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PROBLEM STATEMENT I

1. GENERATIVE AI | HEALTHBOT

Have a medical query?

Google gives too many results and getting the precise answer is time consuming. ChatGPT gives me precise answers, but we are not sure of authenticity as we do not know the sources.

To address this issue, develop a Chatbot platform that seamlessly integrates with reputed knowledgebase sources, including website like:

1. *Mayo Clinic [https://mayoclinic.org/]*
2. *Web MD [https://www.webmd.com/]*
3. *Authenticated databases*
   This module will link to the corona self-checker for initial identification of risk and to the Corona test booking module for escalation.

2. EXPECTED OUTCOMES

1. An end-to-end Chatbot platform
2. Configurable options to enable or disable sources
3. Engaging end customer's chatbot interface with accurate and relevant responses.
4. BONUS: Scope for continuous improvement based on users' feedback
5. BONUS: Ability to integrate over predefined set of documents

3. JUDGING CRITERIA

1. Accuracy and Relevance: Are the responses relevant to user queries?
2. Configurability: How well does the platform allow users to configure and enable/disable sources on the fly?
3. UI/UX
4. Technical Implementation: How well is the backend data pipeline designed and implemented? Is it optimized or is it brute force?
5. Cost to maintain and deploy for large number of end users
6. BONUS: Scope for continuous improvement based on users' feedback

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PROBLEM STATEMENT II

1. GENERATIVE AI | HEALTHGENIE

Empowering Personalized Notifications and Dynamic Pages for a Health-centric Mobile or Web App

2. PROBLEM STATEMENT

Join us in a groundbreaking expedition, where innovation takes center stage. Develop a visionary solution that harnesses the cutting-edge potential of ***generative AI*** to create captivating content for notifications and build personalized pages for mobile or web application. At Bajaj, we cherish fresh perspectives and eagerly await your out-of-the-box ideas. By tapping into a wealth of health data stored in a centralized repository (health-mart), your solution will empower users with timely, relevant, and personalized information, driving their engagement and inspiring positive health behaviors.

3. KEY REQUIREMENTS

1. **AI-Driven Content Generation for Notifications:**
   Unleash the potential of generative AI to craft a system that comprehends user profiles, health data, preferences, and contextual information, producing immersive content for notifications. Seamlessly deliver timely updates, enticing reminders, personalized recommendations, and informative snippets that deeply resonate with users' health goals, interests, and activities.
2. **Tailored Page Generation**
   Shape an extraordinary system that dynamically generates personalized pages within the mobile or web app, breathing life into user profiles and interactions. Enchant users with an unparalleled experience by offering tailor-made health recommendations, enlightening articles, interactive tools, captivating visualizations, progress tracking features, and other bespoke content that sets new standards for personalization.

4. EVALUATION CRITERIA

1. Unparalleled Personalization:

Assess the level of personalization achieved through AI-powered content generation for notifications and personalized pages. This involves utilizing user profiles, preferences, and contextual information to create the best possible experience.

2. Engaging User Experience:

Evaluate the appeal and ability of the content to drive user engagement. The generated content for nudges and personalization on pages should be enticing and encourage users to interact more.

NOTE:

You can either utilize and provide solution by extending data provided below or construct data in different segments by your choice. But ensure data should revolve around health insight of user.

EXAMPLE DATA:

