PROJECT REPORT

CLOUD APP DEVELOPMENT

SMART FASHION RECOMMENDER APPLICATION

TEAM ID: PNT2022TMID35310

TEAM MEMBERS:

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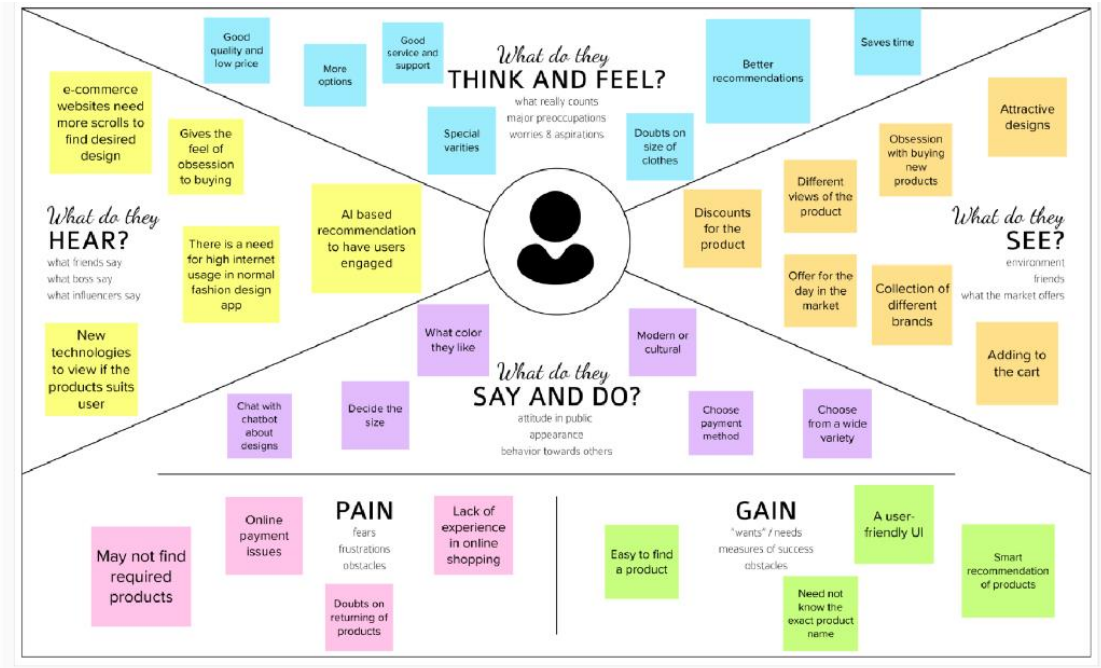
Problem Statement:

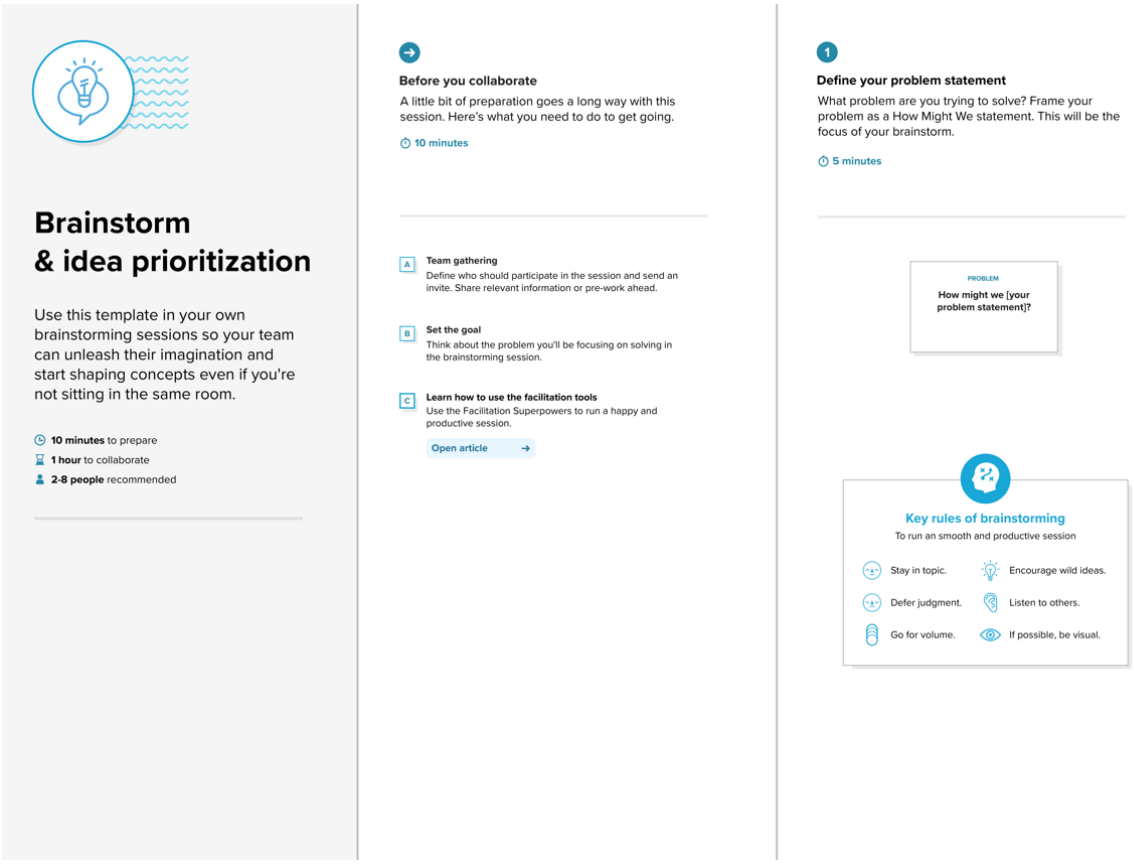
Problem Statement (PS)	Iam (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	Student	Find a suitable bag	It takes me more time	I need to scroll down till I find my favourite	I am wasting time
PS-2	Businessman	Find a proper coatsuit	It feels annoying	Needed to scroll to get a suitable suit	Irritated
PS-3	Parent	find cloth for my children	It shows unneccesary designs	It does not know my desired cloth	Annoying to get a apt cloth
PS-4	Director	find costumes for my crew	It takes too much of effort and time	For each character searching for desired designs	Overheaded with works

Empathy Map:

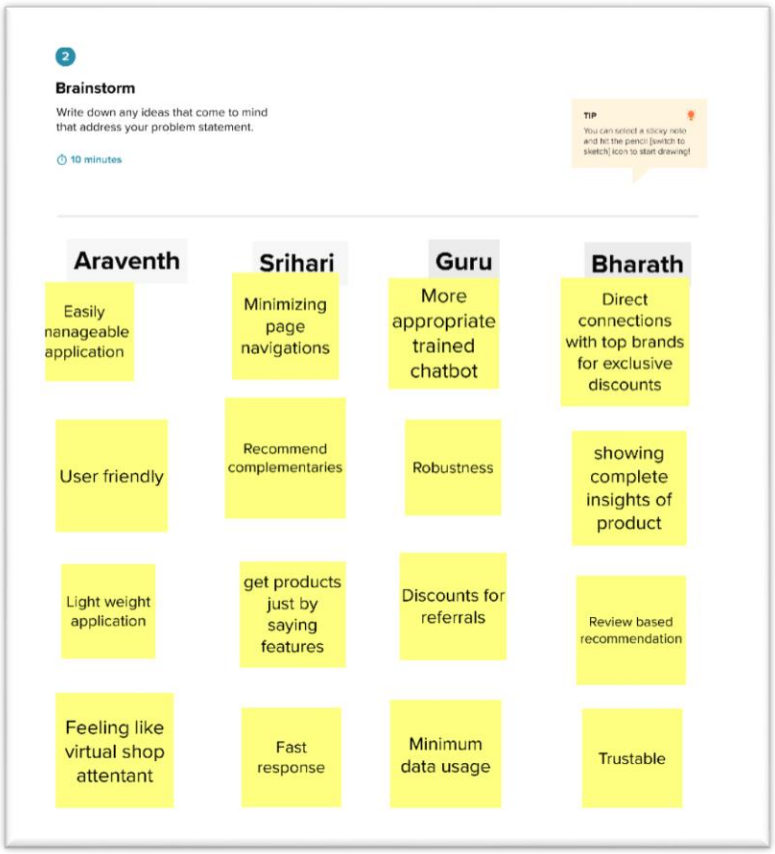


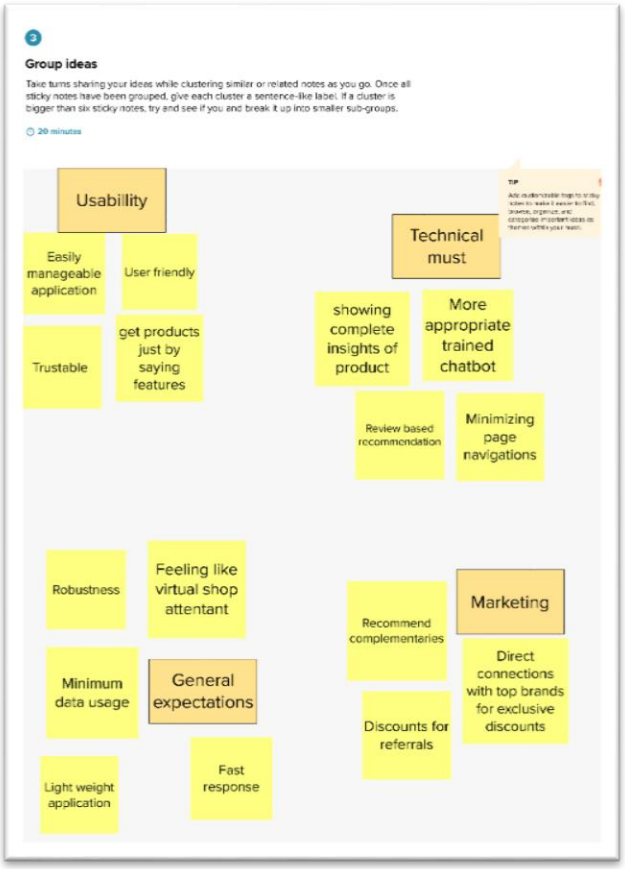
Brainstorm & Idea Prioritization:

Step-1: Team Gathering, Collaboration and Select the Problem Statement



Step-2: Brainstorm, Idea Listing and Grouping





Step-3: Idea Prioritization

LITERATURE SURVEY:

1) **Personalized fashion recommender system with image based neural networks**

Personalized Fashion Recommender system that generates recommendations for the user based on an input given. Unlike the conventional systems that rely on user's previous purchases and history, this project aims at using an image of a product given as input by the user to generate recommendations since many-a-time people see something that they are interested in and tend to look for products that are similar to that. It use neural

networks to process the images from DeepFashion dataset and a nearest neighbour backed recommender to generate the final recommendations.

2) An Intelligent Personalized Fashion Recommendation System

The proposed system significantly helps customers find their most suitable fashion choices in mass fashion information in the virtual space based on multimedia mining. There are three stand-alone models developed in this paper to optimize the analysis of fashion features in mass fashion trend: (i). Interaction and recommender model, which associated clients' personalized demand with the current fashion trend, and helps clients find the most favorable fashion factors in trend. (ii). Evolutionary hierachical fashion multimedia mining model, which creates a hierachical structure to filer the key components of fashion multimedia information in the virtual space, and it proves to be more efficient for web mass multimedia mining in an evolutionary way. (iii). Color tone analysis model, a relevant and straightforward approach for analysis of main color tone as to the skin and clothing is used.In this model, a refined contour extraction of the fashion model method is also developed to solve the dilemma that the accuracy and efficiency of contour extraction in the dynamic and complex video scene. As evidenced by the experiment, the proposed system outperforms in effectiveness on mass fashion information in the virtual space compared with human, and thus developing a personalized and diversified way for fashion recommendation.

