

# Object Oriented UX Framework for Product Information Architecture

Summer Internship Presentation

Sanket Kulkarni

136330001, M.Des 2013-2015

Guidance

Jyotirmaya Mahapatra & Varun Sharma

Xerox Research Centre India, Bangalore



# About XRCI



The Xerox Research Centre India (XRCI) is Xerox's latest global research location. Inaugurated in March 2010, the centre's mission is to capture opportunities for innovative services and service delivery models for information technology outsourcing businesses.

## Research Areas

- Cloud & Distributed computing
- Crowdsourcing
- Business analytics

# Contents

Problem Area

Goals & Users

Prior Work

Object Oriented Methodology for IA creation

Case Study 1: Talent Acquisition System

Case Study 2: Personalized Messaging Engine (PME)

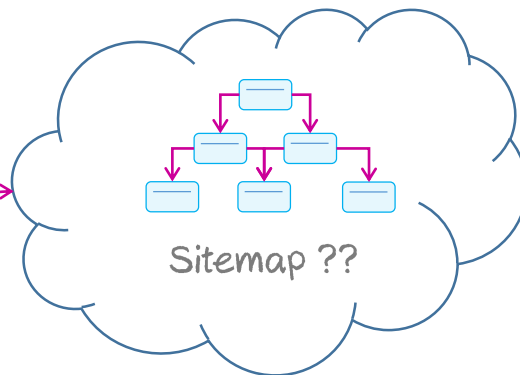
Summary

Learnings





What is Information  
Architecture ?

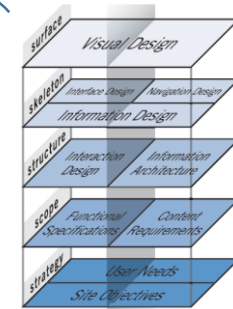




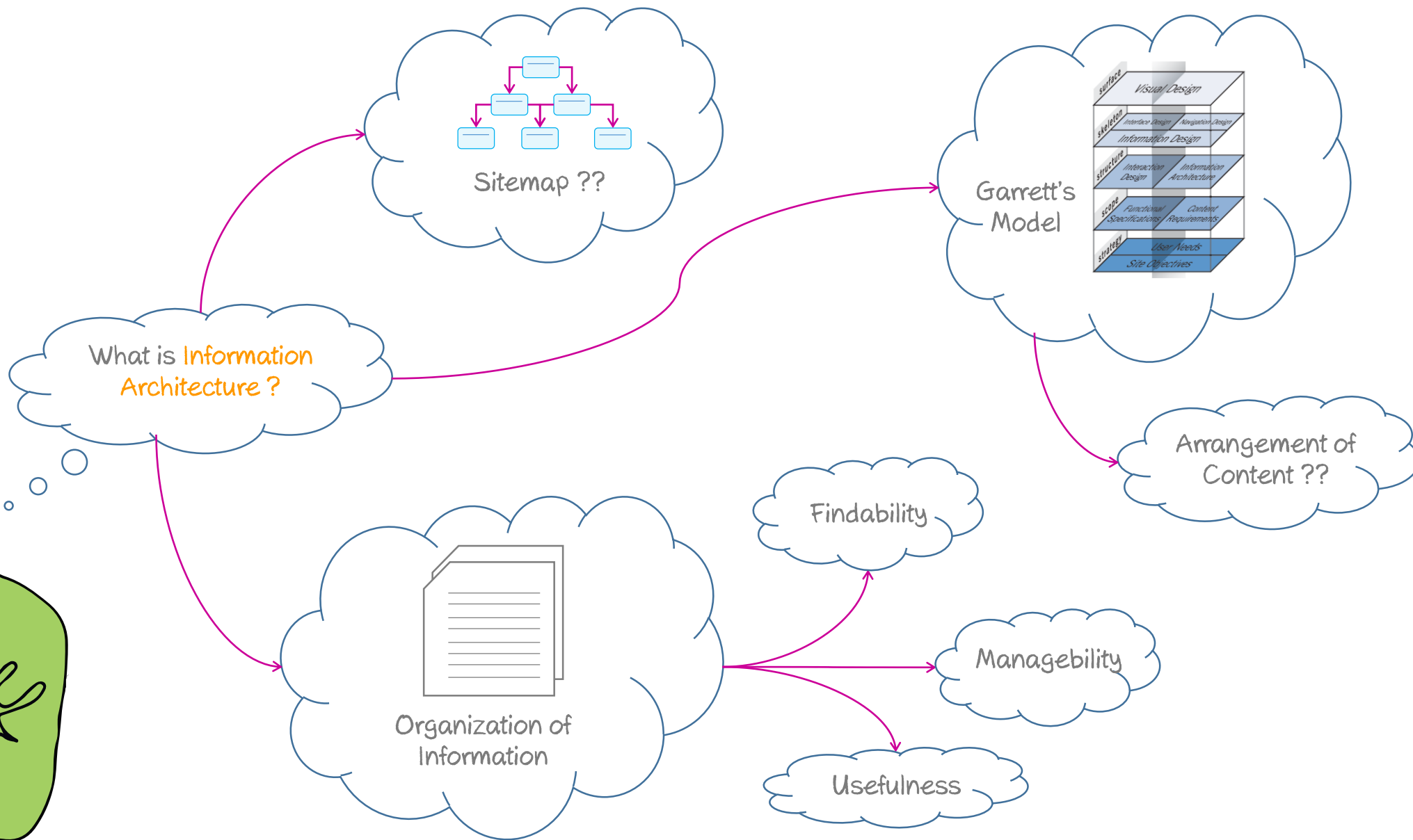
What is Information Architecture ?

Sitemap ??

Garrett's Model



Arrangement of Content ??



# Problem Area

- Ambiguous IA creates **communication gap** between Designer & Development Team
- Difficulty to **translate** actionable requirements
- **Versioning** of product
- Future scalability of **product**
- No defined set of IA deliverables
- **Device dependency**
- Still a **black-box** method



# Goals

To unearth the process of creating Information Architecture [to create a structured approach](#) using

- User centered approach
- Black-box to White-box

To create standardized set of Information Architecture [deliverables](#)

- Easily understandable & accurately communicable

# Target Users

Product Managers

Software Engineers

# Prior Work

Dan Brown's Eight Principles of IA

Website IA and Content Guidelines

- Office of Communications, Princeton University

Building an IA Checklist

- By Sumit Banerjee, IBM

# Eight Principles of IA – Dan Brown

The principle of **objects**

- Discrete & logical chunks of content types
- Common structures that will be used throughout the product

The principle of **front doors**

- Assume at visitors will come through some page other than the home page

The principle of **focused navigation**

- Don't mix unrelated task-flows

The principle of **growth**

- Assume the content you have today is will grow in future

# Website IA and Content Guidelines

## Process of Creating IA

- Who, What, Why
- How
  - Stakeholder Goals
  - User Goals
  - Content Area
  - Organizing
  - Site Map
  - Navigation
  - Labelling
  - Wireframes

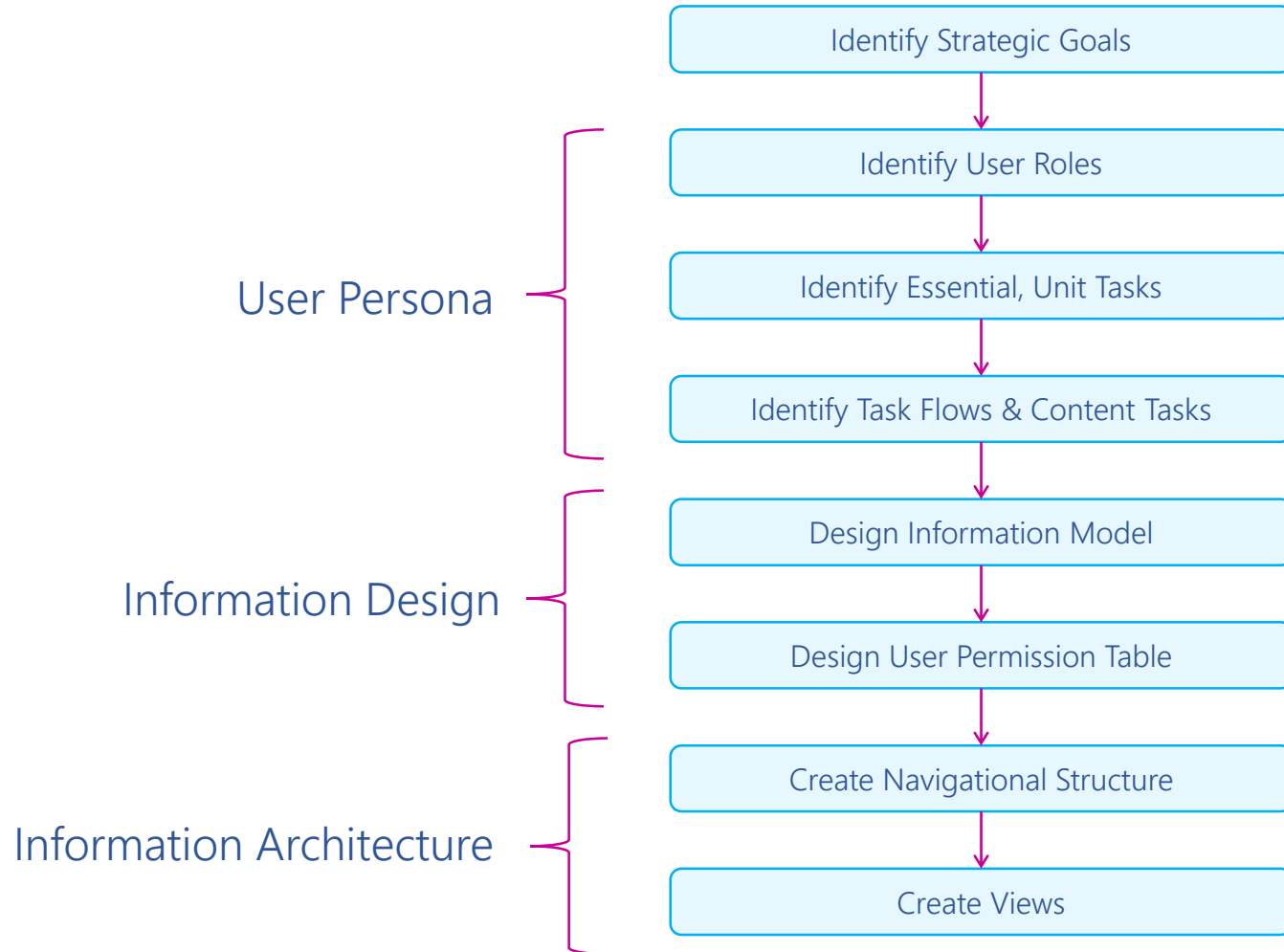
## Cons

- Specific to university websites
- Scenarios like future scalability, user permissions
- Lacks to understand how information is constructed

# Building an IA Checklist

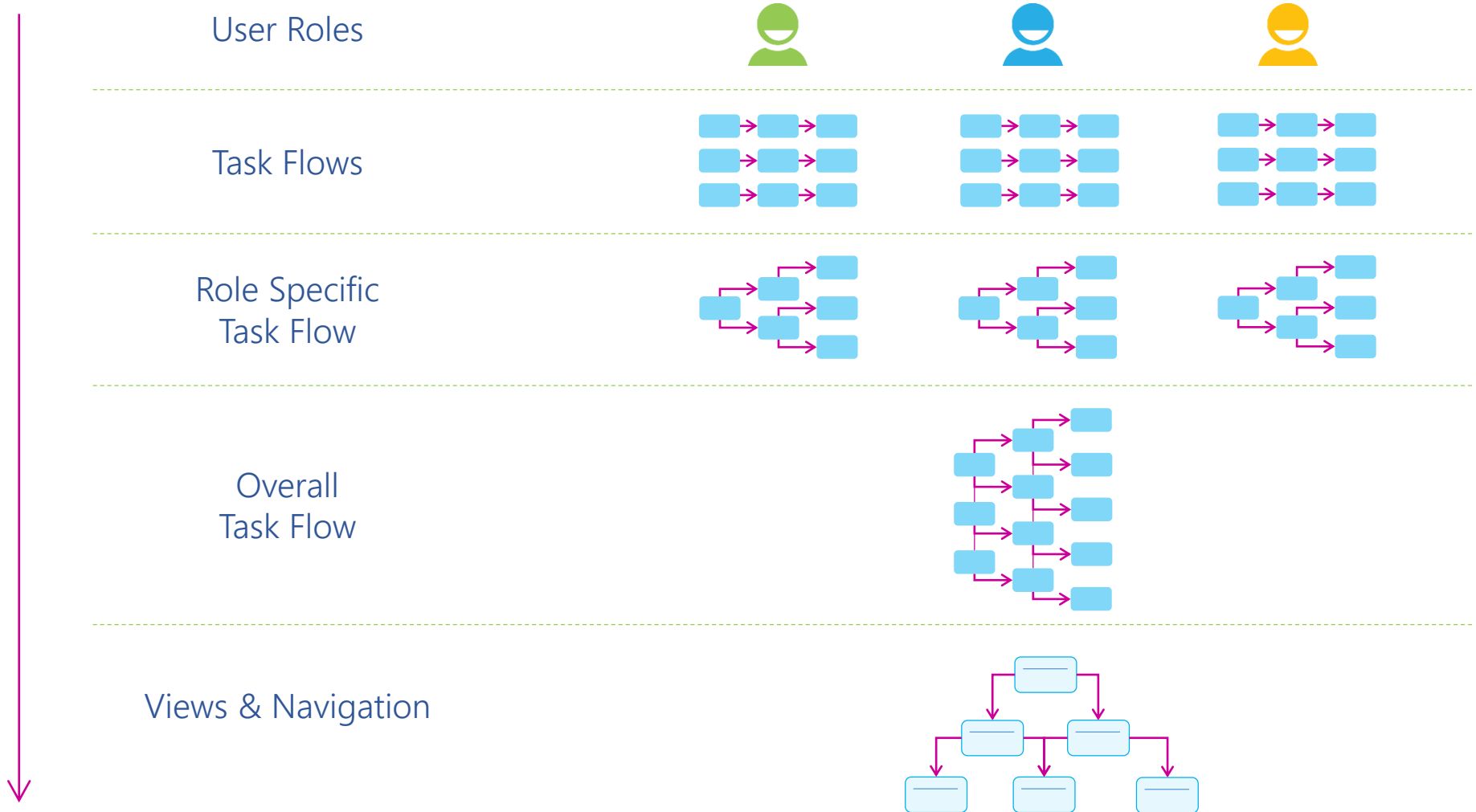
- Infrastructural Architecture
  - Information [Consumption](#)
  - Information [Generation](#)
- User Interface Architecture
  - Information [Access](#)
  - Information [Governance](#)
  - Information [Quality of Service](#)

# Proposed IA Creation Method



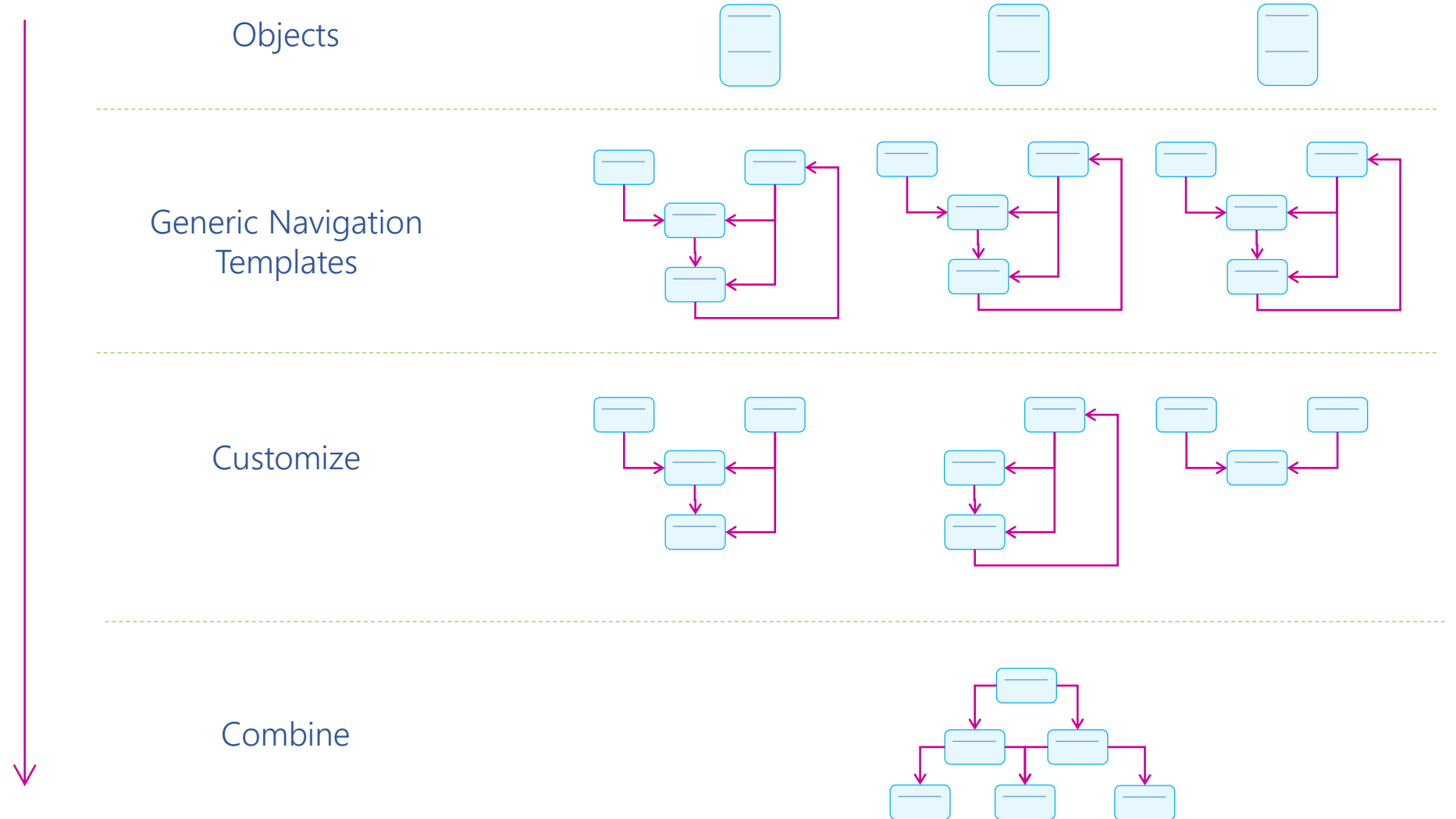
# Approaches – Navigational Structure Creation

Bottom-up



# Information Architecture Approaches

Top-down



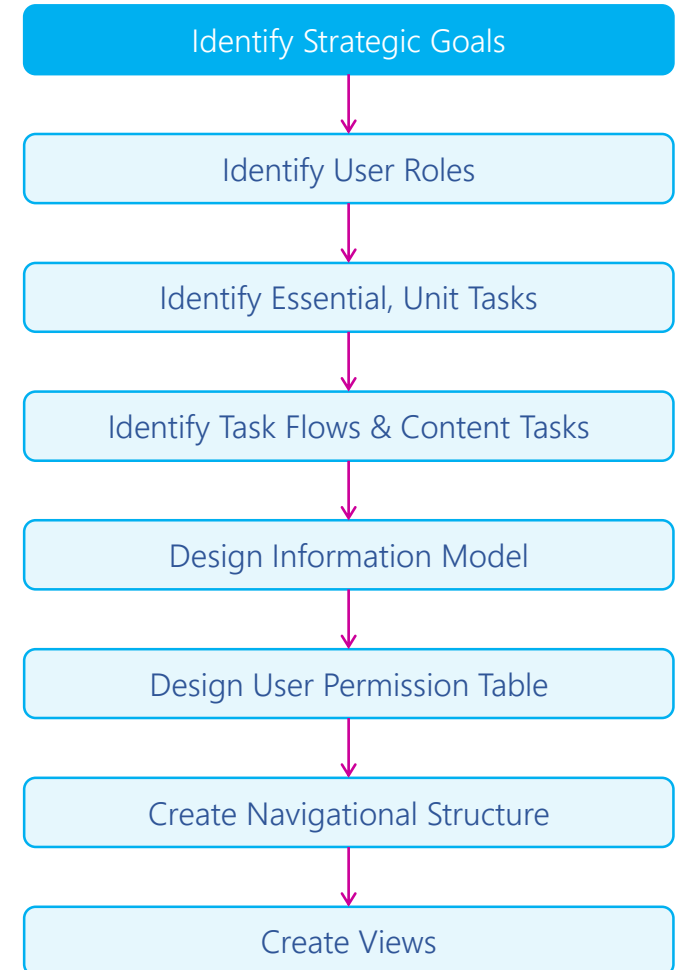


# IA Creation Method

# Identify Strategic Goals

Specify stakeholder goals of product.

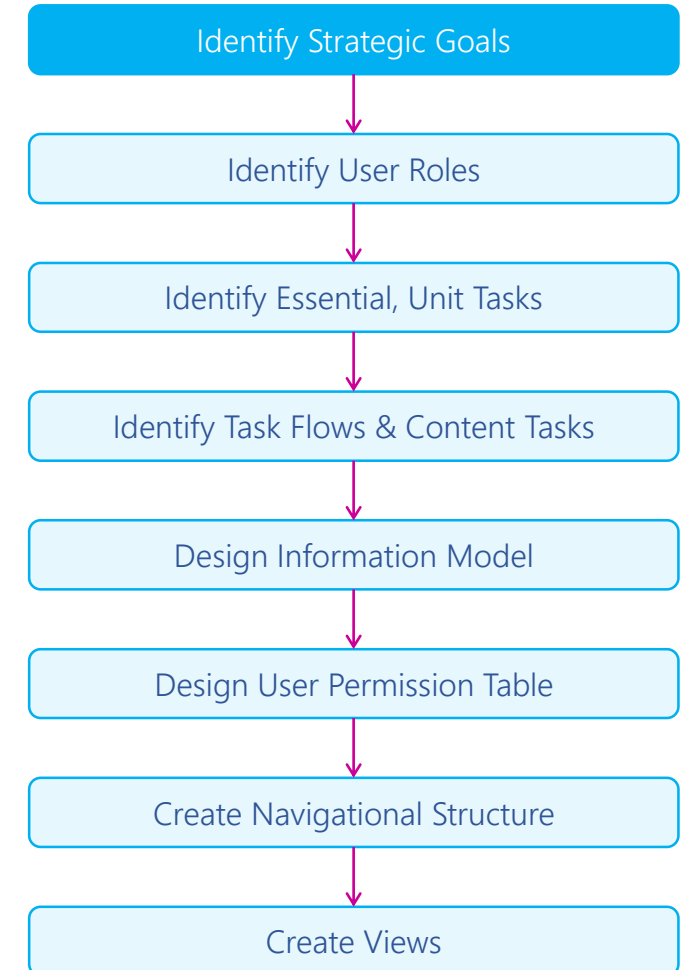
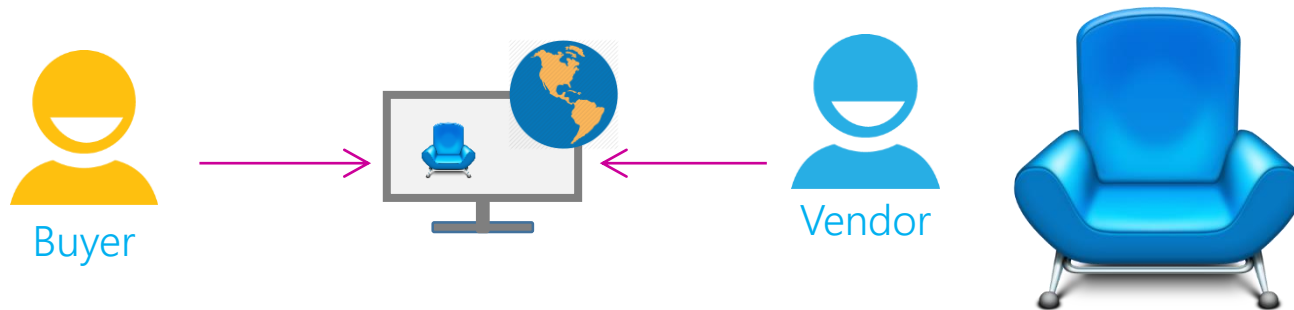
- What are business goals behind building this product ?
- What are the explicit and implicit user needs?



# Define Strategic Goals

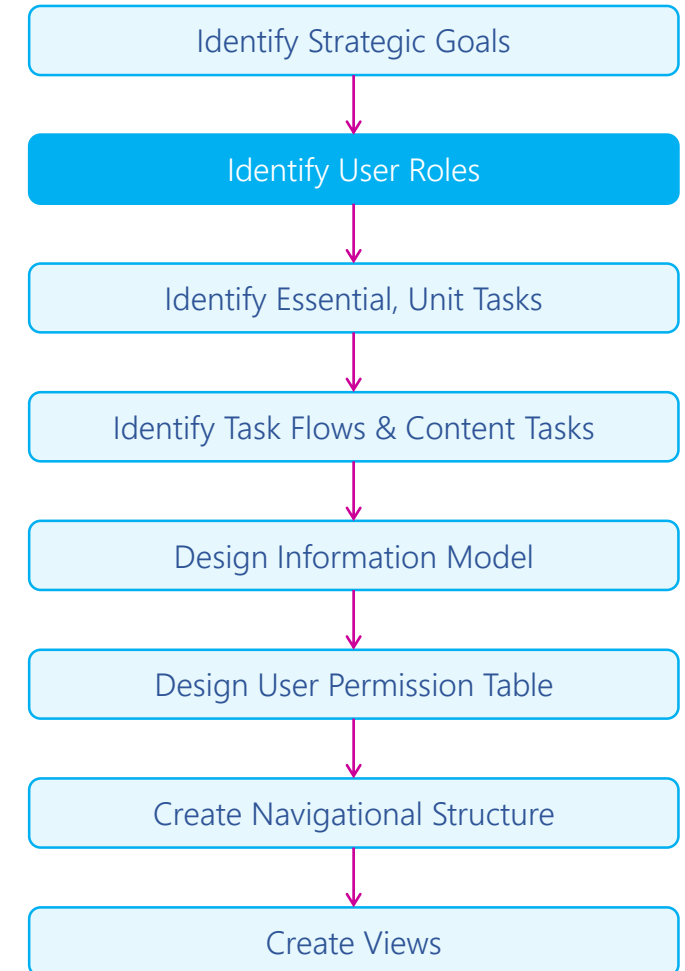
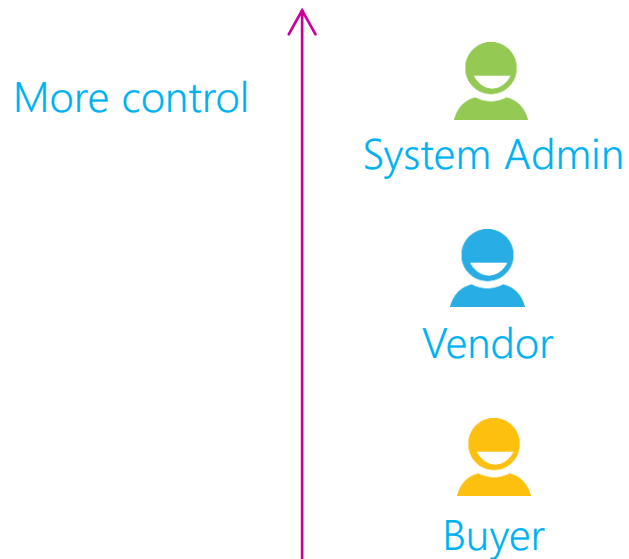
Specify stakeholder goals of product.

