Report

News Tracker Application

Team ID: PNT2022TMID18306

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Category: Cloud App Development

Skills Required: IBM Cloud,HTML,Javascript,IBM Cloud Object Storage,Python-Flask,Kubernetes,Docker,IBM DB2,IBM Container Registry

Project Description:

As our lives are very busy these days, we often feel we need more than 24 hrs. a day to cope up with everything we have in our schedule. Well, that's not possible but reducing the time by changing the conventional method of reading news can help. Just tell us what market news you're interested in and get a quick peek for the day. Only read what you feel is relevant and save your time. This app helps you to query for all information about Indices, Commodities, Currencies, Future Rates, Bonds, etc.… as on official websites.

Literature Survey

TITLE	News topic detection based oncapsule semantic graph
AUTHOR	Shuang Yang; Yan Tang
JOURNAL	Big Data Mining and Analytics
DOP	June 2022
KEY POINTS	• This is a news topic detection model on the basis of capsule semantic graph (CSG). The keywords that appear in each text at the same time are modelledas a keyword graph, which is divided into multiple subgraphs throughcommunity detection. • Each subgraph contains a group of closely related keywords. The graph is usedas the vertex of CSG. The semantic relationship among the vertices is obtainedby calculating the similarity ofthe average word vector of each vertex. • At the same time, the news text is clustered using the incremental clusteringmethod, where each text uses CSG; that is, the similarity among texts is calculated by the graph kernel.

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TITLE	News Recommendation Systems - Accomplishments, Challenges &Future Directions
AUTHOR	ChongFeng; Muzammil Khan;Arif Ur Rahman; Arshad Ahmad
JOURNAL	IEEE Access

DOP	January 2020
KEY POINTS	• News publishers have decreased disseminating news through conventional newspapers and have migrated to the use of digital means like websites andpurpose-built mobile applications. • The objectives of the current work are to identify and classify the challenges innews recommendation domain, to identify state-of-the-art approaches and classify on the application domain, to identify datasets used for evaluation andtheir sources, the evaluation approaches used and to highlight the challenges explicitly addressed. • The literature is thoroughly studied over the time span of 2001-2019 and shortlisted 81 related studies, broadly classified into six categories and discussed. The analysis showed that 60% of news recommendation system adopted a hybrid approach, 66% studies little talk about datasets, and addresses a few challenges from a longlist of challenges in the news domain.

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TITLE	HYPNER: A HybridApproach for Personalized News Recommendation
AUTHOR	AsgharDarvishy; Hamidah Ibrahim; Fatimah Sidi; Aida Mustapha
JOURNAL	IEEE Access

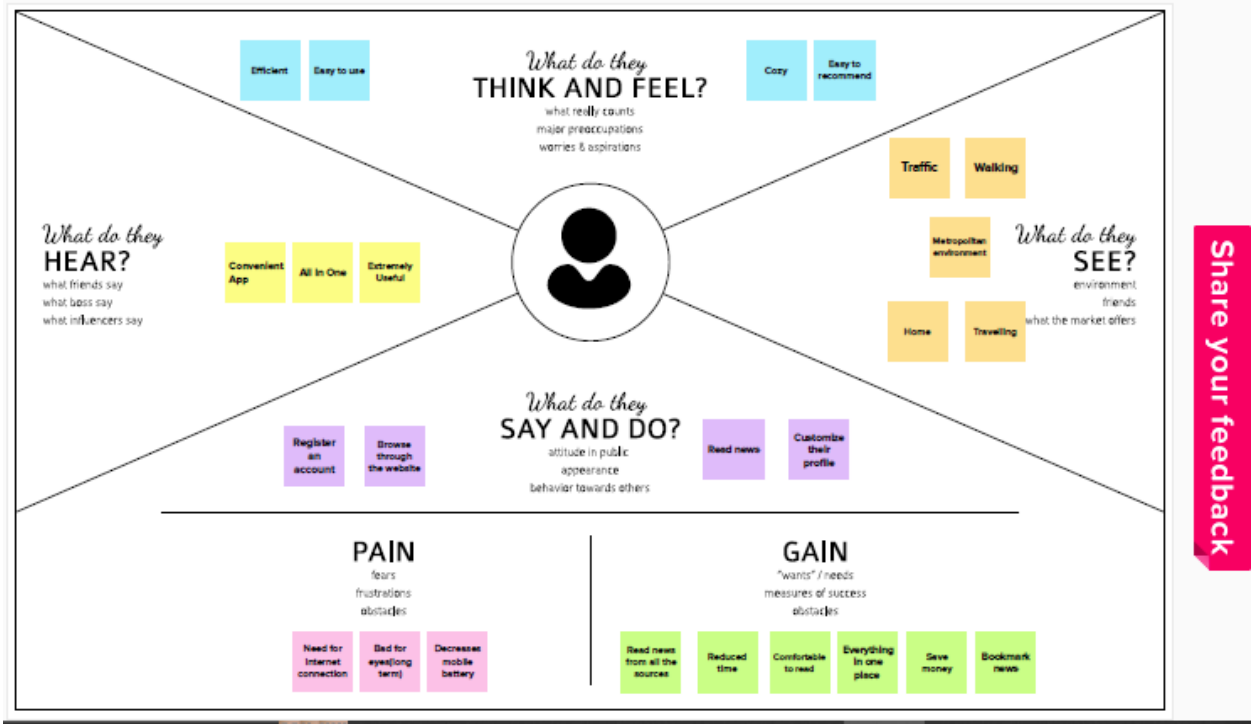
DOP	March 2020

KEY POINTS	• A personalised news recommendation system extracts news set from multiplepress releases and presents the recommended news to the user. In an effort to build a better recommender systemwith high accuracy, this paper proposes a personalised news recommendation framework named Hybrid Personalised News Recommendation (HYPNER). • HYPNER combines both collaborative filtering-based and content-based filtering methods. The proposed framework aims at improving the accuracy ofnews recommendation by resolving the issues of scalability due to large news corpus, enriching the user's profile, representing the exact properties and characteristics of news items, and recommending diverseset of newsitems. • Validation experiments showed that HYPNER achieved 81.56% improvementin F1 -score and 5.33% in diversity as compared to an existing recommendersystem, SCENE.

Empathy Map Canvas

1

Build empathy and keep your focus on the user by putting yourself in their shoes.