3) Interactive Design Recommendation Using Sensor Based Smart Wear and Weather WebBot

The interactive design recommendation using the sensor based smart wear and the weather WebBot (DRS-WB) is proposed. The proposed method is increasing the efficiency of merchandising for human-oriented sensibility product designs. Development of the DRS-WB included a user interface and collaborative filtering of textile and fashion designs to satisfy the user’s needs. Collaborative filtering is used to recommend designs of interest for users based on predictive relationships discovered between the current user and other previous users. Current weather information is simultaneously acquired from the sensor based smart wear and the weather WebBot. The sensor based smart

wear is fabricated as a way of non-tight and comfortable style fitting for the curves of the human body based on clothes to wear in daily life.

4) Intelligent travel chatbot for predictive recommendation in echo platform

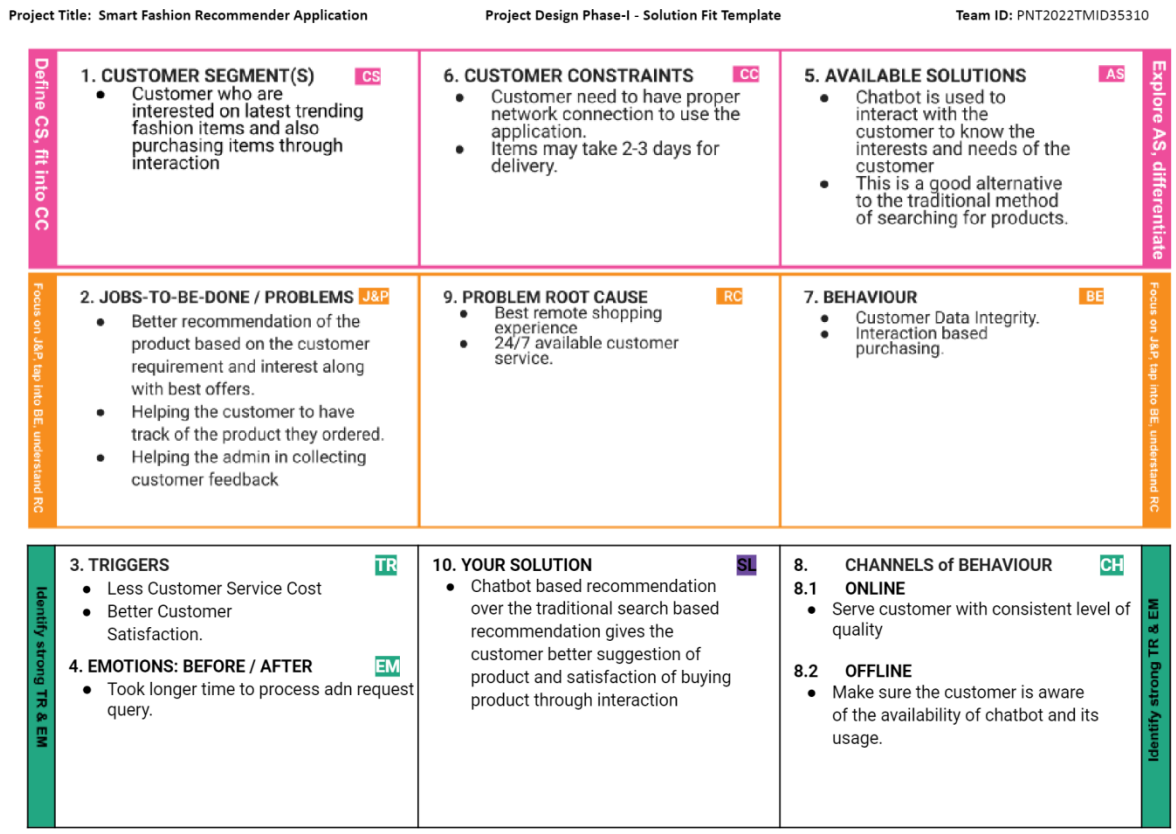
Chatbot is a computer application that interacts with users using natural language in a similar way to imitate a human travel agent. A successful implementation of a chatbot system can analyze user preferences and predict collective intelligence. In most cases, it can provide better user-centric recommendations. Hence, the chatbot is becoming an integral part of the future consumer services. This paper is an implementation of an intelligent chatbot system in travel domain on Echo platform which would gather user preferences and model collective user knowledge base and recommend using the Restricted Boltzmann Machine (RBM) with Collaborative Filtering. With this chatbot based on DNN, we can improve human to machine interaction in the travel domain.

