AMERICAN INTERNATIONAL UNIVERSITY-BANGLADESH

Faculty of Science and Technology

Project Cover Page

Assignment Title:	OOAD Project			
Assignment No:	00		Date of Submission:	20 May 2020
Course Title:	Object Oriented Analysis and Design			
Course Code:	CSC 2210		Section:	[C]
Semester:	Spring	2019-20	Course Teacher:	Rahman Mohammod Hafizur

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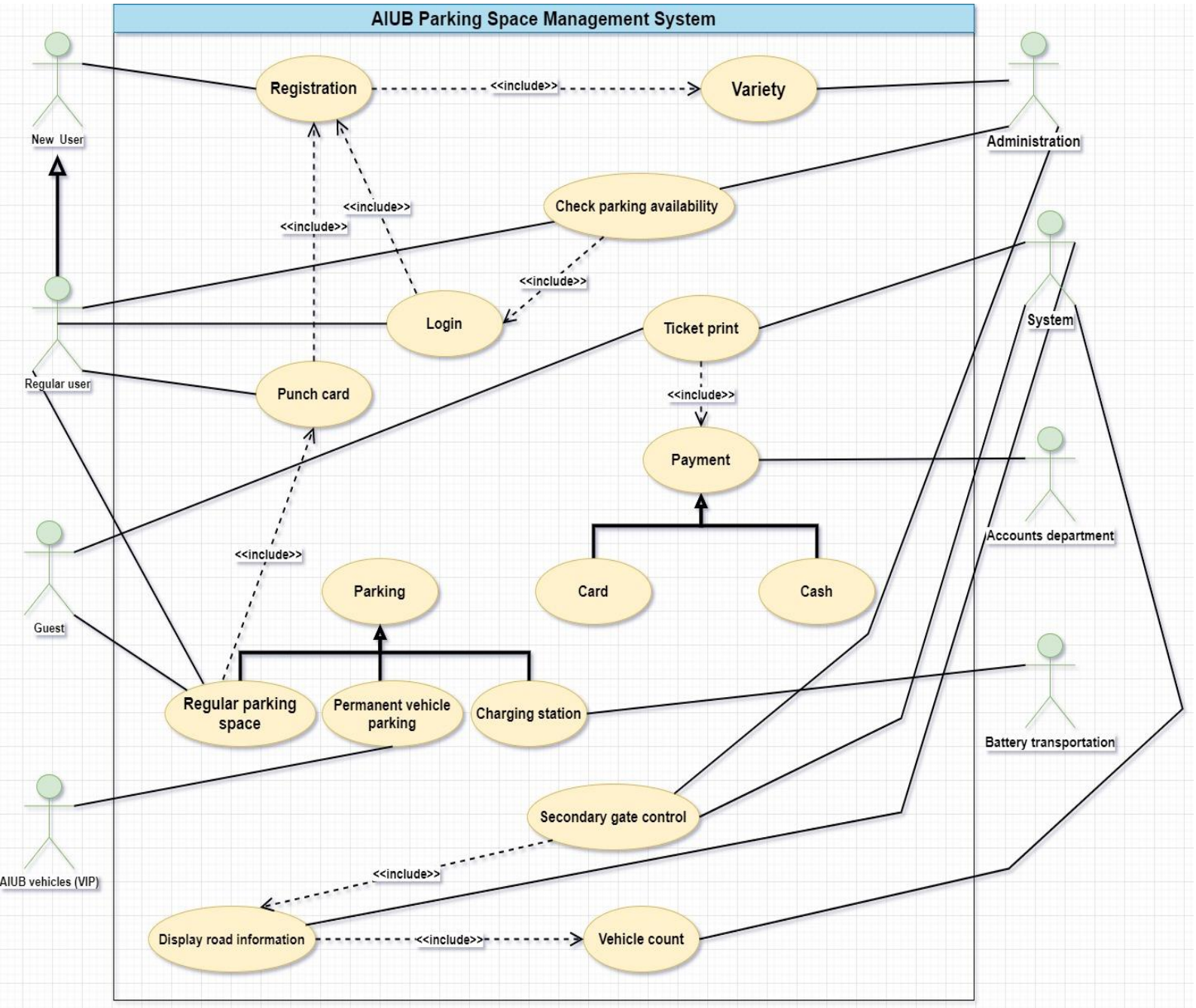
AIUB Parking Space Management System

Problem Definition:

Parking system data flow is often used as a preliminary step to create an overview of vehicle parking without going into great detail. Which can later be elaborated. It normally consists of overall application dataflow and processes of vehicle parking process. It contains all of the user flow and their entities such all the flow of car parking, parking space, parking slots, parking fees, car owner and other many more information. All of the below diagrams has been used for the visualization of data processing and structured design of the vehicle parking process and working process.

Use Case Diagram:



Use Case Description:

Login
Author: Xerxes
Date: 08/May/2020
Purpose: Information for parking system.
Overview: The user login into the system to use enter the system.
Actor: **User**
Precondition: The user must be registered.
Flow the event: The **user** requests for log into the system. The system asks for **user's** ID and password. If **user** ID and password is valid then **user** can log in the system. If **user** ID and password is not valid then display gives output "Please enter correct password".

Check parking availability
Author: Xerxes
Purpose: Checks for parking space for user's vehicle.
Overview: The user log into the system then checks parking availability for parking user's vehicle.
Actor: **User**
Precondition: The user must be registered.
Flow of event: The **user** log into the system. **User** searches for parking space. If parking space available **user** books the parking space. If there is no parking space available **user** will not be allowed to park.

