GROUP 10

SUSTAINABLE SHOPPING ASSISTANT

TEAM MEMBERS:

ADIL ARORA -3152721

DEEPANSHU KAPOOR -3151365

IFEAKACHUKWU OVILI - 3140274

ASSIGNMENT 1

Agile System Description – Agile Vision Document

Problem Description :- People frequently forget to buy necessities in a world where living is fast-paced, which results in more store visits and stress. An inability to see what inventory is available at home can lead to overspending or wasteful purchases. To reduce these difficulties, the application aims to provide real-time insights into home inventory. Furthermore, preventing a smooth shopping experience is the inability to organize and retrieve shopping lists. The system aims to make this process more efficient by offering a feature for managing lists that is both simple to use and effective.

Introduction - The Shopping Assistant offers a comprehensive solution to address the difficulties people encounter when managing their shopping needs. The application seeks to address common problems with forgetfulness, visibility into inventory, and challenges locating particular products in stores.

Agile System Description - The Shopping Assistant project follows the guideline of prioritizing the delivery of functional software over extensive documentation. Although documentation has its importance, the team understands that an effective and functional application is the main indicator of progress. Also, the Shopping Assistant development team values human-centered design and believes that people and interactions should come before procedures and equipment. The focus is on developing an interface that is easy to use and intuitive, fitting in with users' natural preferences.

Core values - Release updates and enhancements frequently by putting an agile development approach into practice. This guarantees that users obtain ongoing benefits, the application remains current, and it gains an improved understanding of the needs of the users. Also, we will involve stakeholders in the decision-making process, interact with users, and obtain feedback via reviews and surveys. Create a cooperative atmosphere that respects user contributions.

Features - Inventory management: Users can keep track of the goods in their home stock, schedule product expiration reminders, and get alerts when supplies are running low.

Intelligent Shopping Lists: Put in place an AI-powered system that makes recommendations for users' shopping lists based on their preferences, historical purchases, and the state of the inventory.

Voice Assistant Integration: Include a Voice Assistant function that enables voice commands to be used to communicate with the Shopping Assistant. Customers can ask about the status of their inventory, add products to their shopping lists, and get tailored recommendations using natural language.

Introduce a feature called Flyer List for Sale and Expiration Dates, which gives users information about products that are on sale as well as when they expire. In addition to viewing discounted items and getting alerts for impending expirations, users can access digital flyers.

Goals – All the features are designed to meet certain goals. With the help of an all-inclusive inventory management system, users will be able to effectively organize their home supplies and enjoy increased convenience as the process of making shopping lists and customized recommendations is automated. Additionally, the goal is to improve accessibility and hands-free interaction for customers while streamlining the in-store shopping experience, cutting down on the amount of time customers

spend looking for items and increasing overall efficiency. Finally, it minimizes waste while assisting users in making well-informed decisions about what to buy and utilizing promotions.

Collaboration with stakeholders - Engage users, retailers, and marketing teams in cooperative workshops and feedback sessions as part of a collaborative approach to stakeholder engagement. To guarantee ongoing alignment with stakeholder expectations, regular channels of communication will be established, including forums, focus groups, and direct interaction.

Adaptive Planning: Make quick adjustments to changing requirements by applying agile methodologies. The main objective is to keep the development process flexible so that the team can adapt to changing market dynamics and user needs. In order for the team to look them over and make changes, regularly re-evaluate and reprioritize features based on user feedback and market trends.

Iterative Development: Adopt incremental development cycles to provide users with value as soon as possible. Additionally, conduct sprint reviews on a regular basis to get feedback and make necessary adjustments. Iteratively incorporating user feedback and improving the system based on actual user behaviour and changing preferences is the aim.

Agile Stakeholder List

Stakeholder	Purpose	Internal/External	Operational/Executive
Business Analyst	They analyze, gather, and translate needs into clear requirements and establish effective solutions.	Internal	Operational
Developer Team	Consists of engineers, front-end coders and software architect who develop the features within the app.	Internal	Operational
Scrum Master	Removes hindrance to working effectively.	Internal	Operational
User Experience Designer	Creates unique look for our solution and wireframes.	Internal	Operational