- What are business goals behind building this product ?
- What are the explicit and implicit user needs?
- E.g. Suppose we want to build a website for online furniture shopping where people can buy furniture online and vendors can offer furniture to buy.



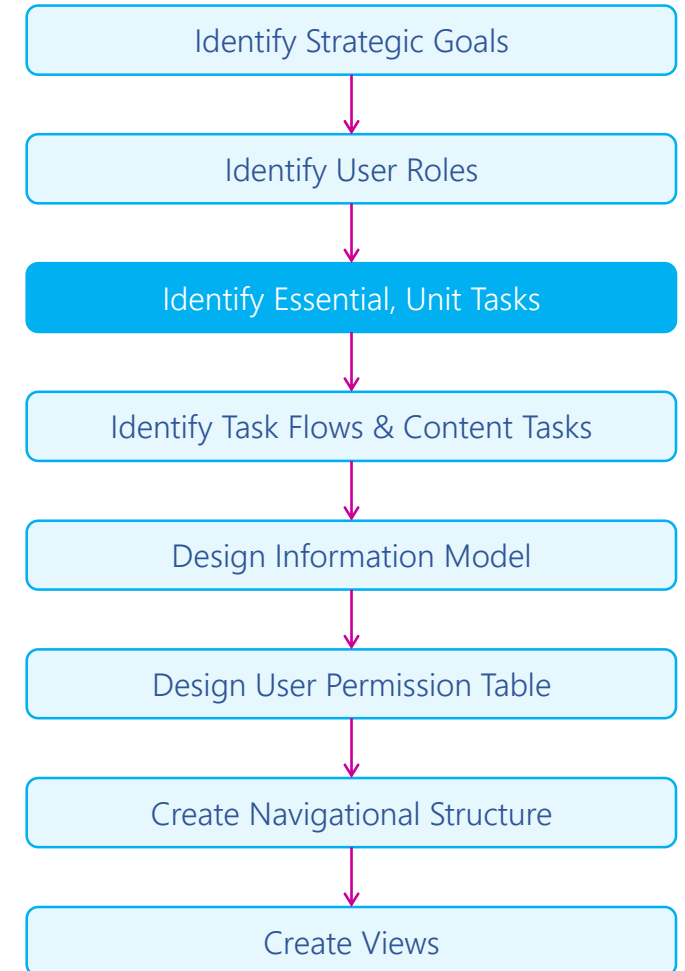
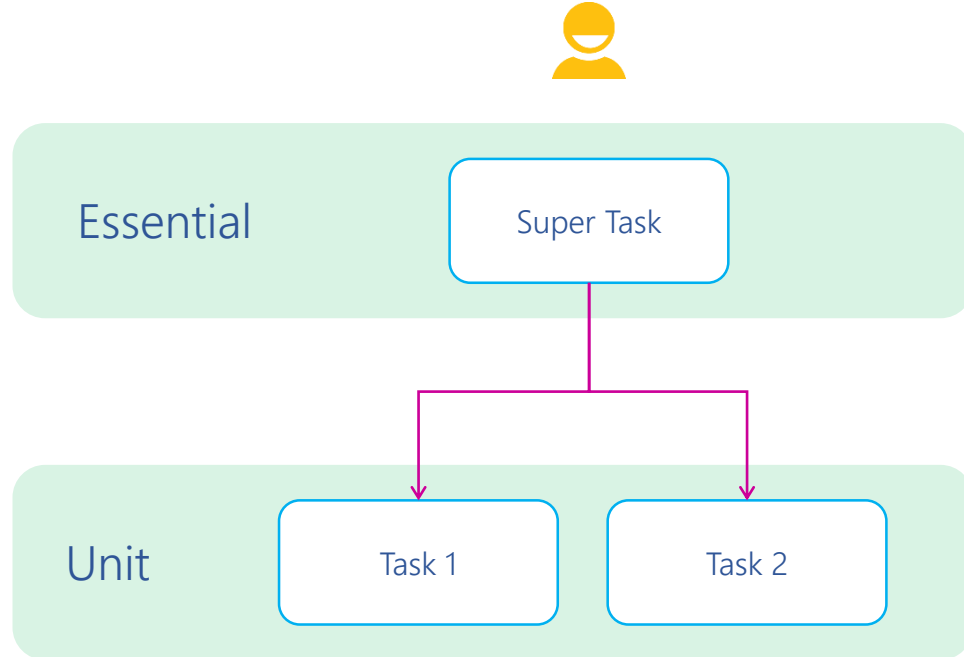
# Identify User Roles

- Identify different roles of user for the product.
- User vs User Role.
  - User is actual person who is going to use the product.
  - Roles are related to type of responsibilities of user in the system.
  - A single user can have multiple roles.



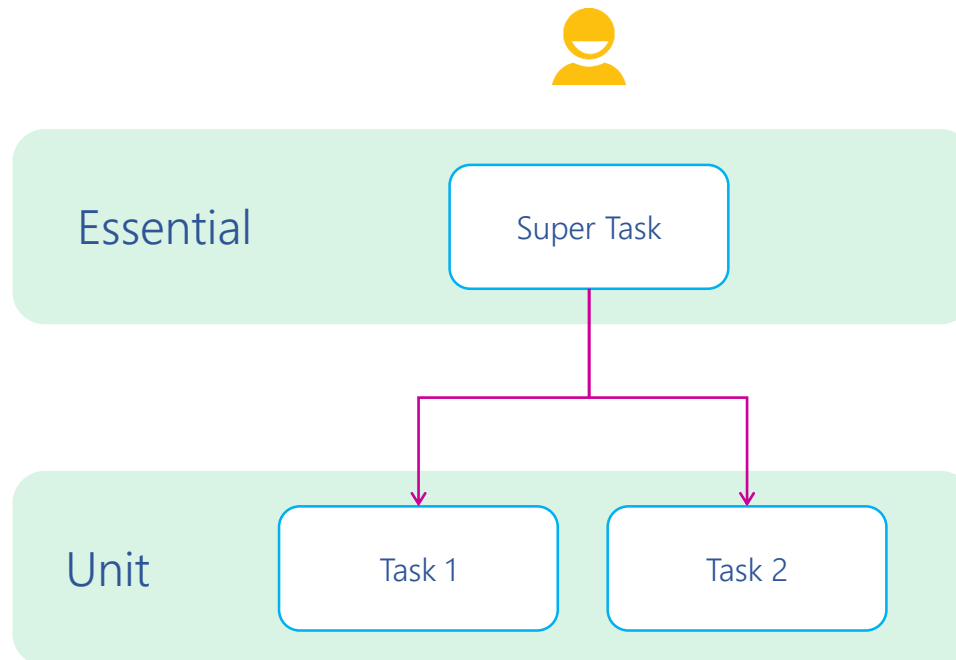
# Essential & Unit Tasks

- For each user role, find out essential & unit tasks.



# Essential & Unit Tasks

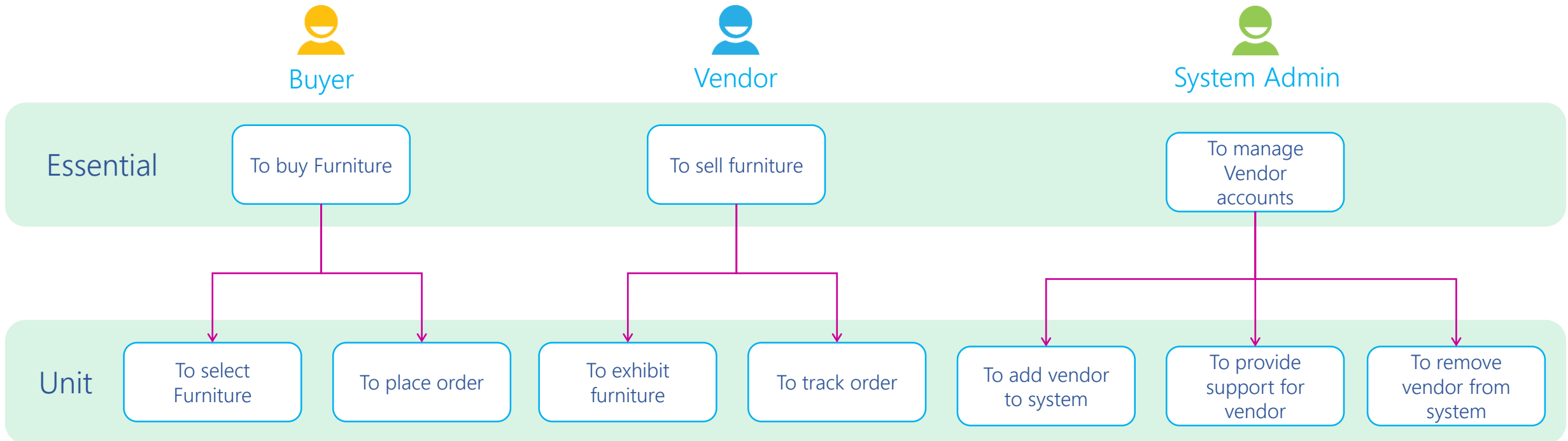
- For each user role, find out essential & unit tasks.



- High-level purpose of user to visit the product.
  - Generally very less in number.
  - Defines his role e.g. to buy furniture
- 
- Step by step breakdown of essential task
  - Each unit task can become functionality of product

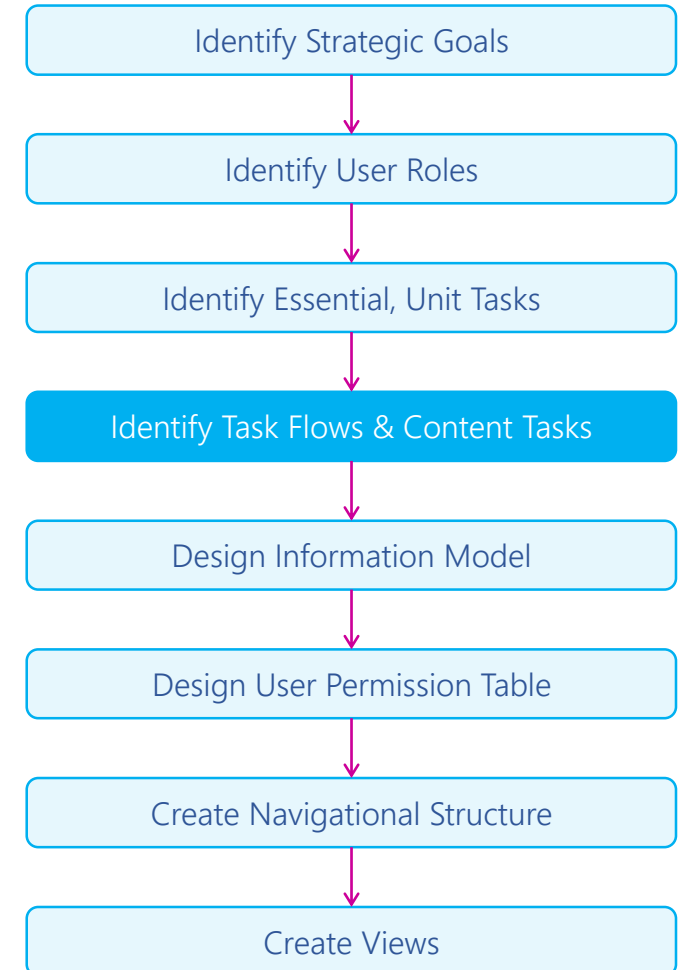
# Essential & Unit tasks

- For online furniture shopping example,



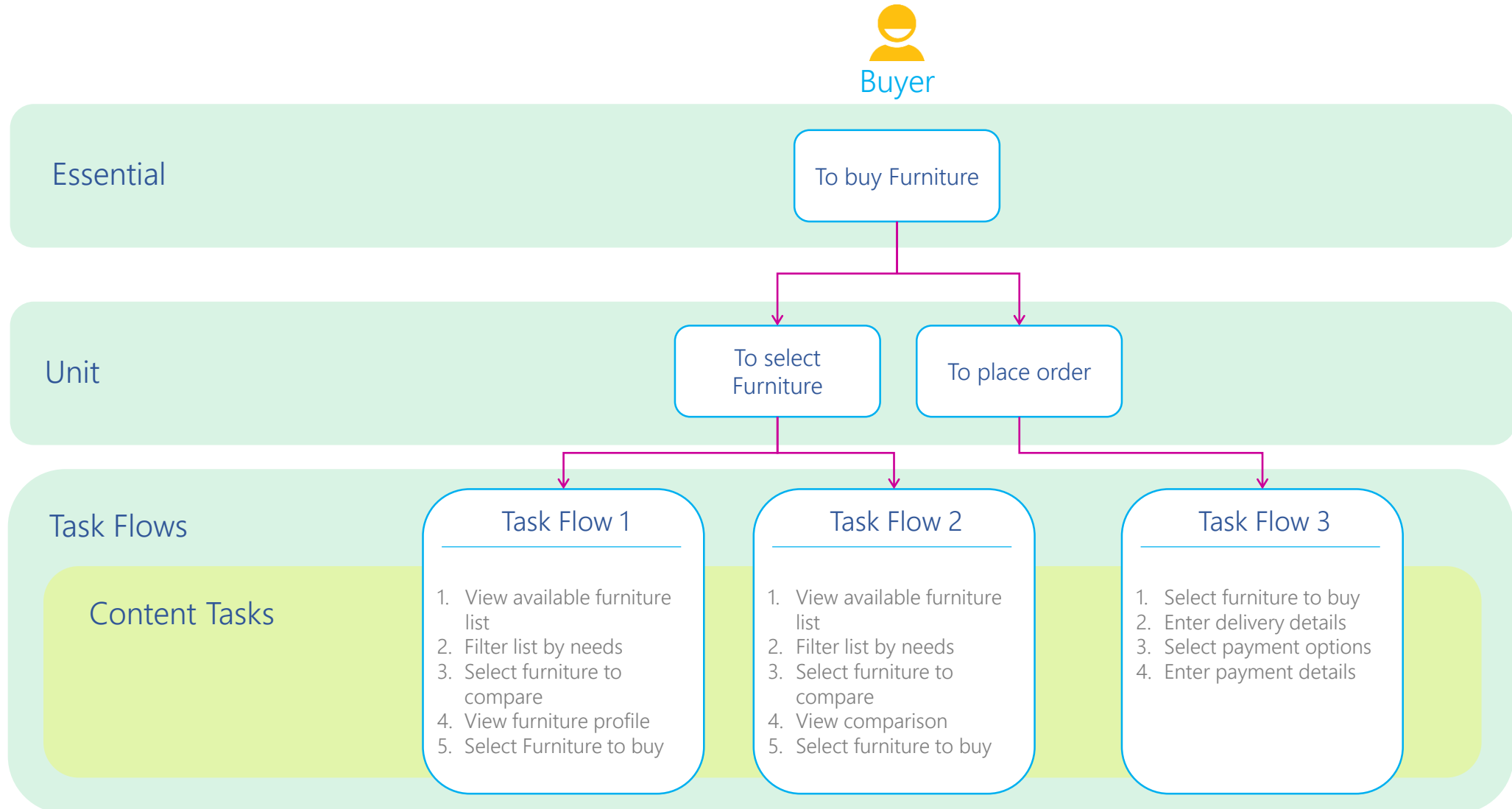
# Task Flows & Content Tasks

- Task Flows
  - Logical sequence of small tasks to complete a Unit Task
  - Each corresponds to a [single user story](#)
  - Represents [ways to perform Unit task](#).
  - Exists at least one Task Flow per Unit Task
- Content Tasks
  - [Atomic](#) task
  - Reflect [actual user actions](#)





# Task Flows & Content Tasks



# Task Flows & Content Tasks



Vendor

Essential

To sell furniture

Unit

To exhibit  
furniture

To track order

Task Flows

Task Flow 1

1. Login into account
2. See my Furniture list
3. Select the furniture from list to edit
4. Update furniture profile
5. Preview furniture profile
6. Save details

Task Flow 2

1. Login into account
2. Select new furniture to add
3. Fill furniture details
4. Upload photos of furniture
5. Preview profile
6. Save furniture profile

Task Flow 3

1. Login into account
2. See my Furniture list
3. Select the furniture from list to delete
4. Confirm deletion

Task Flow 4

1. To login into account
2. To see list of new orders
3. To select the order to see
4. To view order details
5. To print Delivery address

Task Flow 5

1. To login into account
2. To see list of incomplete orders
3. To select the order to update status of order
4. To update status of order as "Delivered"

Content  
Tasks

# Task Flows & Content Tasks



System Admin

Essential

To manage  
Vendor  
accounts

Unit

To add vendor  
to system

To provide  
support for  
vendor

To remove  
vendor from  
system

Task Flows

Content  
Tasks

Task Flow 1

1. Login into account
2. Select a vendor to add
3. Fill vendor details
4. Create vendor profile

Task Flow 2

1. Login into account
2. See added list of vendor
3. Search vendor by name
4. Select vendor to edit profile
5. Update vendor profile details

Task Flow 3

1. Login into account
2. See added list of vendor
3. Search vendor by name
4. Select vendor to add furniture
5. Fill furniture details
6. Upload furniture photos
7. Preview furniture profile
8. Save furniture profile

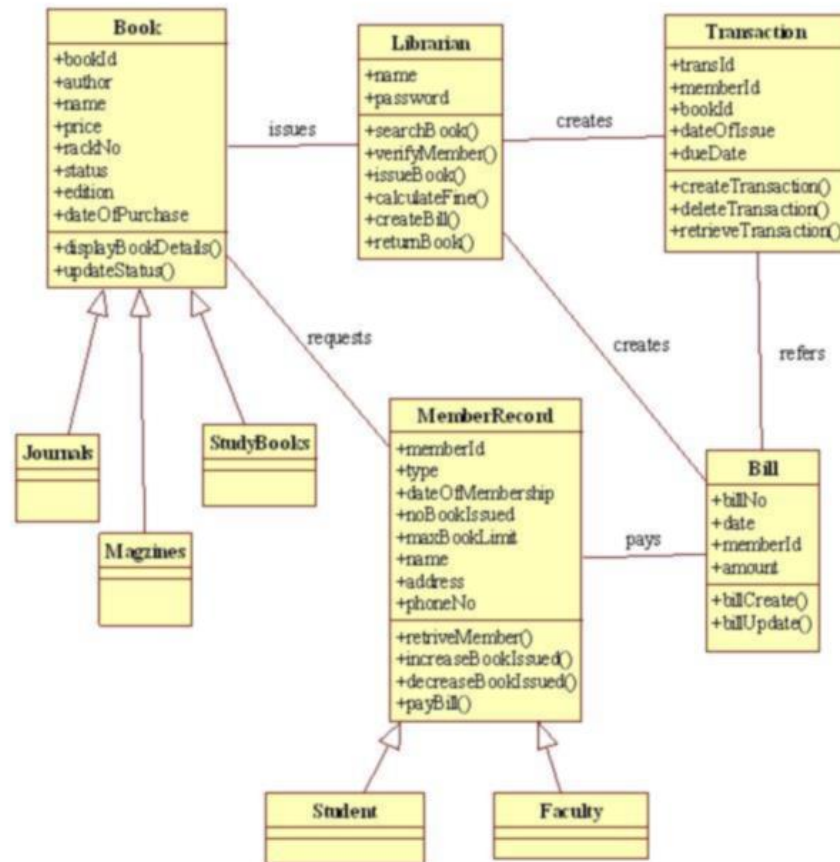
Task Flow 4

1. Login into account
2. See a list of added vendors
3. Search vendor by name
4. Select vendor to delete
5. Confirm deletion of vendor

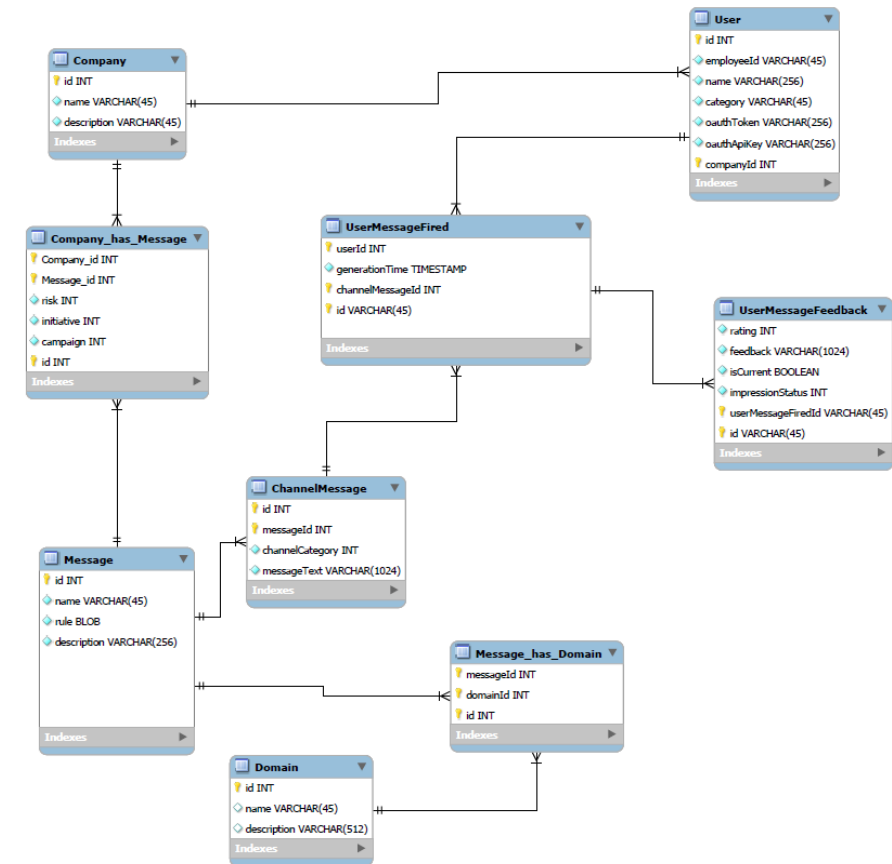
# Information Design

# Existing Information Models

## Class Diagram

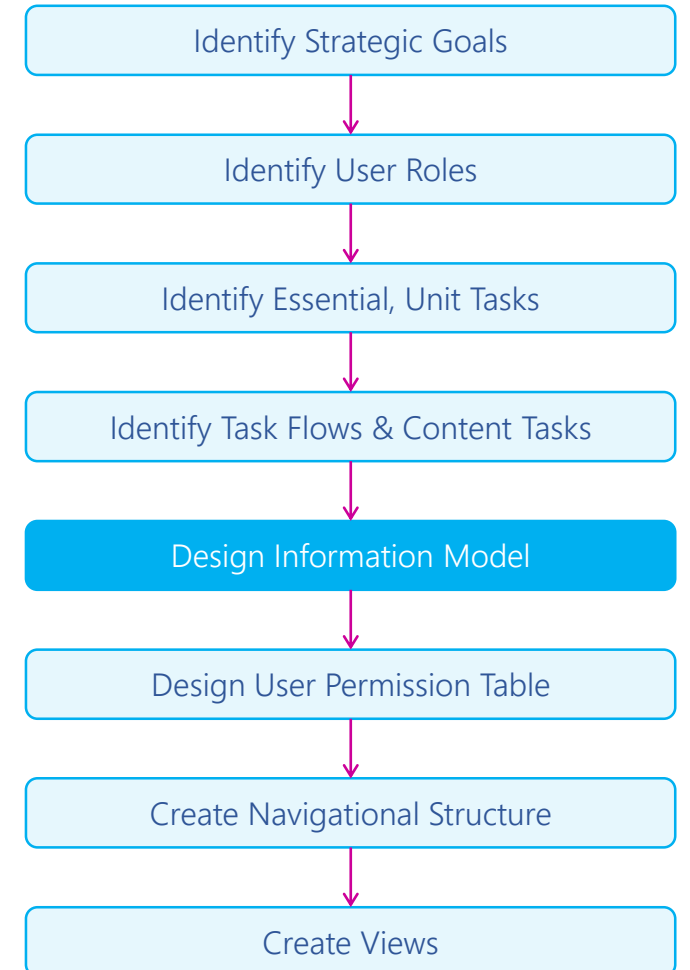


## Entity-Relationship Model



# Information Model

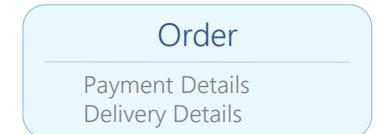
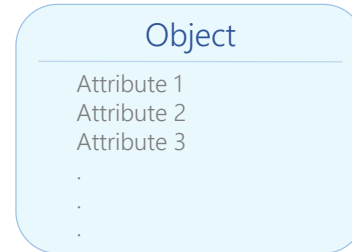
- Identify Objects
  - real-world things e.g. furniture, book
  - self-contained module
- Simplest method to identify objects, is to find subjects in content level tasks.
- E.g. One of the content task for buyer is "To search the **furniture**".