Ticket print
Author: Xerxes
Purpose: For guest vehicle parking.
Overview: Guest requests for ticket to park vehicle.
Actor: **Guest**
Precondition: Guests don't need to be registered on the system.
Flow of event: If the **administration** approves then the **guest** can search for parking space. If parking space is available for guests the **system** asks for payment. After payment the **system** prints ticket for **guest**.

Registration
Author: Xerxes
Date: 08/May/2020
Purpose: Apply for registration to park vehicle.
Overview: The use case starts when the user log into the system then requests for registration. Then the system asks for employee or student ID. If the given ID is valid then the system gives ID and password to new user.
Actors: **New user, System**
Precondition: The system must be in a state ready for online registration.
Post condition: The system must have to store registration information.
Flow of event: Unregistered employee or student requests for registration. The system asks for employee or student ID details. If ID is valid then the system asks for parking time from student or employee. If the ID is invalid display gives output "Invalid ID". Then the system provides ID and password to the new user. Then the registration is complete.

Payment
Author: Xerxes
Overview: Guests need to pay for vehicle parking.
Actors: **Guest, Accounts department**
Precondition: Need to get permission from administration.
Post condition: Print ticket,
Flow of event: **Guests** request for payment. If **administration** permits for park their vehicles they may pay with card or cash to **accounts department** in the **system** and get their parking ticket.

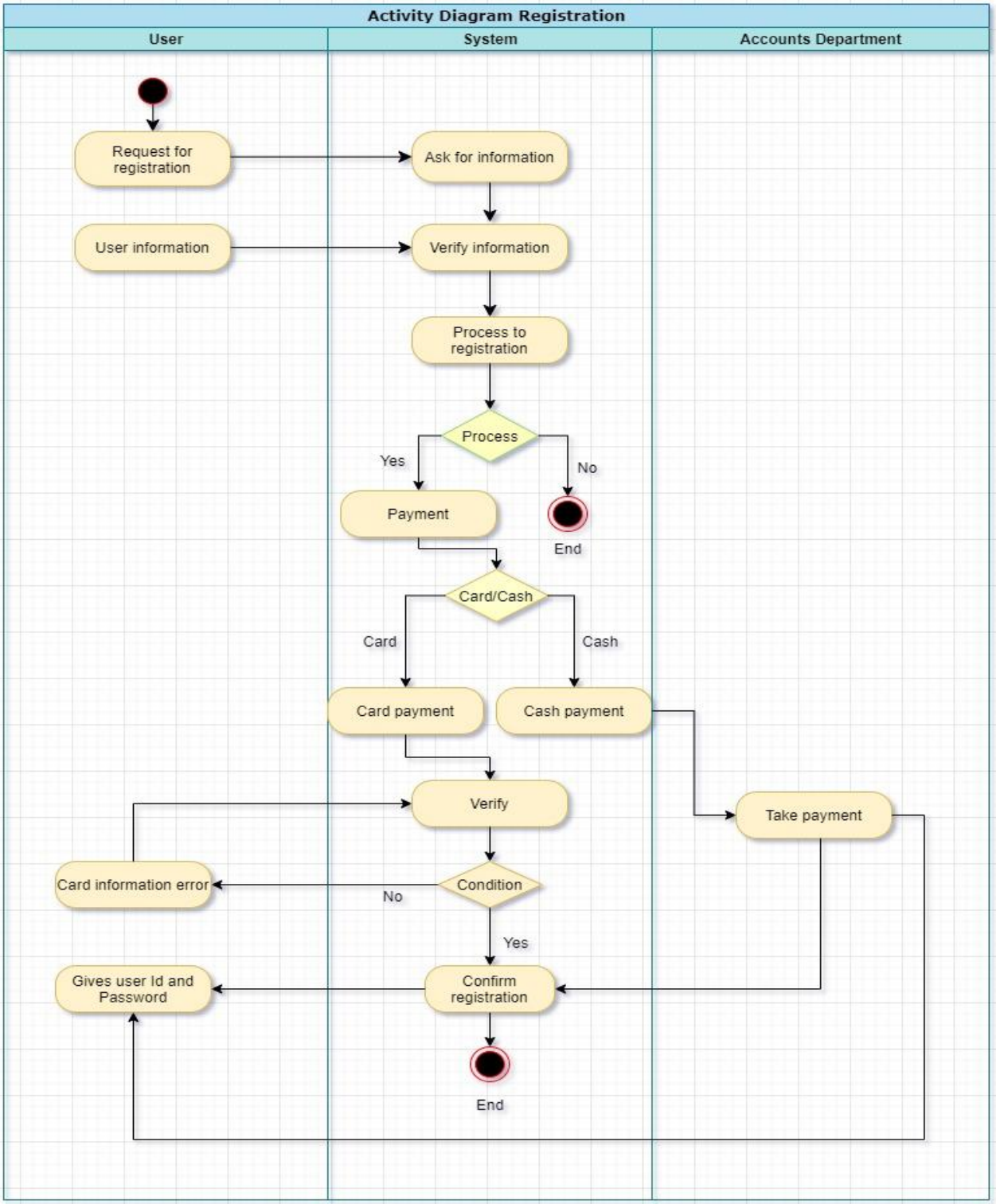
Punch card
Author: Xerxes
Date: 08/05/2020
Purpose: For parking vehicle
Overview: User punch card for parking vehicle in parking space.
Actors: **Users, Administration**
Precondition: Must be registered into system.
Post condition: Entering car to regular parking space.
Flow of event: If the punch card is valid the user will punch the card the gate will open for the user's vehicle to enter the parking space. If the punch card not valid then the system will ask for registration from **administration**.

Secondary gate
Author: Xerxes
Purpose: To count vehicle and display road information.
Overview: Secondary gate count vehicle and display information.
Actors: **System, Administration**
Flow of event: Secondary gate counts vehicle and displays information about road. If there is no space for parking then secondary gate display about that from **administration**.

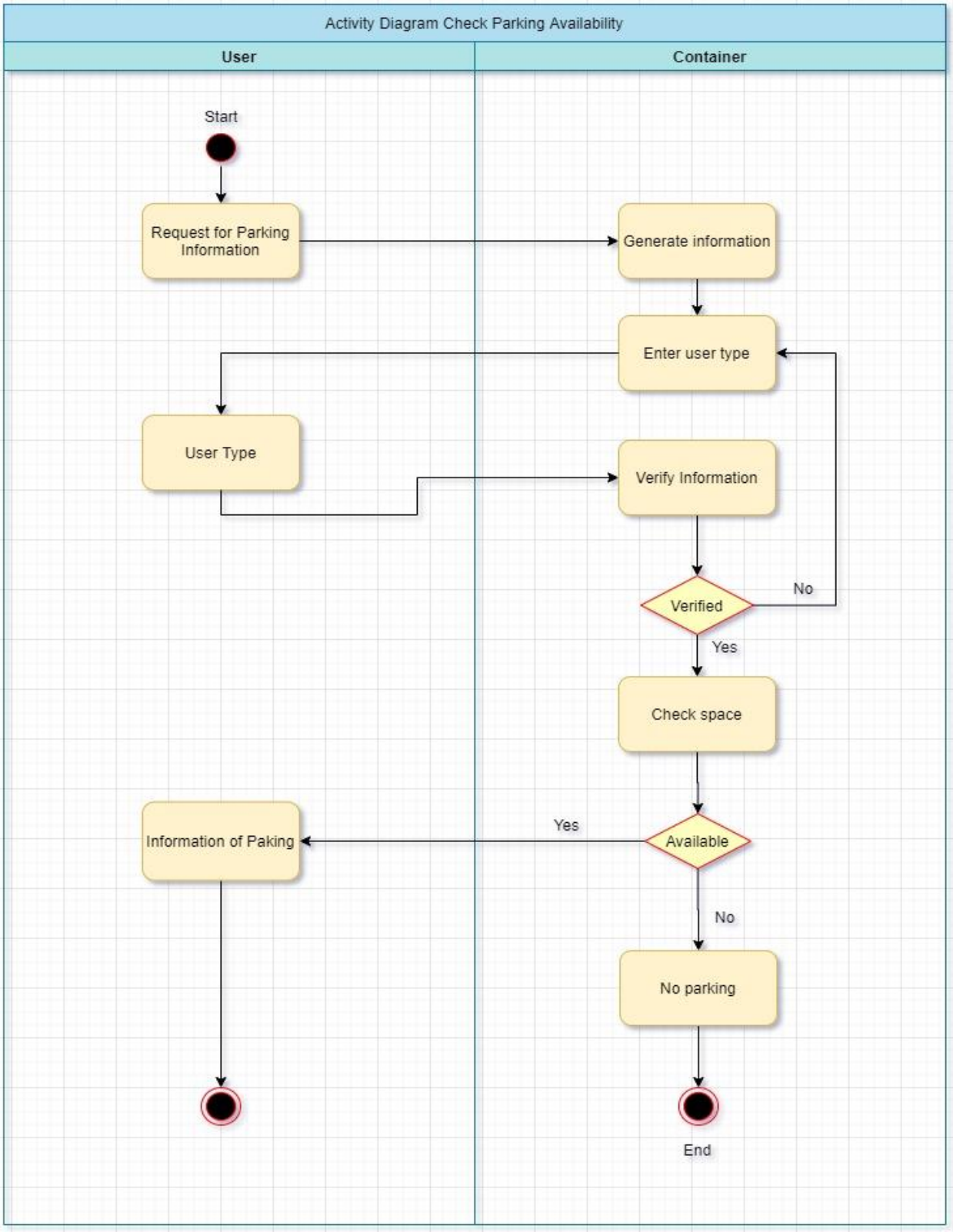
Parking
Author: Xerxes
Date: 08/May/2020
Purpose: To park vehicles of regular user, guest, VIP and battery transportation.
Overview: Regular user, guest, VIP and battery transportation requests to park their vehicle.
Actor: **Regular user, Guest, AIUB vehicles (VIP) and Battery transportation**
Precondition: Regular user or user must be registered into system excluding Guest, VIP and Battery transportation.
Flow of event: There are there type of parking space available. **Regular parking space** is for parking **regular user** to park their vehicles using registered punch card. **Permanent vehicle parking** is for parking **AIUB vehicles (VIP)** and they don't need any registration because they are the **system**. **Guests** parks their vehicle by paying into **system**. If any **regular user** vehicle arrives they need to leave the parking space because the space is registered for **regular user's** vehicle. **Charging station** is used for **battery transportation** service for students. If they run out of charge then **battery transportation** charges it's battery at **charging station**.

