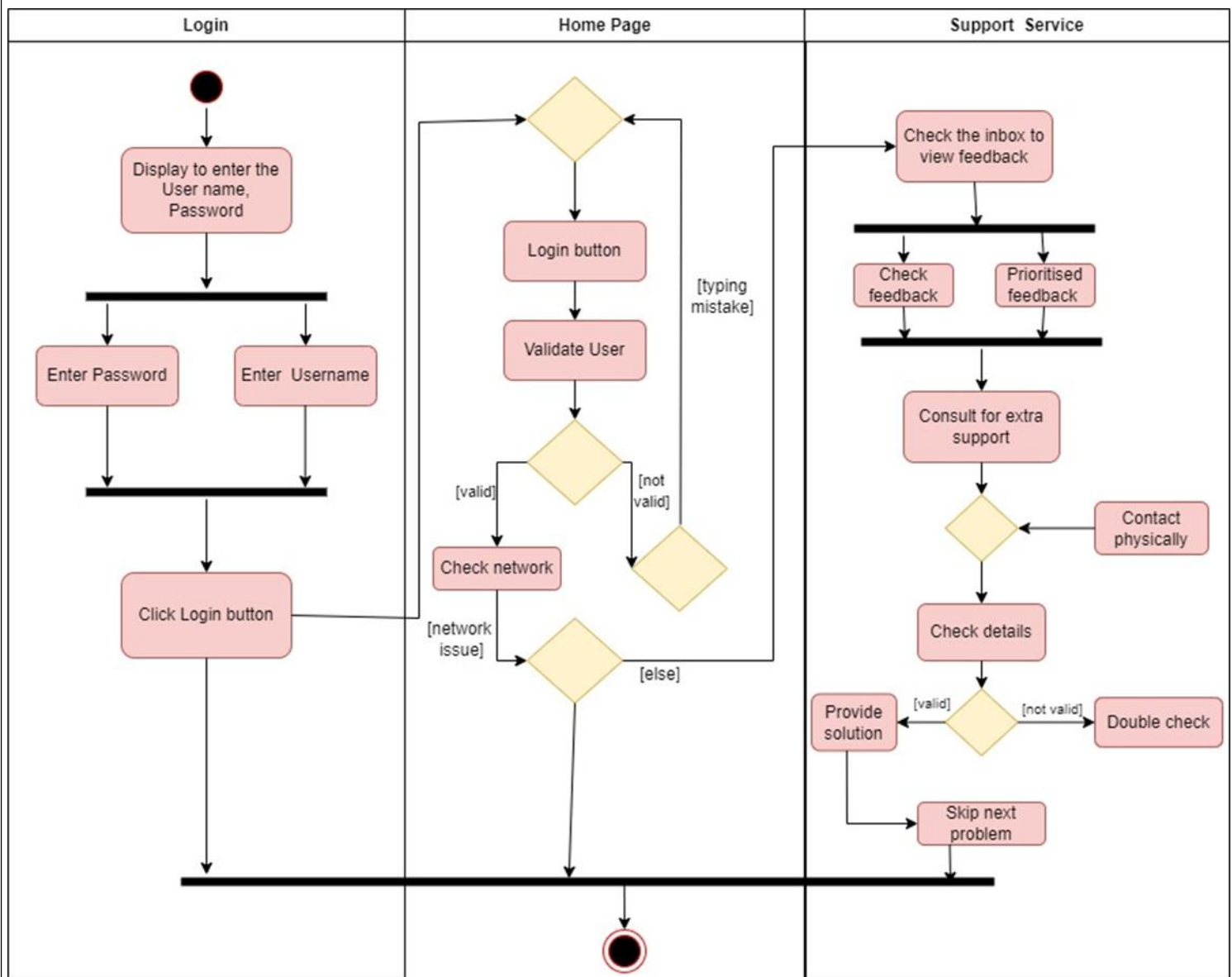


1) Login Subsystems.

- This is the parking system's login activity diagram, which displays the flow of login activity. Users will be able to login in using their username and password.
- After login in, the user can control all vehicle number, parking spot, and parking fee activities. The diagram demonstrates how the system's login page works.