# Information Model

- Identify Attributes for each of them
  - Each object has set of attributes which define properties of object and [help in maintaining state of object](#)

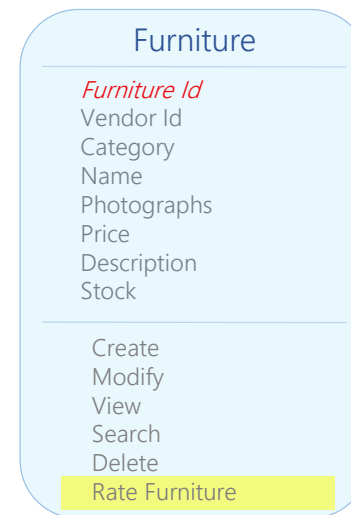
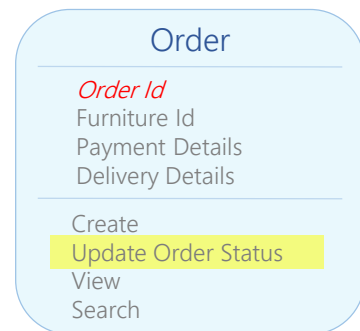
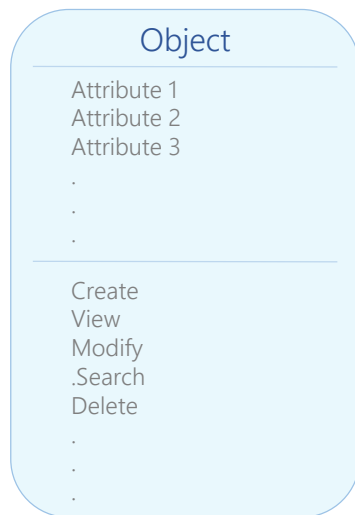
E.g. Each Furniture object will have price as its attribute,  
Each Vendor will have name and contact details



# Information Model

- Identify Actions for each object
  - Basic actions
    - Create , View, Modify, Search, Delete

- From the list of content level tasks
- Business logic related actions





# Information Model

- Identify how different instances of different objects are related
  - Multiplicity



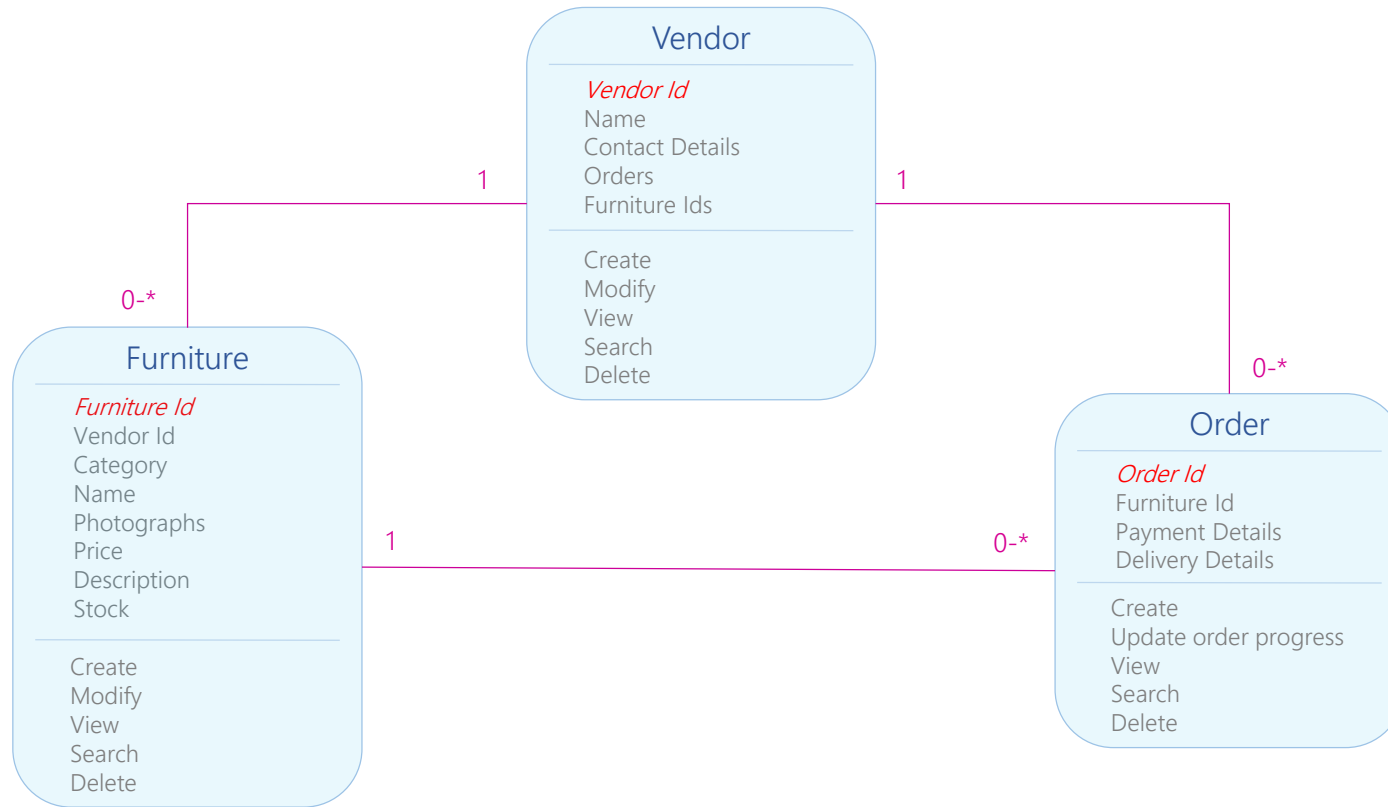
Association



Aggregation (has-a relationship)



# Information Model

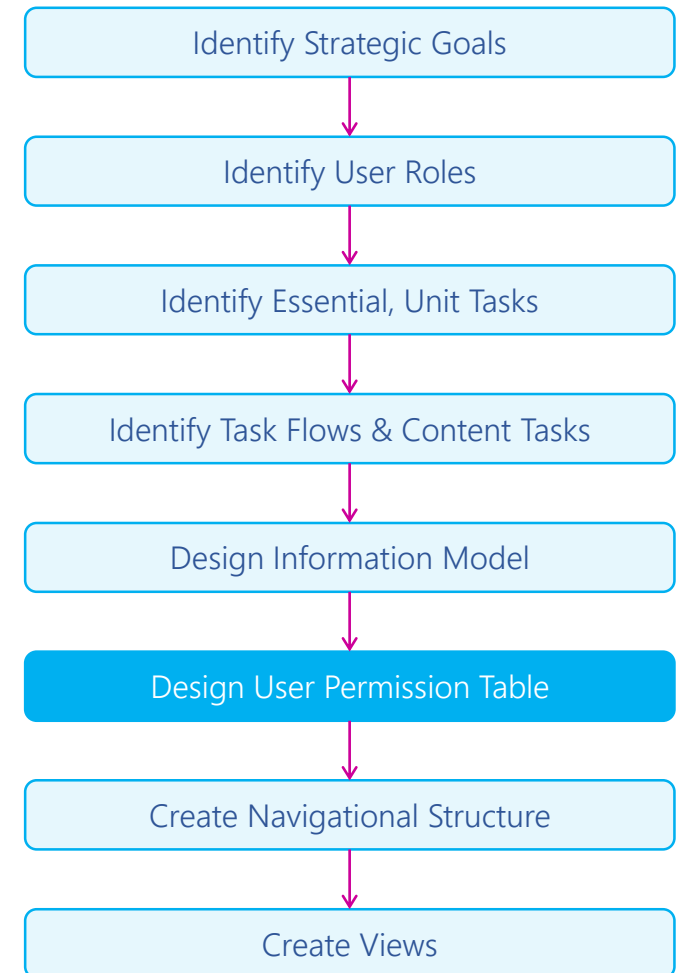


# User Permissions Table

- Decide permissions for each object's each action for each user role.

Template of User Permission Table

Object	Action	User 1	User 2	User 3
Object 1	Action 1	✓		
	Action 2	✓	✓	
	Action 3			✓
Object 2	Action 1	✓		
	Action 2		✓	
	Action 3	✓		

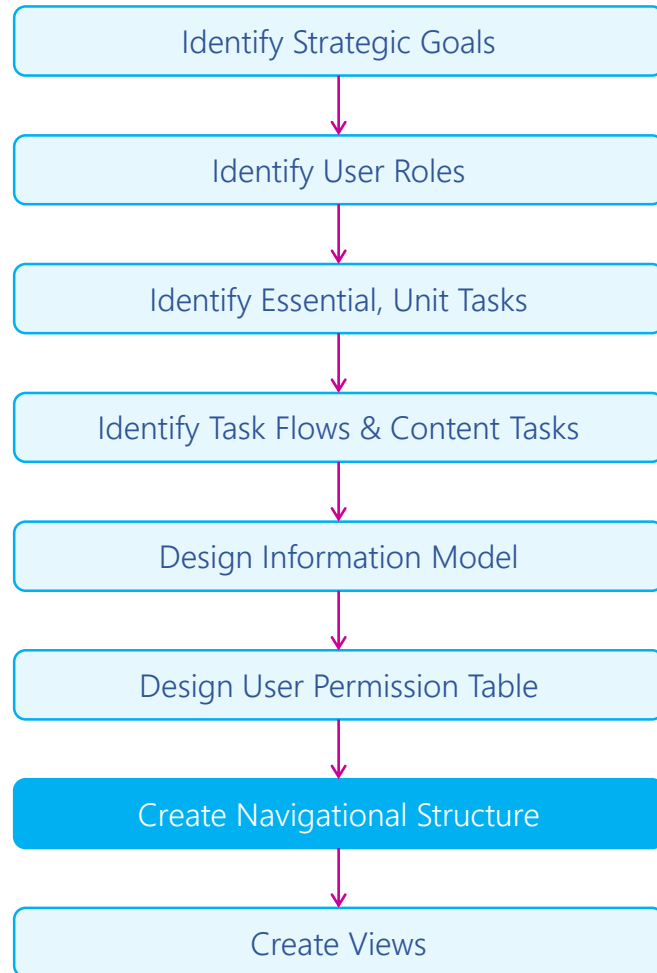


# User Permissions Table

- Decide permissions for each object's each action for each user role.

For Online Furniture Shopping Example

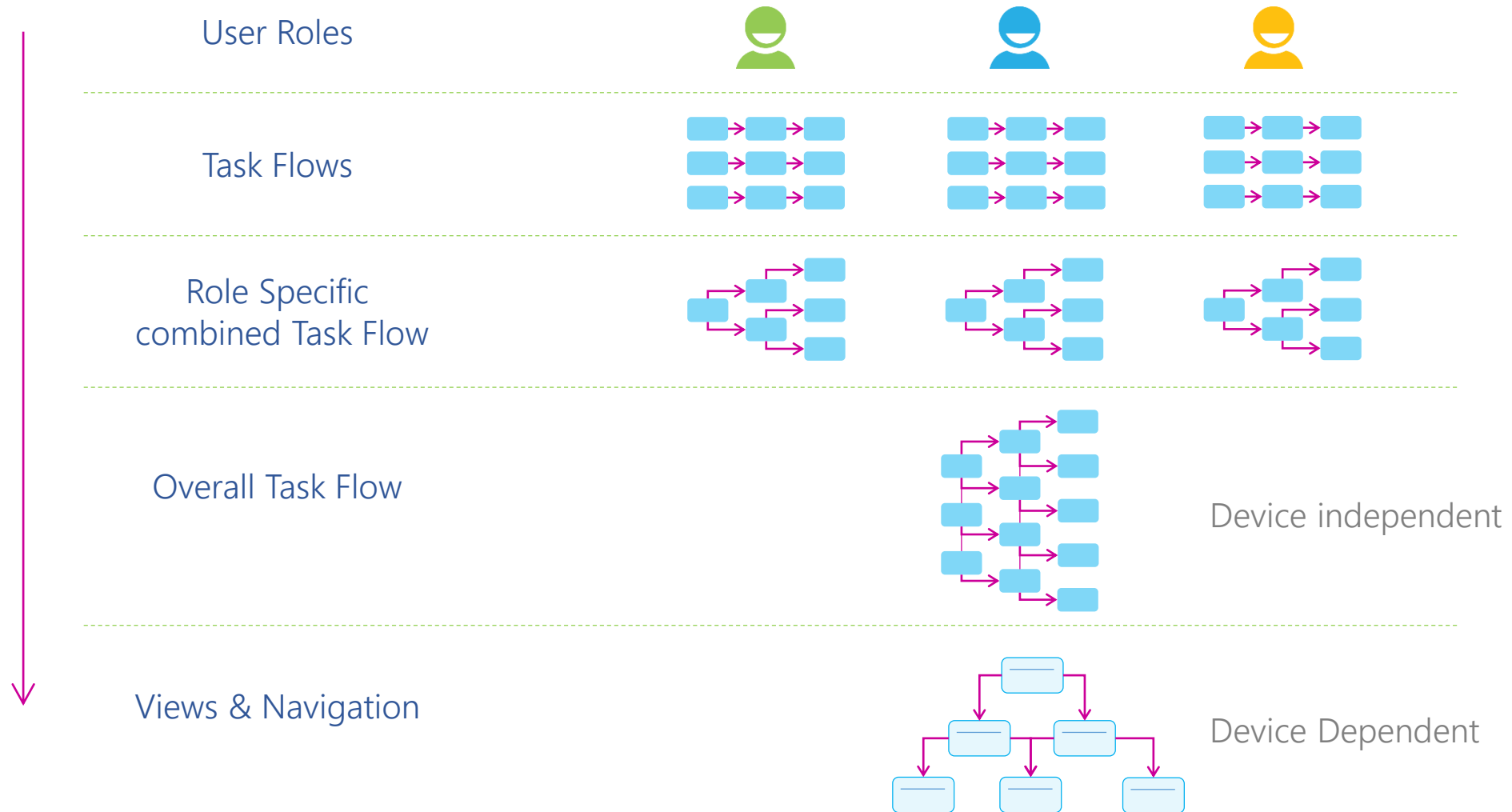
Object	Action	Buyer	Vendor	System Admin
Furniture	Create		✓	✓
	View	✓	✓	✓
	Search	✓	✓	✓
	Modify		✓	✓
	Delete		✓	✓
Vendor	Create			✓
	View			✓
	Search			✓
	Modify			✓
	Delete			✓
Order	Create	✓		
	View		✓	
	Search		✓	
	Update Order Progress		✓	



# Bottom-Up Approach

IA Creation

# Process



# Combining Task Flows



## Task Flow 1

1. View available furniture list
2. Filter list by needs
3. Select furniture to compare
4. View furniture profile
5. Select Furniture to buy

## Task Flow 1



# Combining Task Flows

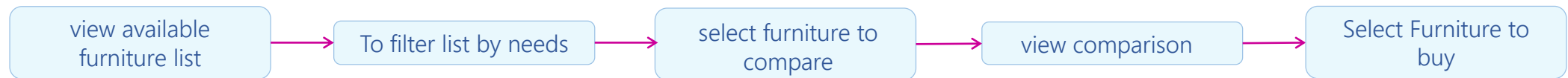


Buyer

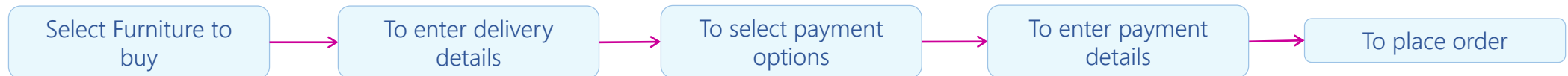
## Task Flow 1



## Task Flow 2



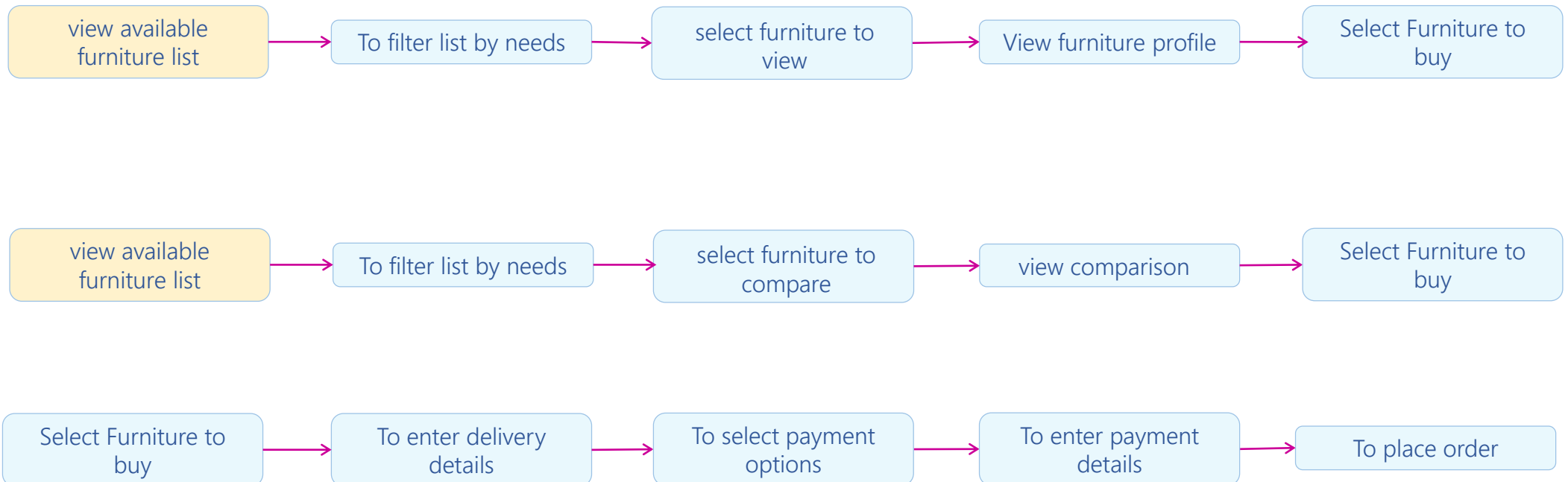
## Task Flow 3





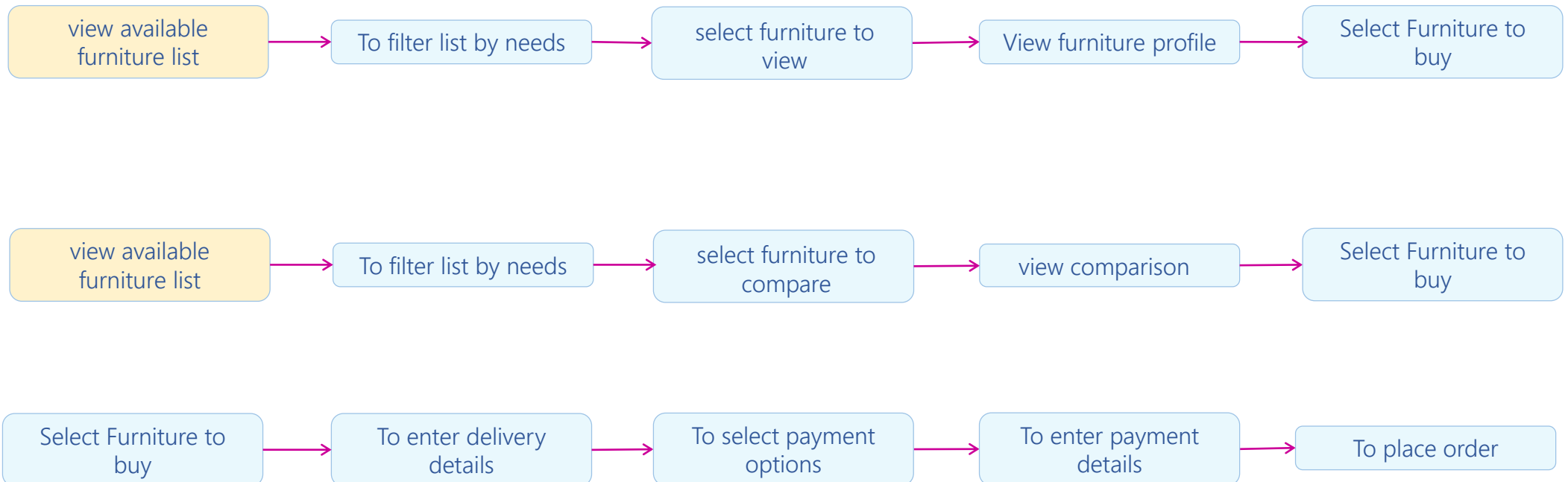
# Combining Task Flows

- Combine common tasks



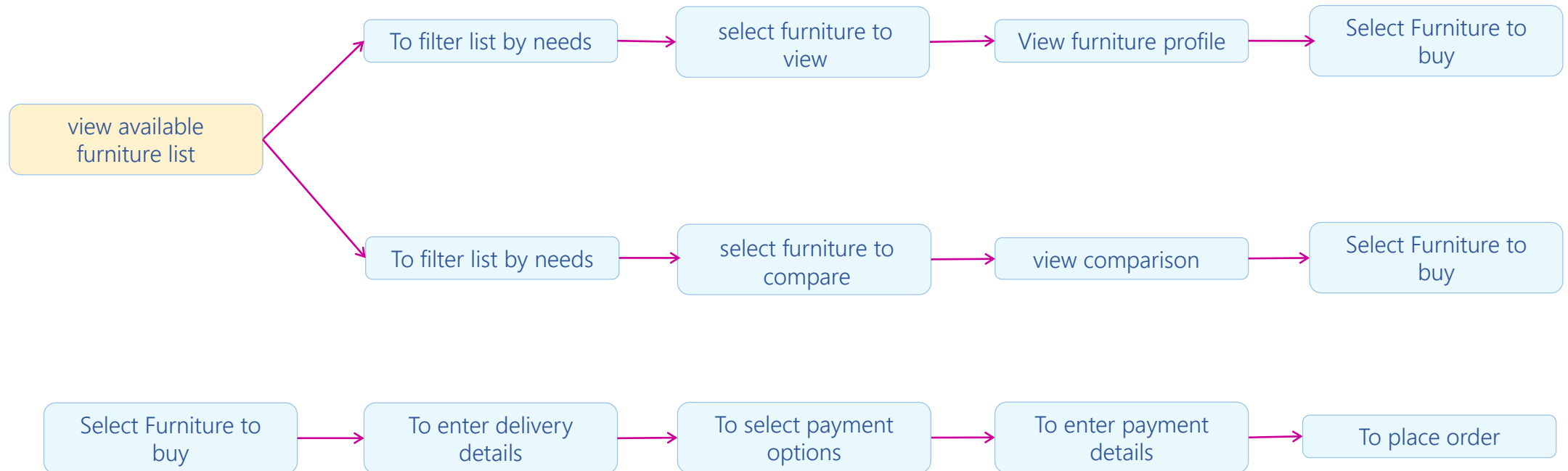
# Combining Task Flows

- Combine same tasks



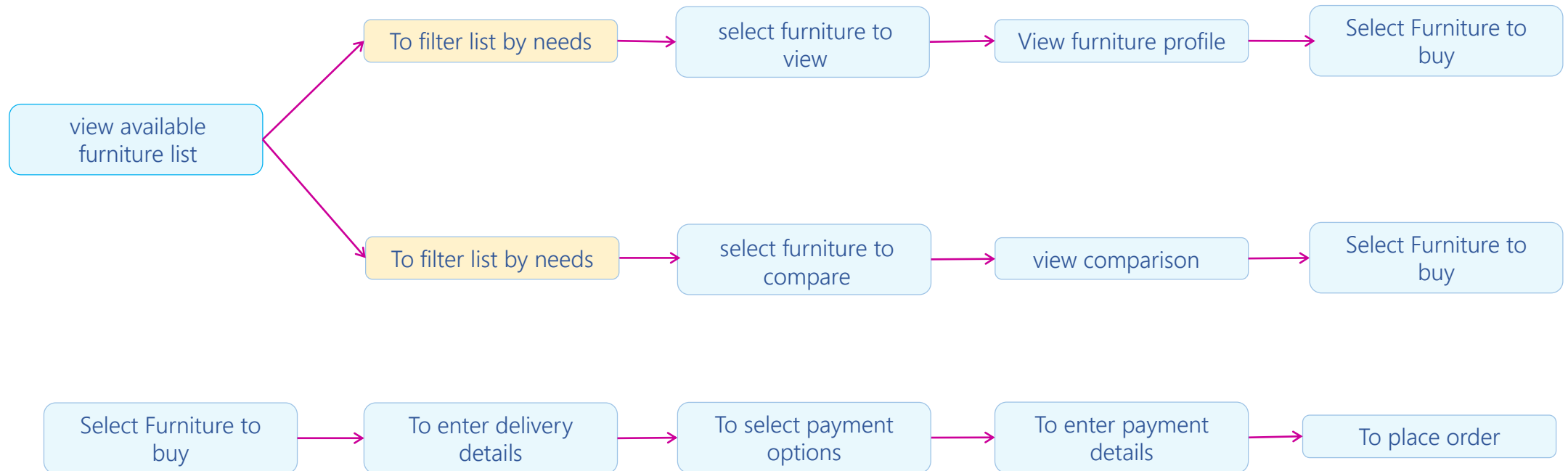
# Combining Task Flows

- Combine same tasks



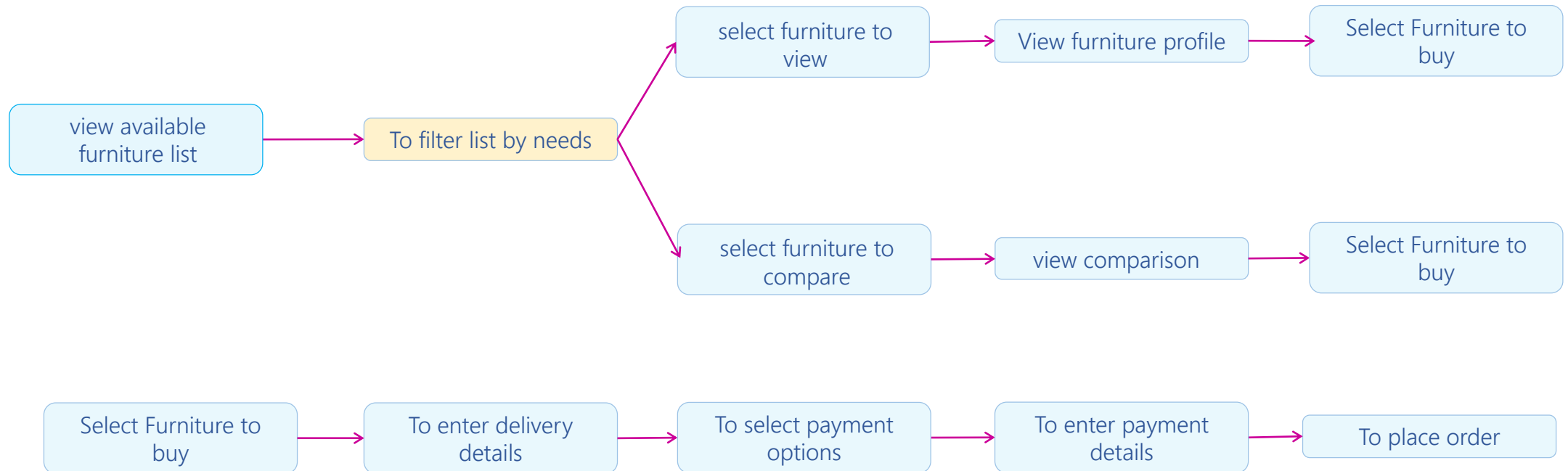
# Combining Task Flows

- Combine same tasks



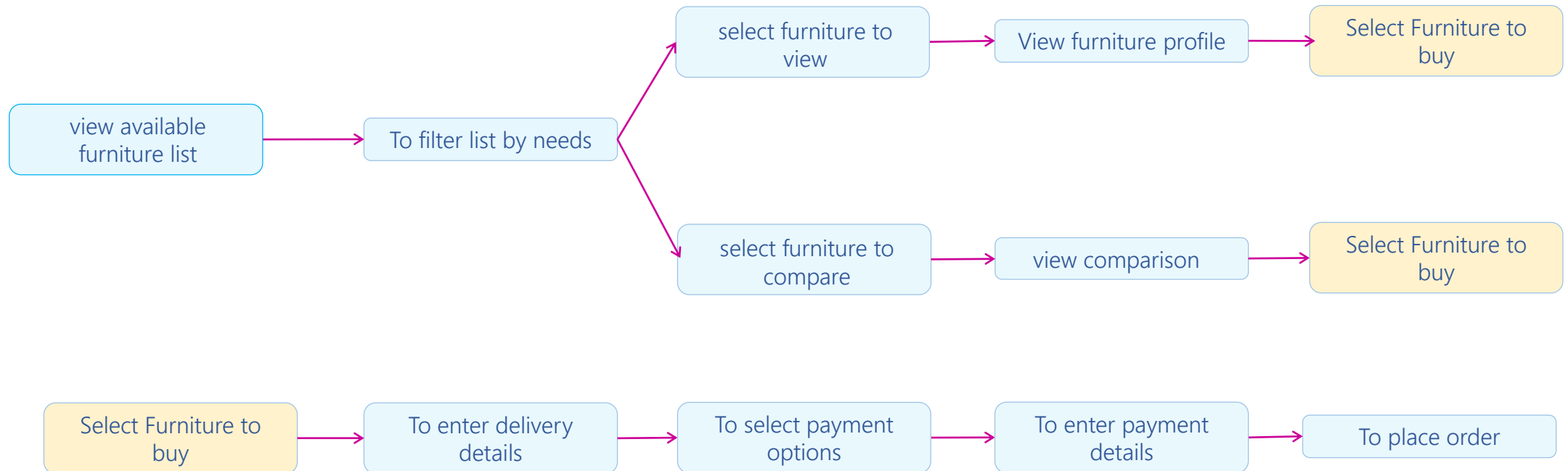
# Combining Task Flows

- Combine same tasks



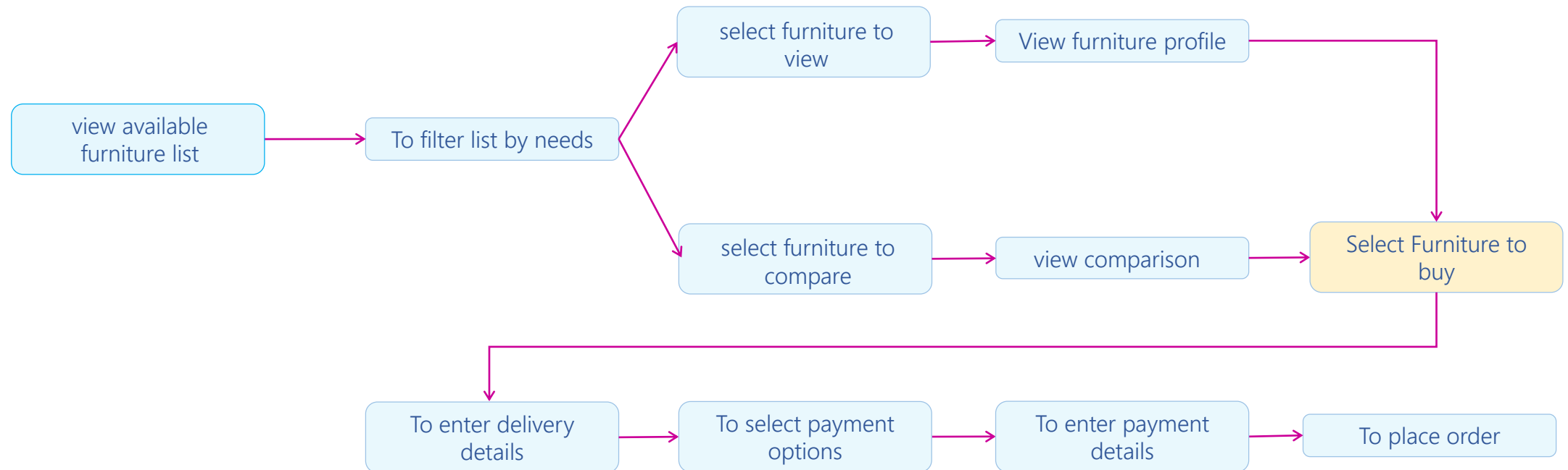
# Combining Task Flows

- Combine same tasks



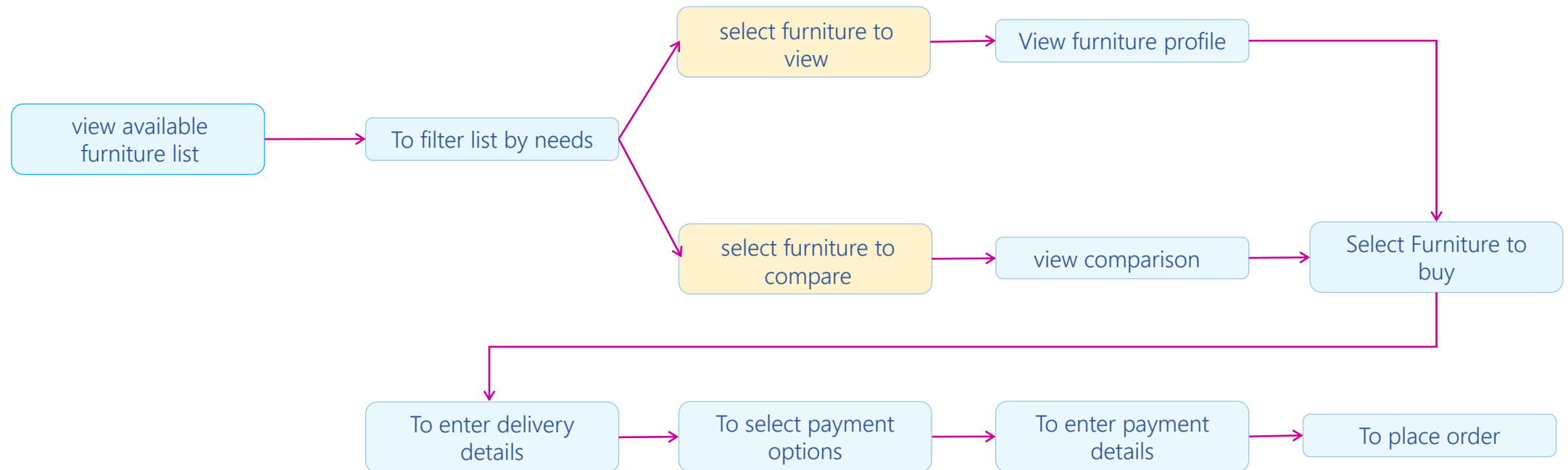
# Combining Task Flows

- Combine same tasks



# Combining Task Flows

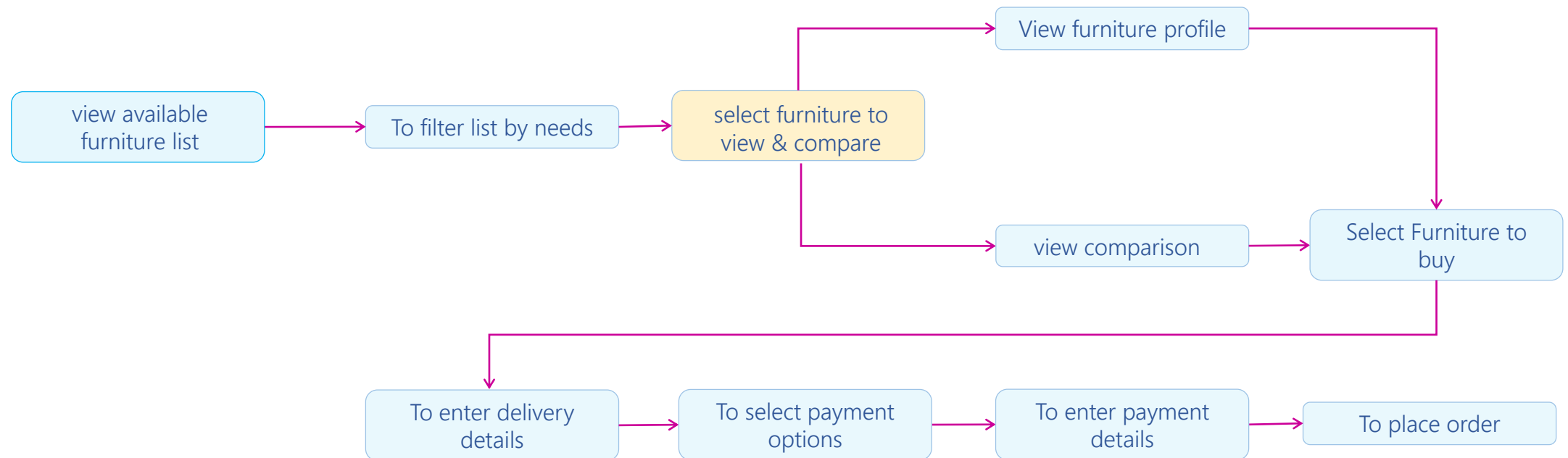
- Combine similar tasks which can be done from same view