Proposed Solution:

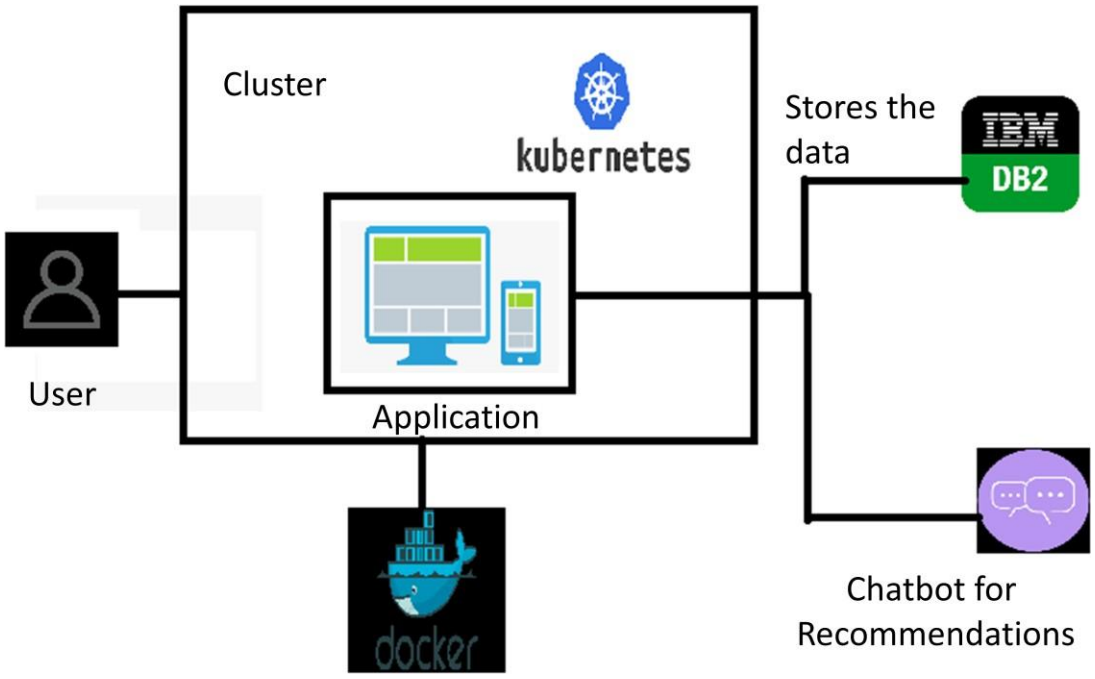
S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	In normal buying applications (like amazon, flipkart), the user needed**to navigate** through **different hectic pages** to buy their desired specification products (like clothes, watches) and also need to navigate through various pages for further steps like offers and feedback for products.
2.	Idea / Solution description	A chatbot which can handle the user queries **through normal chat** like in Whatsapp, and proceed with different steps like viewing offers, getting user choices for choosing designs, proceeding with payments and feedback **in chat itself.**
3.	Novelty / Uniqueness	Most the purchasing platforms are complex with various features displayed using front end leading to different hectic pages rather than a simple chatbot to get all the features using chat. The chatbot also recommend products based on recently bought products.
4.	Social Impact / Customer Satisfaction	Moving from native buying online web applications to compact chatbots which also gives customer a friendly conversation to buy

		their desired products.
5.	Business Model (Revenue Model)	Showing the daily offers in timely intervals in chat and the friendly toned chatbot gives users to buy more items which induces more revenue.
6.	Scalability of the Solution	Since the proposed solution is simple chatbot it does take more data exchanges for showing unnecessary designs rather show user preferring designs. Also, the IBMDB2 database is more scalable for queries and data, hence as the user and query count increases, user does not feel the traffic in their chat.