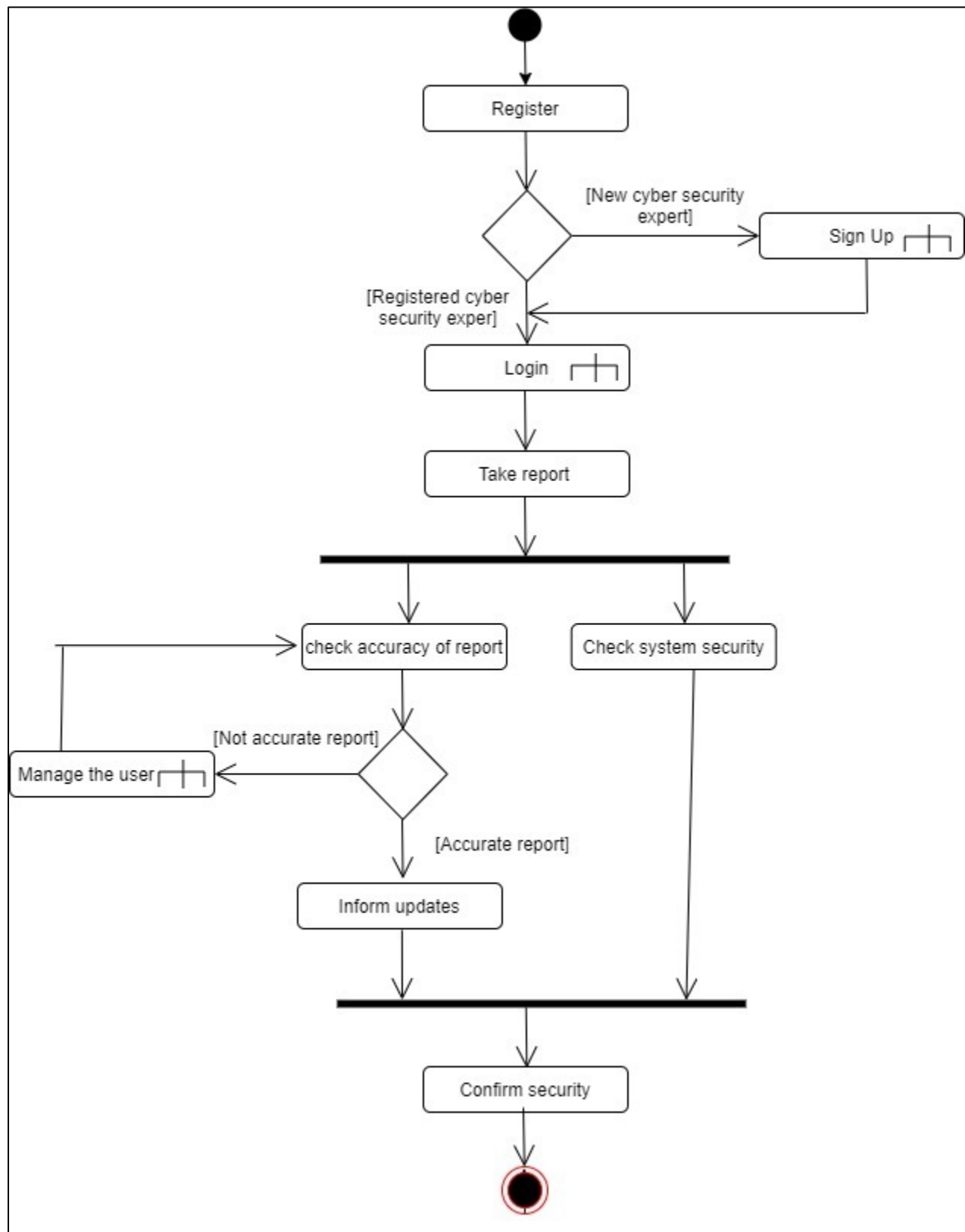
2) Support service Subsystem

- After login in, the user can go to the Support service page. The user can either select the problem or utilize the search box to discover a solution. The system's Support Activity diagrams show the flow of support service activity. The diagram demonstrates how the system's support service page operates.