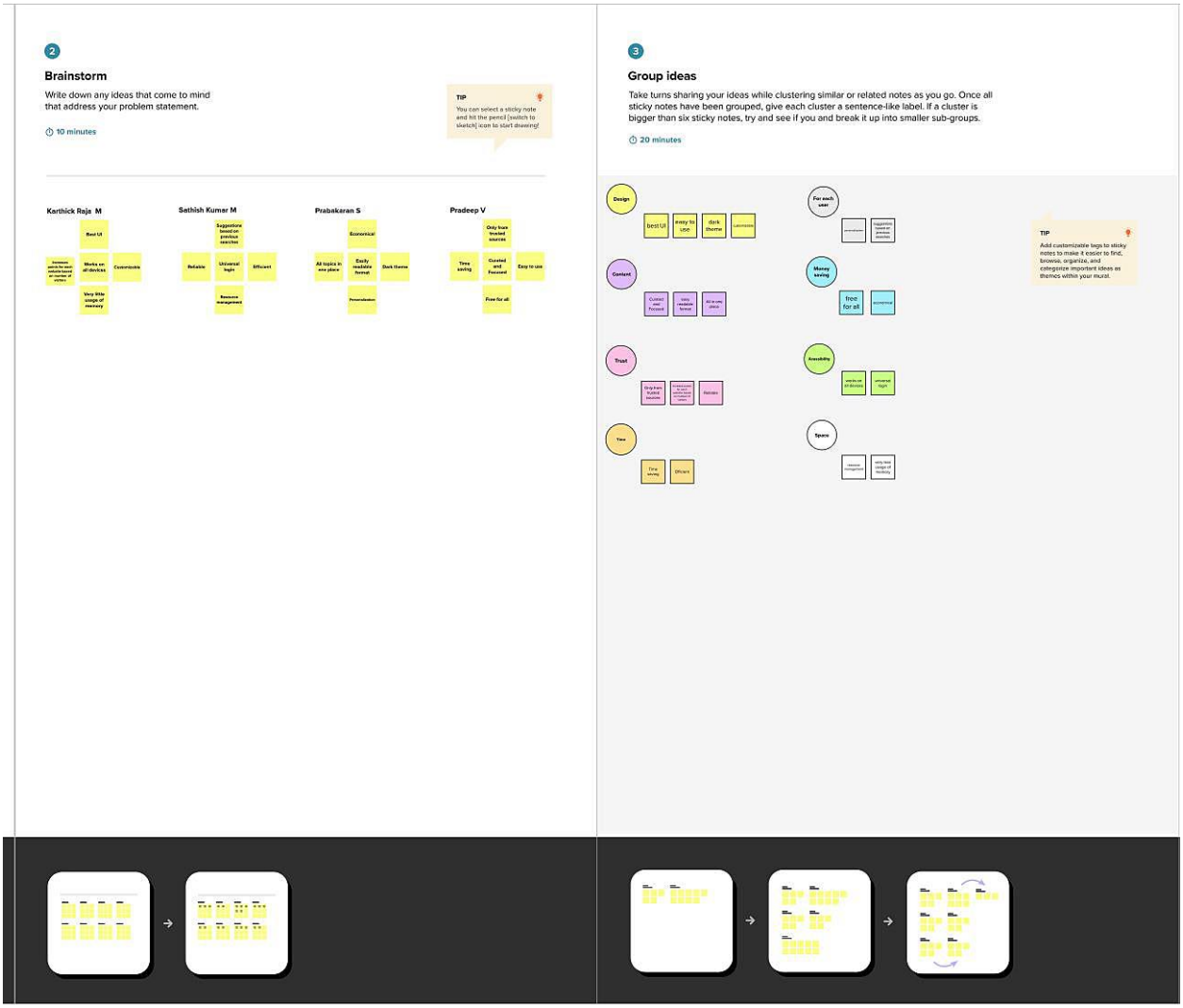
Share your feedback

Problem Statement

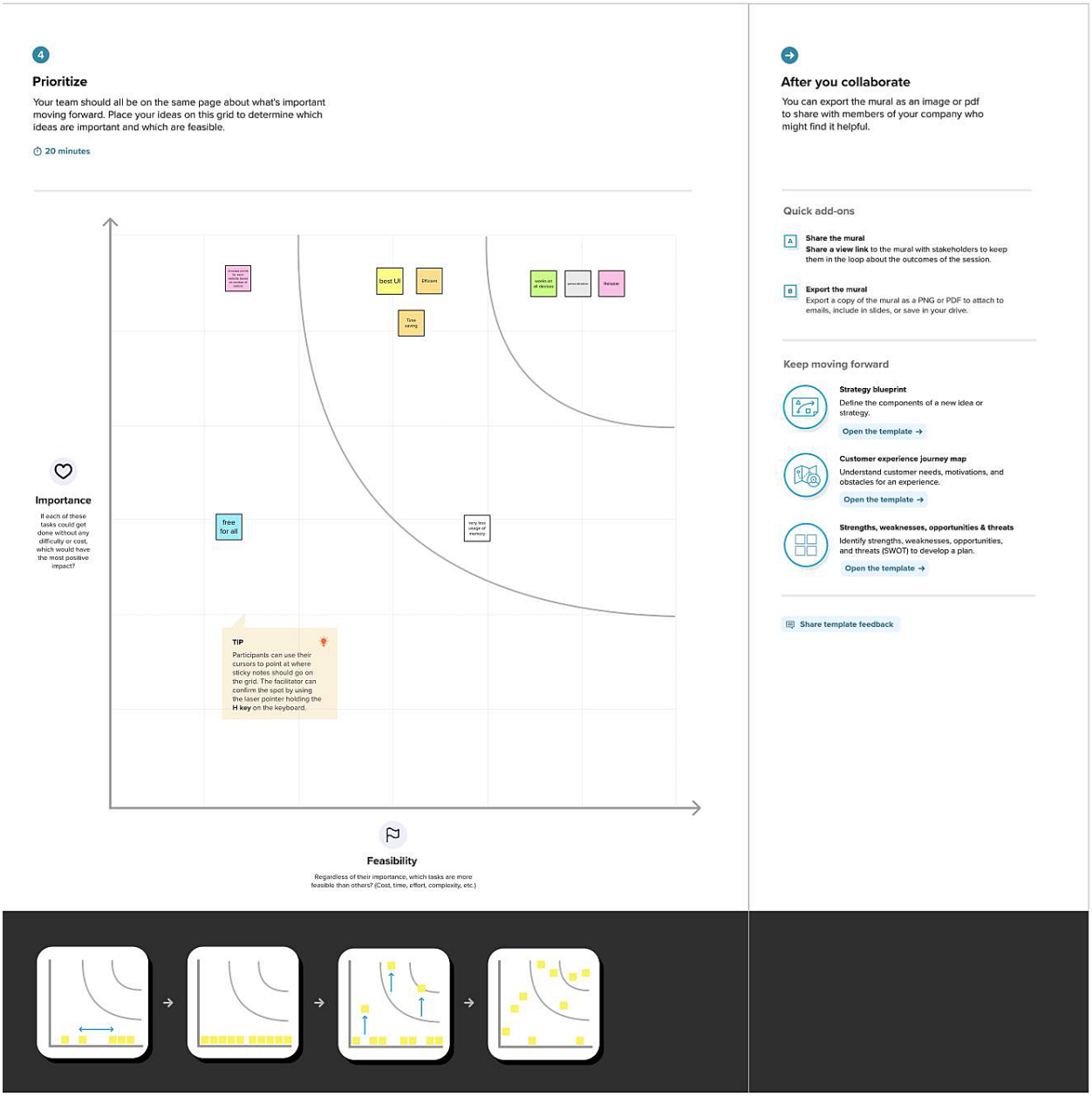
Brainstorm & Idea Prioritization

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

Step-2: Brainstorm, Idea Listing and Grouping

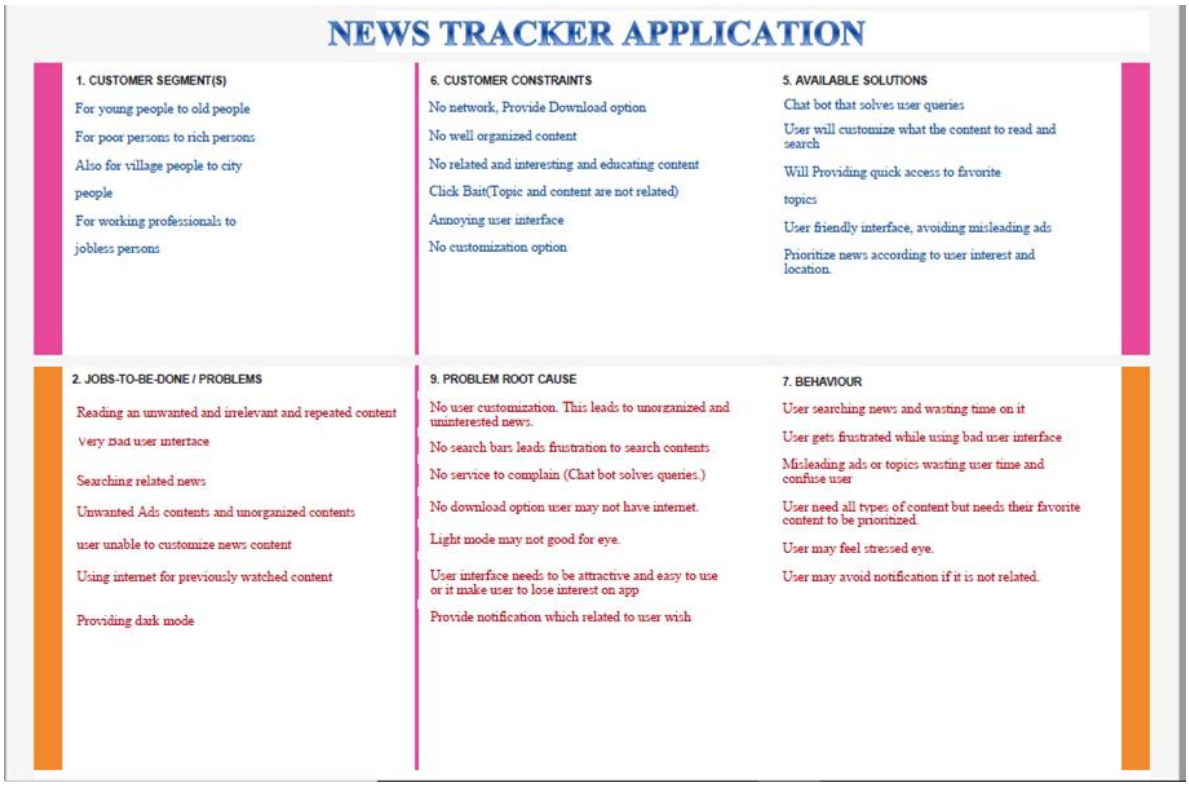


Step-3: Idea Prioritization



PROJECT DESIGN PHASE - 1

Problem Solution Fit

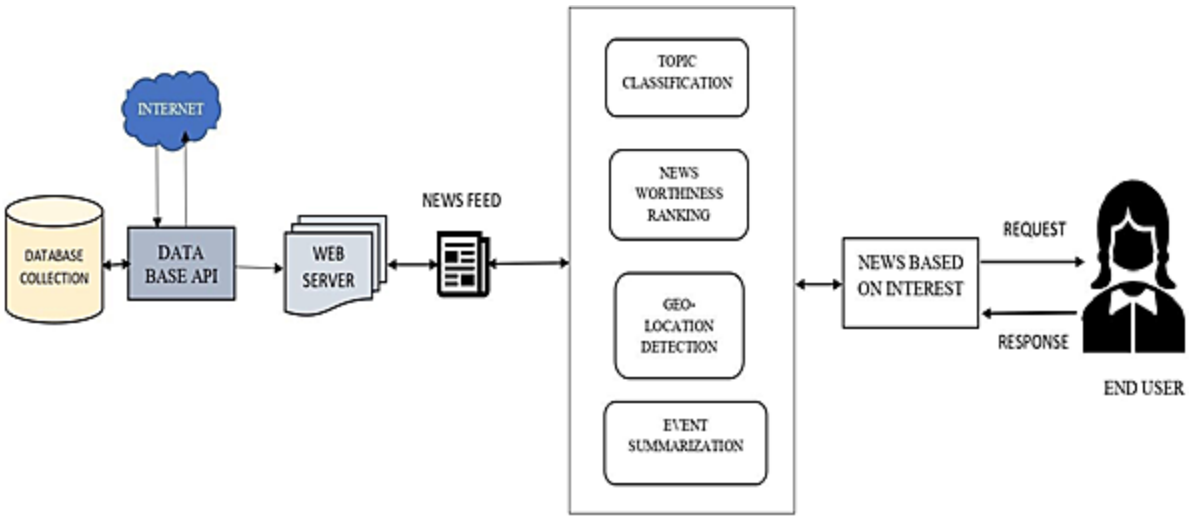


Proposed Solution

S.No.	Parameter	Description

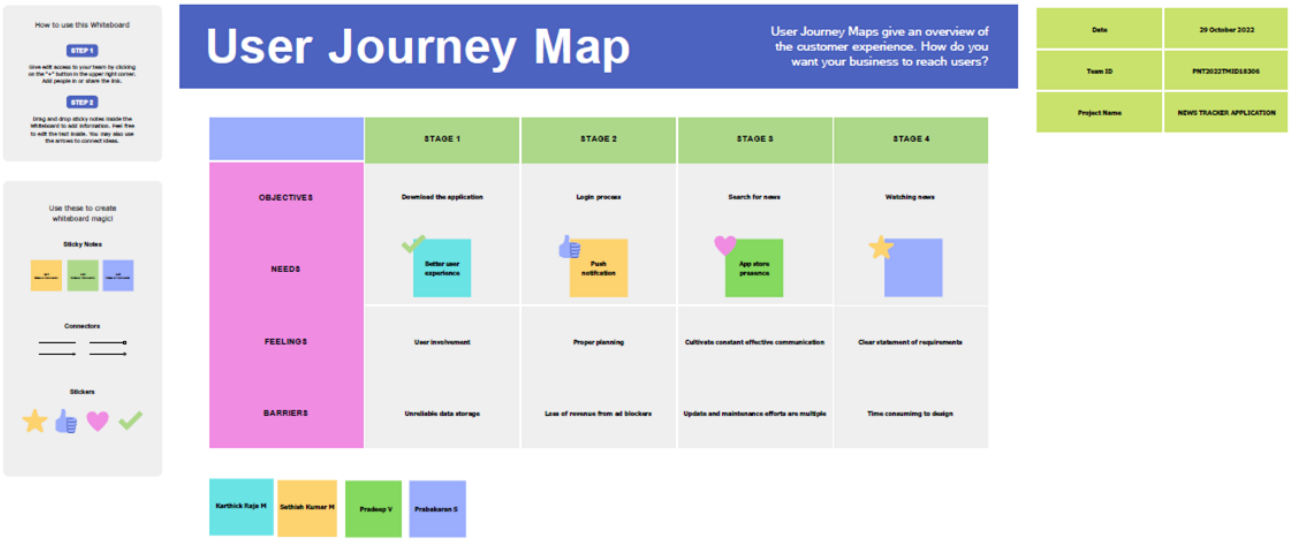
1.	Problem Statement (Problem to be solved)	User needs to get real time news without any interruption of spams and ads. On the addition, the news can also be accessible based on keyword search, choices and other preferences provided by the user.