Personal Shopping Assistant	Selects goods or services in store or online that fulfils customer's needs.	Internal	Operational
Customer	To make use of the app.	External	Operational
Cloud-Service Providers	Host data storage for our app. Maintain security as well.	External	Operational
Investors	Provide necessary funds for development of the app.	External	Executive
Board Of Directors	Oversee company affairs, policies and facilitate strategic decision making.	Internal	Executive
Product Manager	To manage project, team leads and all staff.	Internal	Executive
User Experience Manager	Oversee the functions for customer satisfaction and usability.	Internal	Executive
Team Leads	Manage the teams.	Internal	Executive

	Operational	Executive
Internal	*Business Analyst* *Developer Team* *Scrum Master* *User Experience Designers* *Personal Shopping Assistant*	*Team Leads* *Board Of Directors* *Product Manager* *User Experience Manager*
External	*Customer* *Cloud-Service Providers*	*Investors*

Agile Requirements Gathering Approach

To be able to understand the progress and development of our app, we need to include several requirement gathering approaches to best satisfy the need of the customer and to benefit all the stakeholders. We can distribute and collect questionnaires from a few selected customers on regular basis to understand where we are and where we need to head to. We can setup our handles on social media, hold polls and research surveys to gather useful insights from the users. Continuous communication with users is vital as shopping assistant focuses on facilitating customers to find out their possible needs and wishes and what kind of overall experience, they are expecting from us. So, keeping up with effective user interface and providing a good user experience is our priority.

Here is a sample of a questionnaire our company can provide users with.

- Circle the number and rate us on a scale of 1 to 7 on how strongly you agree or disagree with the statement:

Questions	Strongly agree			Strongly Disagree			
We are providing you with accurate needs.	1	2	3	4	5	6	7
Our app is helping to save your time and provide a 1:1 experience like being in a brick-and-mortar shopping center.	1	2	3	4	5	6	7
Are you satisfied with the customer service?	1	2	3	4	5	6	7

   Business analyst and other team leads should focus on observing and documenting requirements which offers a comprehensive insight into organizational operations, that empowers stakeholders to prioritize requirements and design solutions aligned with company's goals. Activity diagram is essential for the documentation allowing us to make
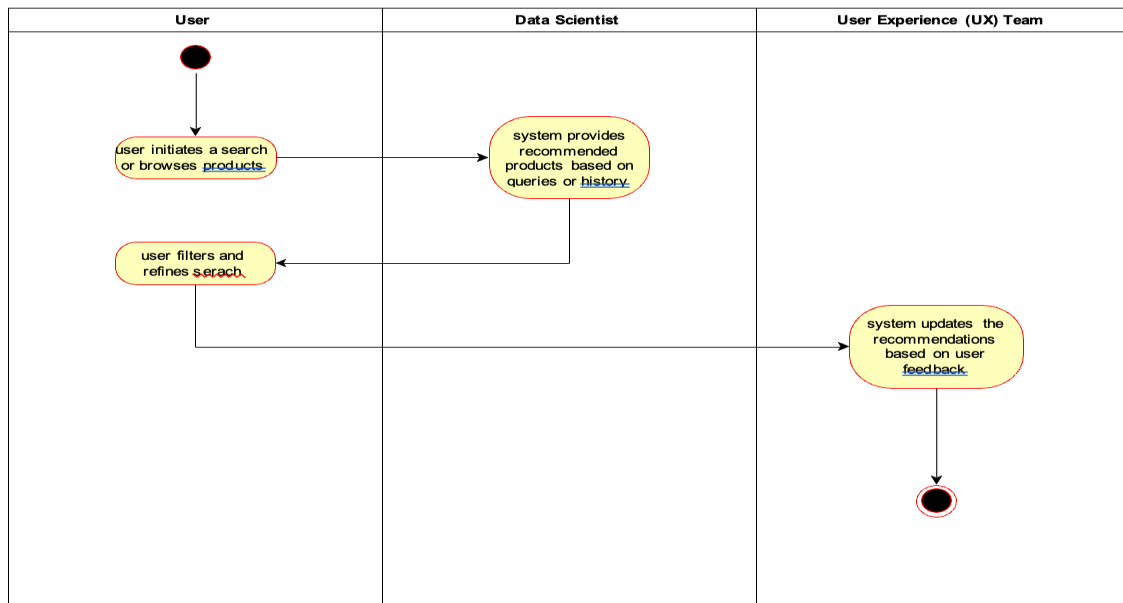
better decisions (provided in part 5). We can make use of user stories which refers to the need of a user required to complete a task to achieve a goal.