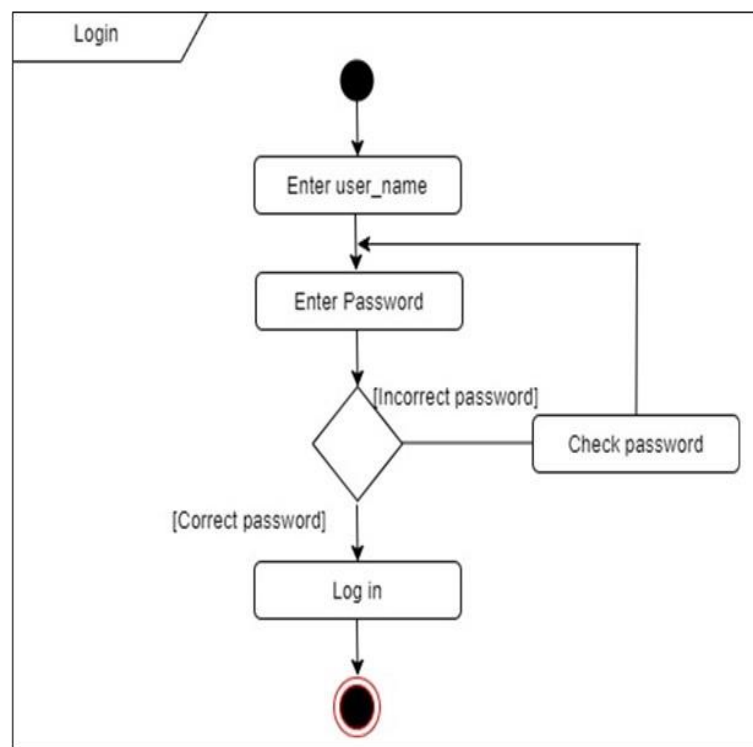
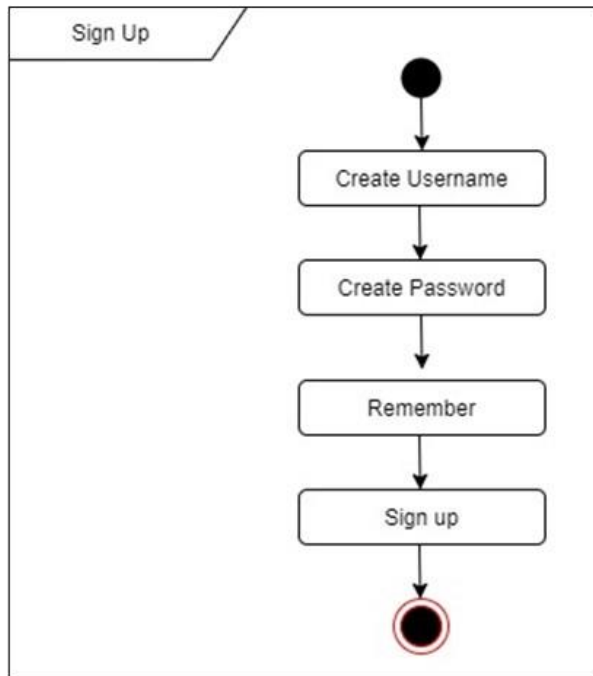