Demographics			Interactions on Web/App (user browsed following sections)			Doctor Visits		Lab Visit Results		
Customer ID	**AGE**	**CITY**	**ARTICLES**	**SEARCHES**	**SYMPTOMS**	**Visit 1**	**Visit2**	**DIABETES**	**LIPID**	**THYROID**
1111222201	36	MUMBAI	Immunity, Ayurveda	Fatigue	acne	General Physician	-	-	HIGH	-
1111222202	39	MUMBAI	Ayurveda, Nutrition	-	toothache	dentist	-	-	HIGH	BORDER
1111222203	37	MUMBAI	Nutrition	Pediatrition	-	Pediatrition	General Physician	-	-	-
1111222204	39	MUMBAI	-	Children Doctor	dentist	-	-	-	BORDER	HIGH
1111222205	38	MUMBAI	-	-	-	dentist	-	-	BORDER	VERY HIGH
1111222206	39	PUNE	Nutrition	-	fever	-	-	-	-	-
1111222207	37	PUNE	-	Old Age Body Pain	fever	General Physician	-	VERY HIGH	HIGH	-
1111222208	35	PUNE	Nutrition	-	fever	-	-	-	-	-
1111222209	40	PUNE	Heart Health, Nutrition	Weakness	-	General Physician	-	-	-	-
1111222210	40	PUNE	-	-	ent	-	-	HIGH	-	-
1111222211	33	BANGALORE	-	Diabetes	gastroenterologist	General Physician	diabetologist	BORDER	VERY HIGH	-
1111222212	44	BANGALORE	Heart Health, Nutrition	Gynacologist	Gynacologist	-	-	-	-	-
1111222213	39	BANGALORE	Heart Health, Nutrition	-	-	Cardiac Surgeon	-	BORDER	BORDER	-
1111222214	39	BANGALORE	-	-	Muscle Pain	-	-	BORDER	-	HIGH
1111222215	42	BANGALORE	Ayurveda, Nutrition	Gynacologist	Gynacologist	-	-	-	-	VERY HIGH
1111222216	46	HYDERABAD	-	-	-	dentist	diabetologist	-	-	-
1111222217	45	HYDERABAD	Immunity, Ayurveda	Diabetes	fever	-	-	-	VERY HIGH	-
1111222218	34	HYDERABAD	Nutrition	Dentist	toothache	General Physician	dentist	BORDER	-	HIGH
1111222219	41	HYDERABAD	Heart Health, Nutrition	Children Doctor	-	Pediatrition	-	-	VERY HIGH	-
1111222220	35	HYDERABAD	-	-	anxiety	General Physician	-	-	-	-
1111222221	33	DELHI	-	Pediatrition	-	-	-	HIGH	-	-
1111222222	46	DELHI	Nutrition	Old Age Body Pain	dermitologist	General Physician	dermitologist	VERY HIGH	BORDER	-
1111222223	36	DELHI	-	Fatigue	-	-	-	BORDER	VERY HIGH	BORDER
1111222224	45	DELHI	Ayurveda	-	-	General Physician	-	-	-	VERY HIGH
1111222225	39	DELHI	Immunity, Ayurveda	Gynacologist	dermitologist	-	-	-	BORDER	BORDER

EXAMPLE USE CASE BASIS ABOVE DATA:

Scenario:

User A, identified as ID 1111222201, is a 36-year-old individual from Pune. He recently browsed an article related to Ayurveda and conducted a search for symptoms associated with fever. User A utilized the BFHL mobile app to book a doctor's appointment and subsequently visited a lab in the following days.

Objective:

The goal is to personalize User A's notifications in order to enhance their activity within the app. Additionally, constructing nudges and creating a journey around the article will indirectly encourage User A to make more bookings and explore the various plans offered by the company.

We anticipate that you will address the issue by generating additional use cases. We're excited to see your groundbreaking solution.

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PROBLEM STATEMENT III

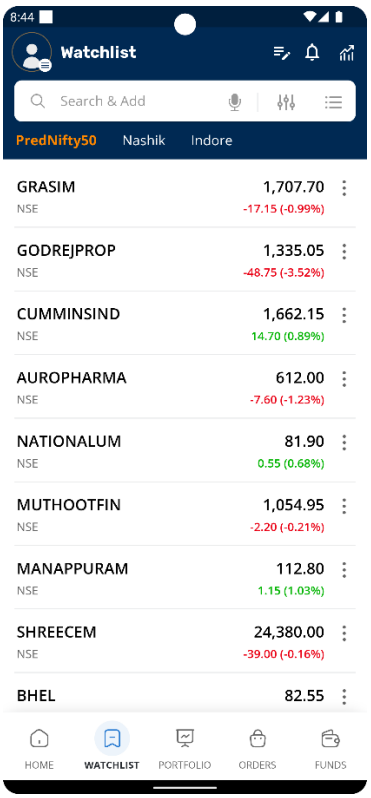
1. REALTIME MARKET DATA CHART IMAGE GENERATION

Bajaj Financial Securities Limited (BFSL) is a 100% subsidiary of Bajaj Finance Limited (BFL). BFSL is heavily leveraging technology to create a unique and real-time trading experience for its customers and partners.