Proposed Solution Fit:



SolutionArchitecture:



Functional Requirements:

Following are the functional requirements of the proposed solution.

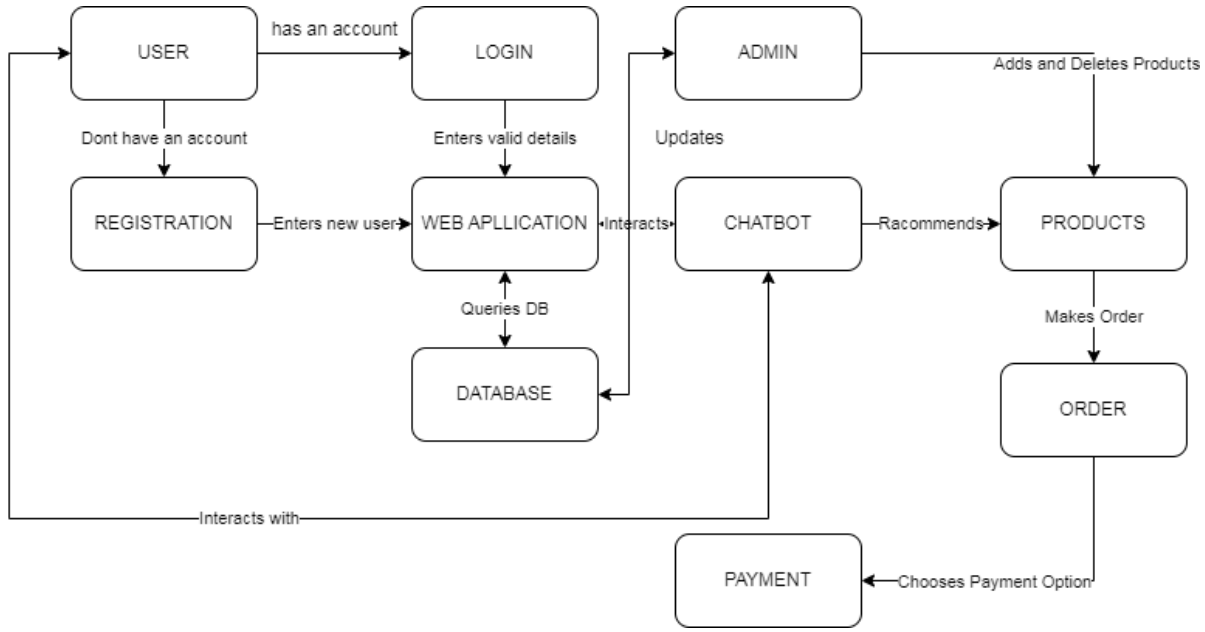
FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User registration	For creating account for the user, user would be rendered a form to fill in their details.
FR-2	User confirmation	Confirming the user's identity using confirmation mail to registered email or via OTP to registered phone number.
FR-3	Sign in	Signing into their account
FR-4	Default options	The chat box will be having few default options like search an item, show offers, etc.
FR-5	Map	Shows the currently ordered item status like location.
FR-6	Bot	Takes care of ordering, processing the user chat into action with a confirmation with user.
FR-7	Choice viewer	Shows the filtered images for the user given design and choices for a particular product in image format.
FR-8	Payment	Dealing with the payment for products in orders.
FR-9	Feedback	To process the feedback and coordinate with producers or services.

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Compact, fastand easy to use through simple chats, rather than confusing navigation tabs.
NFR-2	**Security**	The user purchase and order details will be secure with encryption.
NFR-3	**Reliability**	Databases use ACID properties so no problem in atomicity of transactions while buying or returning products.
NFR-4	**Performance**	High performance, ability to run large concurrent activities.
NFR-5	**Availability**	Available all times, when one node (datastore) is not available, another node has the required data.
NFR-6	**Scalability**	Highly scalable as more user and data included just need to extend with more nodes rather than increasing the computation of systems.