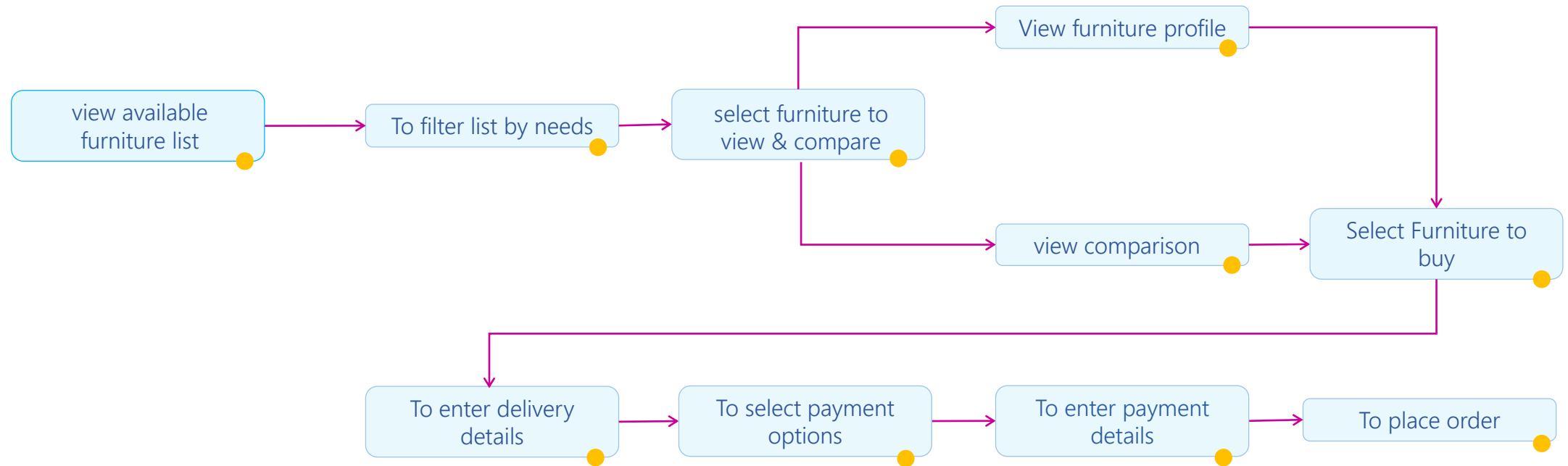
# Combining Task Flows

- Combine similar tasks which can be done from same view

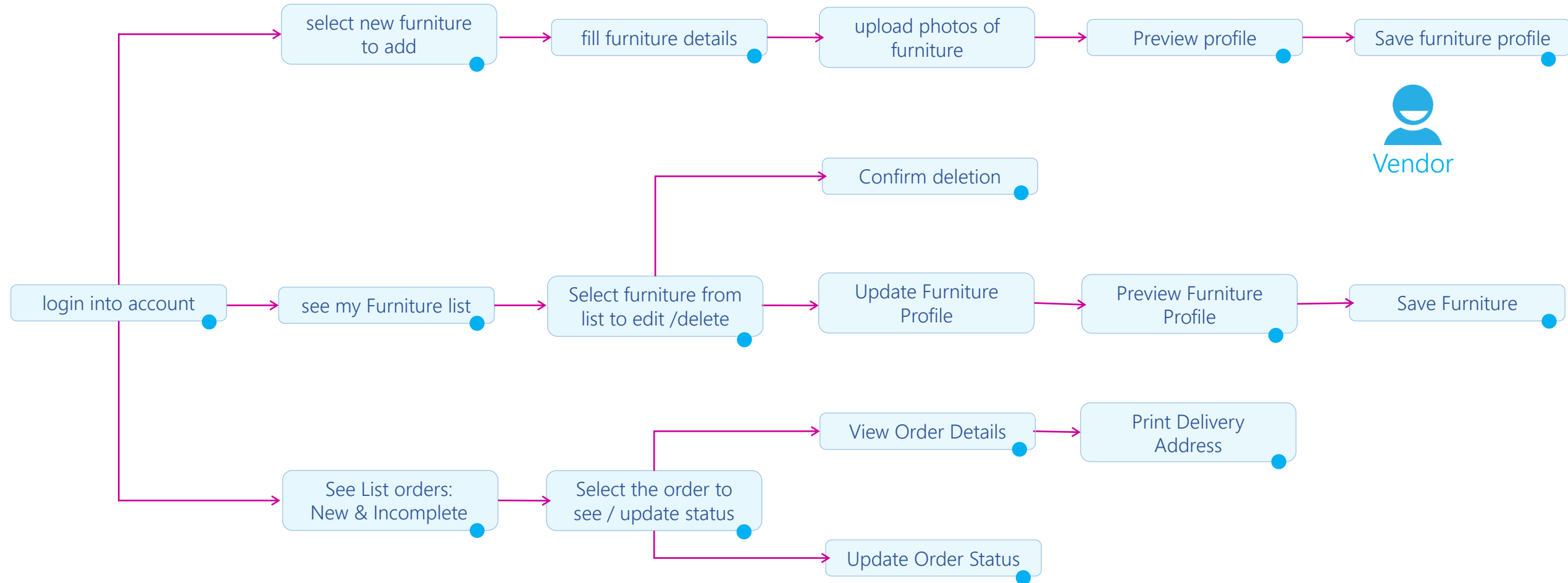


# Role Specific Task Flow

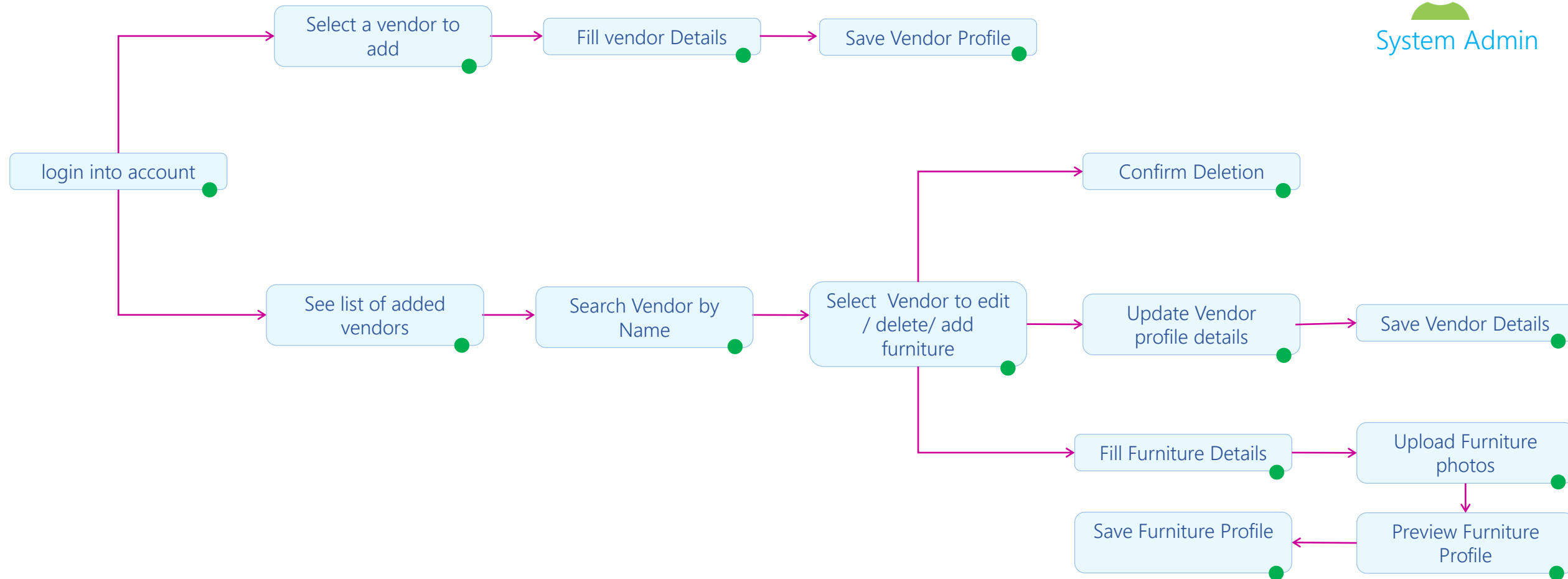
Add user permissions mark on each task

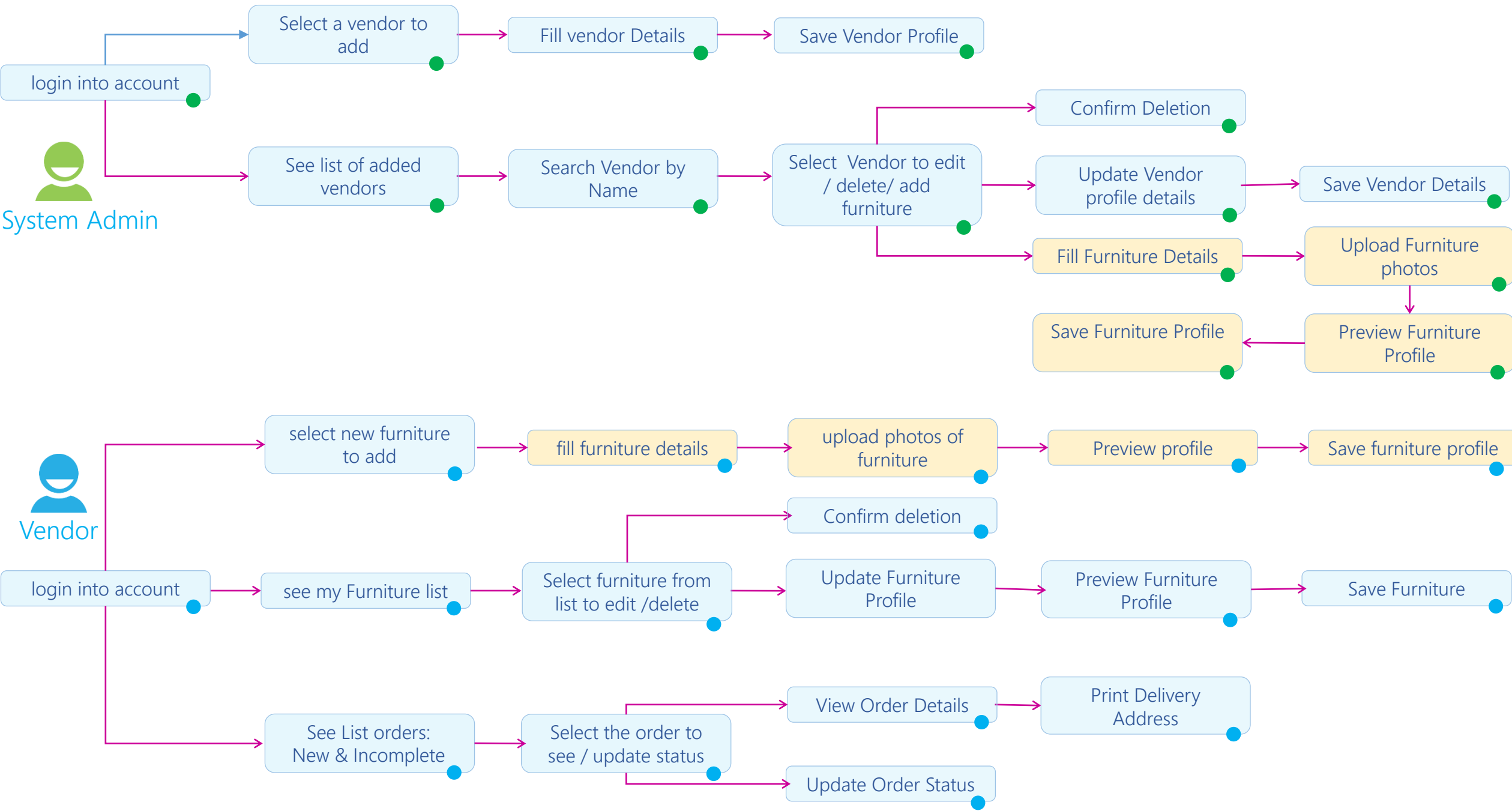


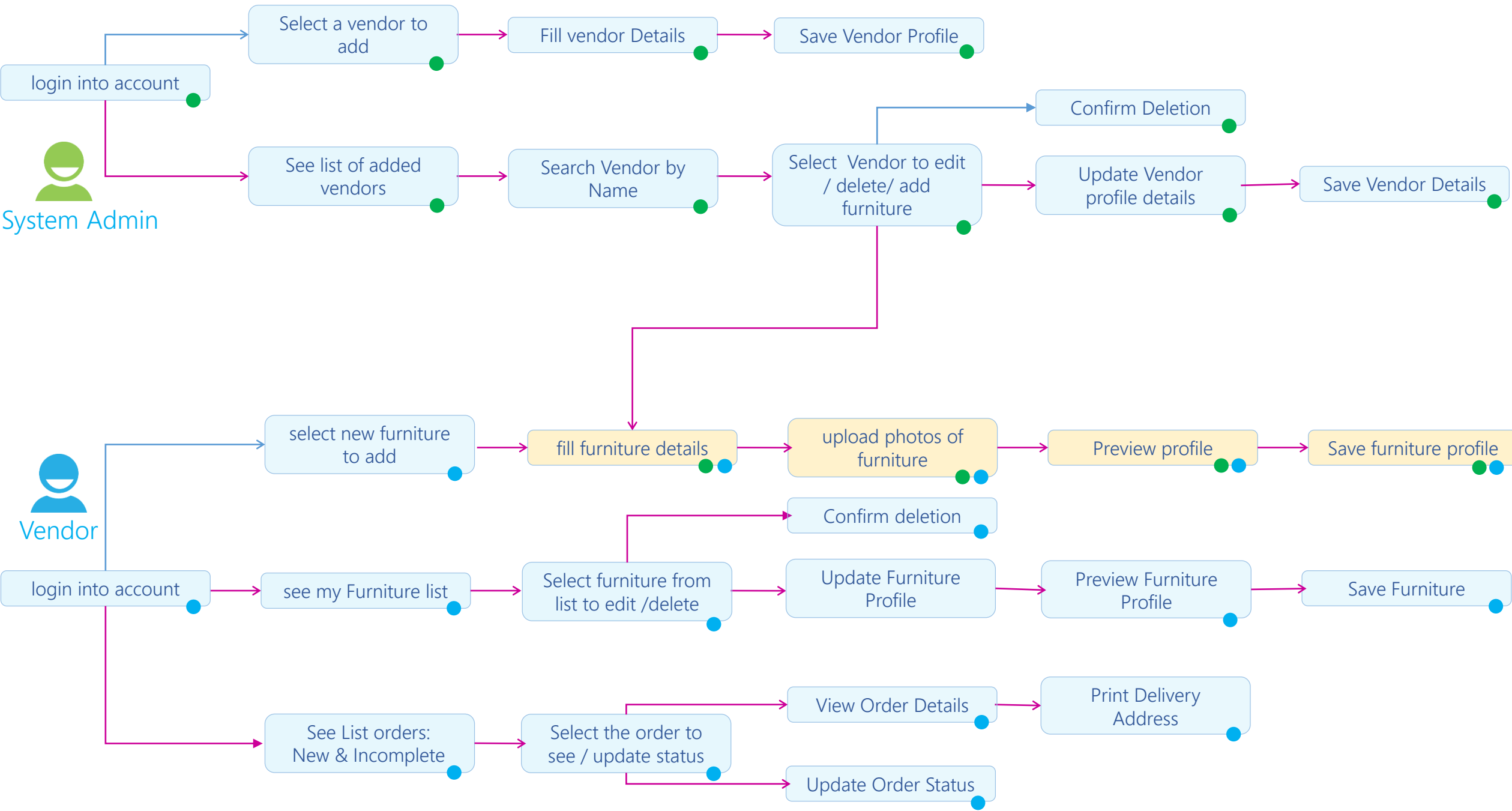
# Role Specific Task Flow

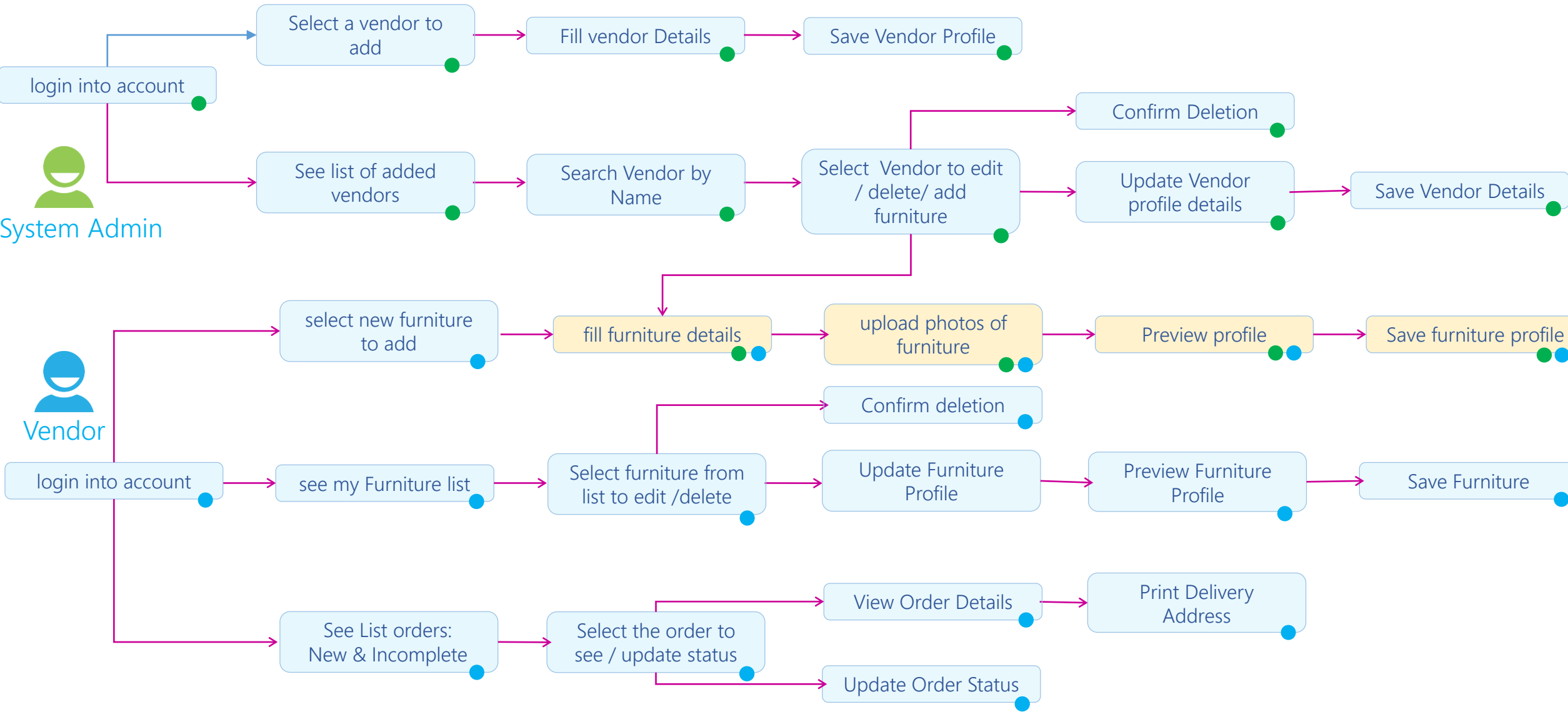


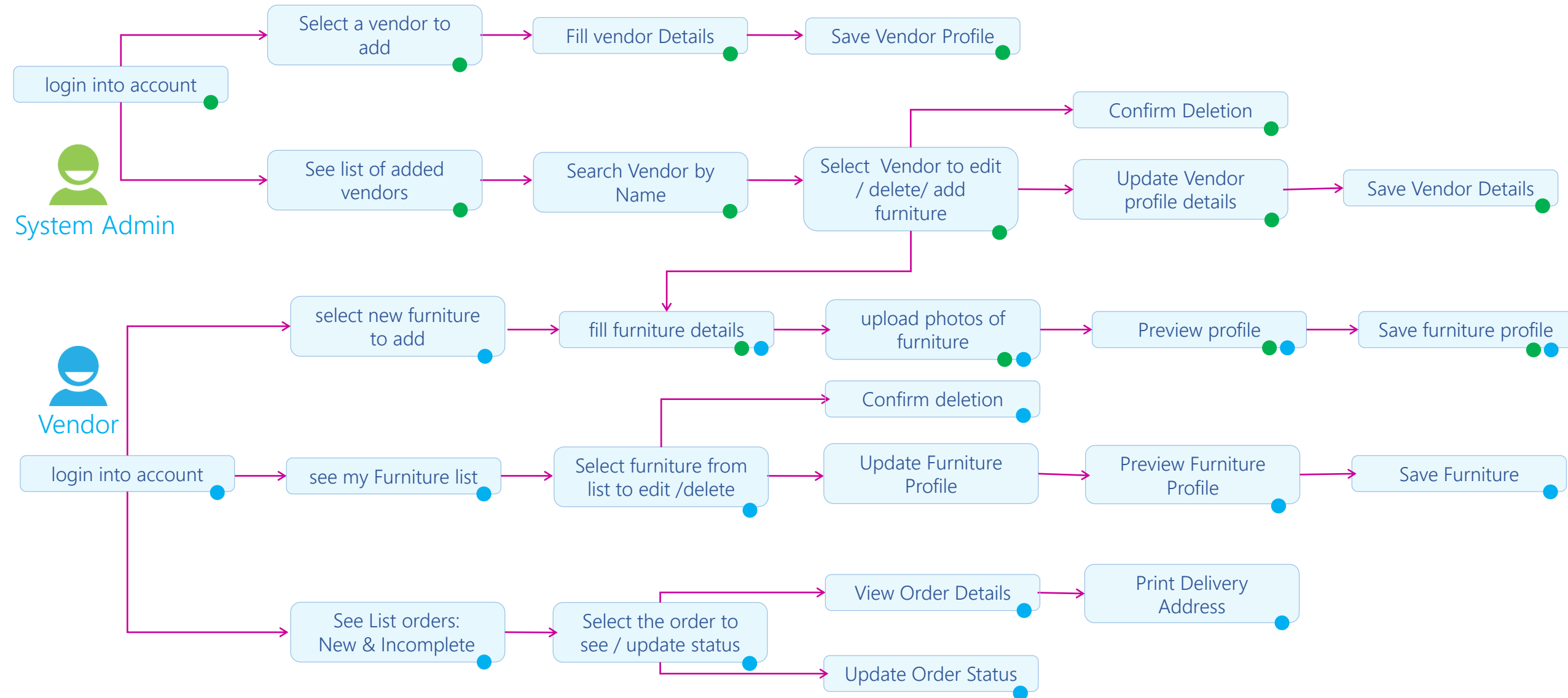
# Role Specific Task Flow







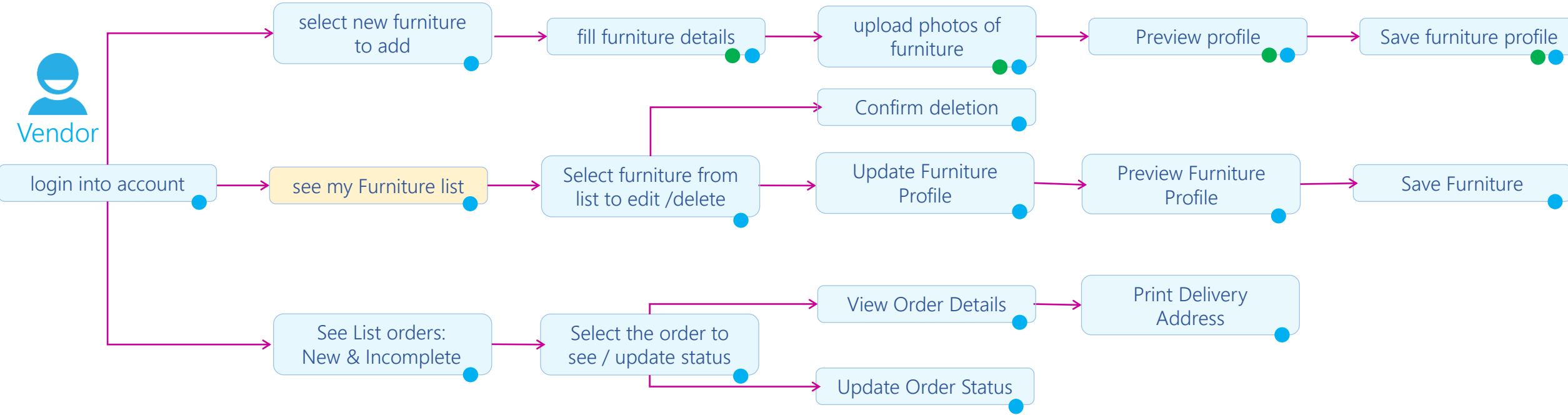




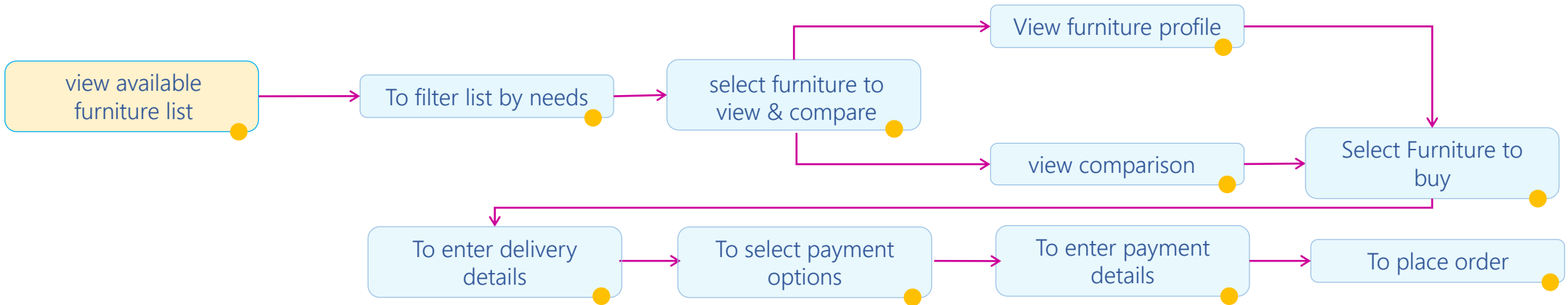




Vendor

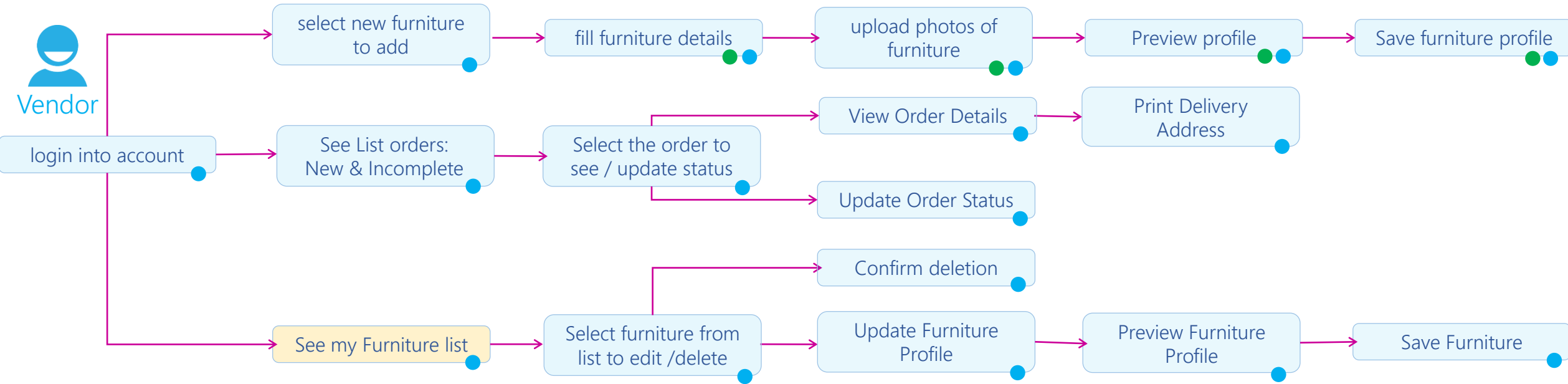


Buyer

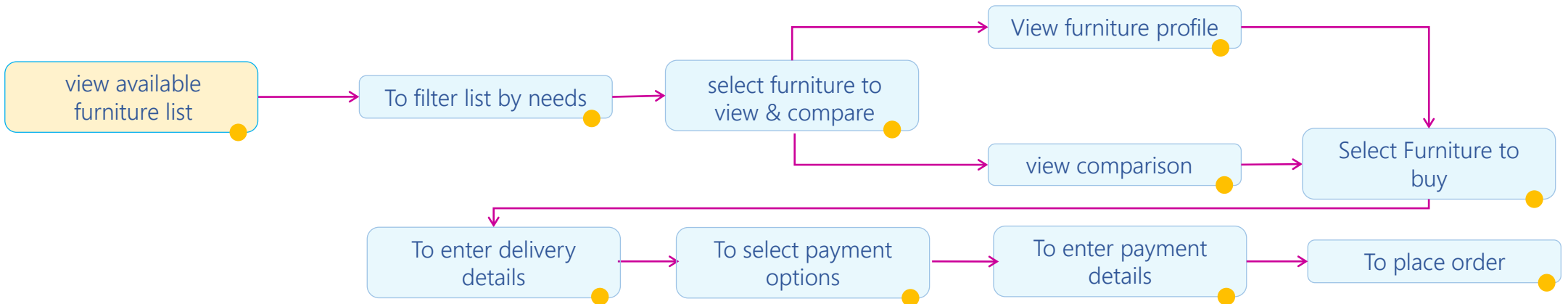


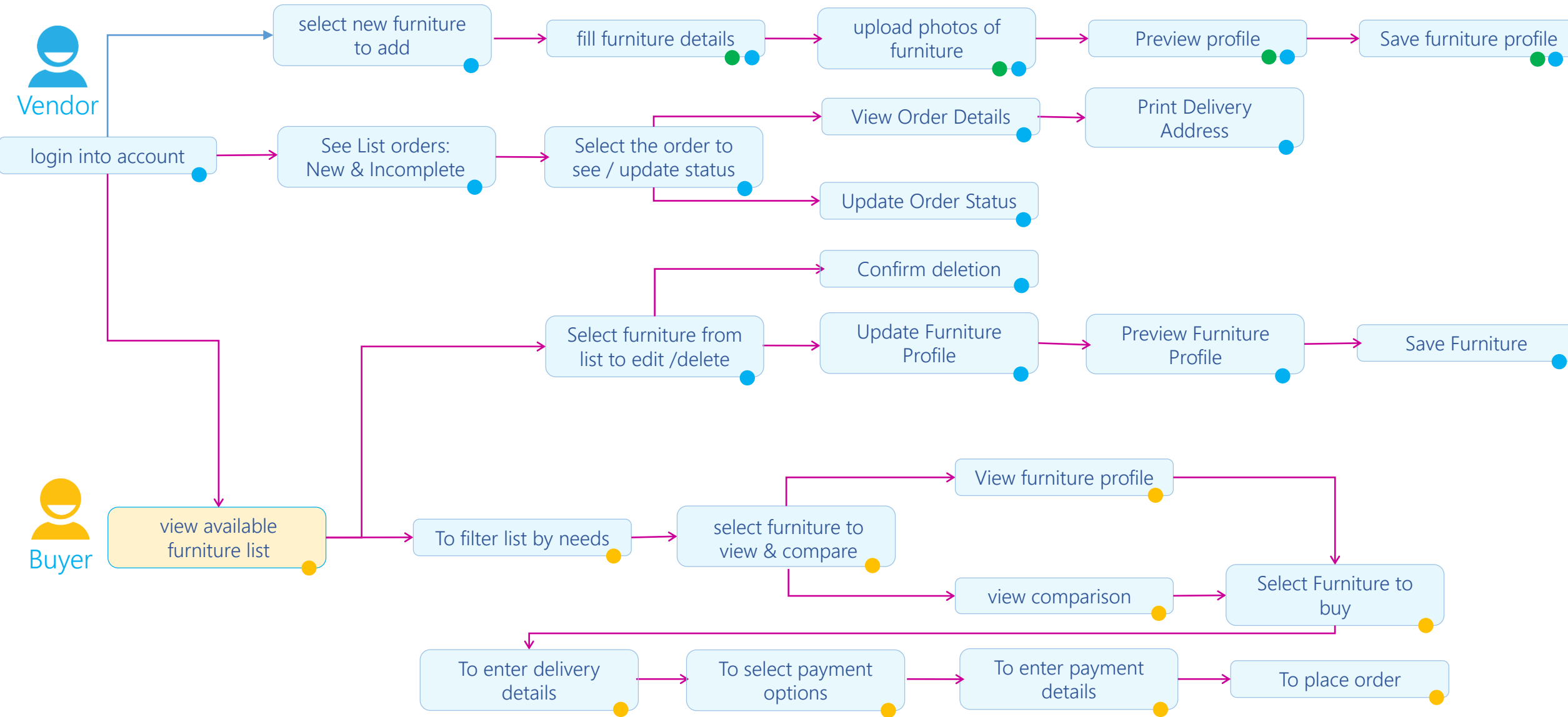


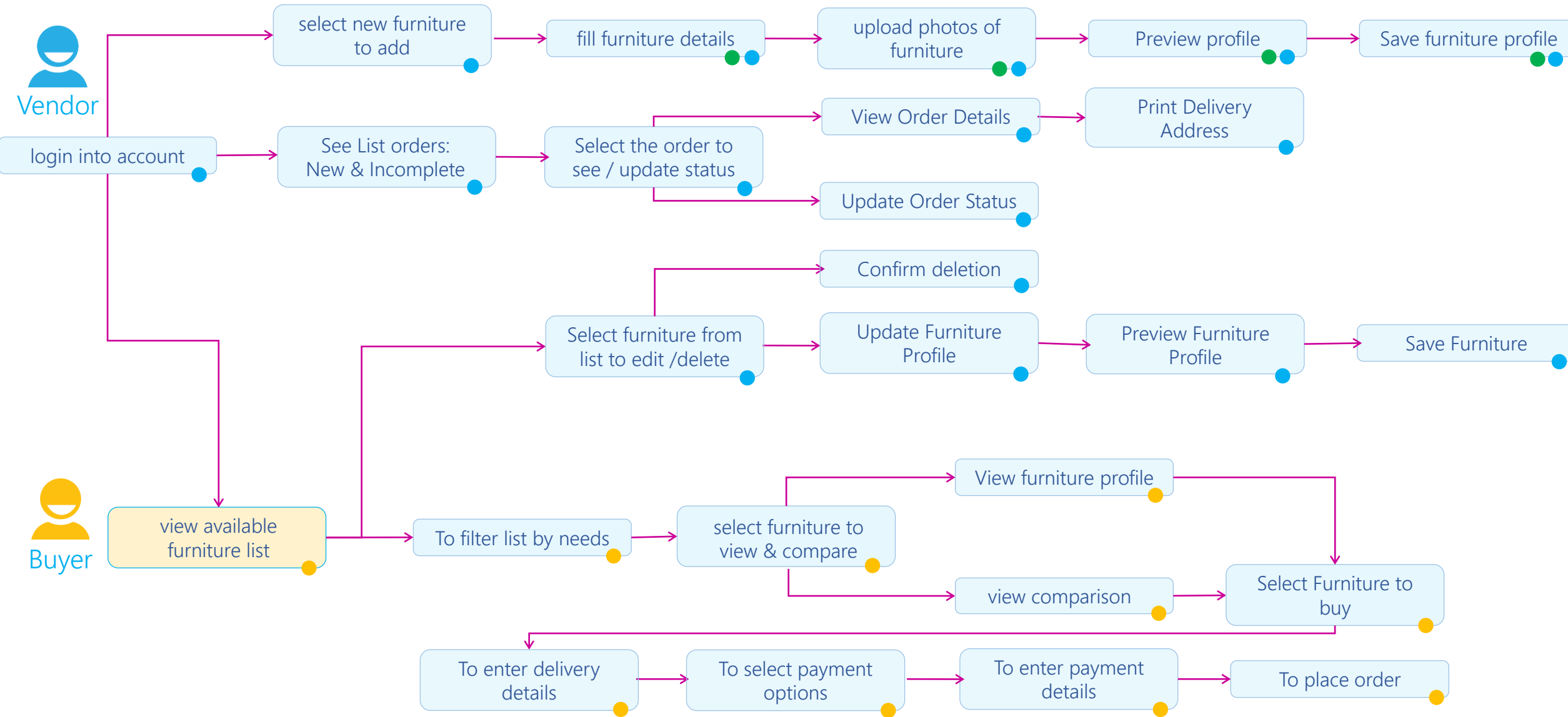
Vendor

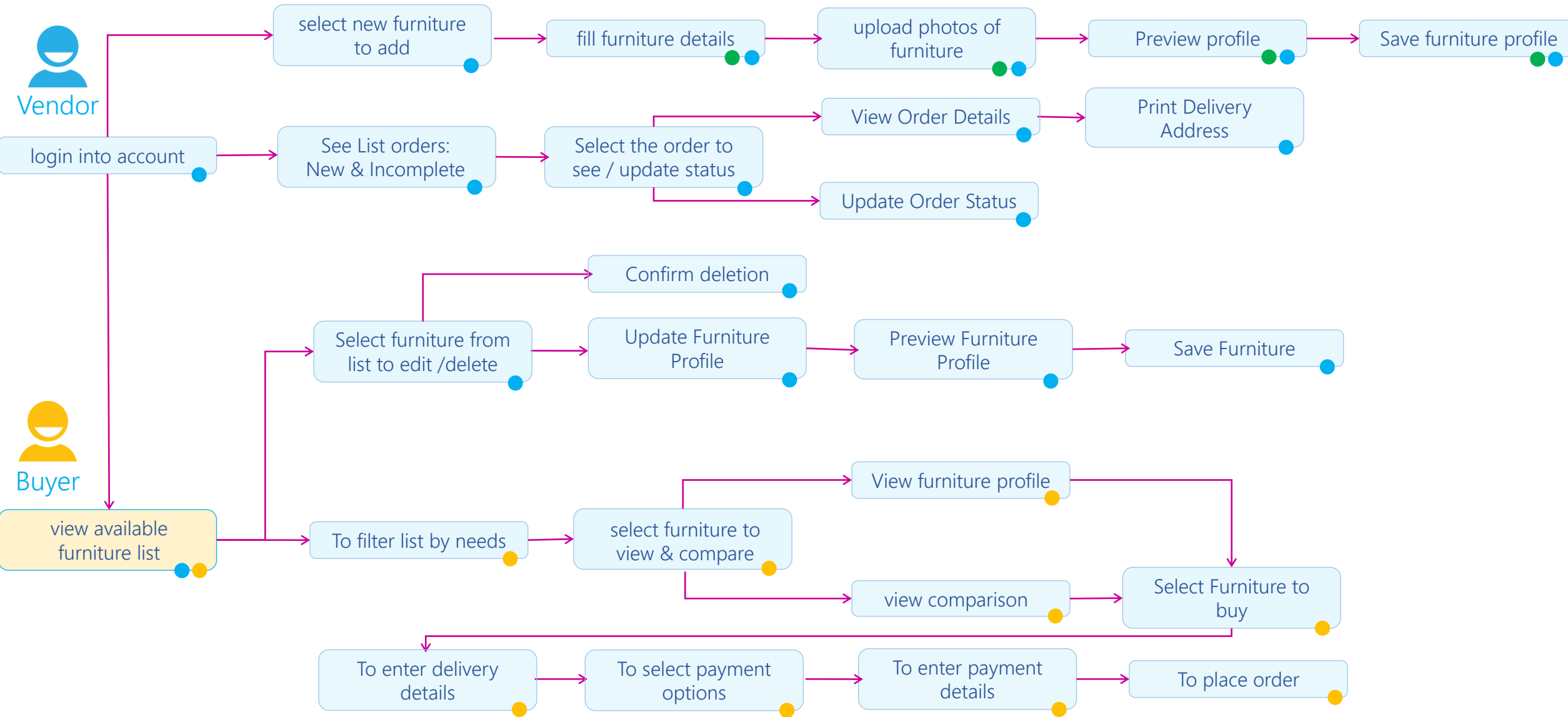


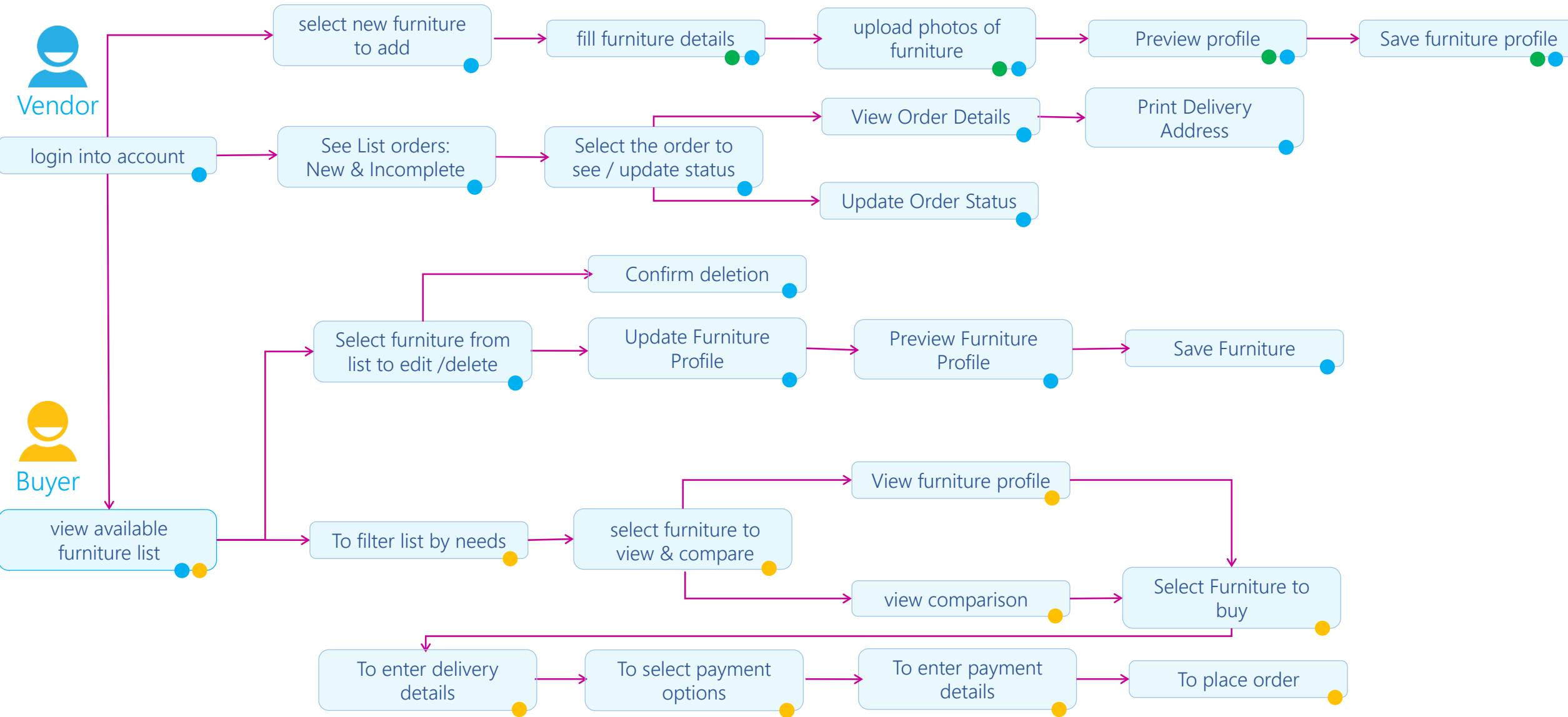
Buyer