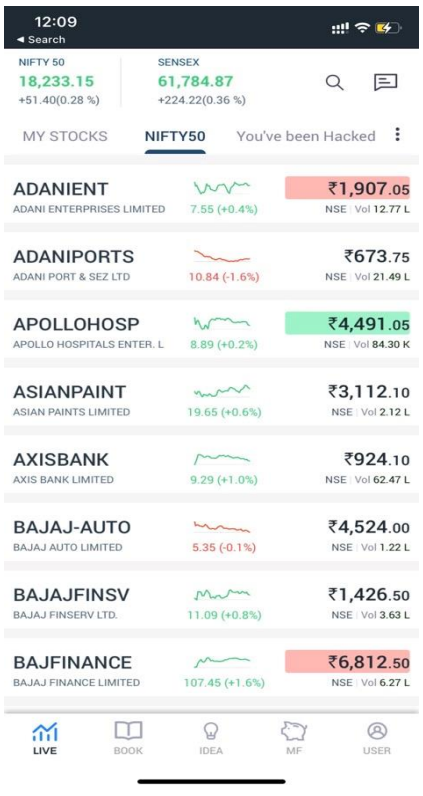
BFSL trade applications (Mobile and Web) has a Watchlist feature to track scrips changing prices during market hours.

Currently we show only +/- percent(%) change in prices. We want to include chart images along with current prices against each script.

Current



Proposed



2. REQUIRED SOLUTION

Join us in a groundbreaking expedition, where innovation takes center stage.

- We want a solution to create a snapshot of the charts in realtime, the duration for the charts will be T-3 months in timeframe.
- The solution will generate chart snapshots in PNG format in realtime and store in a repository.
- Whenever a request is received say, "ADANIENT" the system should be able to fetch the last 3 months charts snapshot in PNG format directly from the repository.
- The system should be designed to accept minimum 1 and maximum 50 scrips in a single request.
- If 3 scrip's charts image is requested, the system should return only 1 image with 3 charts images merged as below.

- The above output should be in a sequence of the requested scrips.
- As the price changes the image in the repository should get refreshed automatically.

3. DATASET

- We have attached a link to download last 3 months 50 scrips prices in an excel sheet.
- The solution should be scalable enough to integrate a live feed from exchange (NSE/BSE), instead of a static dataset mentioned above.

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PROBLEM STATEMENT IV

SUGGEST ME A STOCK

Bajaj Financial Securities Limited (BFSL) is a 100% subsidiary of Bajaj Finance Limited (BFL). BFSL is heavily leveraging technology to create a unique and real-time trading experience for its customers and partners.

In BFSL trade applications (Mobile and Web) we want our clients to get a unique experience and hence, we would like a feature, 'Suggest me a stock'.

The recommendations must be based on client's preference (Risk Profile, Holding, Watchlist and Stock Search Patterns, etc.), current market trends, macro and micro economic events, etc.

REQUIRED SOLUTION

Join us in a groundbreaking expedition, where innovation takes center stage.

- Whenever a client logs in or in an interval of 3 days whichever is higher a suggested stock list should pop up.
- Each client must be given a maximum of 20 scrips as suggested stocks

DATASET

- We have attached a link to download holdings and watchlist data of 50 clients in an excel sheet.
- The solution should be scalable enough to integrate a live streaming data from various sources instead of a static dataset mentioned above.