2.	Idea / Solution description	A cloud-based news tracker application that displays all latest news and the news that satisfies the user's interest based on their preferences.
3.	Novelty / Uniqueness	News applications are a huge part of the strategy today. News tracker application are better to consume any type of news content. More convenient to keep track on recent happenings around the world.
4.	Social Impact / Customer Satisfaction	Keeping track on real time news makes you well informed about all sorts of situations and incidents around the world. It is an essential one and influences the decisions in each life. Improving the user experience by providing relevant news and neglecting ads and spams.
5.	Business Model (Revenue Model)	For 3 months the user can access each feature of the application for free. After that the user need to subscribe premium plan so that he can avoid advertisement.
6.	Scalability of the Solution	Since the web application is deployed on IBM cloud, it can handle multiple users at a time. The user has more flexibility, and it enables them to view the news according to their interests and choices. Users from all age categories can use the application and the news can also be filtered according to their age.

Solution Architecture

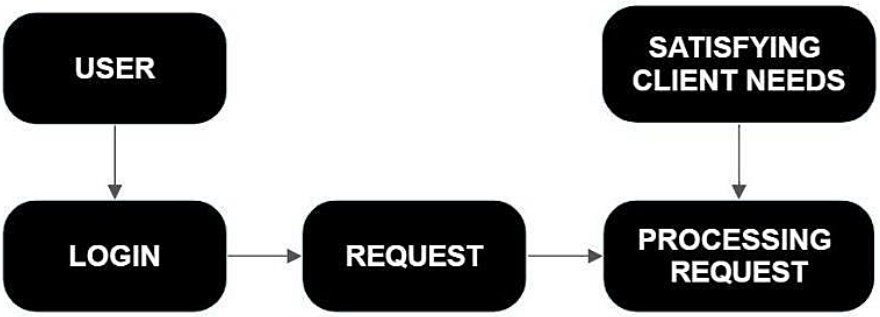


PROJECT DESIGN PHASE - 2

Customer Journey Map



Data Flow Diagram & User Stories



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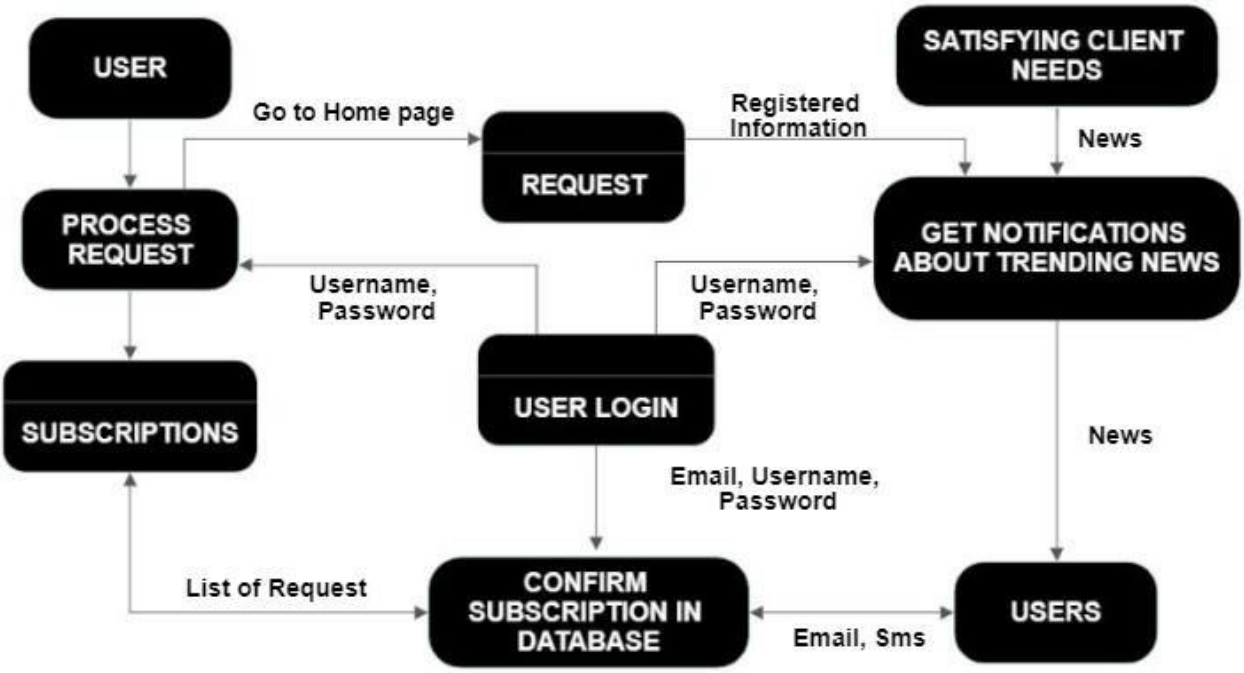