Data Flow Diagram:



User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard	High	Sprint-1
		USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	High	Sprint-1
		USN-3	As a user, I can register for the application through Facebook	I can register & access the dashboard with Facebook Login	Low	Sprint-2
		USN-4	As a user, I can register for the application through Gmail		Medium	Sprint-1
	Login	USN-5	As a user, I can log into the application by entering email & password		High	Sprint-1
	Dashboard	USN-6	As a user, I can navigate and choose options required		Medium	Sprint-3
	Chatbot	USN-7	As a user, I can chat with chatbot to get recommendations	I can get recommendations	High	Sprint-2
Admin	Login	USN-8	As an admin, I can log into the application by entering email & password		High	Sprint-1
	IBM DB2	USN-9	As an admin, I can add and delete the products		High	Sprint-2

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

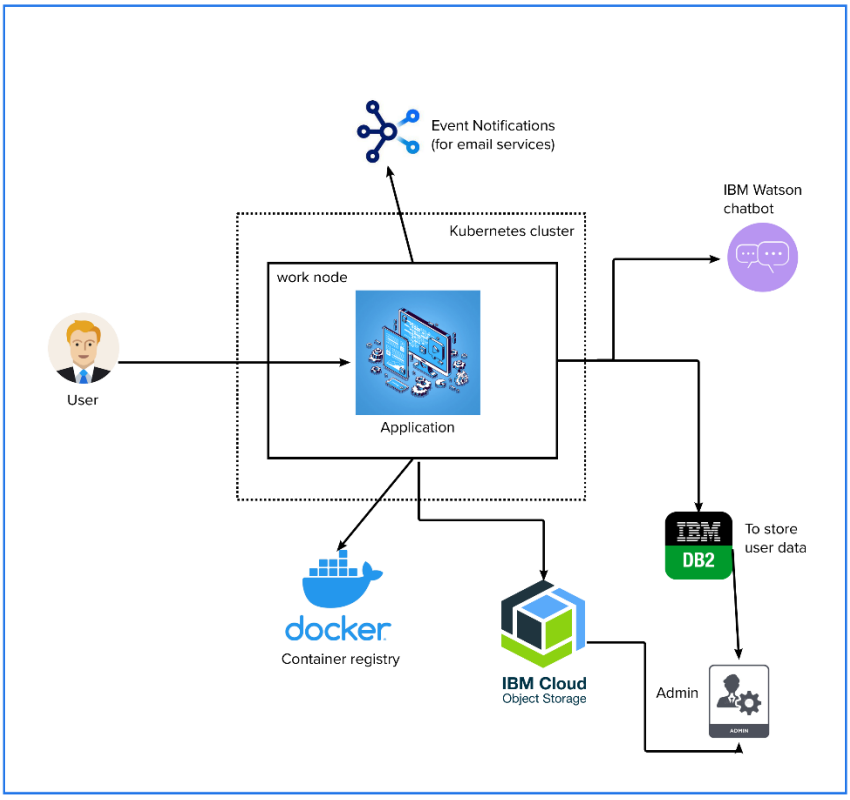


Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chatbot etc.	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Event Notifications	For verification of user and email services	Event Notifications
3.	Docker container registry	For storing the application inside a node, which in turn put in a container registry	Docker
4.	Object Storage	For storing files and data which are not in text form	IBM Cloud Object Storage
5.	Cloud Database	Database Service on Cloud for storing user informations	IBM DB2
6.	Chatbot	Taking input message, finding its indent, selecting proper products according to indent or choices from user, returning list of appropriate products	IBM Watson Chatbot
7.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration :	Local, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Docker	Technology of Opensource framework
2.	Security Implementations	User authentication using email services from Event notifications.	Event Notifications
3.	Scalable Architecture	Handles huge requests and data	Docker, Kubernetes
4.	Availability	Available 24*7 through Chatbot, Kubernetes (manages nodes)	IBM Watson chatbot, Kubernetes
5.	Performance	Fast and recommend appropriate products through AI powered chatbot	IBM Watson chatbot

Customer Journey: