LAB 1

COMP 354- Fall 23

Apekshaba Gohil
apekshabagohil.it@gmail.com

Anam A. Shaikh
anams403@gmail.com

Marzieh Adeli
marzieh.adeli@gmail.com

Assignment 1: Concordia Cart Web App

Add the Requirements Mentioned in the assignment

This Shopping Cart is to be extended into the Concordia Cart App web app that is more personalized with the following extensions:

Extended Requirements for Customers :

- Display Most and Least Selling Items (similar to Netflix/Amazon Suggestions)
- Display Discounts on Products
- Based on customer’s interests add low-cost used products

Extended Requirements for Admins:

- Suggest discounts on highest/lowest selling items
- Suggest restocking items with 3 or fewer quantities

If any Additional Requirements are added it will considered an add-on!

Assignment 1: Concordia Cart Web App Requirement Gathering

- Compare System As-Is vs. System-To-Be
- What is the problem?
- What is the impact of the solution?
- Who are the stakeholders of the system?
- What are the Functional Requirements?
- What are the Non-Functional Requirements?

Assignment 1 Report Format is added to the Tutorial and Reports Folder “Report Formats and Examples”

SRS Document Example

Assignment 1: SRS Example of ETR Electronic Tool Rental System

Assignment 1: Report

- Please create a report of no more than 20-25 pages.

- Follow the template or example presented during the LAB session.

- Templates and Examples are uploaded on the Moodle course page – the “***Report Format and Samples***” section.

- ***The following slides include some sections of the Report and what is required within those sections.***

Use- Case

What is a Use-Case ?

A use-case is a written description of how users will perform their task within your system.

It describes from the user’s point of view, systems behaviour as it responds to a request.

Why we create Use-Case ?

It helps us visualize user interaction with the system and also helps us understand what and how user is expecting a system to behave in each scenario.

Use- Case

Each use-case is defined as a sequence of simple steps. Beginning with user’s goal and ending when the goal is accomplished.

There might some cases where there can possibly be negative outcomes for some goals. For that we use exceptional case to represent the steps when something is going in a negative way how the system must handle and respond to it.

e.g. Scenario 1- User log-in the system – Positive Scenario

What if the user has forgotten password to login within the system ? – Negative Scenario of User login.

Use- Case Format

1. **Use-Case ID** – Unique Identifier for each use-case. e.g. UC-01

2. **Use-Case** – Title of the use-case

   e.g. Use-Case : Make a Reservation

3. **Description** – Give a brief on what is the use-case about ? When does it occurs ? What are the constraints ?

   Note: Keep description very short as 1-2 sentences.

   This use case occurs when the customer has successfully found the tool or equipment according to their need and wants to reserve it (only one tool can be reserved with a reservation request. To reserve more than one tool a customer needs to make a separate reservation request).

Use- Case Format

4. **Level – User Goal Level/System Level ?**

Level specifies with whom is the use-case related to it. Is it the use-case which will be performed by the user or by the system. Most of the use-cases are User Goal Level.

5. **Primary Actor- User primarily involved with the use-case.**

e.g. Primary Actor – Customer

6. **Supporting Actor/s – Users passively involved with the use-case.**

e.g. Supporting Actor – Branch Employee.

Use- Case Format

7. **Stakeholders and Interests** – Who are directly and indirectly involved with the use-case and describe what is their involvement.

e.g. Stakeholders and Interests –

i. Customer - Reserves a tool or equipment according to their need.

ii. Branch Employee - Verify the customers details, credit card, rental tool deposit amount and hand out the tool or equipment in store to the customer and update the tool status.

iii. Competitors - Reserves a tool or equipment to check the flow and navigations.

iv. Developer - Develops a reservation scenario for the customer to smoothly create a reservation request and performs unit testing.

v. Tester - Tests the developed scenario and suggests any improvements required

Use- Case Format

8. **Pre-conditions** – What are the requirements in-order to implement the use-case ?

E.g. Pre-Conditions.

1. Customers must create separate reservation requests to reserve each tool.
2. Customer must be 18 years old.
3. Customers must make a reservation request as early as next day and upto 30 days in advance

9. **Post-conditions** – The result of the use-case.

i. Success end condition

ii. Failure end condition

Use- Case Format

10. **Main-Scenario** – The actual steps the user will be performing with the system.

11. **Extensions** – Mention the exception cases(negative scenario) if any for a particular use-case.

    Note: Mention at-most 3 extensions and not more than that.

12. **Special Requirements** – How the use-case must be for the users.

    i.e. Specify the quality requirements against each use-case.

User-Stories

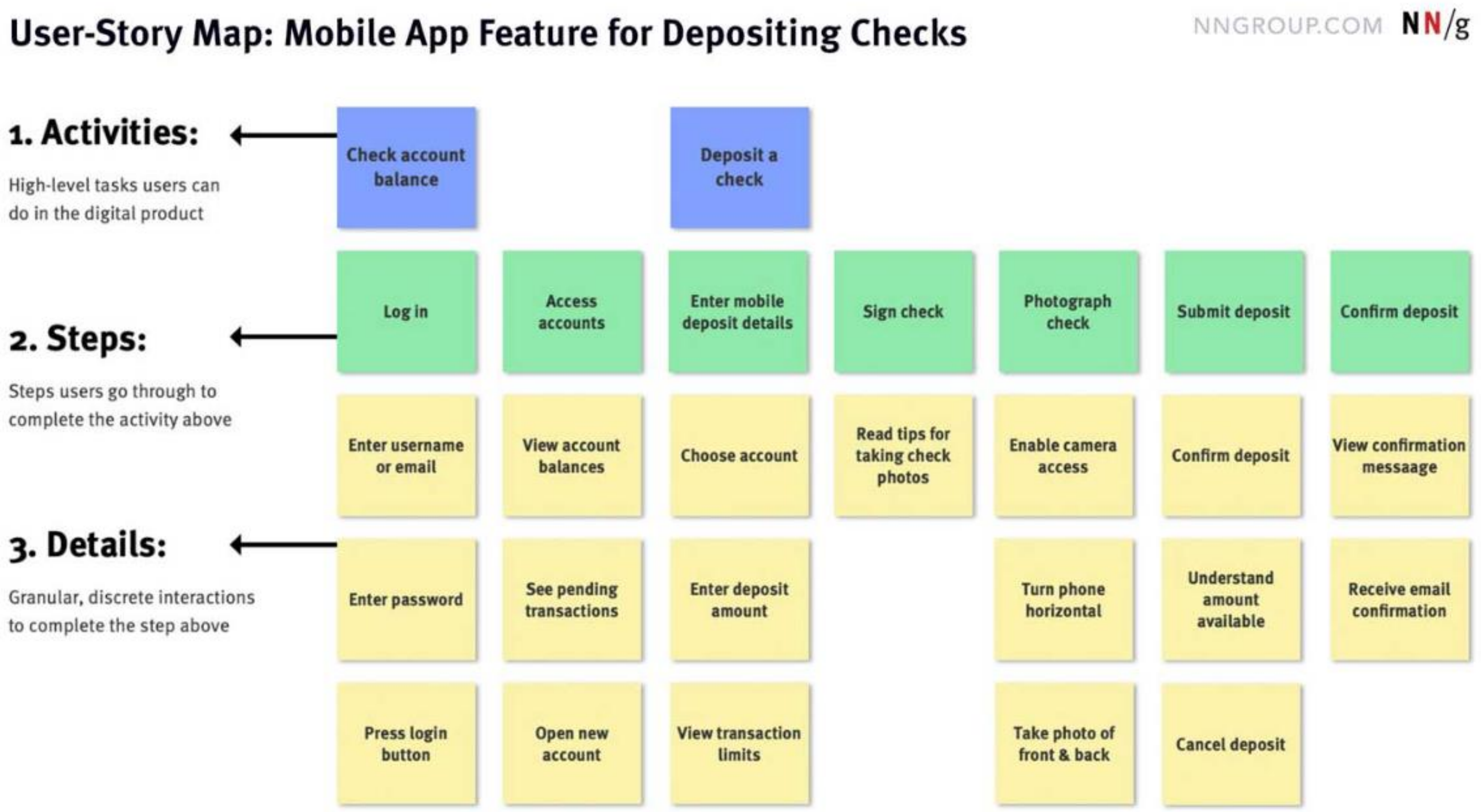
- User Stories are the features of the system.

- They are written from the perspective of end-users and written on the index cards.

It contains of three main-steps:

1. **Activities = Use-Case**. e.g. Make a reservation.
2. **Steps = Main-Scenario of a use-case.** e.g. Login -> Search Tools….
3. **Details = lowest-level of granularity of user-interaction.** e.g. Enter username. Enter password….

User-Stories Example



User-Story Map: Mobile App Feature for Depositing Checks

1. Activities: High-level tasks users can do in the digital product

2. Steps: Steps users go through to complete the activity above

3. Details: Granular, discrete interactions to complete the step above

Check account balance		Deposit a check				
Log in	Access accounts	Enter mobile deposit details	Sign check	Photograph check	Submit deposit	Confirm deposit
Enter username or email	View account balances	Choose account	Read tips for taking check photos	Enable camera access	Confirm deposit	View confirmation message
Enter password	See pending transactions	Enter deposit amount		Turn phone horizontal	Understand amount available	Receive email confirmation
Press login button	Open new account	View transaction limits		Take photo of front & back	Cancel deposit	

You can segregate the user-stories steps/features in must-haves, should-haves-could-haves, don’t-haves using a color code in the diagram to easily understand.

UML Diagram

Use draw.io which is the best tool to develop all the diagrams. **A total of 3 diagrams are expected in your Assignment 1 Report based on the priorities mentioned below.**

1. **Use-Case Diagram** – Most Important **- Must-have** in your Assignment 1.

2. **Sequence Diagram** – **Should-have** in your Assignment 1.

3. **Activity Diagram (optional)** – **Could-have** in your Assignment 1.

4. **State-Machine Diagram (optional)** – **Could-have** in your Assignment 1.

Use-Case Diagram

A use case diagram is a graphical depiction of a user's possible interactions with a system.

A use case diagram shows various use cases and different types of users the system has and will often be accompanied by other types of diagrams as well.

The **use-cases** are represented by either circle or ellipses.

The **actors** are represented by the actor symbol.

Interaction of the Actor and use-cases are represented using arrows **relations**.

Use-Case Diagram

- Important Relation using <<extend>> and <<include>>

The <<include>> relationship

- Partial behavior that is common across several use cases (models required behavior)
- Separate it into its own subfunction use case, and indicate its inclusion
- Included sub-function shared across several use-cases (duplicated parts!)

The <<extend>> relationship

- Separate it into its own Subfunction Use Case
- Indicate where and under what condition it extends the behavior of some base use case (models' optional behavior)
- Original use case remains untouched
- Extended functionality may be optional

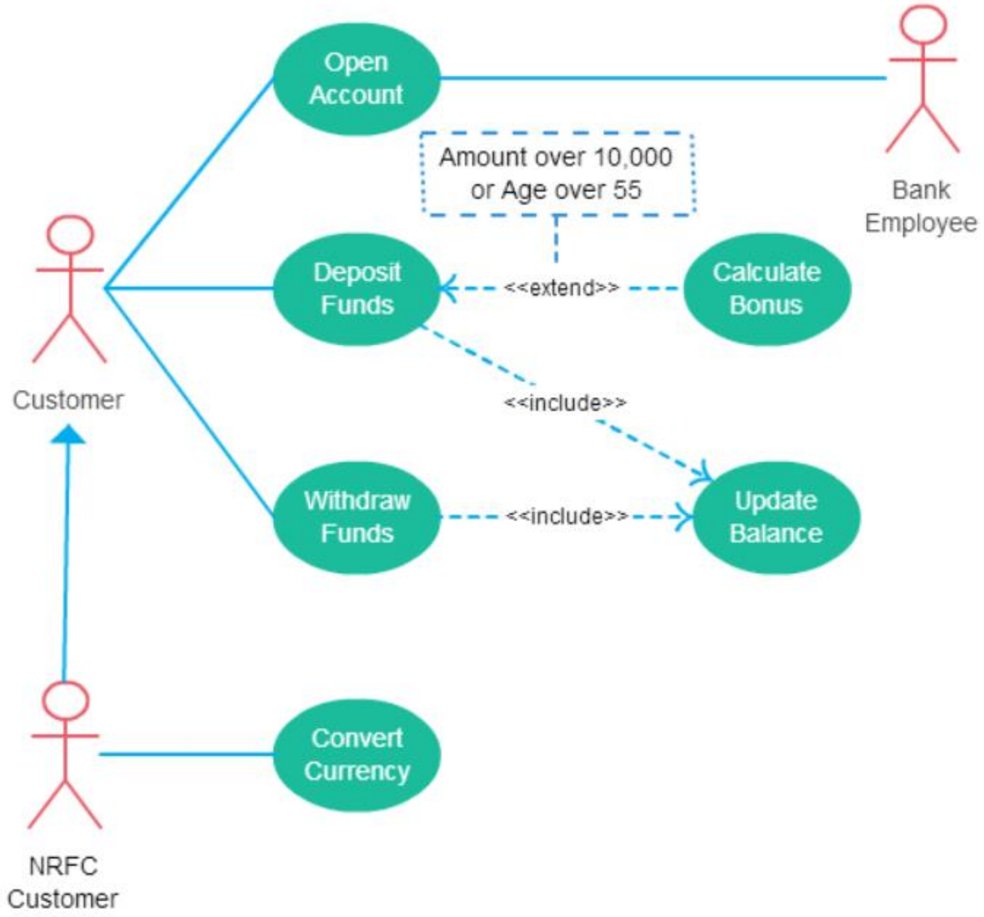
Use-Case Diagram

- Important Relation using <<extend>> and <<include>>

- **<<include>> - reuse functionality.**

- **<<extend>> - one use-case extends the behavior of another use-case.**

Use-Case Diagram



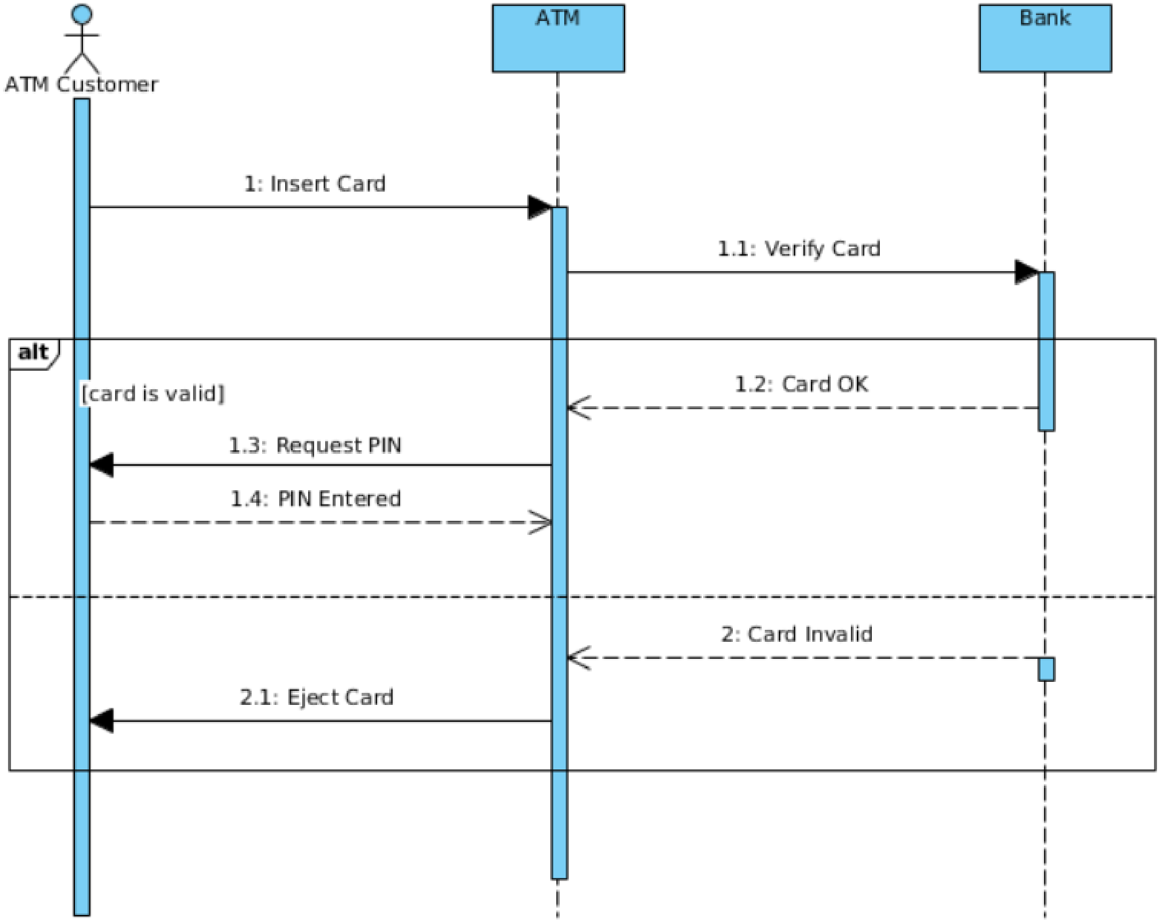
Sequence Diagram

Sequence Diagram illustrates the sequence of messages between objects in an interaction.

It describes how and in-what order a group of objects work together.

Used by software developers and business professionals to understand requirements of a new system.

Sequence Diagram

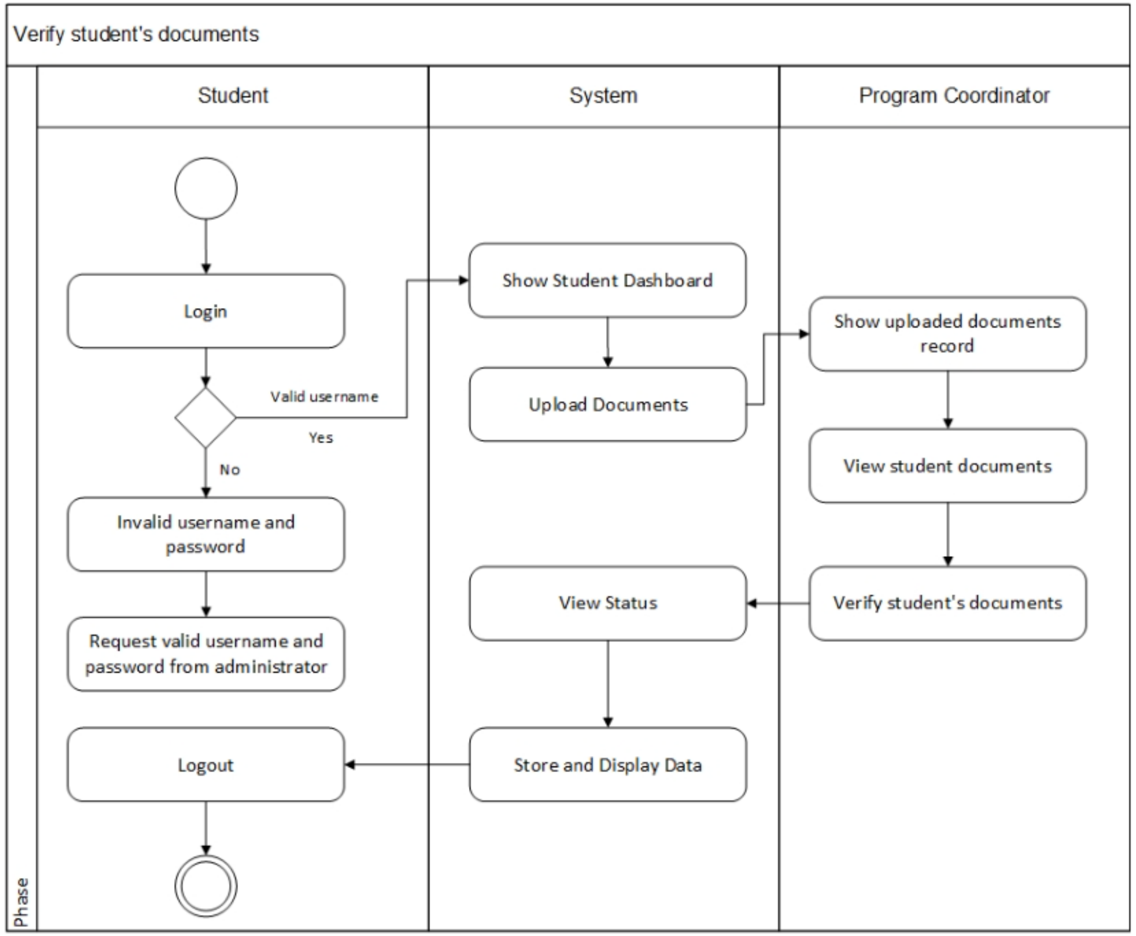


Activity Diagram

- An activity diagram graphically represents a series of actions or flow of control in a system similar to a flowchart or a data flow diagram.

- It also helps to see the negative scenarios of the system.

Activity Diagram


Verify student's documents
Student
System
Program Coordinator
Phase
Login
Valid username
Yes
No
Invalid username and password
Request valid username and password from administrator
Logout
Show Student Dashboard
Upload Documents
View Status
Store and Display Data
Show uploaded documents record
View student documents
Verify student's documents

State-Machine Diagram

- Describe the behavior of system in the form of state.

- It helps visualize the developers what is the state-changed when user-performs a particular task(an event).

- State diagrams require that the system described is composed of a finite number of states.

State-Machine Diagram

- It has three main components:

1. Event

- An event is a significant or noteworthy occurrence.

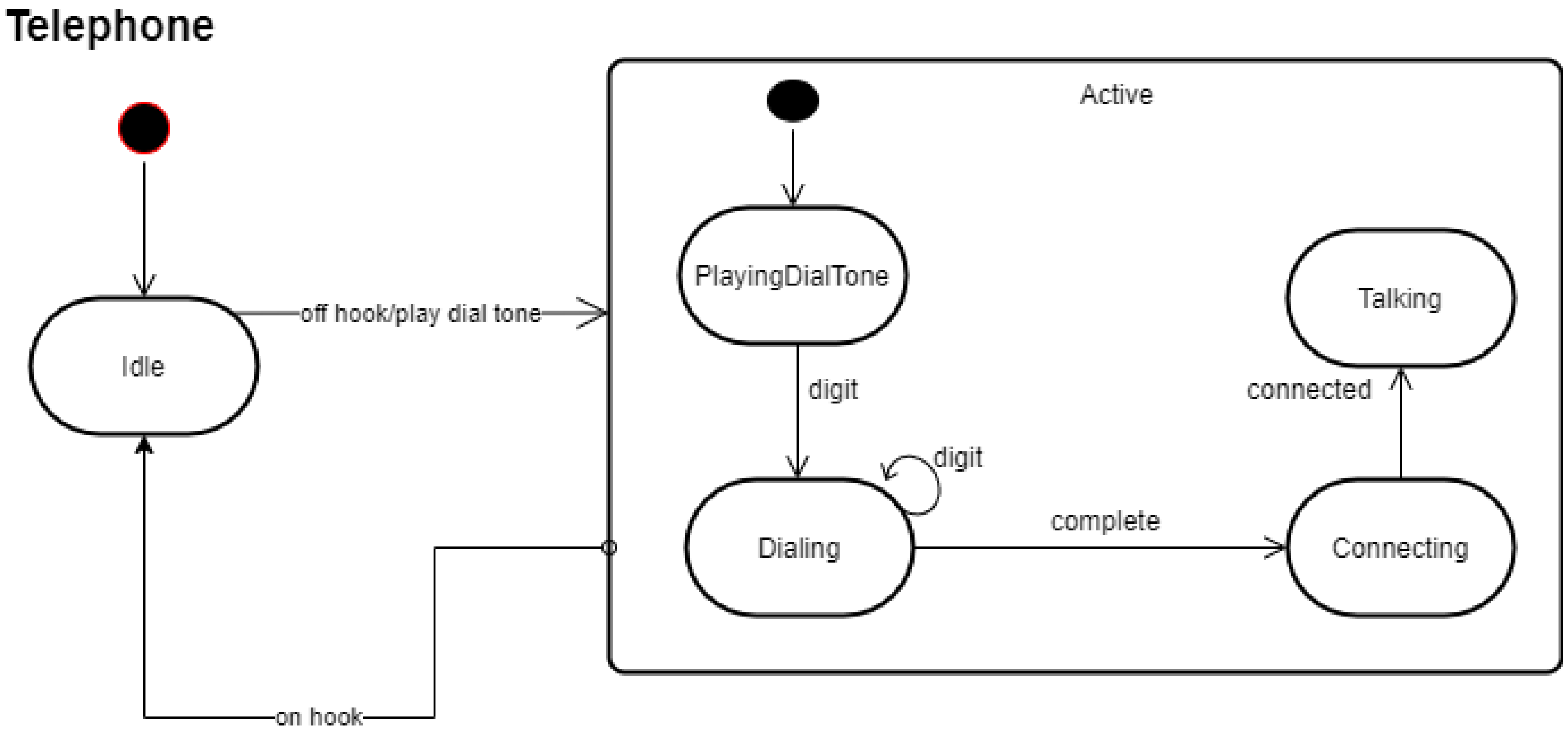
2. State

- A state is the condition of an object at a moment in time between events.

3. Transition

- A transition is a relationship between two states that indicates that when an event occurs, the object moves from the prior state to the subsequent state

State-Machine Diagram



Road-Map

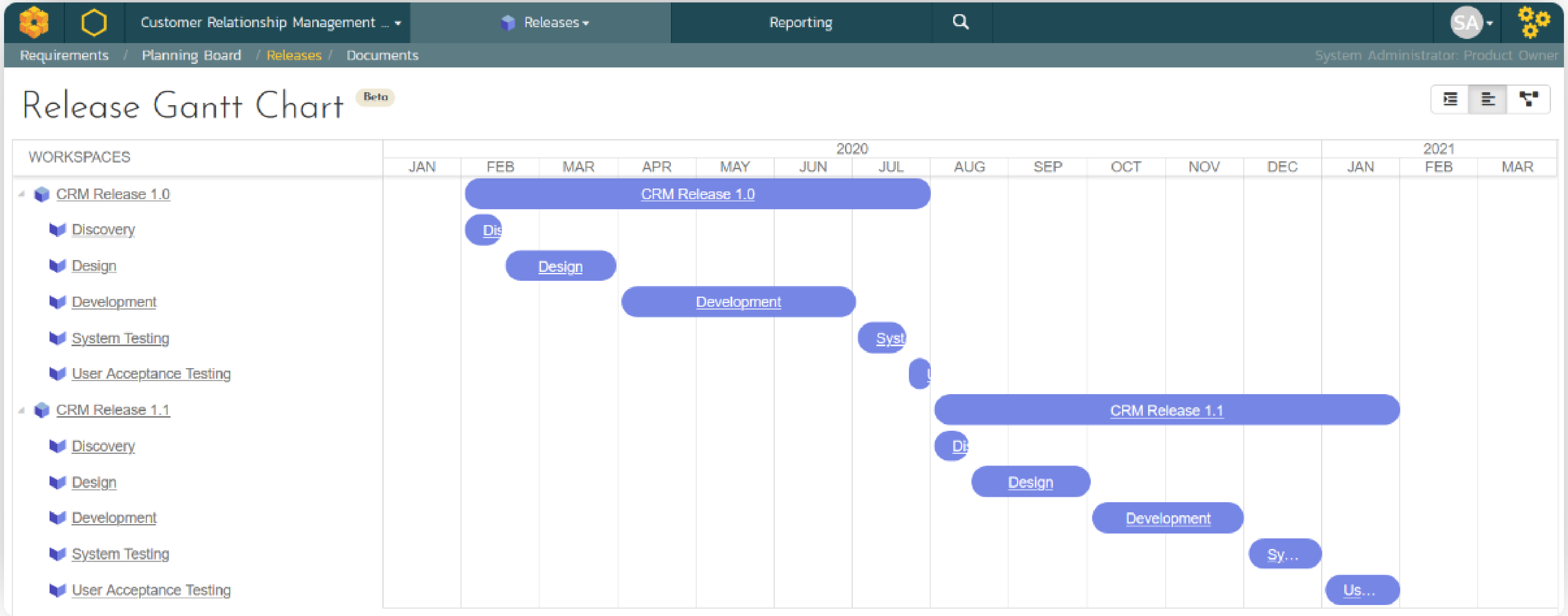
1. Prioritization:

In Agile Methodology we prioritize the requirements based on Must-haves of the systems.

2. Release Plan:

Represent the initial release plan of your system in the form of Gantt Charts.

Road-Map


Customer Relationship Management ...
Releases
Reporting
SA
Requirements / Planning Board / Releases / Documents
System Administrator: Product Owner
Release Gantt Chart
Beta
WORKSPACES
2020
2021
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
JAN
FEB
MAR
CRM Release 1.0
Discovery
Design
Development
System Testing
User Acceptance Testing
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System Testing
User Acceptance Testing
CRM Release 1.0
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Appendix

- **Describe the Version Details**

  What is the version of the document.

  When it was completed.

  Reason for creating/changing the document.

- **Contribution Log**

  Describe the contribution of each member of the team in brief.

  e.g Jim – Project Description.

  Kate – Specific Requirements

  1. Functional
  2. Performance

References

- https://www.nngroup.com/articles/user-story-mapping/

- https://creately.com/blog/diagrams/use-case-diagram-relationships/

- https://stackoverflow.com/questions/52231702/uml-sequence-diagram-auto-numbering-in-visual-paradigm

- https://www.usability.gov/how-to-and-tools/methods/use-cases.html#:~:text=A%20use%20case%20is%20a,when%20that%20goal%20is%20fulfilled.