Activity Diagrams:

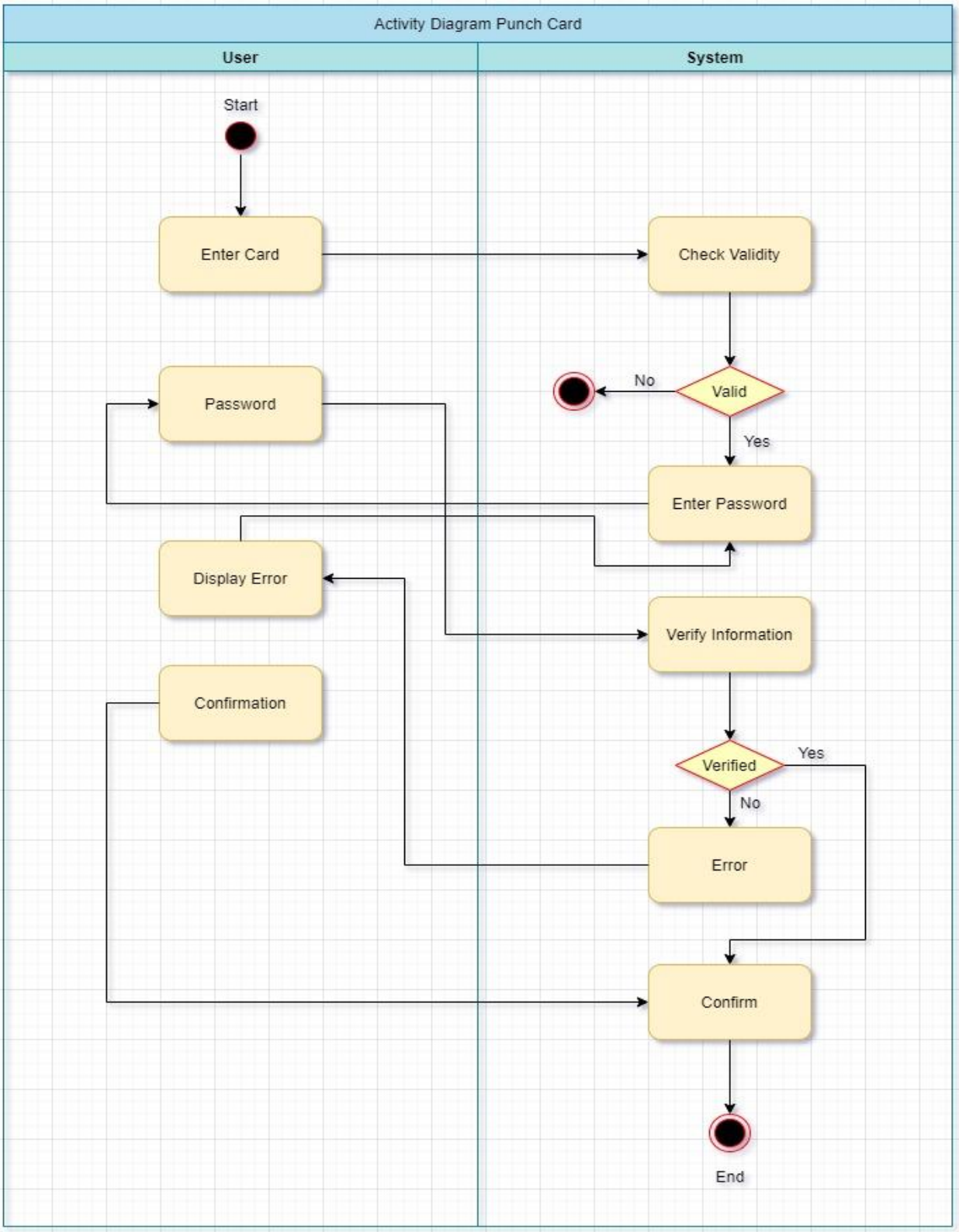
Activity Diagram - Registration



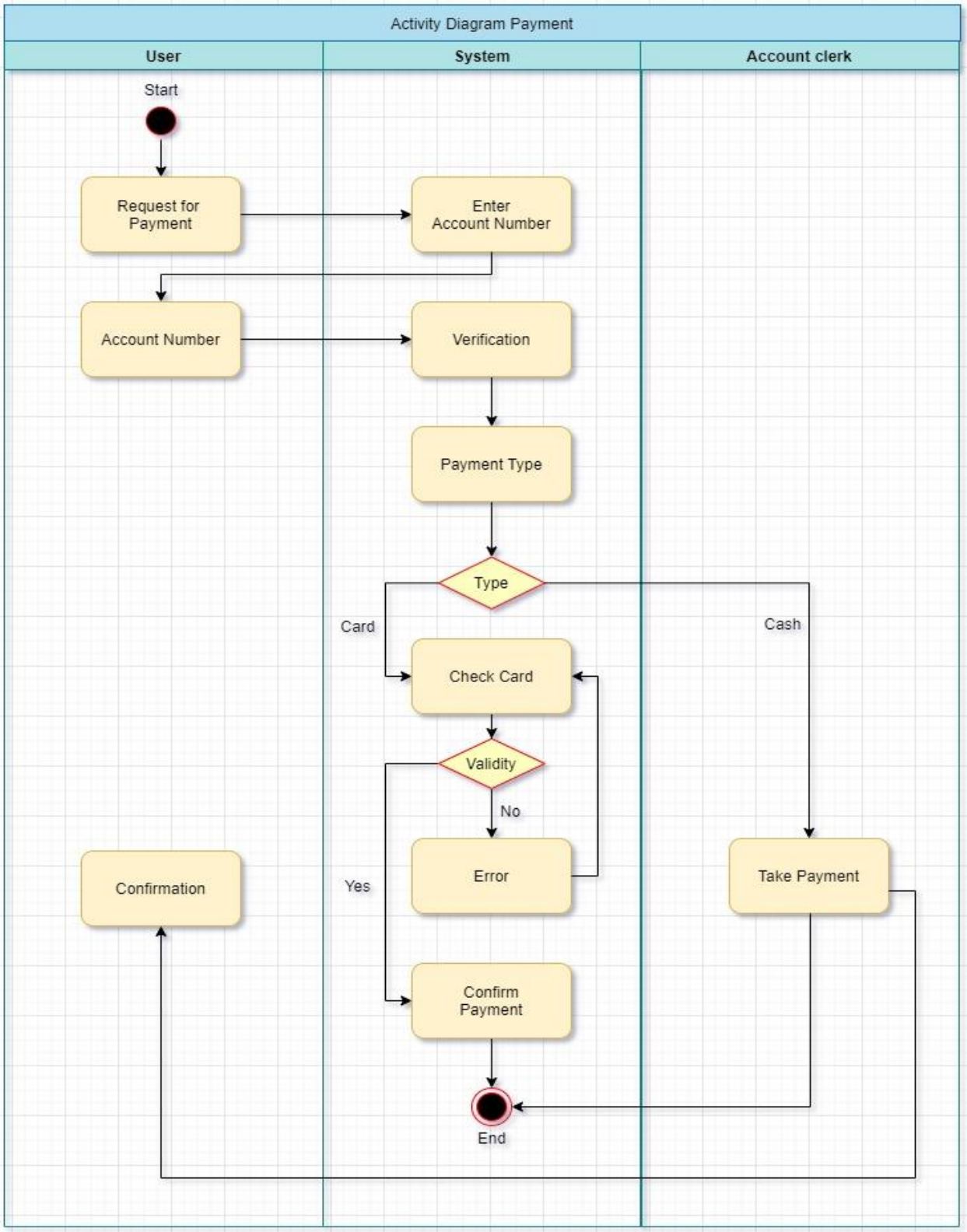
Activity Diagram – Parking Availability



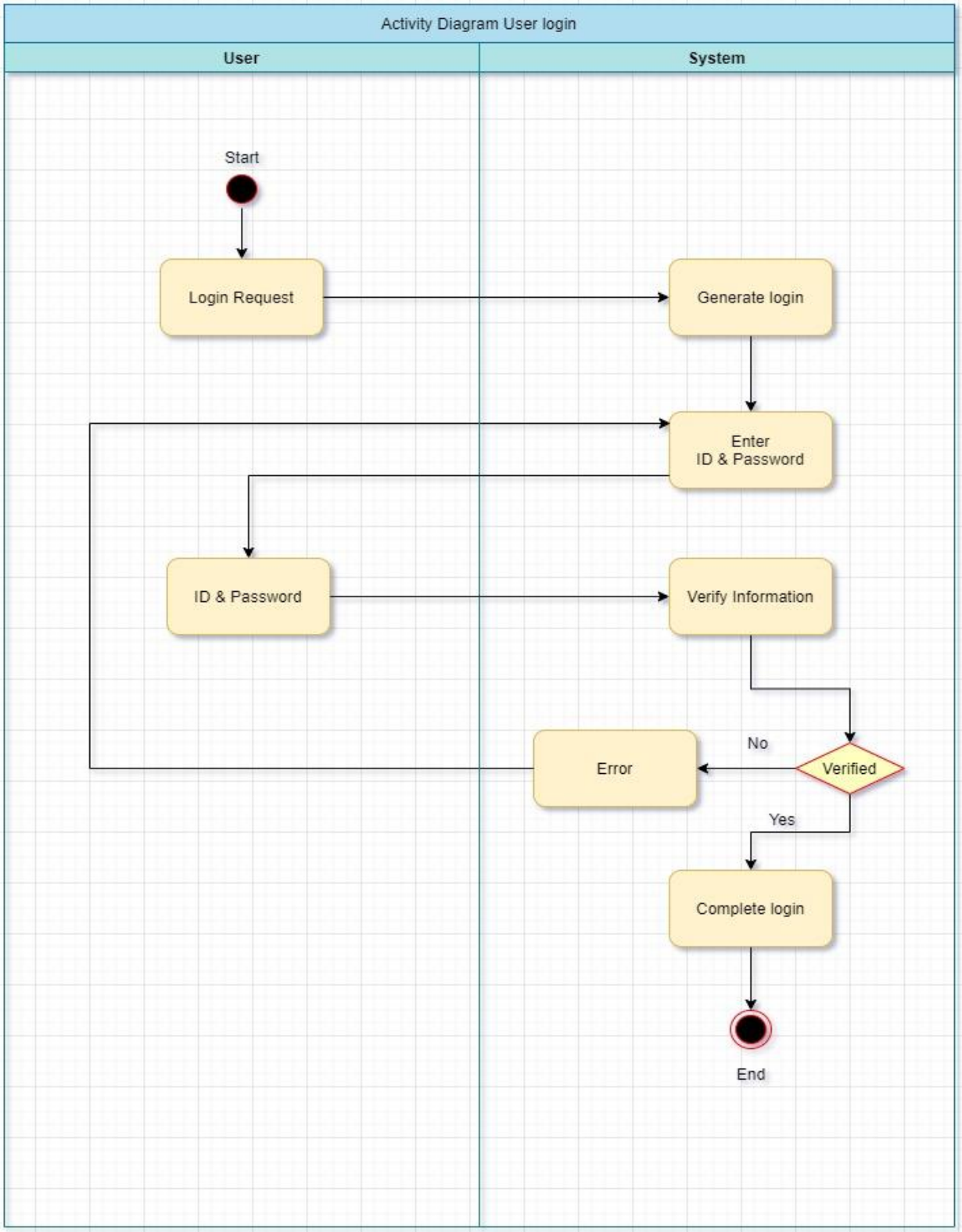
Activity Diagram – Punch Card



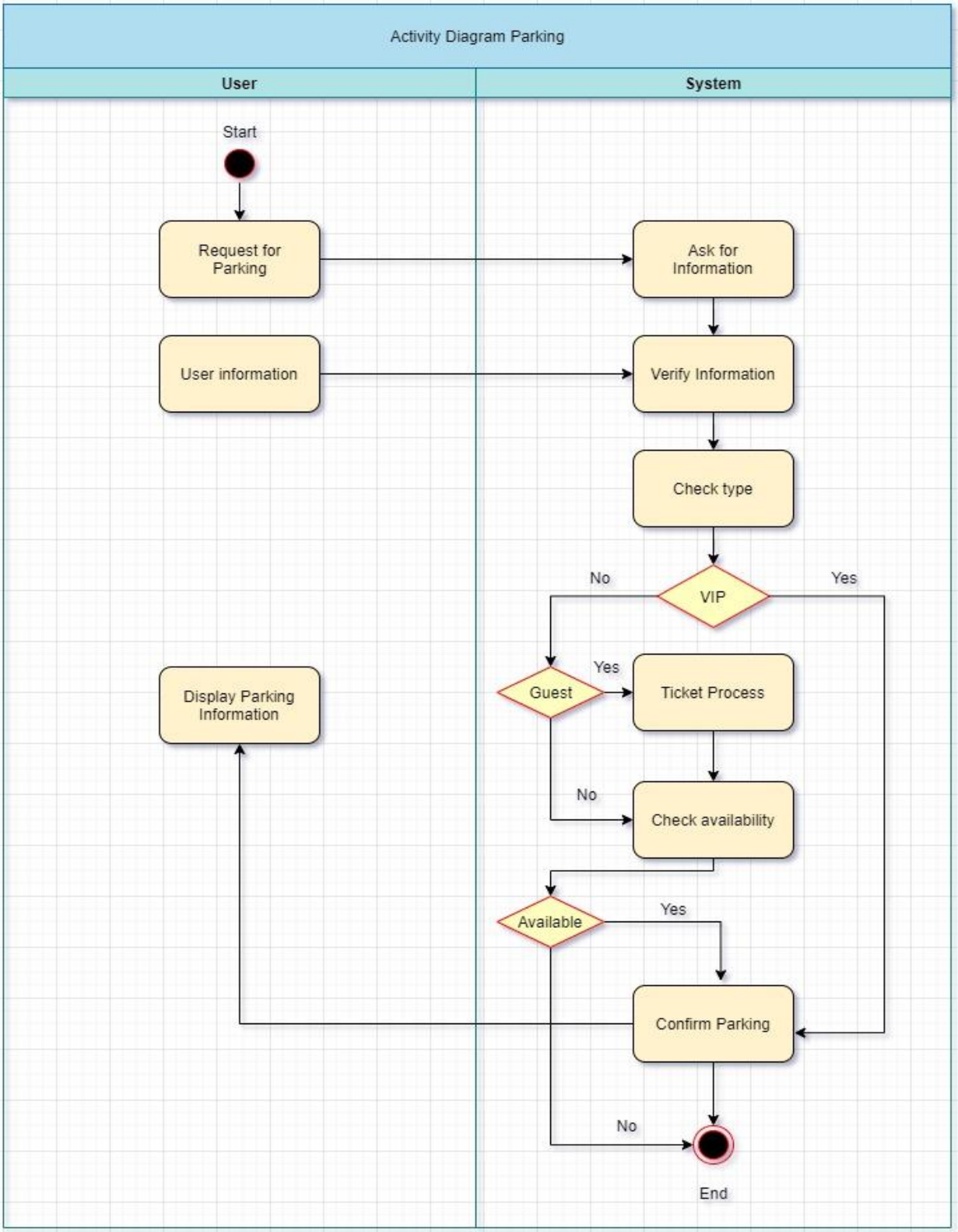
Activity Diagram – Payment



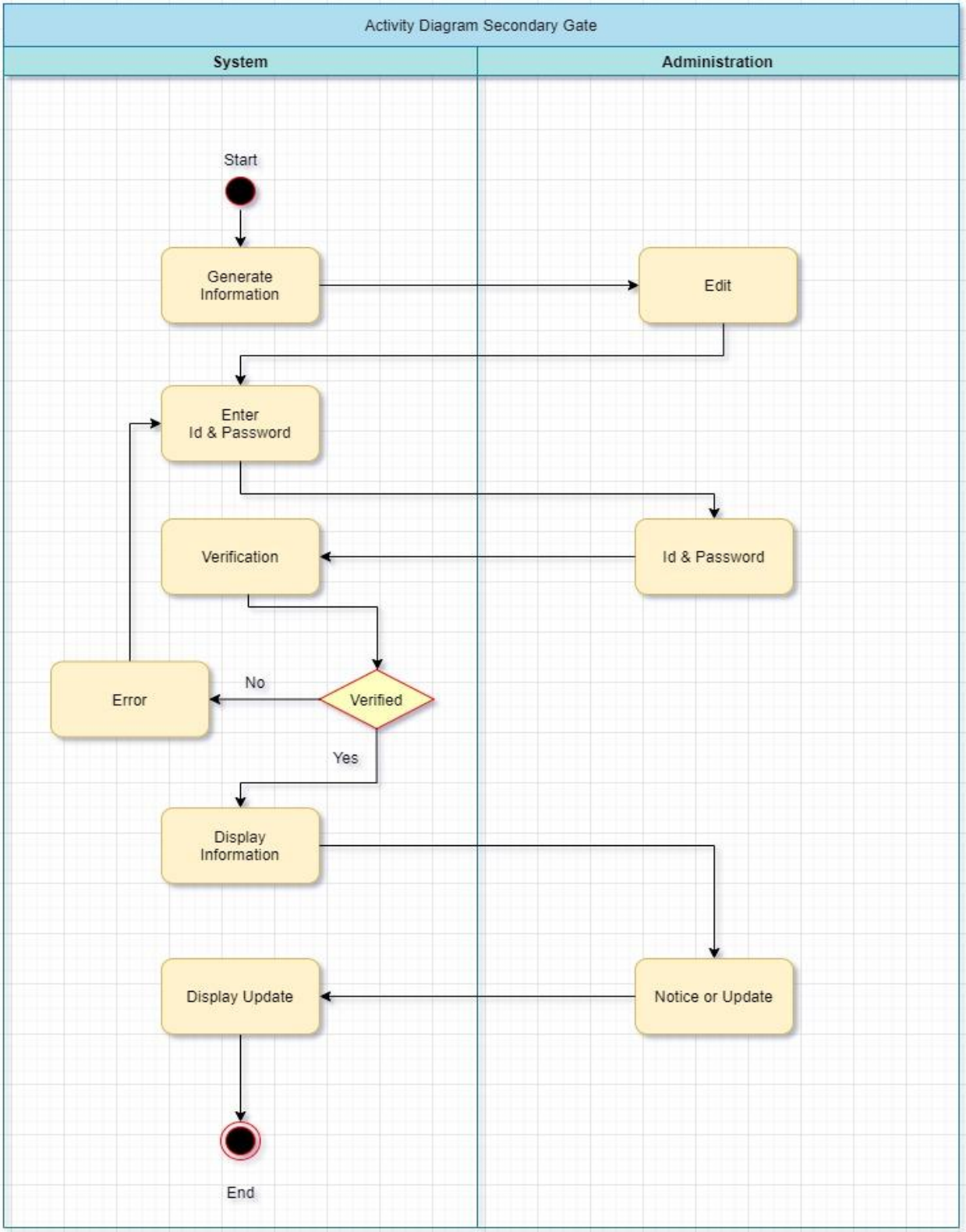
Activity Diagram – User Login



Activity Diagram – Parking

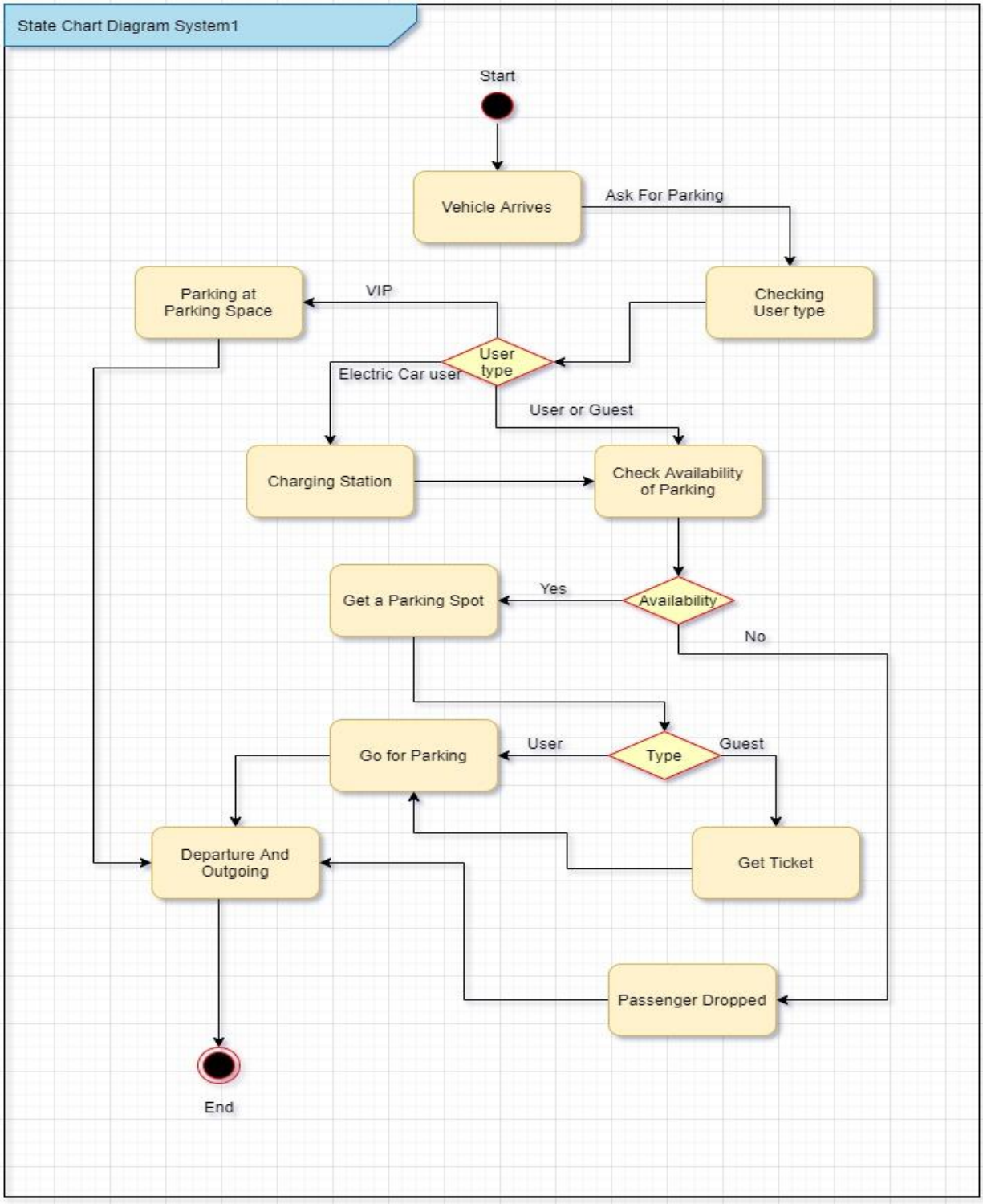


Activity Diagram – Secondary Gate



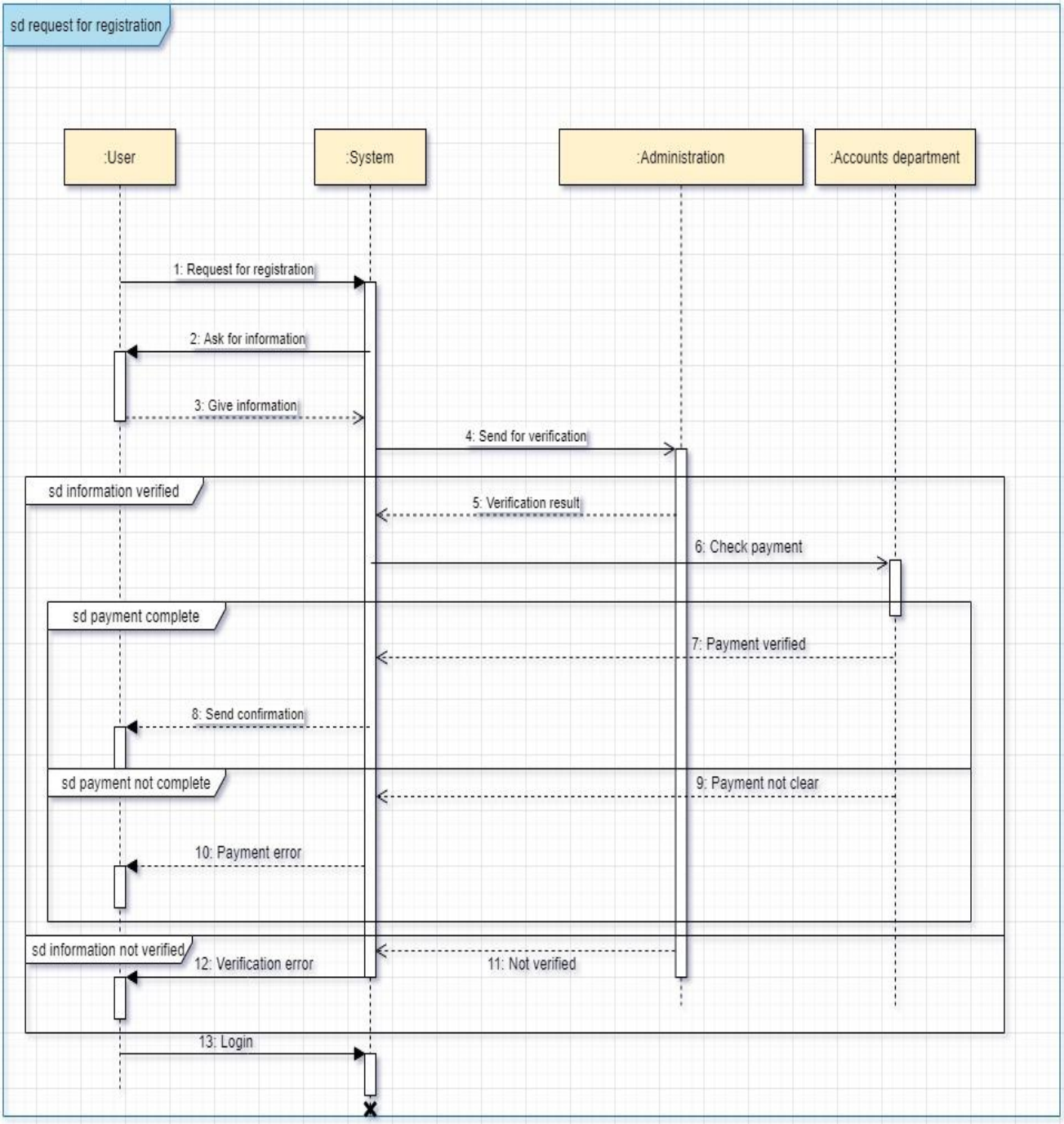
Statechart Diagram:

Starechart Diagram – System1



Sequence Diagram:

Sequence Diagram – Request for Registration



The End!