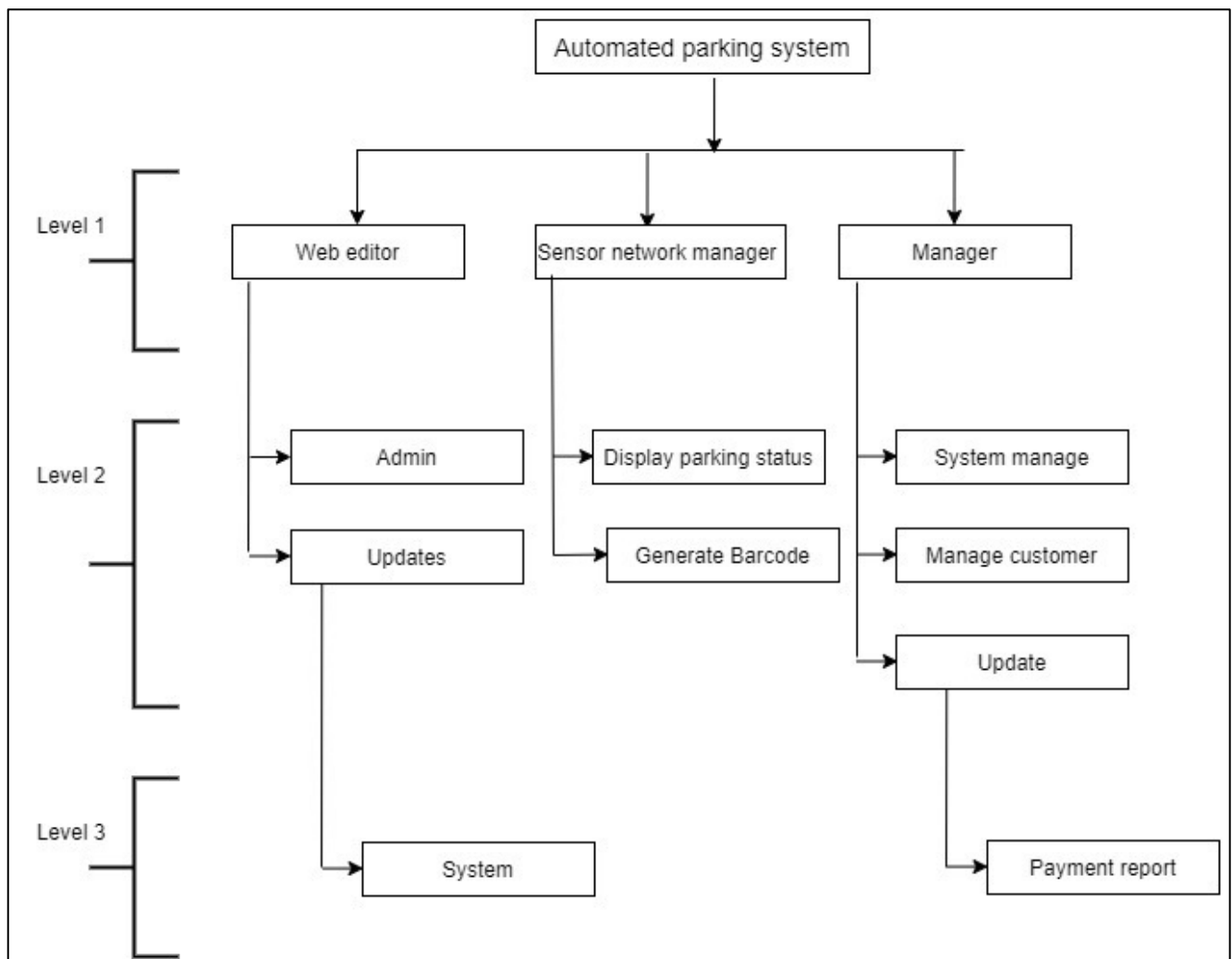
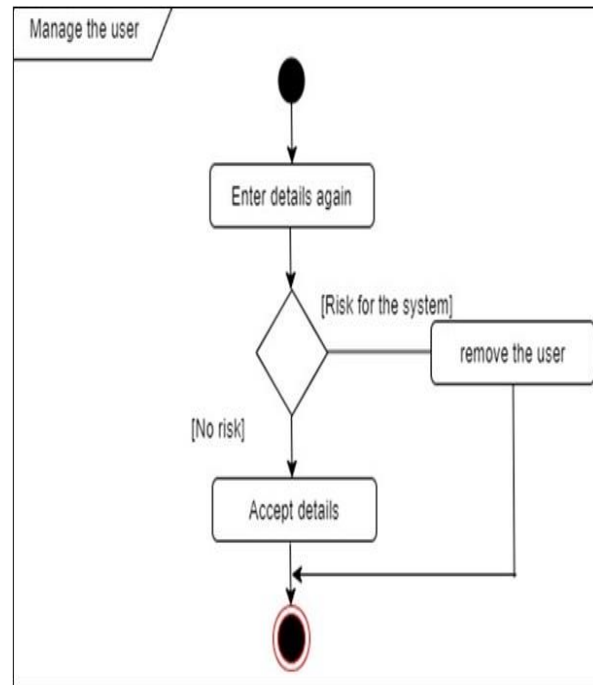
IT21173936 – Kodithuwakku K.G.K.M.J

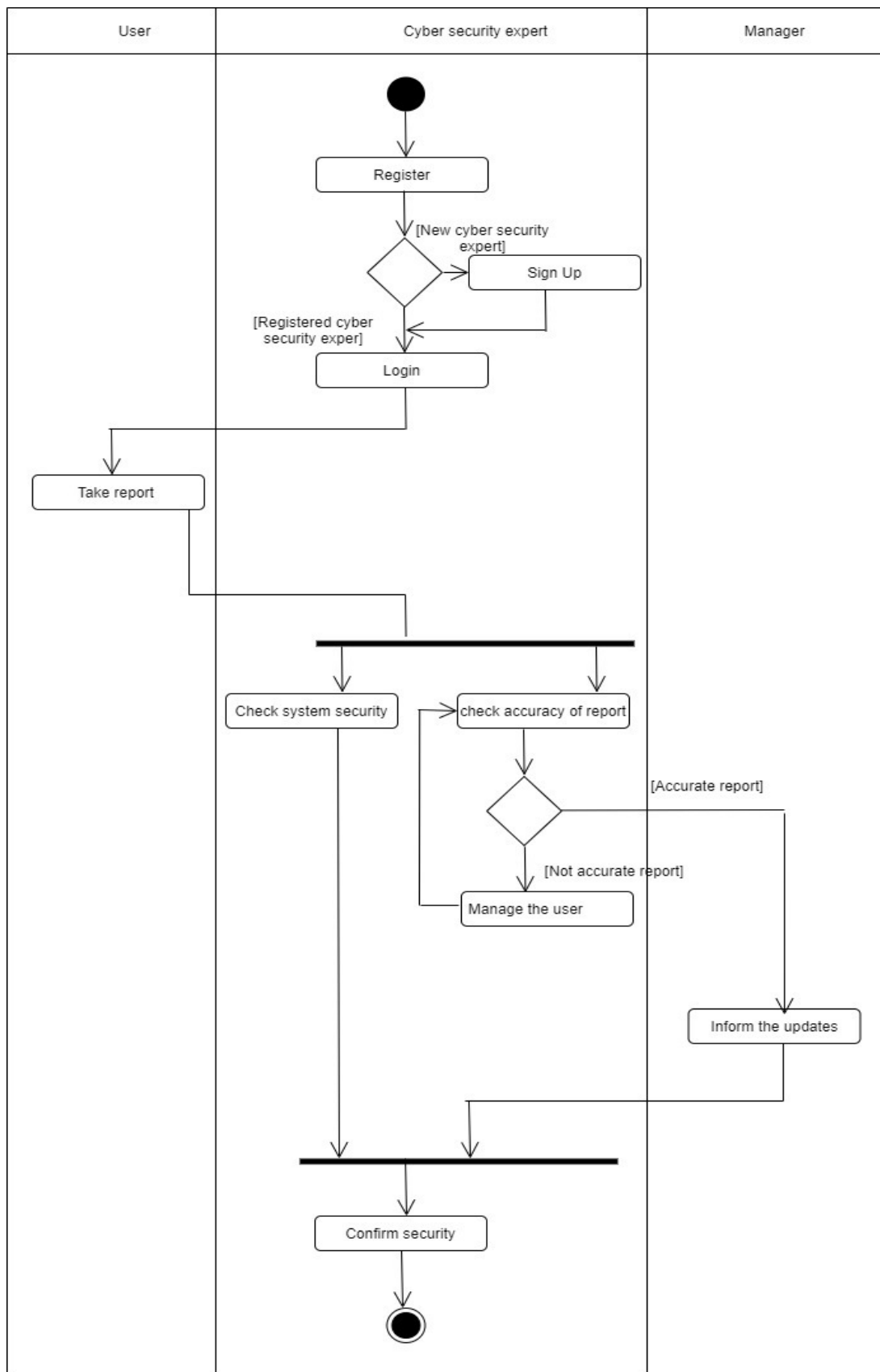
Number	APS 8	
Name	Check login area security.	
Summary	Confirm the login area security	
Priority	1	
Preconditions	Cyber security expert should log in to the system using username and password.	
Post Conditions	Check if the system security functions are working correctly.	
Trigger	Cyber security expert must log in to the system.	
Main Scenario	Step	Action
	1	Cyber security expert must sign up to the system.
	2	After cyber security expert sign up to the system, he/she has to log in to the system.
	3	Cyber security expert takes a report of the users from the system.
	4	Check whether the reports are accurate.
	5	Inform updates to the manager.
	6	Confirm the system security function is working properly.
Extensions	Steps	Branching action
	1a	Log in to the system using username and password.
	1b	Reset the password if it forgot and login again to the system.
	4a	If the report is not accurate remove the user from the system.
Open Issues		Update the manager with accurate information.