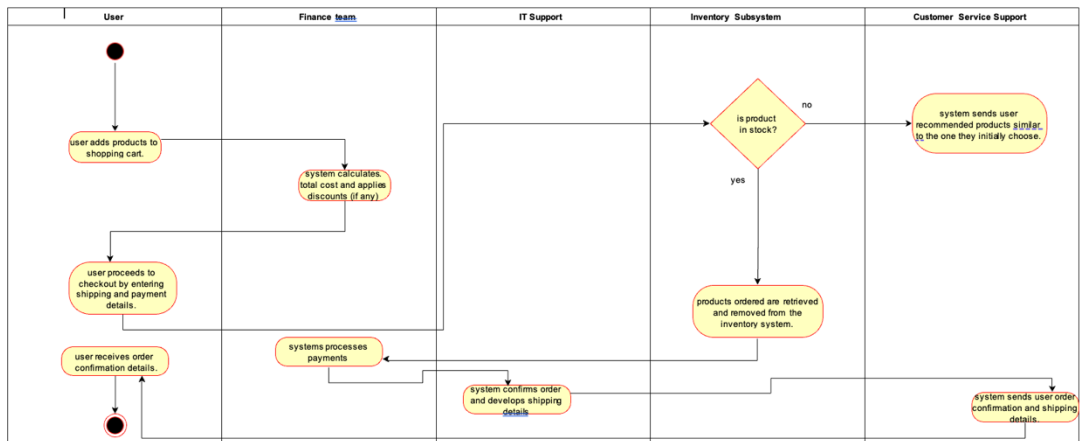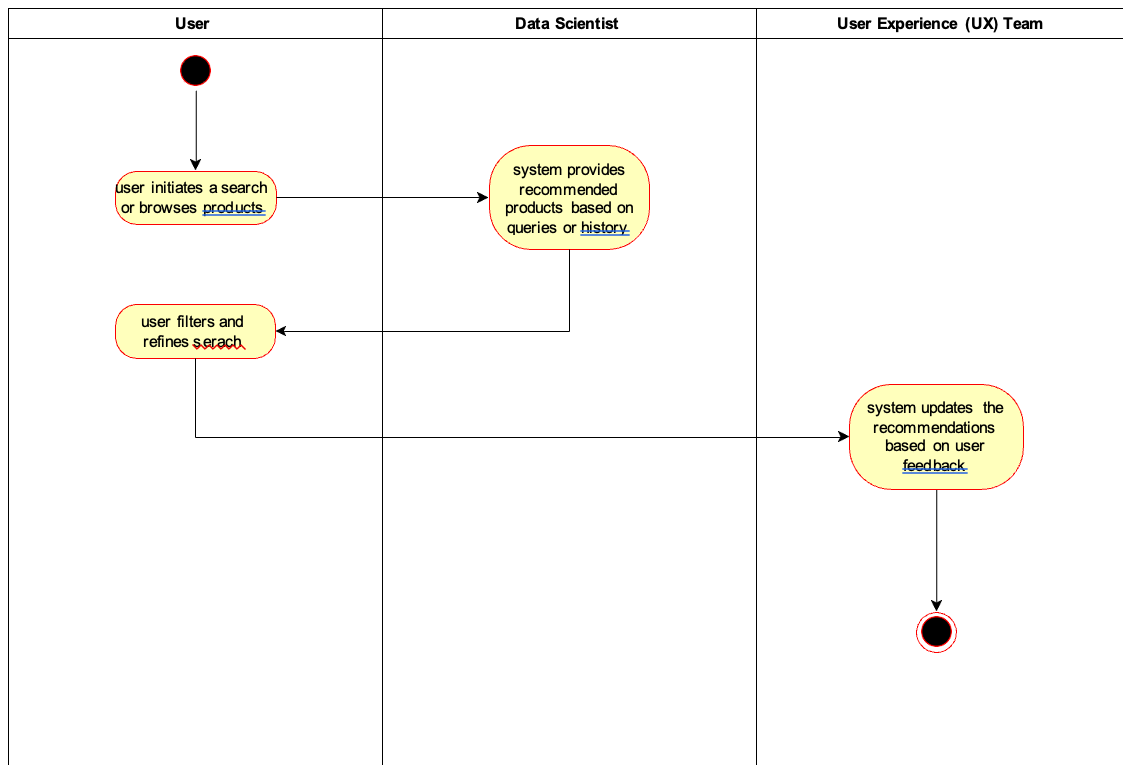The template for a user story description is:

As a <state the role> I want to <goal to achieve> so that <benefit>.