Solution Requirements (Functional & Non-functional)

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	User login	Login through browser directly by entering Username and password Login through email

FR-4	User interaction	Done through user interface between client and server User goes through the filtered news provided by application
FR-5	User Account Settings	User can update account credentials, update interests and choices of news and report any issues

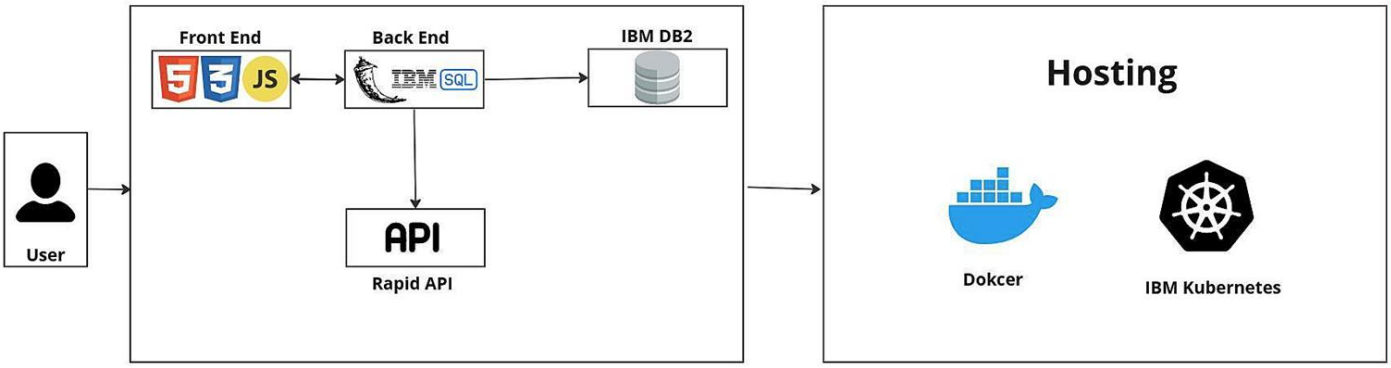
Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The application is easily navigable, it has an interface which is user-friendly. The login/register page has simple terms which can be filled by a user who has not done it before. The user interface navigates the user to the home page and asks for interests. The settings can be quickly accessed by the user by going to the account settings, where the credentials and interests can be changed anytime.
NFR-2	**Security**	The application uses Google Auth 2.0 / Auth0 for User authentication.
NFR-3	**Reliability**	The application should be able to perform without failure in 95 percent of all use cases during a month since the IBM cloud doesn't face down time so often.
NFR-4	**Performance**	Performance is the core non-functional requirements no system can do without. It defines how fast a software system or a particular piece of it responds to certain user actions under a certain workload. In most cases, this metric explains how long a user must wait before the target operation happens (the page renders, a transaction is processed, etc.) given the overall number of users at the moment. The application's news feed page has a loading time of 6 seconds.
NFR-5	**Availability**	Availability describes how likely the system is accessible to a user at a given point in time. The application must be available to the users at least 99% of the time in a month.

NFR-6	**Scalability**	Scalability assesses the highest workloads under which the system will still meet the performance requirements. There are two ways to enable your system scale as the workloads get higher: horizontal and vertical scaling. The application should be able to handle up to 10,000 users at a time considering the cloud factors.

Technology Stack (Architecture & Stack)



Project Planning Phase

Project Planning (Milestones & ActivityList)

Milestones	Activities	Description
Project Development Phase	Delivery of Sprint – 1,2,3,4	To developthe code and submit the developed code by testing it
Setting up App environment	Create IBM Cloud account	Signup for an IBM Cloud account
	Create flask project	Getting started with Flask to create project

	Install IBM Cloud CLI	Install IBM Command LineInterface
	Docker CLI Installation	Installing DockerCLI on laptop
	Create an account in SendGrid	Create an account in SendGrid. Use theservice as email integration to our application for sending emails
Implementing webApplication	Create UI to interact with Application	Create UI 1. Registration page 2. Login page 3. View products page 4. Add products page
	Create IBM DB2 & connectwith python	Create IBMDB2 service in IBM Cloudand connect withpython code with DB
Integrating SendGridservice	SendGrid integration with python	To send emails form the application weneed to integrate the SendGrid service
Developing a chatbot	Building a chatbot and integrate to application	Build the chatbot and integrate it to the flaskapplication
Deployment of App in IBMCloud	Containerize the App	Create a docker image of your applicationand pushit to the IBM container registry
	Upload image to IBM container registry	Upload theimage to IBM container registry
	Deploy in Kubernetes cluster	Once the image is uploaded to IBM Container registry deploy the image to IBMKubernetes cluster

Finished tasks (Milestones &Activities)

Milestones	Activities	Description

IdeationPhase	LiteratureSurvey	Literature surveyon theselected project & information gathering
	Empathy Map	Prepare Empathy map to capture the user Panis & Gains, prepare list of problem statement
	Ideation	Organizing the brainstormingsession and prioritise the top 3 ideas basedon feasibility & Importance
Project Design PhaseI	ProposedSolution	Prepare proposed solution document which includes novelty, feasibility of ideas, business model,social impact, Scalability of solution
	ProblemSolution Fit	Prepare problem solution fit document
	SolutionArchitecture	Prepare solution architecture document
Project Design PhaseII	CustomerJourney	Prepare customer journey mapto understand the user interactions & experience with the application
	Functional requirement	Prepare functional &non-functional requirement document
	Data Flow Diagram	Prepare Data FlowDiagram and user stories
	Technologyarchitecture	Draw the technology architecture diagram

Project Planning Phase	Milestones& Activity list	Prepare milestones and activity list of the project
	Sprint Delivery Plan	Prepare sprint delivery plan

Project Planning Template (Product Backlog, Sprint Planning, Stories,Story points)