Activity Diagram

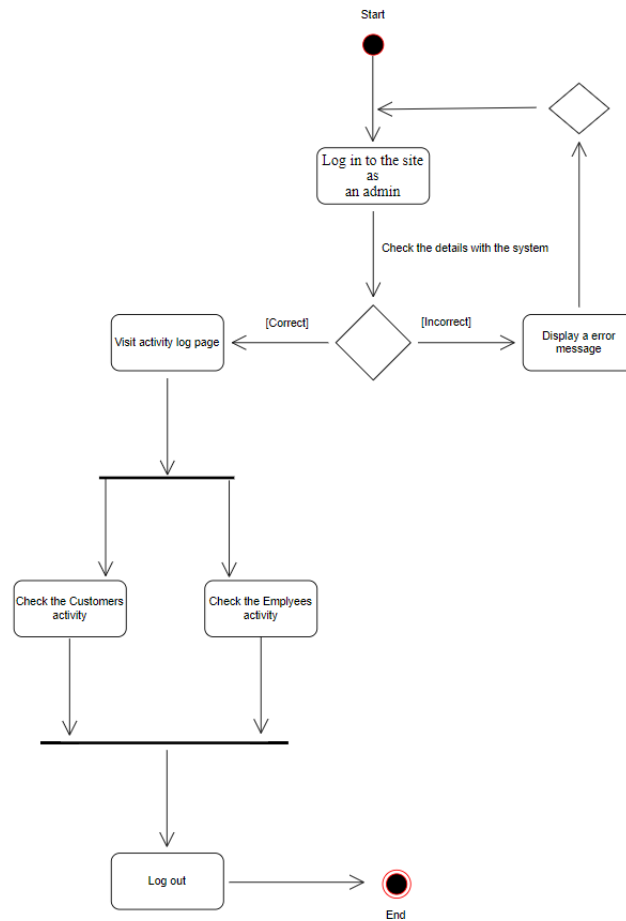






IT21174612 – G.G.P.N. De Davin

Use case ID	APS 7
Use Case Name	1. Monitor employees' work
Summery	1. Receive the activity summary of employees.
Priority	01
Preconditions	Should have registered on the site as a user or admin.
Post Conditions	Should visit the correct page.
Primary actor	Manager – Kumar Fernando
Main Success Scenario	<ol style="list-style-type: none">1. Log in to the site as an admin.2. Visit the activity log section by clicking on it.3. Check employee's daily activity.4. Take the necessary actions. (sub)5. Log out.
Extensions	<ol style="list-style-type: none">1. If the logging details are not matched with the system,<ol style="list-style-type: none">a. System displays an error message.b. System shows the alternative options.



1. Level 1- Manager, System, Customer

2. Level 2 and below- Automatic, Manual, Registered User, New user