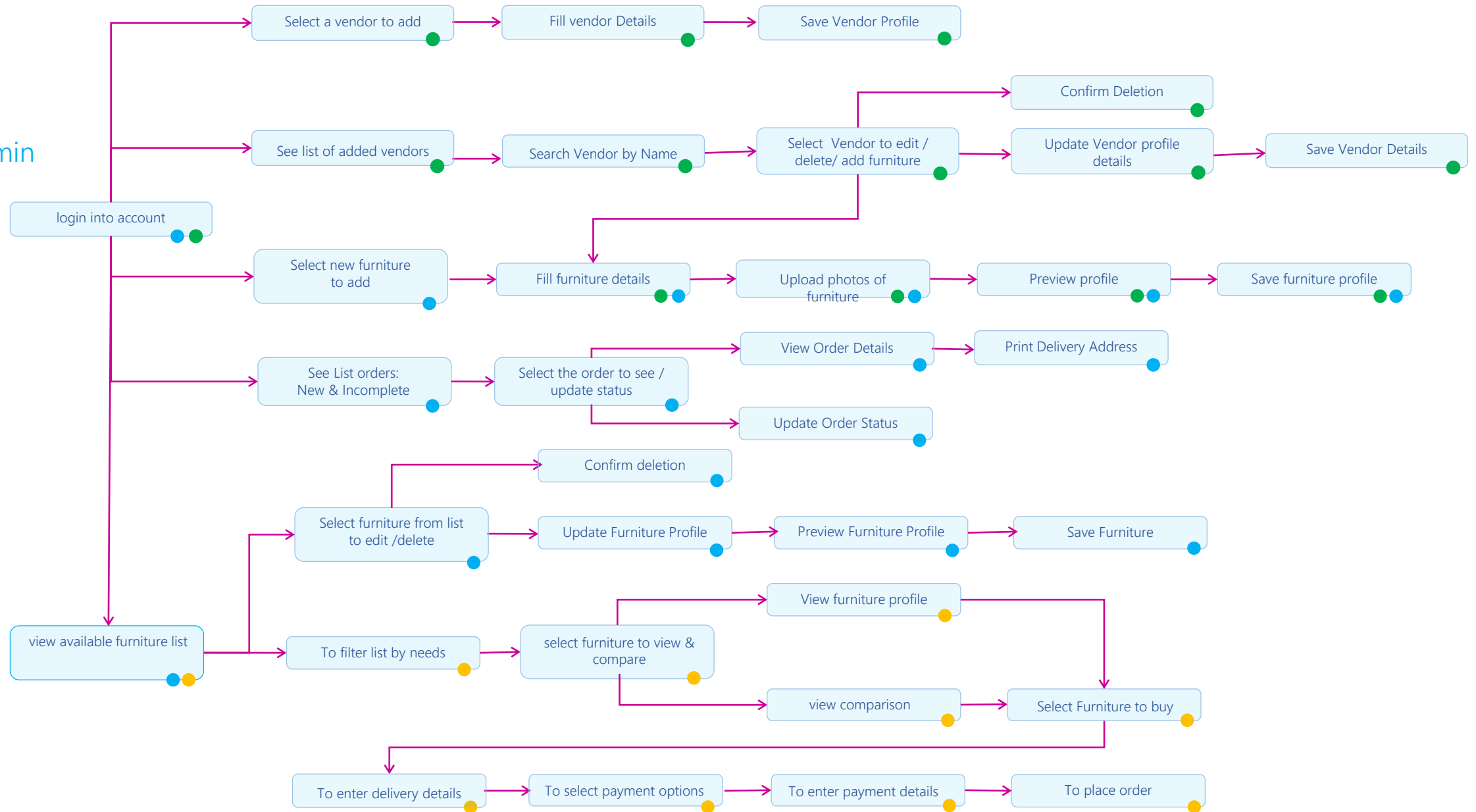




  
System Admin

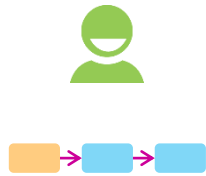
  
Vendor

  
Buyer



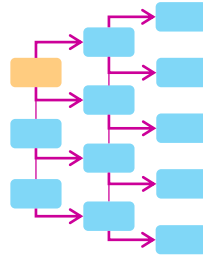
# Future Scalability

New Task Flows



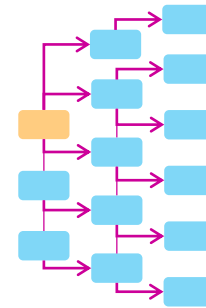
+

Current  
Overall Task Flow



=

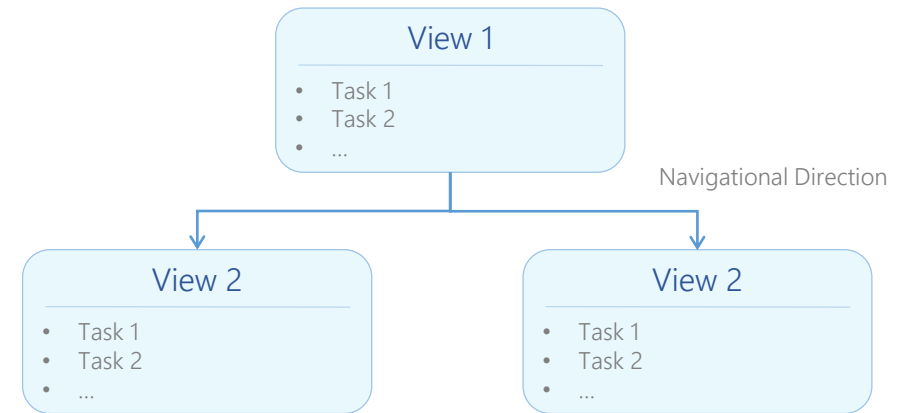
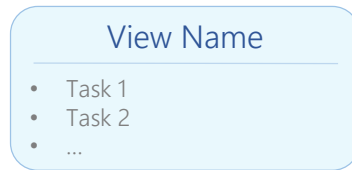
New Overall Task Flow





# Creating Views from Tasks

- View
  - A single interface of product e.g. For a website, view means a webpage.
  - Display dependent



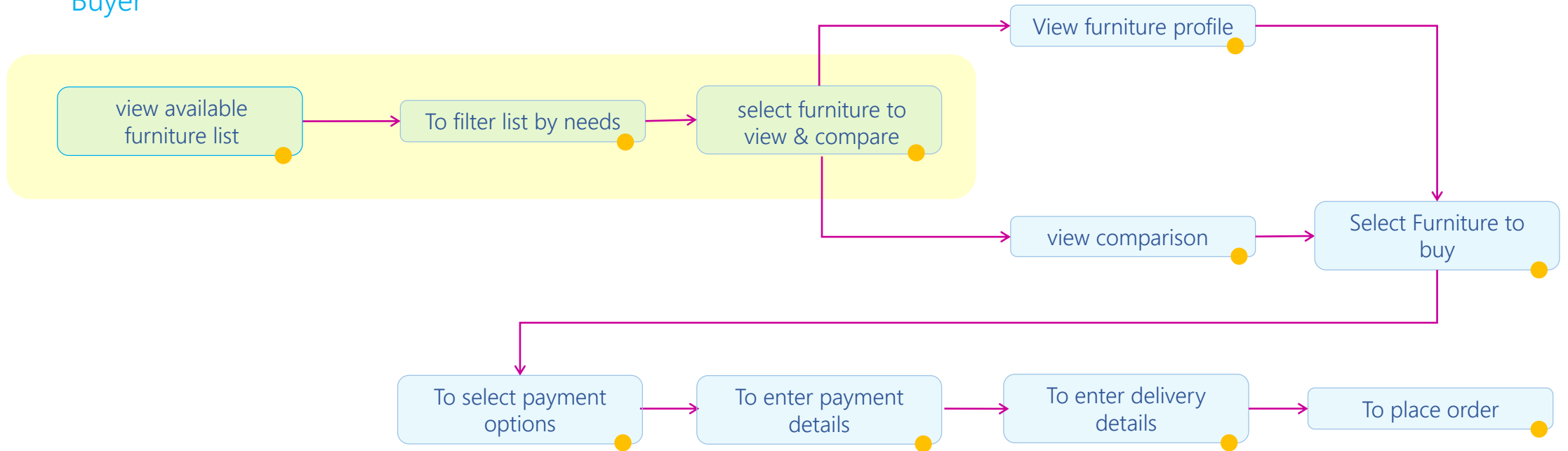
# Creating Views from Tasks

- Which tasks to include in a view
  - Tasks [related to content](#) of view
  - [Next Logical](#) actions
- When not to include ? Or When to create a new view ?
  - When certain task needs [lot of visual space](#)
  - When tasks is [not related to content](#)
  - Tasks user would like to perform on single view

# Creating Views from Tasks



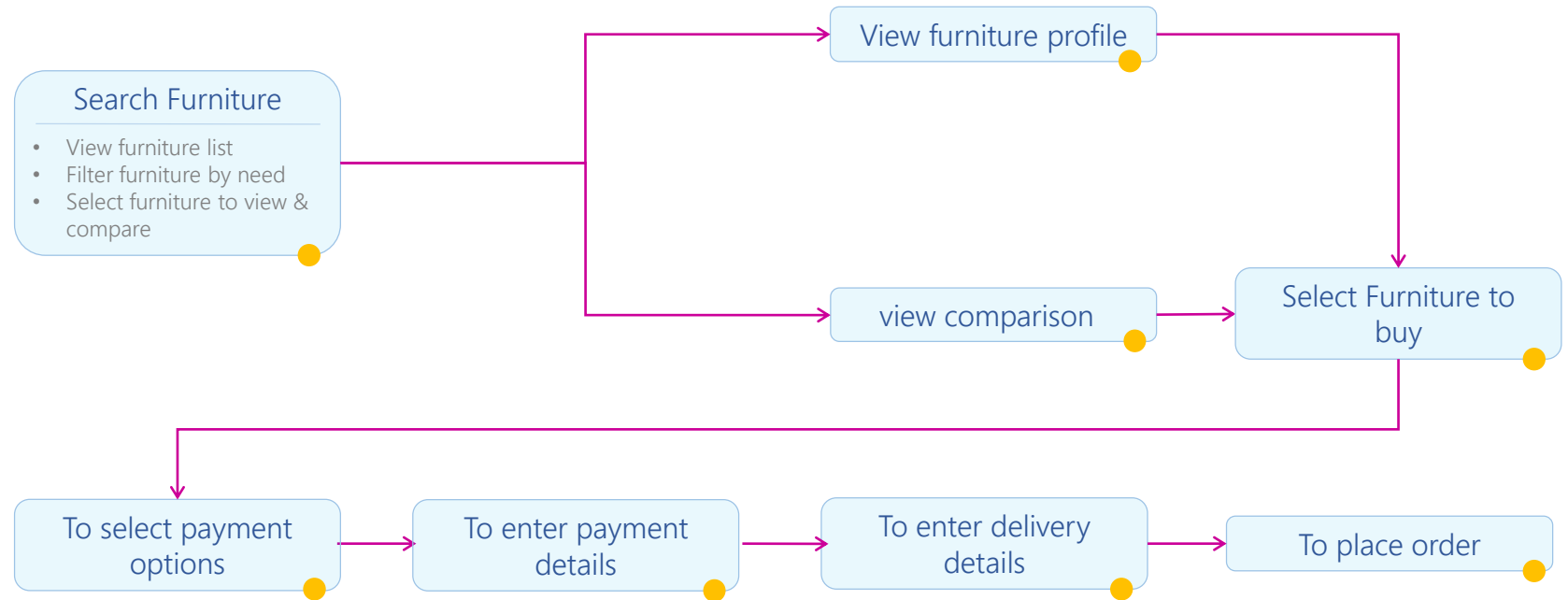
Buyer



# Creating Views from Tasks



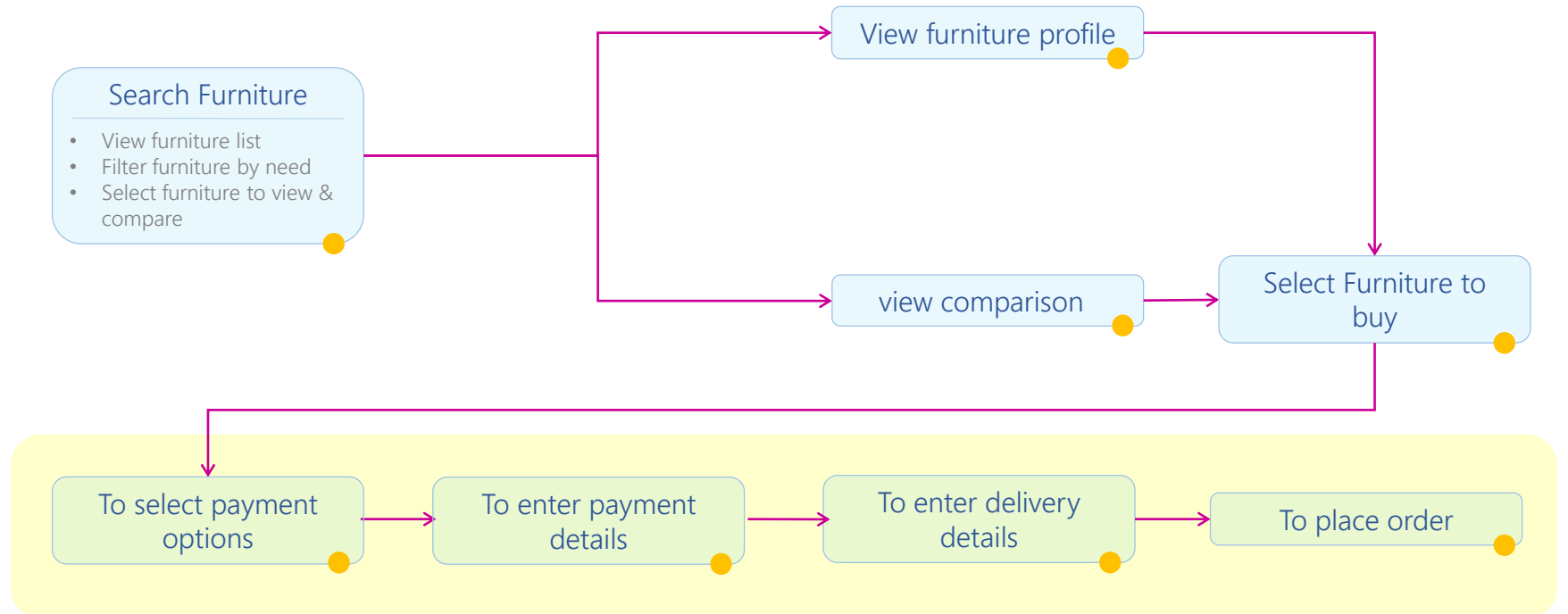
Buyer



# Creating Views from Tasks



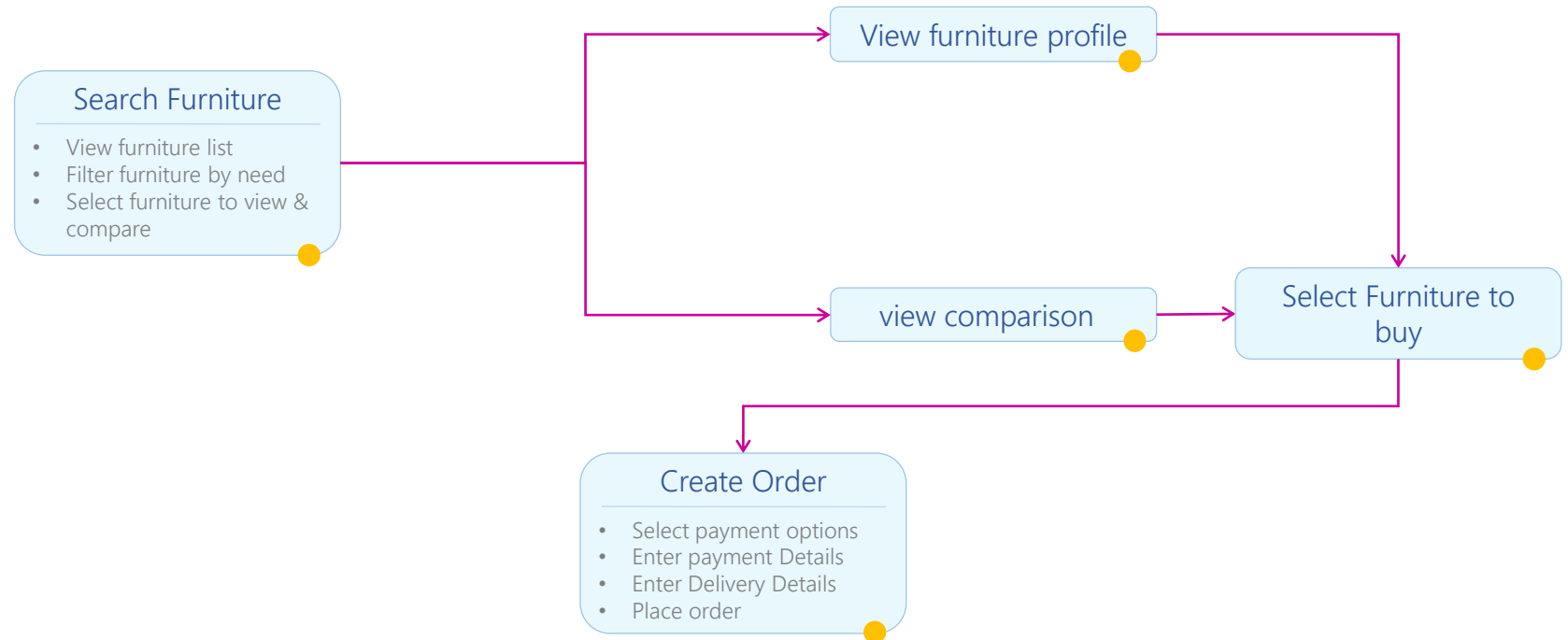
Buyer



# Creating Views from Tasks



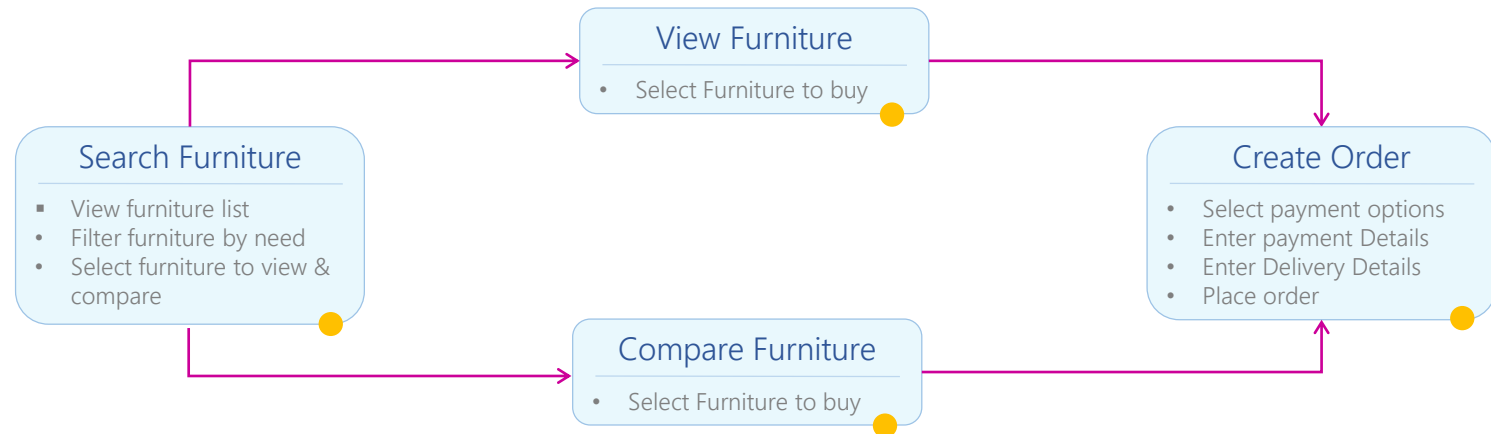
Buyer



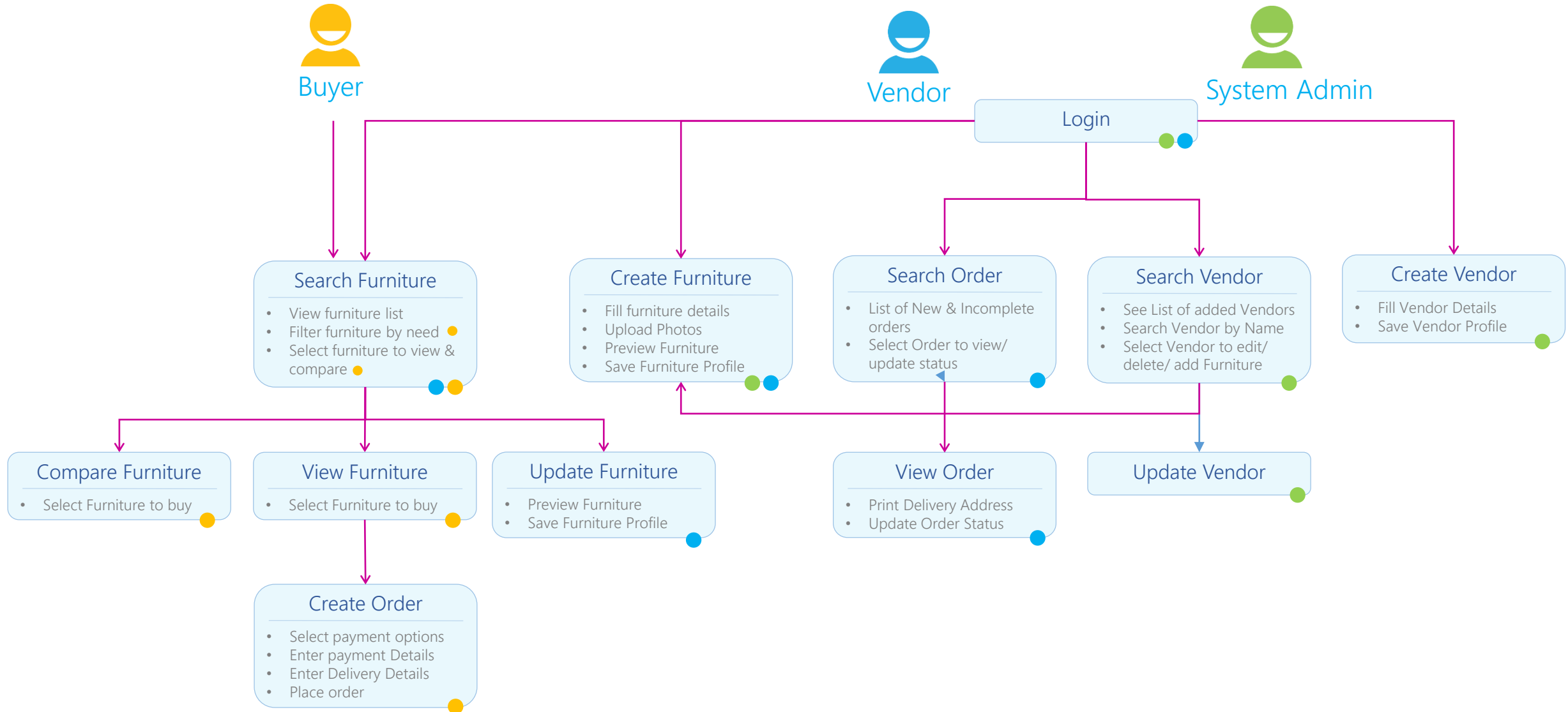
# Creating Views from Tasks



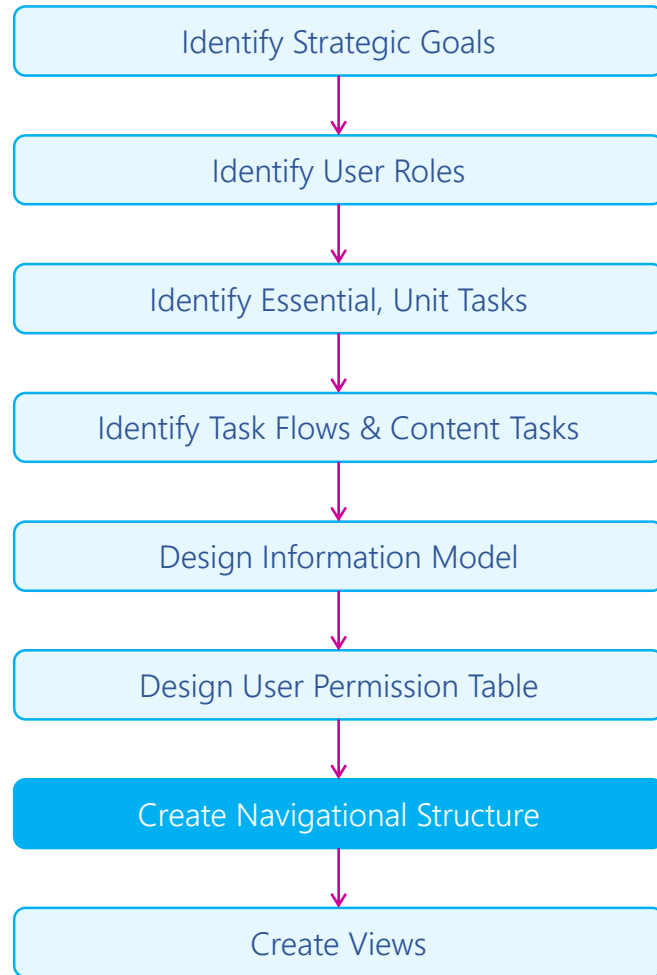
Buyer



# Information Architecture



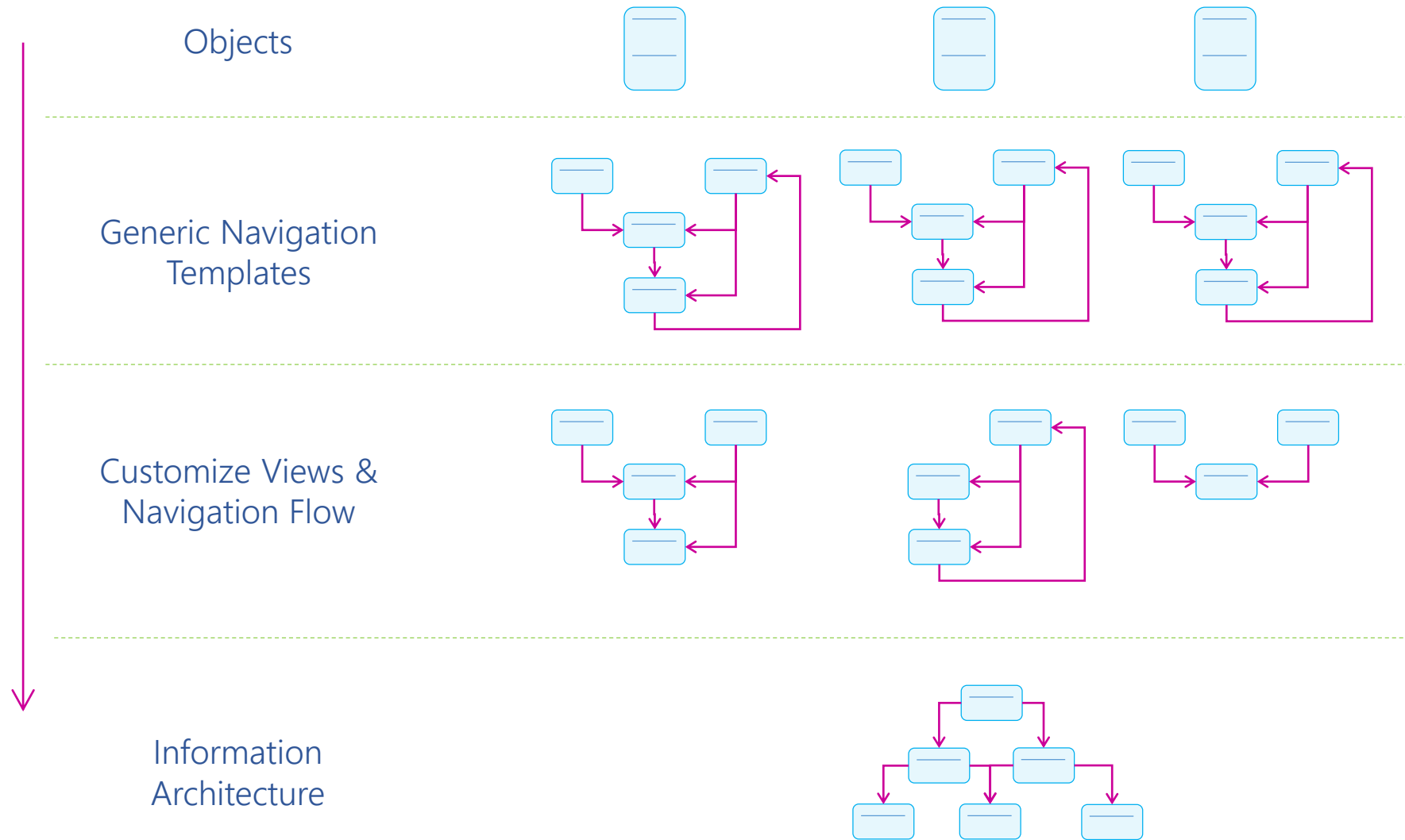




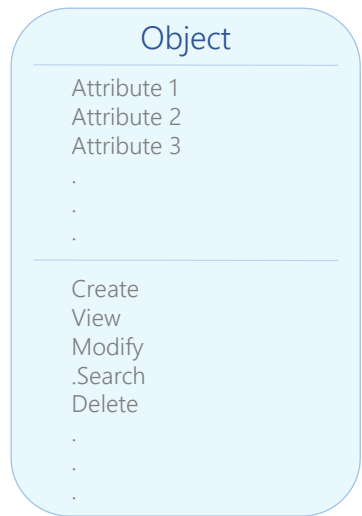
# Top-Down Approach

IA Creation

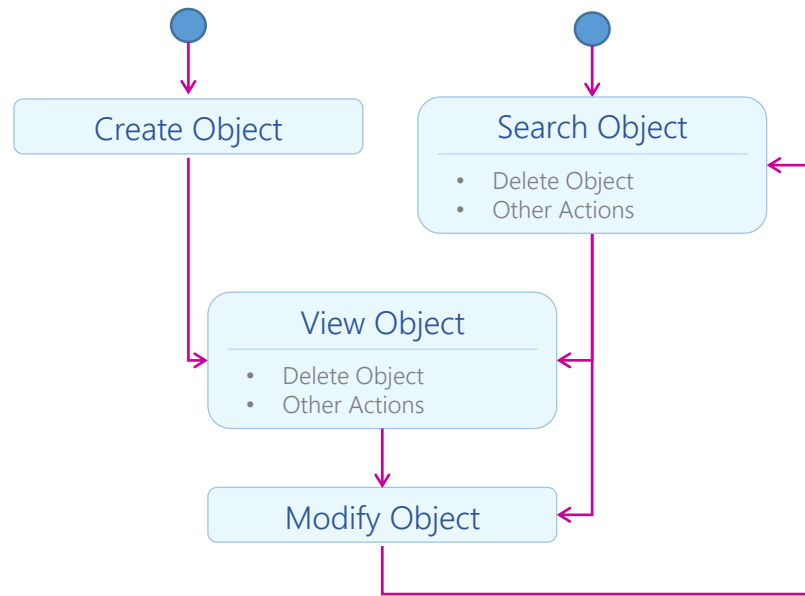
# Process



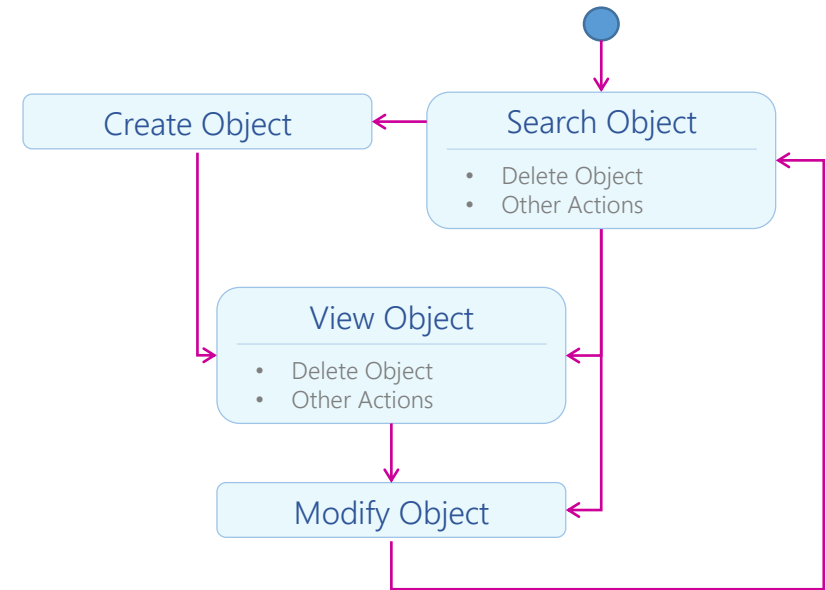
# Generic Navigation Templates



Template 1

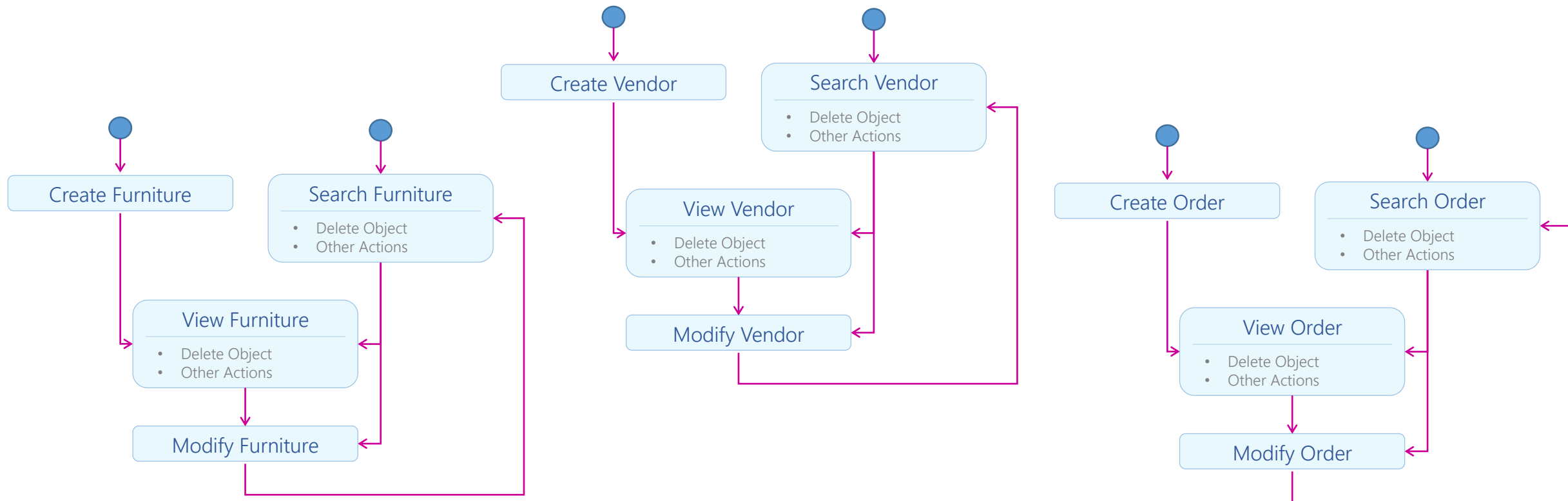


Template 2



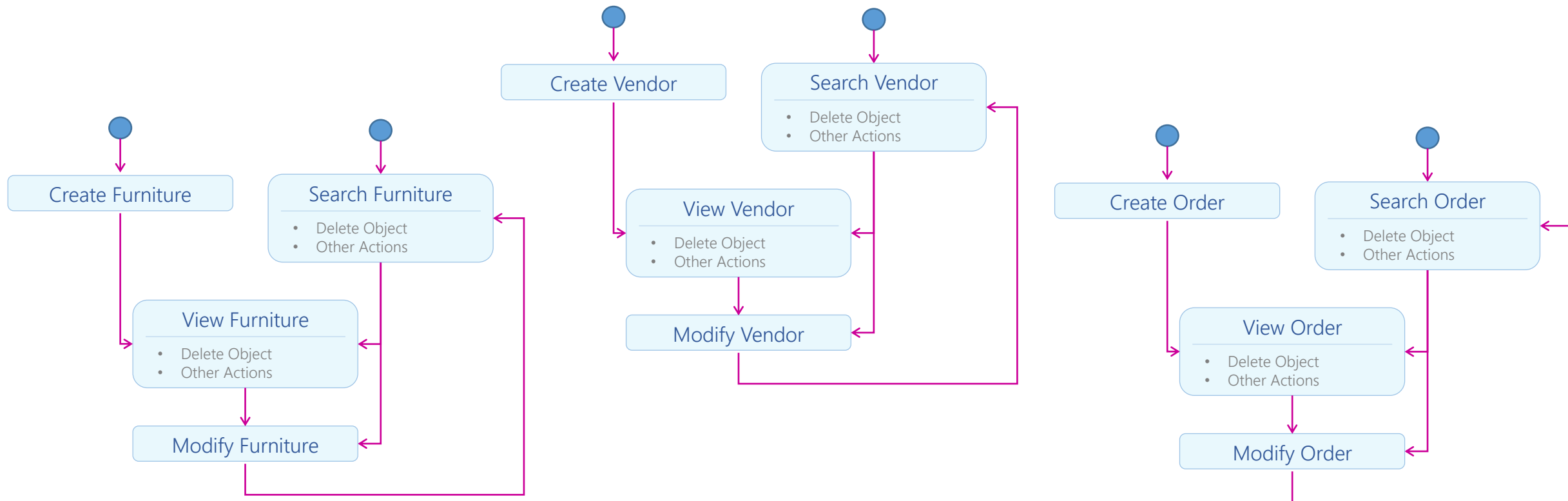
# Applying Generic Templates

- Apply generic templates to all Objects of Information Model



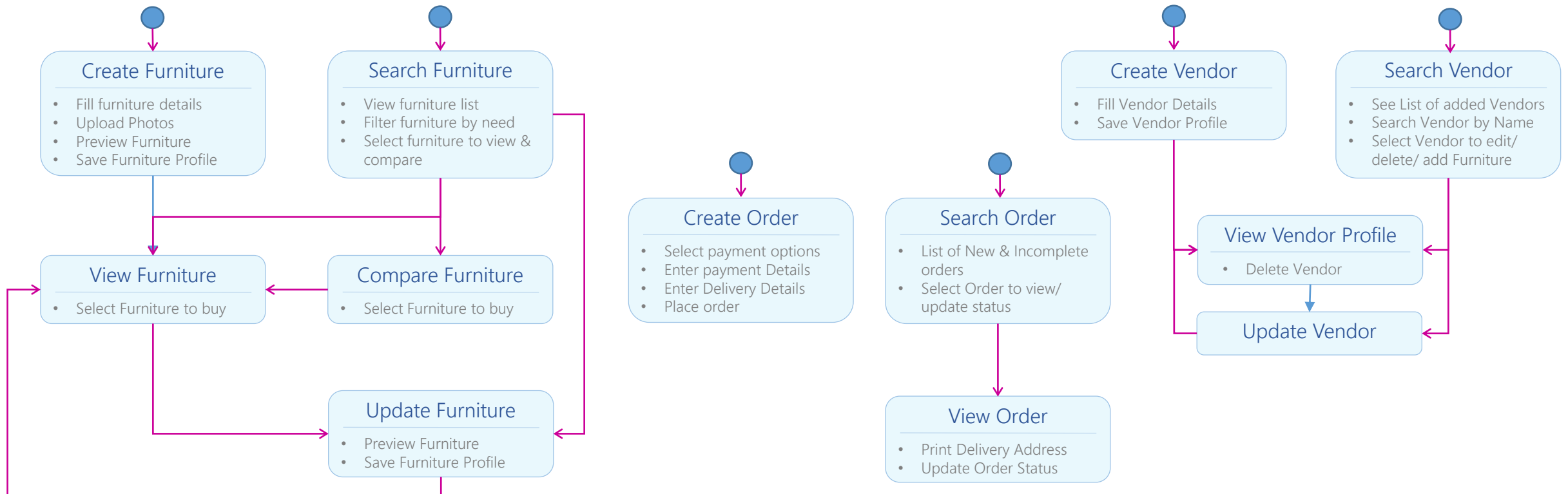
# Customizing Generic Templates

- Customize templates as per need
  - Add/ remove views/ tasks
  - Add/ remove navigation links



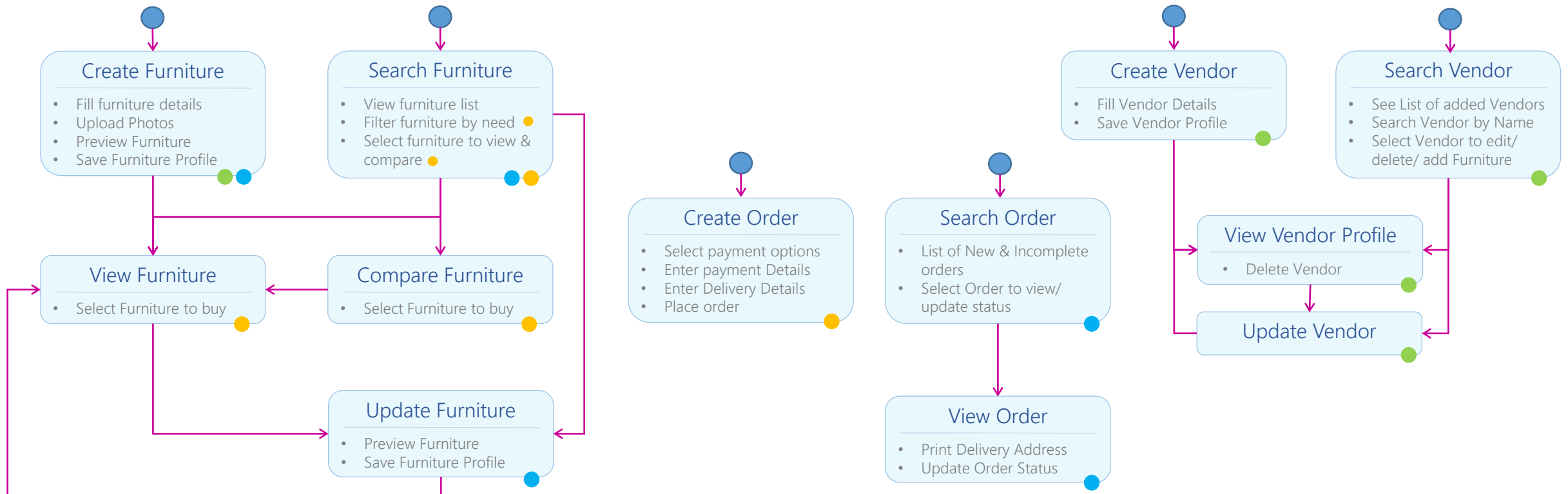
# Customizing Generic Templates

- Customize templates as per need
  - Add/ remove views/ tasks
  - Add/ remove navigation links



# Applying Permissions

- Apply User Permission Table to views





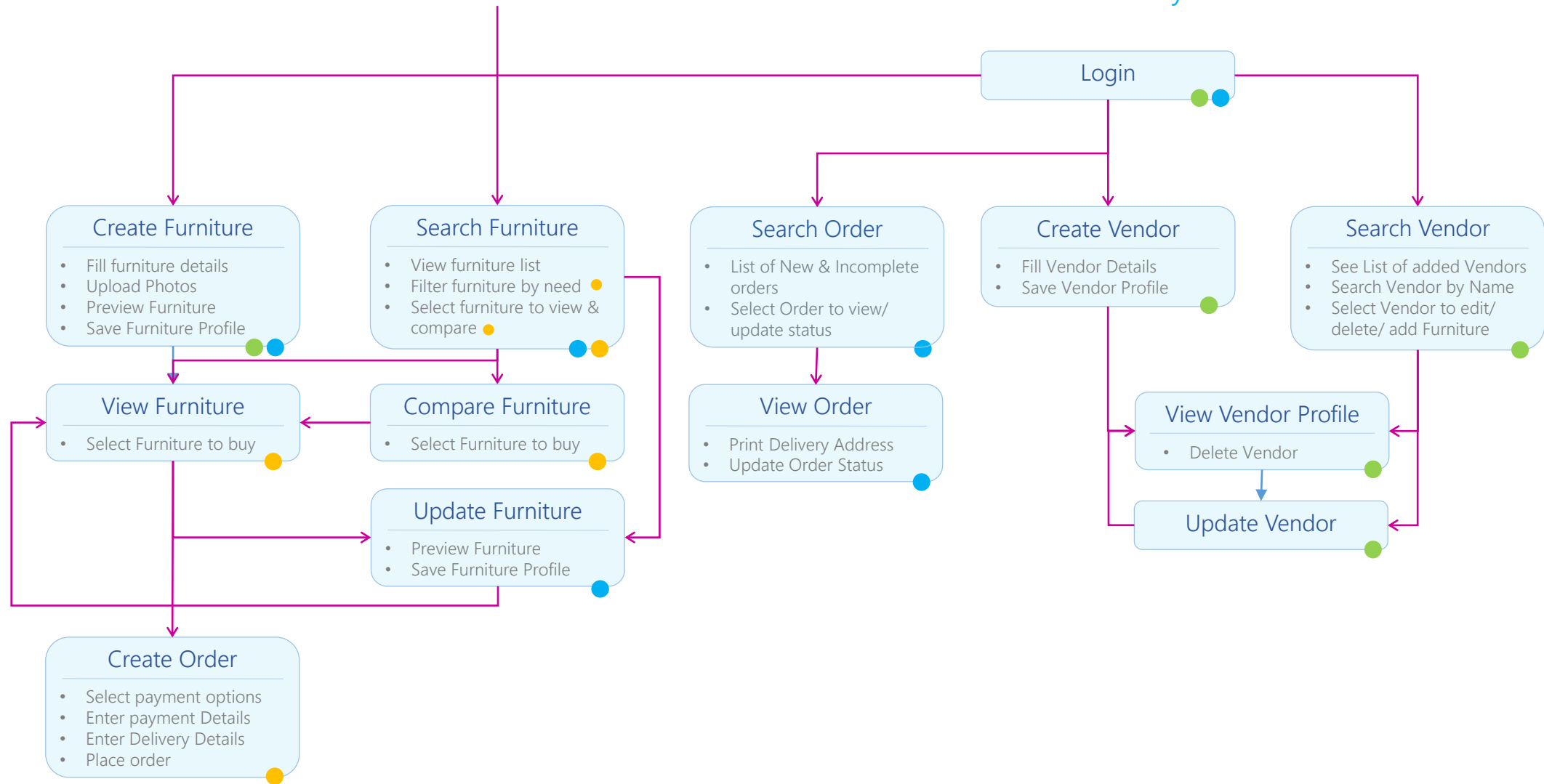
Buyer



Vendor



System Admin





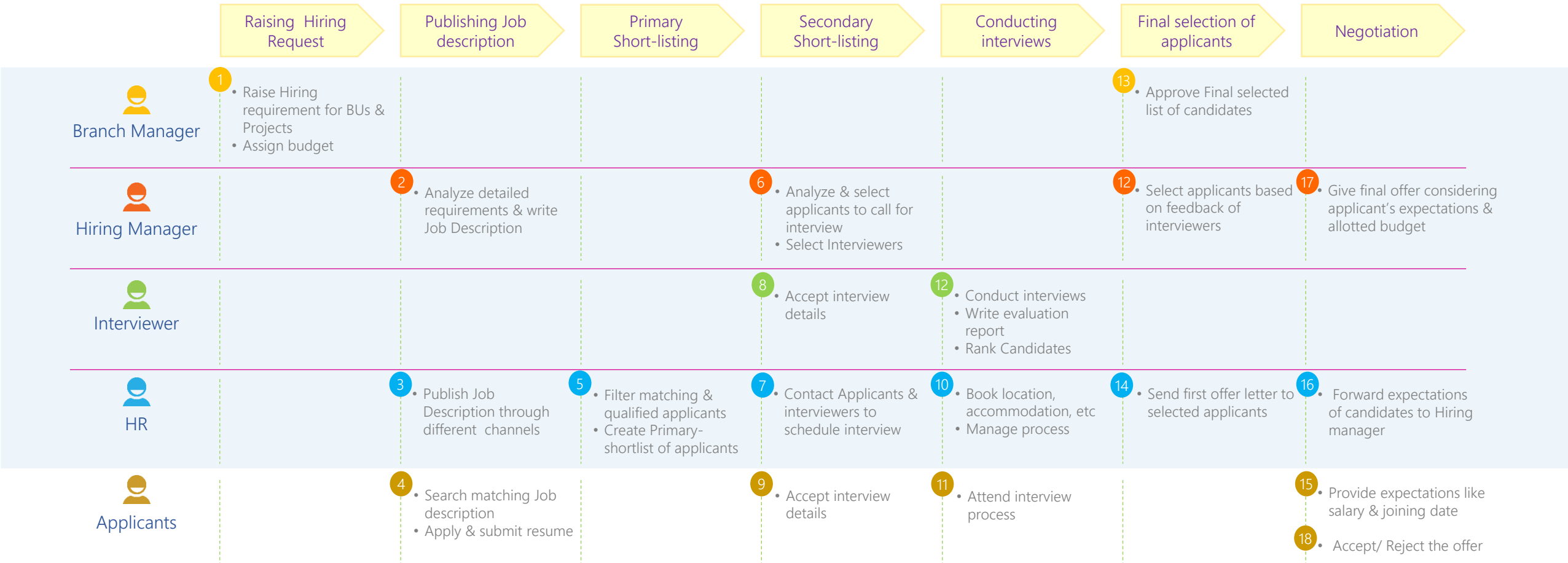
# Talent Acquisition System

Case Study 1

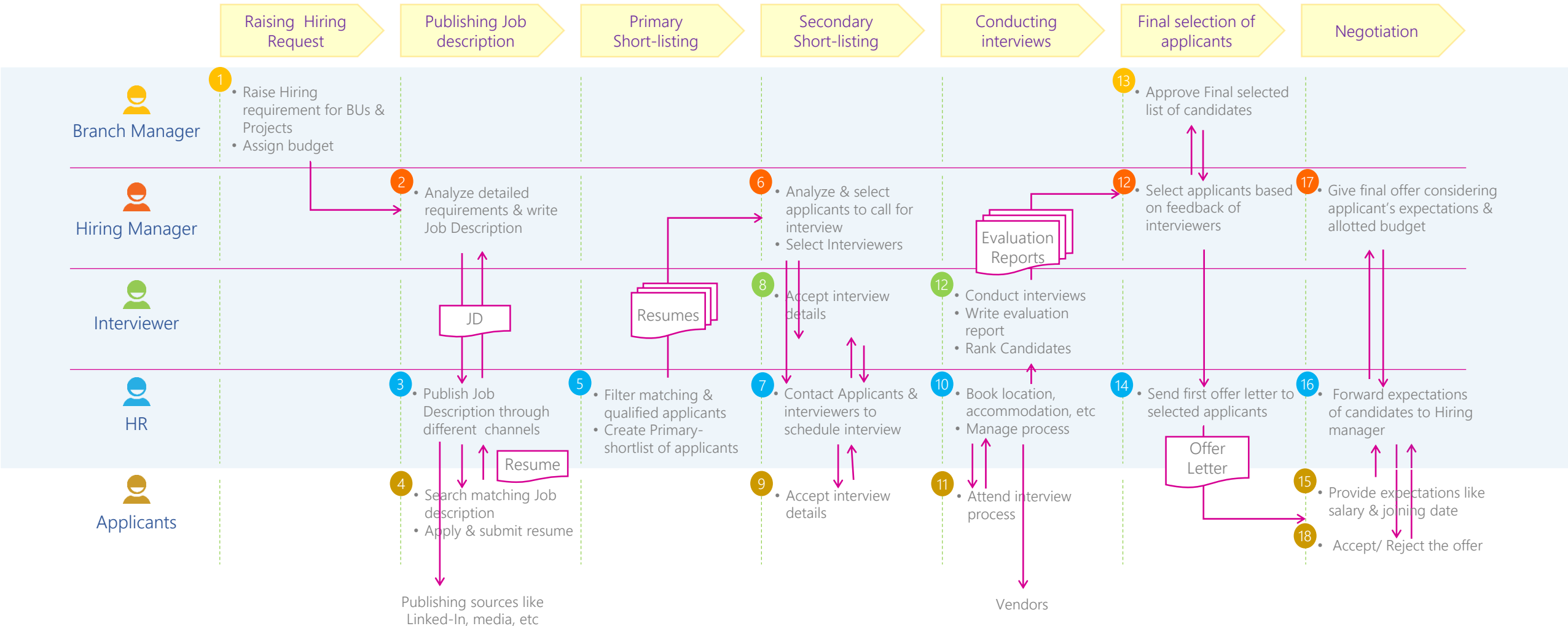
Guided by

Jyotirmaya Mahapatra

# Hiring Process



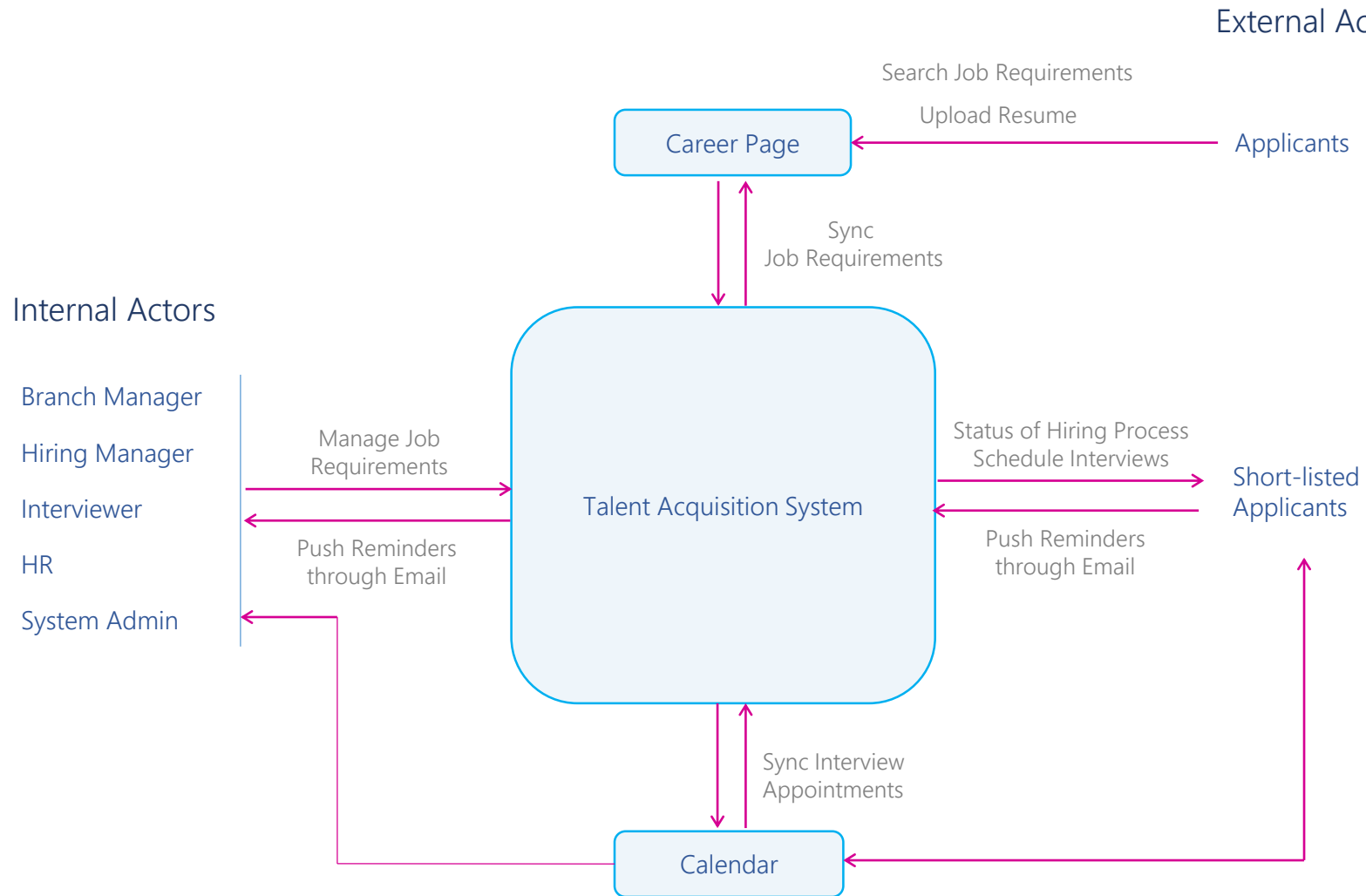
# Communications



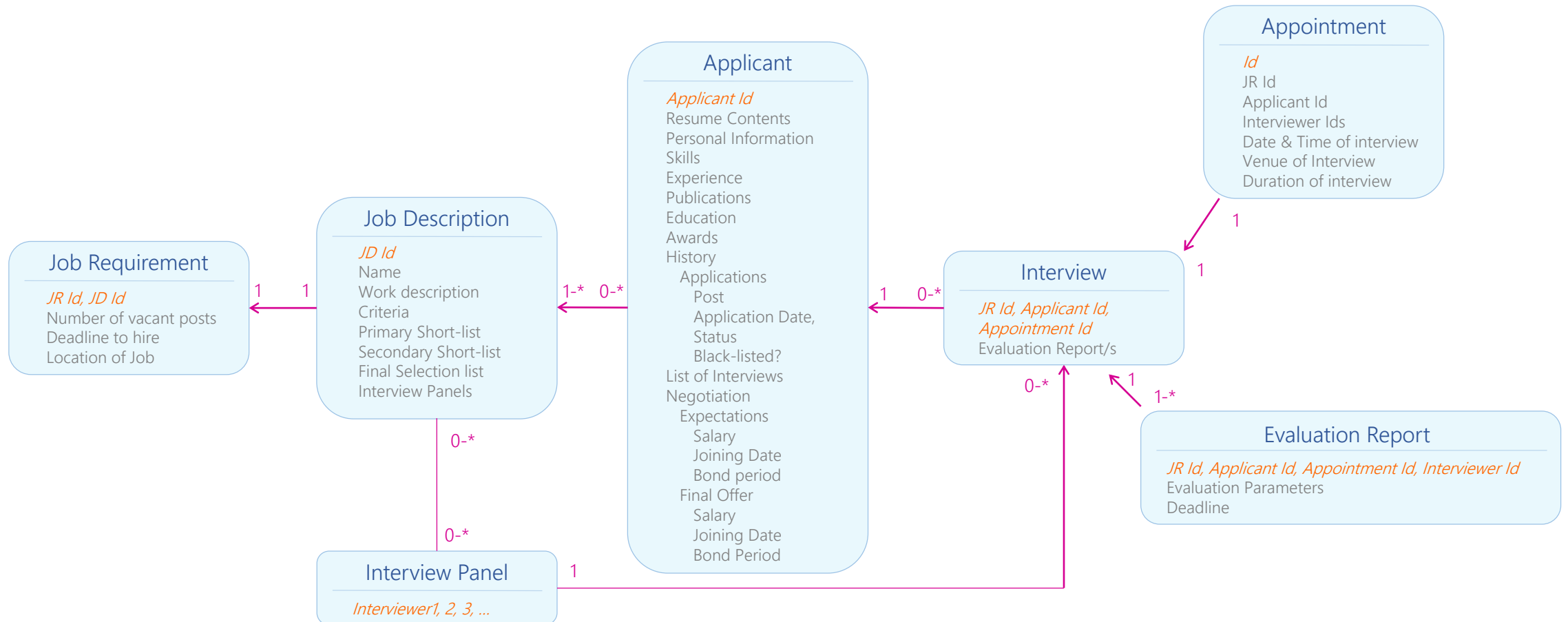
# Goals

- To provide **simplified standardized approach** for the hiring process which **creates a responsible system** for the same.
- To facilitate **better decision making**
  - by **minimizing manual comparison** of applicants information
  - by providing fast & efficient ways to **hierarchically visualize the applicants information**
- To act **central communication channel** for all users
- To **document** the process of hiring

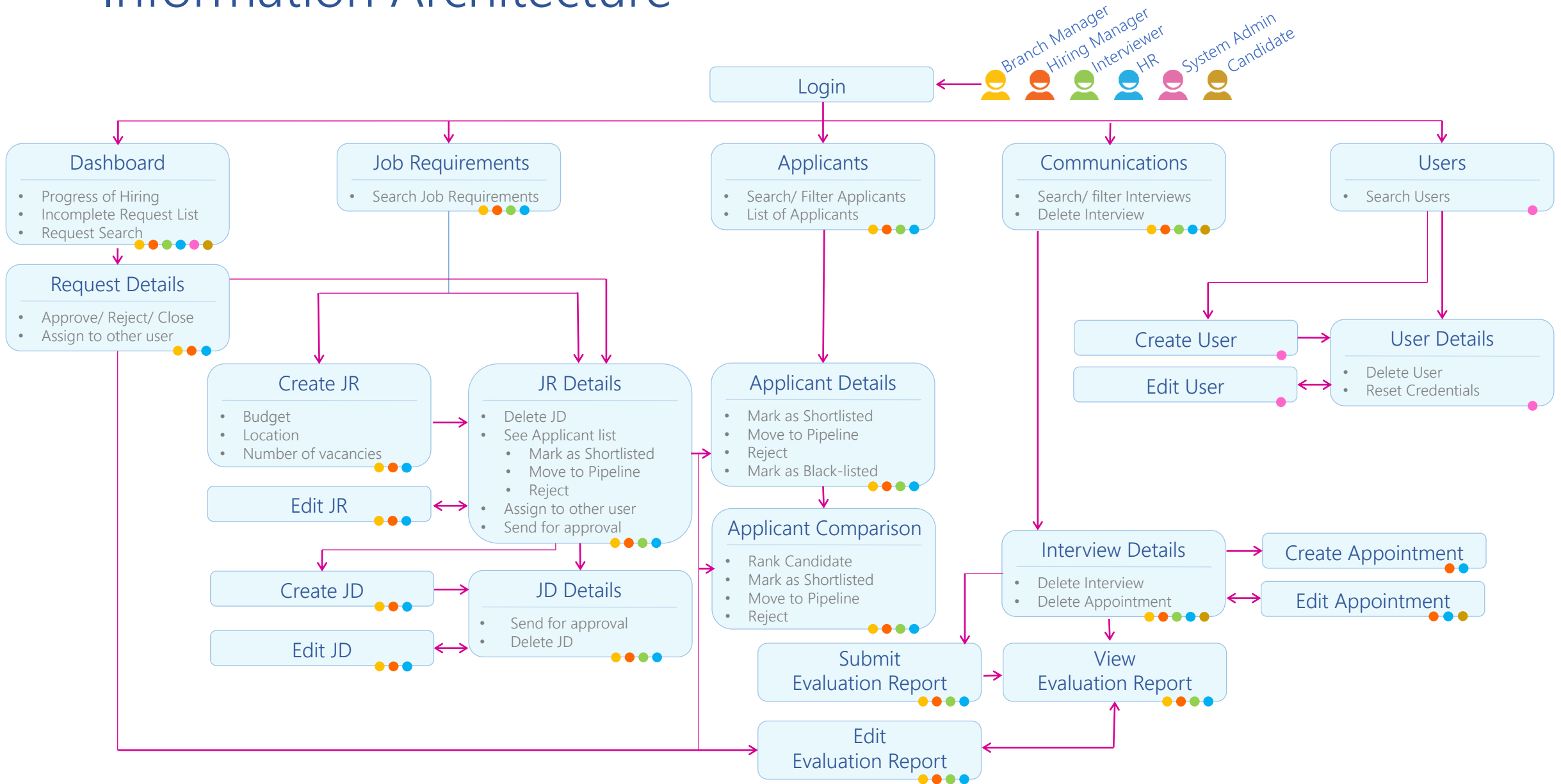
# Eco-system



# Information Model



# Information Architecture



# Personalized Messaging Engine

Case Study 2

Guided by

Varun Sharma

Jyotirmaya Mahapatra

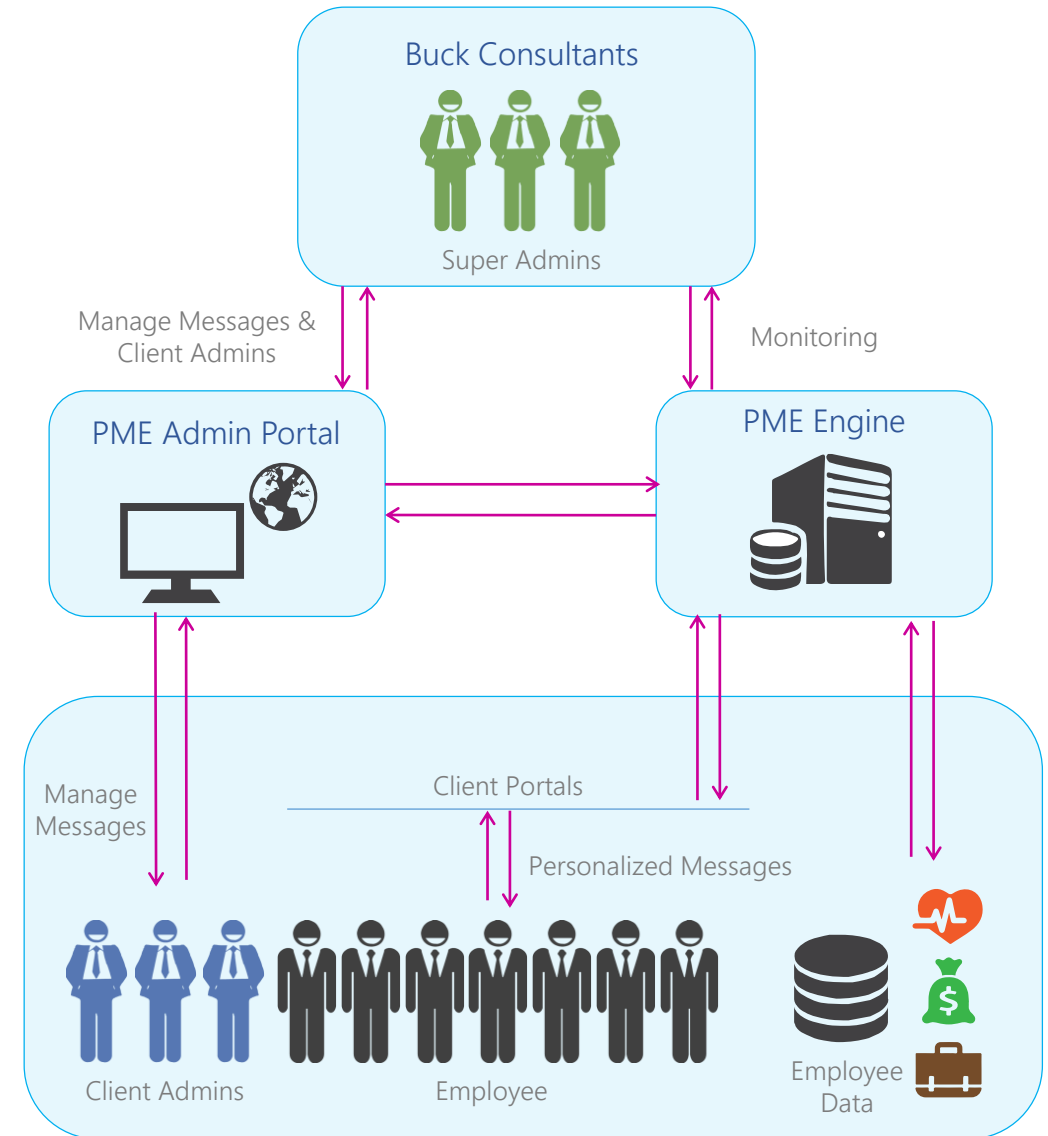


# PME Ecosystem

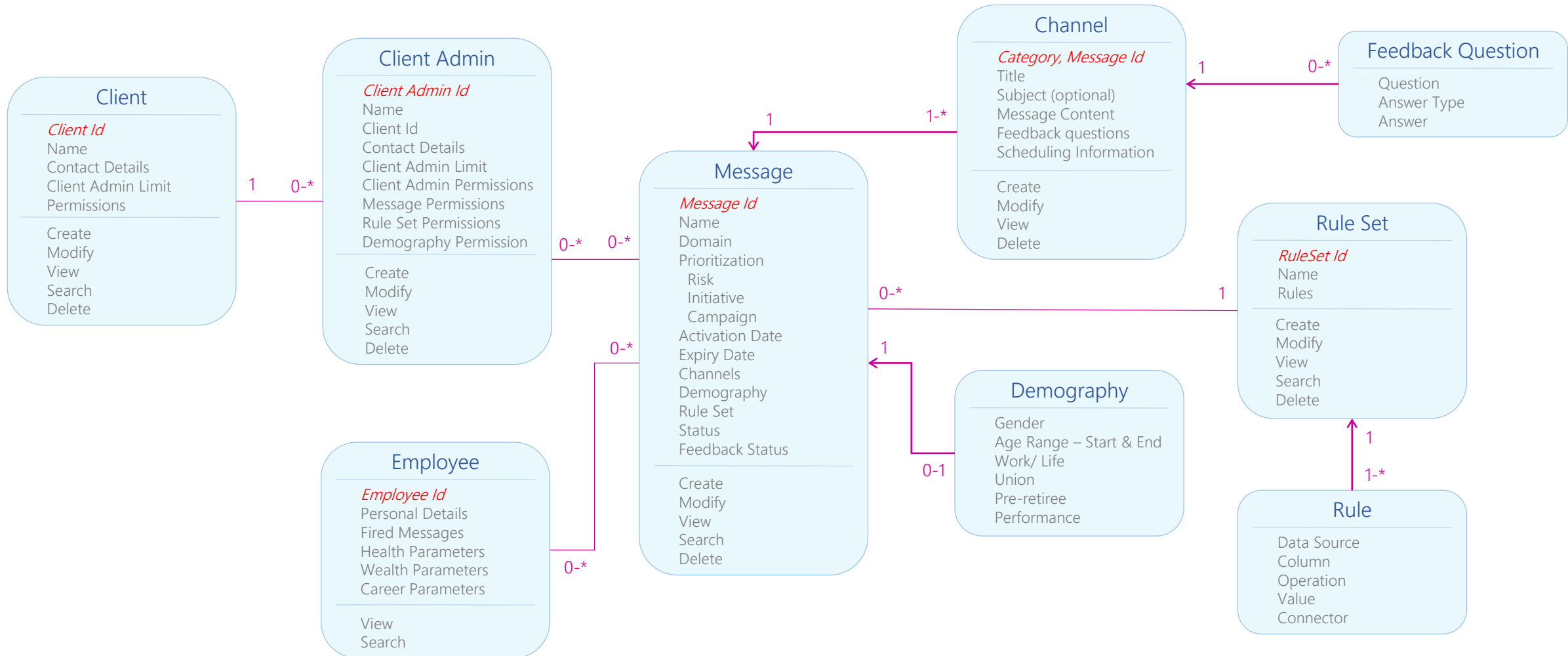
To help organizations motivate positive behavioural changes in employees by targeting **action-oriented messages** for better **health, wealth and career** outcomes

## Goals of PME Admin Portal

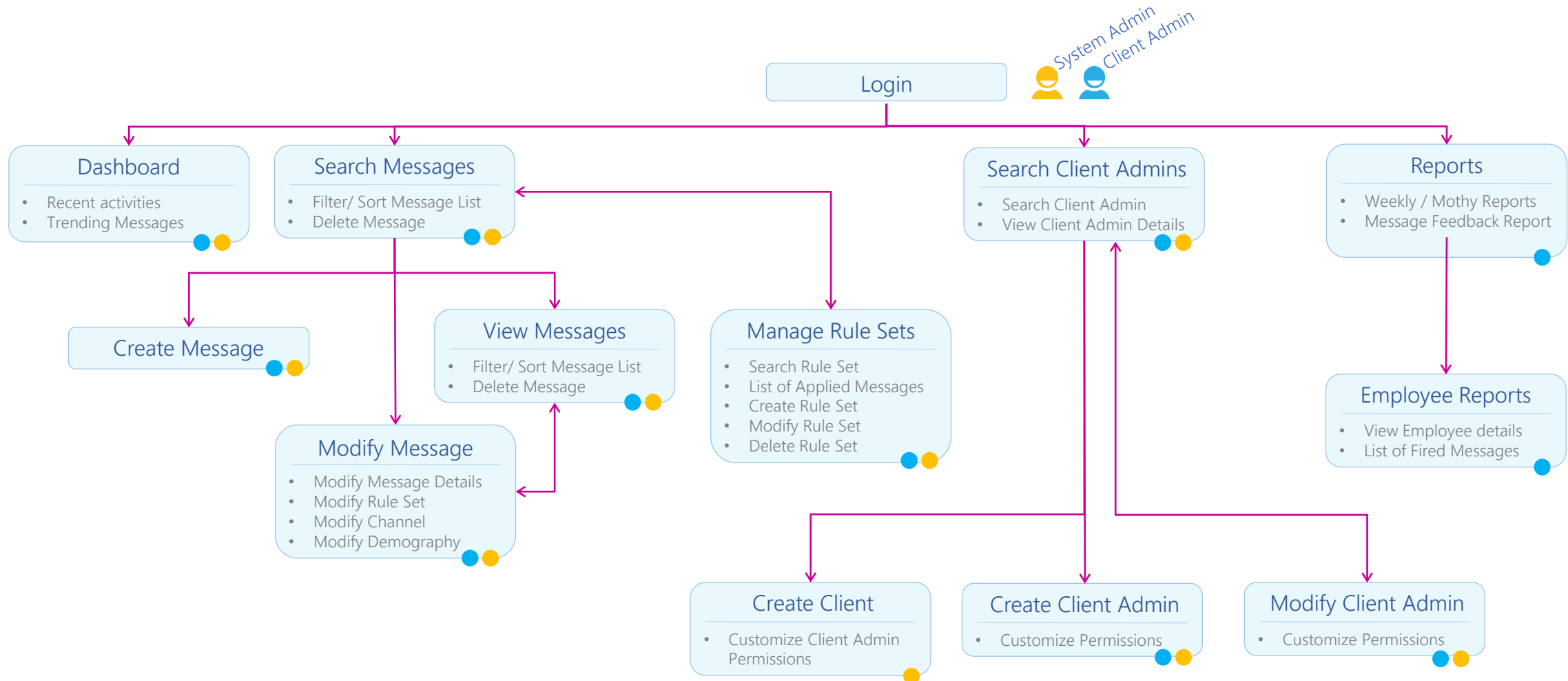
- Ability to **adjust and adapt messages**, timing, and targeted audiences
- Ability to **customize permissions of Client Admins**



# Information Model



# Information Architecture



# Summary

## IA Creation Process

### IA Deliverables

- Information Model
- User Permission Table
- Navigational Structure

### Navigational Structure Creation Approaches

- Bottom-Up
- Top-Down

# Learning

Information Architecture

Rapid Prototyping tools

- Ruby on Rails
- Bootstrap
- Java-Script
- Axure – Web prototyping tool

Research Oriented Approach towards problem solving

# Acknowledgements

Xerox Research Centre India, Bangalore

Research Engineers

Jyotirmaya Mahapatra

Varun Sharma

Research Scientists

Koustuv Dasgupta

Partha Dutta

Geetha Manjunat

Sylvan Lobo, Jr. IxD, IDC



Thank You !!!