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority
Sprint-1	User Panel	USN-1	The user will login into the website and gothrough the products available on the website	20	High
Sprint-2	Admin panel	USN-2	The role ofthe admin is tocheck out thedatabase about the stock and have a track of all the things that the users are purchasing.	20	High
Sprint-3	Chat Bot	USN-3	The user can directly talk to Chatbot regarding the products. Get the recommendations based on information provided by the user.	20	High
Sprint-4	final delivery	USN-4	Container of applications using docker kubernetes anddeployment the application. Create the documentation and final submit the application	20	High

Project Tracker, Velocity& Burndown Chart:(4 Marks)

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022		29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022		05 Nov 2022

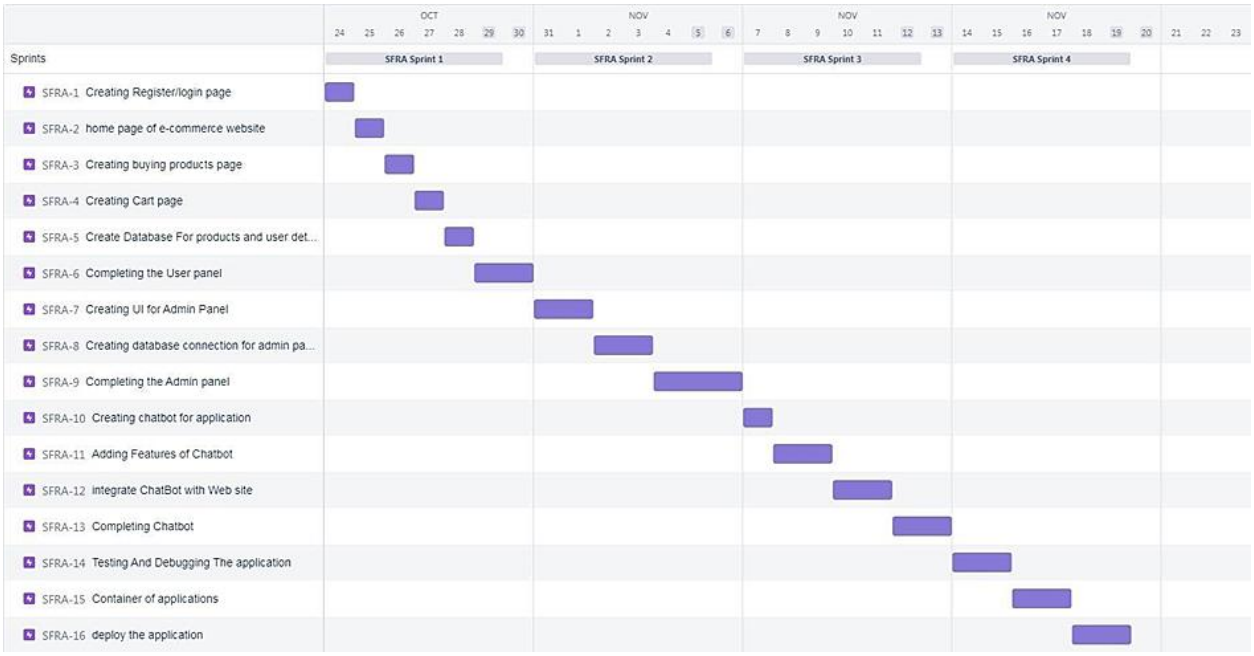
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022		12 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022		19 Nov 2022

Velocity:

Imagine we have a 10-day sprint duration, and the velocity of the team is 20 (points per sprint). Let's calculate the team's average velocity (AV) periteration unit (story pointsper day)

$$AV = \frac{sprint\ duration}{velocity} = \frac{20}{10} = 2$$

Burndown Chart:



Product Backlog, SprintSchedule, Estimation

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story points	Priority
Sprint-1	Setting up App environment	USN-1	As a user, I can register in ICTA Academy and create IBM cloud account.	2	High

Sprint-1		USN-2	As a user,I will createa flask project	1	Low
Sprint-1		USN-3	As a user, I willinstall IBM CloudCLI	2	Medium
Sprint-2	Setting up App environmen t	USN-4	As a user, I can install Docker CLI	1	Low
Sprint-2		USN-5	As a user, I will Createan account inSendGrid	2	Medium

Sprint-3	Implementing web application	USN-6	As a user,I Create UI to interactwith the application	1	High
Sprint-3		USN-7	As a user, I Create IBM DB2 andconnect withPython	3	High
Sprint-3	Integrating SendGrid service	USN-8	As a user, I will be integratingSendGrid withpython code	2	High
Sprint-3	Developing a chatbot	USN-9	As a user, I have to build a chatbotand integrate to application	1	Mediu m
Sprint-4	Development of App inIBM Cloud	USN-10	As a user, I will Containerize theApp	1	Low
Sprint-4		USN-11	As a user, I will uploadimage to IBMContainer registry	2	Mediu m

Sprint-4		USN-12	As a user,I will deployApp in Kubernetes cluster	3	High
Sprint-4	User panel		As a user 1. Register, Login,Email, Verification 2. Manual Search 3. Order placement, Order Details	3	High