Activity Diagrams

PRODUCT SEARCH AND RECOMMENDATION ACTIVITY DIAGRAM

PRODUCT SEARCH AND RECOMMENDATION ACTIVITY DIAGRAM

User	Data Scientist	User Experience (UX) Team
●		
user initiates a search or browses products.	system provides recommended products based on queries or history	
user filters and refines serach		
		system updates the recommendations based on user feedback
		◉

User	Finance team	IT Support	Inventory Subsystem	Customer Service Support
●			is product in stock? — no	system sends user recommended products similar to the one they initially choose.
user adds products to shopping cart.	system calculates total cost and applies discounts (if any)			
user proceeds to checkout by entering shipping and payment details.			products ordered are retrieved and removed from the inventory system. (yes)	
user receives order confirmation details.	systems processes payments			
◉		system confirms order and develops shipping details		system sends user order confirmation and shipping details.

ID	As a...	I want to be able to	So that I can...	Priority	Sprint	Status	Functional/ Non-Functional
1	Business Administrator	Manage and oversee the user registration process and vensuring security	Control access to the system, protect user data, and comply with privacy regulations	must		to be started	Functional
2	UX/UI Designers	Design an intuitive and user-friendly search and navigation interface	Enhance the overall user experience, making it easy for customers to find products	must		to be started	Functional
3	Marketing Team	Curate product information, including images, descriptions, and reviews	Influence purchasing decisions by presenting products in an appealing and informative way	must		to be started	Functional
4	Data Analysts/Marketing Team	Analyze user behavior and preferences to generate personalized recommendations	Increase customer satisfaction and drive sales through targeted suggestions	should		to be started	Functional
5	Product Managers	Oversee the functionality of the shopping cart and checkout process	Ensure a smooth and efficient process for users to add and review items before purchase	must		to be started	Functional
6	Finance Team	Implement and manage secure payment methods	Facilitate smooth financial transactions and minimize payment-related issues.	must		to be started	Functional
7	Customer Support Team	Access and assist customers with their order history and tracking	Provide support and information to customers regarding their past and current orders	should		to be started	Functional
8	IT Administrators	Manage user accounts, profiles, and security settings	Ensure the integrity and security of user accounts and data	should		to be started	Functional
9	Customer Support Team	Utilize chat support, FAQs, and contact forms to assist users	Resolve customer queries and issues to maintain a positive user experience.	could		to be started	Functional
10	Marketing Team	Manage notifications for order confirmation, shipping updates, and promotions	Engage customers, keep them informed, and promote products effectively	could		to be started	Functional
11	Product Managers	Monitor user wish lists and saved items for product planning	Understand user preferences and plan inventory accordingly	could		to be started	Functional
12	IT/Technical Team	Integrate external services for payment, inventory, and shipping	Ensure seamless operations and efficiency in the overall system	must		to be started	Functional
13	Localization Team	Implement and manage support for multiple languages	Cater to a diverse user base, expanding the reach of the business	could		to be started	Functional
14	Social Media Manager	Integrate and manage social media sharing features	Increase brand visibility and engage users on social platforms	could		to be started	Functional
15	Search Engine Optimization (SEO) Team	Implement efficient search suggestions and auto-complete features	Improve user search experience and enhance product discoverability	could		to be started	Functional
16	IT/Technical Team	Optimize system performance to respond within specified time frames	Ensure a positive user experience and handle varying levels of user traffic	must		to be started	Non-functional
17	IT Administrators	Implement mechanisms for system recovery and data integrity	Minimize downtime and maintain trust in system reliability	must		to be started	Non-functional
18	IT/Technical Team	Plan for system scalability to handle increasing users and transactions	Accommodate business growth and prevent performance degradation	must		to be started	Non-functional
19	IT Security Team	Implement strong authentication and authorization mechanisms	Protect user data and comply with data protection regulations	must		to be started	Non-functional
20	UX/UI Designers	Ensure an easy-to-navigate user interface adhering to accessibility standards	Enhance user satisfaction and accessibility for all users	should		to be started	Non-functional
21	IT/Technical Team	Ensure compatibility with various devices and browsers	Reach users on different platforms and devices	should		to be started	Non-functional
22	IT/Technical Team	Implement interoperability with external systems	Facilitate seamless integration with external services	should		to be started	Non-functional
23	IT Administrators/Developers	Document code for maintainability and plan for future enhancements	Ease future updates and improvements to the system	should		to be started	Non-functional
24	IT Administrators	Implement a low error rate and robust error handling	Minimize disruptions and provide clear information in case of errors	should		to be started	Non-functional
25	Finance Team	Assess and optimize costs related to hosting, resources, and licensing	Ensure efficient and cost-effective system operation and maintenance	could		to be started	Non-functional