Project Tracker,Velocity & Burndown Chart

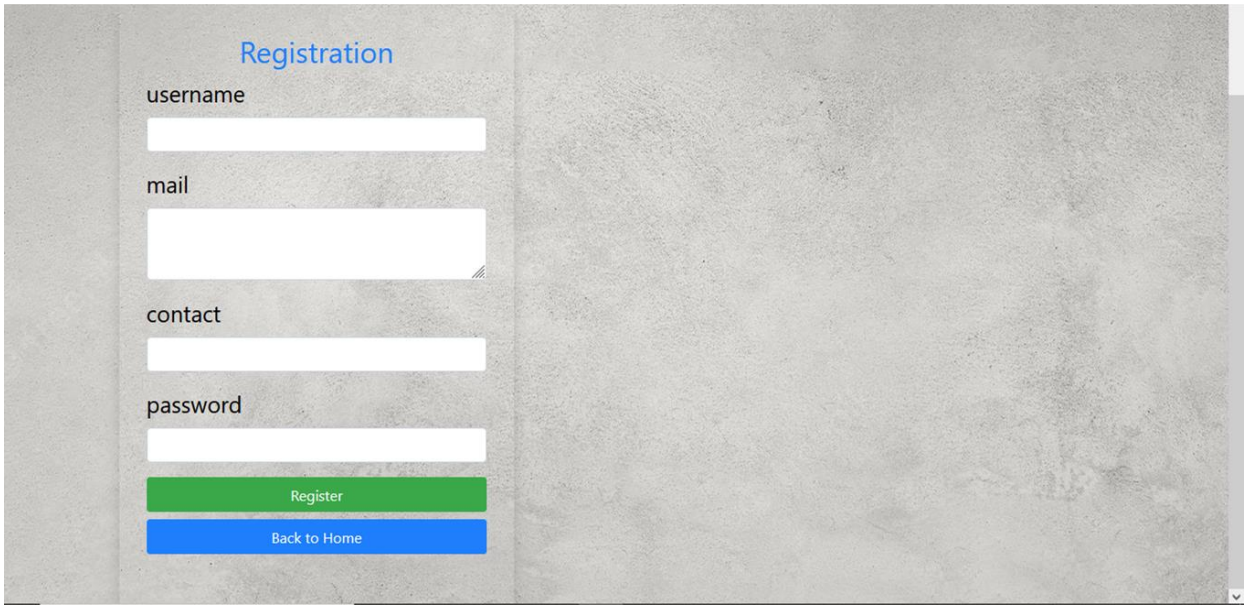
Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as onPlanned End Date)	Sprint Release Date (Actual)
Sprint-1	18	6 Days	24 Oct 2022	29 Oct 2022	24	29 Oct 2022
Sprint-2	18	6 Days	31 Oct 2022	05 Nov 2022	24	05 Nov 2022
Sprint-3	18	6 Days	07 Nov 2022	12 Nov 2022	24	12 Nov 2022
Sprint-4	18	6 Days	14 Nov 2022	19 Nov 2022	24	19 Nov 2022

Velocity

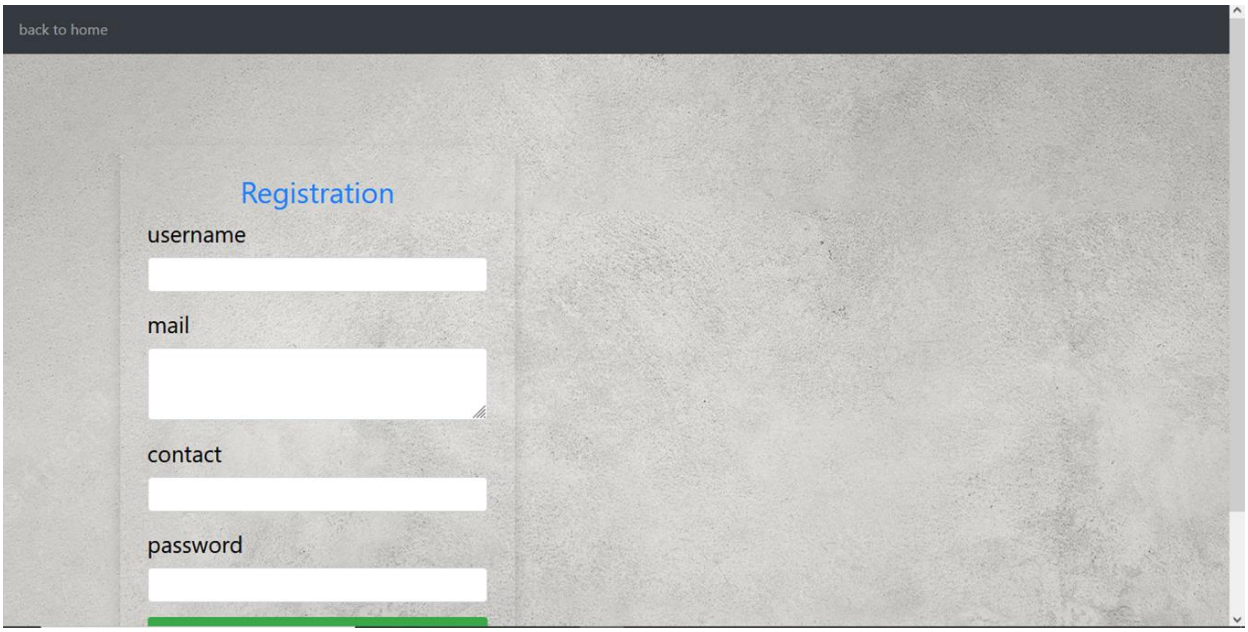
Imagine we have a 6-day sprint duration, and the velocity of the team is 18(points per sprint). Let's calculate the team's average velocity (AV) periteration unit (story pointsper day)

AV = Sprint Duration / Velocity AV=24/6=4

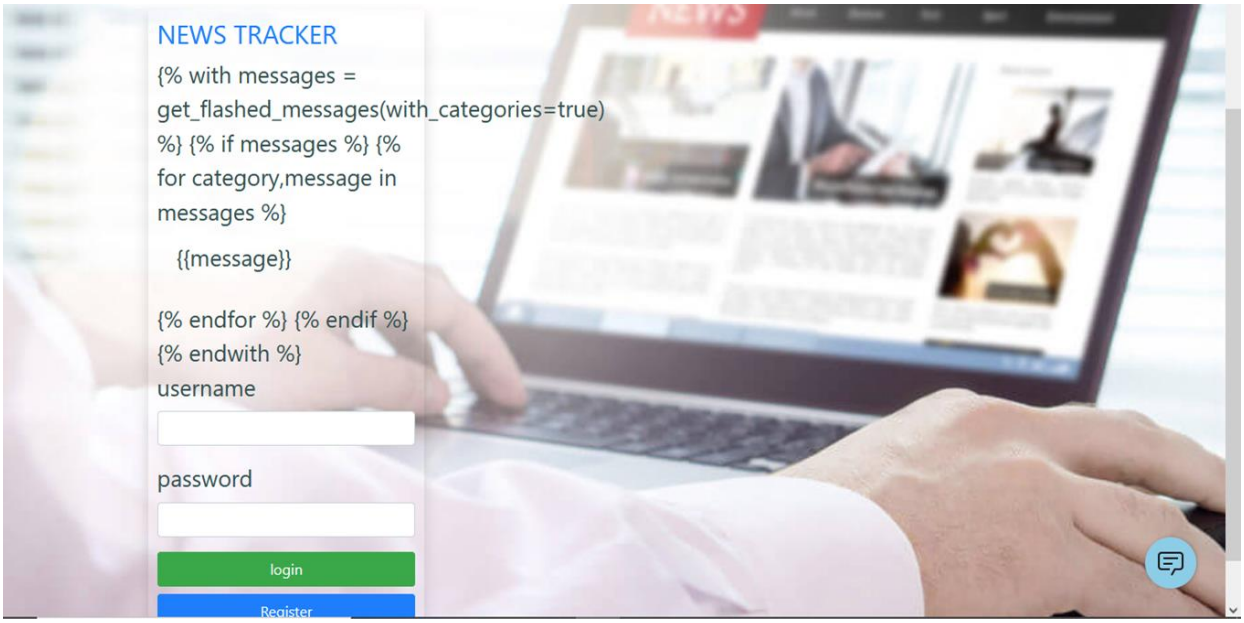
SPRINT 1



SPRINT 2



SPRINT 3


NEWS TRACKER
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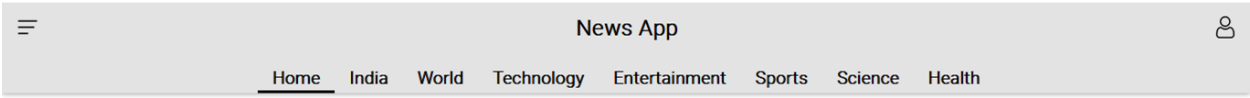
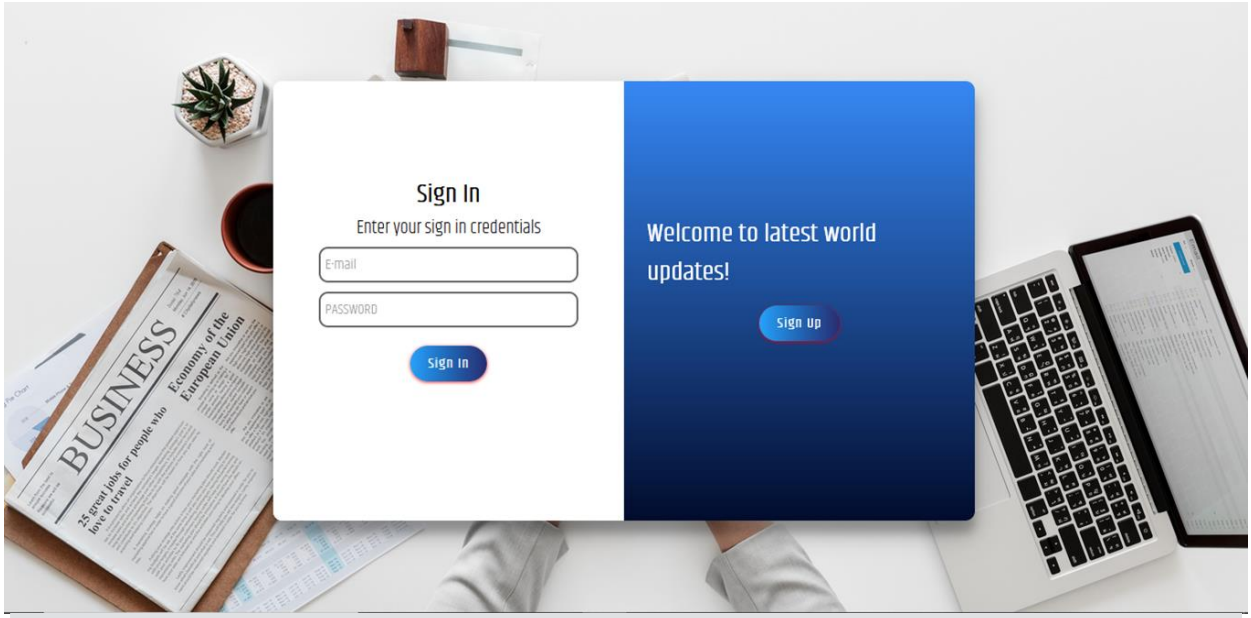
get_flashed_messages(with_categories=true)
%} {% if messages %} {%
for category,message in
messages %}
{{message}}
{% endfor %} {% endif %}
{% endwith %}
username
password
login
Register

SPRINT 4


News App
Home
India
World
Technology
Entertainment
Sports
Science
Health



News Tracker

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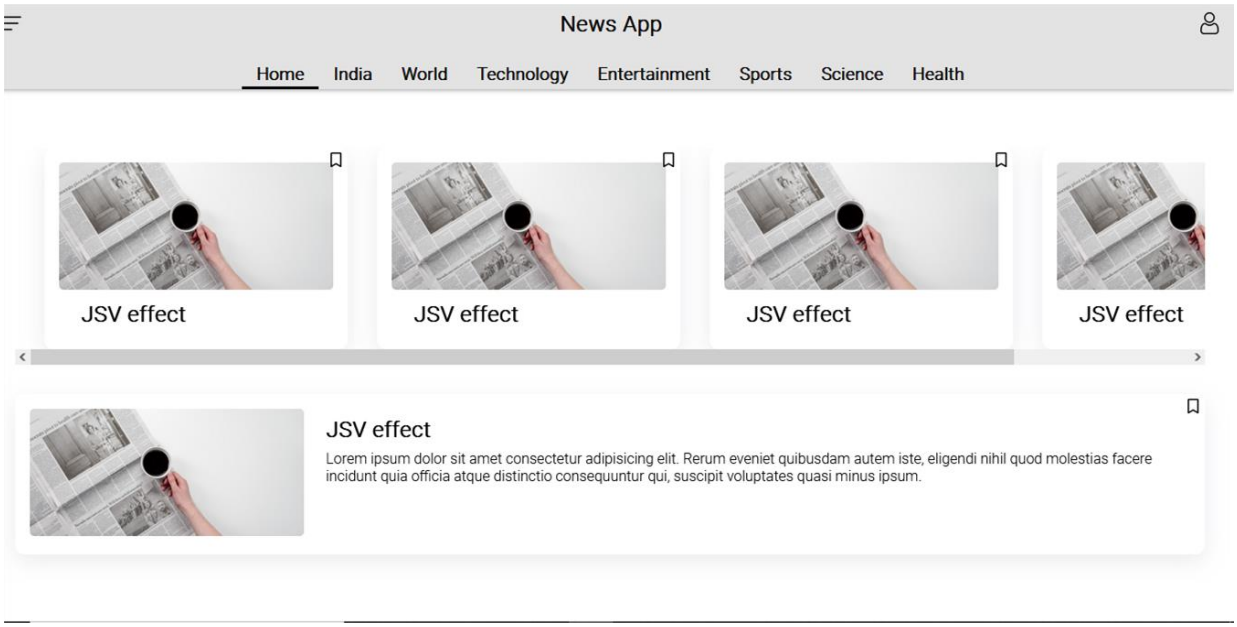
News App
Home
India
World
Technology
Entertainment
Sports
Science
Health
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