Agile Work Breakdown Structure (WBS)

a. Sprint 1 Discovery Phase (Discover and Understand Problem)
Meet with Stakeholders

Arrange and carry out a meeting with the manager of the purchasing department. -4 hrs

Hold one-on-one conferences with multiple purchasing agents. -4 hrs

Arrange and carry out a meeting with managers of retail stores. -5 hrs

Speak with a few end users. -3 hrs

Information Requirements and Use Case Definition

List and describe the use cases. -2 hrs

Determine and specify the information needs. -3 hrs

Determine and evaluate competitors. -4 hrs

Determine any possible risks related to the project. -3 hrs

Descriptions of Workflow and Use Cases

Create descriptions and workflows for the use cases that have been identified. -3 hrs

b. Sprint 2 Design Phase (Design Components for the solution)
GUI and Report Design –

Design input screens, output screens, and reports. – 5hrs

Database and Architecture Design

Design and build the database. -7 hrs

Design overall architecture. -6 hrs

Program Details Design

Design program details. -5 hrs

c. Sprint 3 Implementation Phase (Build Components and Integrate)
GUI Layer Development

Code and unit test GUI layer - 14 hours.

Logic Layer Development
Code and unit test Logic layer programs - 8-hour.

System-Level Testing
Perform all system-level tests - 5 hours.

Functionality Testing
Perform functionality tests - 5 hours.

User Acceptance Testing
Conduct user acceptance tests - 8 hours.

User Stories:-

a. **Management of Inventory:**

User Story 1: View Inventory is the first user story.
I want to be able to view my inventory as a user so that I can monitor the items in my house.
Acceptance Criteria: After a user log in successfully, a clear description of the items in their inventory should appear when they navigate to the inventory section.

User Story 2: Notifications of Expiration
To prevent waste, as a user, I would like to set expiration reminders for the products in my inventory.
Acceptance Criteria:
After successfully logging in, users can set expiration reminders for individual products, which will enable them to receive timely alerts when products are about to expire.

b. **User Stories 3: Smart Buying Lists: AI-Driven Suggestions**

As a user, I want recommendations for my shopping list that are driven by AI and are based on my past purchases and preferences.
Acceptance Criteria:
After a user has successfully logged in, AI-generated recommendations appear when they view their shopping list.

c. **User Story 4: Voice Assistant Integration: Voice Commands**

As a user, I want to be able to add items to my shopping list and manage my inventory with voice commands so that I can do these tasks hands-free.
Acceptance Criteria:
Following successful login, the user can interact with the system using voice commands, and it will respond with accuracy and intuition.

d. **User Story 5: Flyer List with Dates of Sale and Expiration:**

Digital Brochures
I want to be able to access digital flyers as a user that include details about items that are discounted and when they expire.

Acceptance Standards:
After a user has successfully logged in, details about discounted items and expiration dates are shown when they navigate to the digital flyers section.

For the continuous Improvement and Iterative Development:

Iteration Planning: Create a procedure for iterative planning in which user stories are ranked in order of importance according to stakeholder needs, requirements that change, and feedback.

Regular Retrospectives: At the conclusion of every iteration, arrange regular retrospective meetings to discuss what went well, what needs to be improved, and what changes are necessary for the following iteration.

Prioritization Modifications: Be ready to reorder tasks and user stories according to the outcomes of each iteration. By doing this, value is maximized and high-priority features are handled first.

Continuous Learning: Promote a culture of ongoing education among the development team members. To increase the team's overall knowledge, exchange best practices, insights, and lessons discovered.

Testing and Continuous Integration:
Use testing and continuous integration techniques to identify problems early and make necessary corrections and enhancements.