DATA HANDLING

Client	Stocks in holding
C1	TCS, WIPRO
C2	BATA
C3	TCS

Recommended stocks for client C3: WIPRO

REASON

- TCS and WIPRO belongs to IT sector
- Client C1 is holding TCS as well as WIPRO hence, client C3 may want to buy WIPRO since he already holds TCS

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PROBLEM STATEMENT V

GAMIFICATION OF PERSONAL FINANCE MANAGEMENT

Empowering Personalized Notifications and Dynamic Pages for a Health-centric Mobile or Web App

PROBLEM STATEMENT

Gamify the personal finance management for a user to track his financial habits and well-being and plug Bajaj markets financial offerings where ever a need is present, ensure a social engagement element within the app for users to interact with each other. Raw data to be provided, use any additional alternate data from messages and E-Mails for analysis. Develop a gamification module that creates personalized challenges, milestones, or achievements based on the spending analysis. These gamified experiences should incentivize users to improve their financial habits and save more effectively

EVALUATION CRITERION

- Engagement Value
- Alternate data collection source
- Novelty of idea
- Privacy and security
- User experience
- Incentivization System
- Future scalability
- Integrations

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PROBLEM STATEMENT VI

GAMIFYING DRIVING BEHAVIOR AND FITNESS: FROM DATA TO DISCOUNTS

Empowering Personalized Notifications and Dynamic Pages for a Health-centric Mobile or Web App

PROBLEM STATEMENT

Using the accelerometer and GPS data from a mobile phone, collect various metrics related to driving behavior, such as acceleration, braking intensity, cornering speed, and overall smoothness of the drive. These metrics can be processed and fed into a scoring model that assigns a driving score to each user.

Fitness app data can be utilized to gather information about a user's fitness profile. This data may include daily steps, distance covered, calories burned, heart rate, sleep patterns, and other relevant health-related metrics. By analyzing this information, you can create a scoring model to assess the user's overall health and fitness level.

Incentivize users based on score and offer various rewards and benefits like discount on motor insurance premium and health insurance premium and also provide Value Added Services with discounts

EVALUATION CRITERION

- Accuracy of scoring model
- Relevance of Metrics used
- Data Collection
- Privacy and security
- User experience
- Incentivization System
- Scalability and integration

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PROBLEM STATEMENT VII

CREATE BUSINESS FUNNEL

Harnessing social media and public platforms as a strategy to source qualified leads for business.

BRIEF

You are to help prepare a model, using which social media, external sources and other online digital avenues can be put to use to collate relevant details for prospects (who may need protection / investment for their life goals), qualify on certain gate criteria and provide some relevant insight which may assist in segmentize the prospect on various parameter. It would help org underwrite / validation each prospect if the model could gather name, contact details, job title, context, city / state and other detailed attributes.

DETAILED DESCRIPTION

The model / bot / User Interface should be written to crawl thru various targeted websites, social media and other part of online digital avenues and systematically collect various relevant attribute of a prospect lead. For this purpose, part of crawling may require authorised credential and remaining can be available as anonymous. It should provide dashboard on completeness and maturity of various segment of prospects. All attribute of gathered prospect should be secured in database and be available for instant retrieval. It would be important if the model could provide additional insight about maturity and segmentation of curated prospect.

EXAMPLE

Anonymous prospects as well as loyal and connected prospects that are follower of BALIC, its official tags and its senior members can be the initial phase of collation to business funnel creation.

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PROBLEM STATEMENT VIII

ONBOARD BUSINESS SMOOTHLY

Harnessing Simplification of customer & partner journey – (Partner Onboarding Journey, Lead Maturing Journey, Insurance Application Journey etc).

BRIEF

BALIC business manages a most of its processes using digital applications and BoTs. All significant processes are executed through various user journeys. Most often these journeys involve authentication, payment, document upload, document verification and parsing, manual verification etc. Hence most of the journeys are lengthy , complicated and lack required intelligence. It is expected that candidates may pick up one or many journeys and work on simplifying it to that extent possible. In this process candidate may make some important assumptions and use external services digitally.

DETAILED DESCRIPTION

The workflow and user interface should be developed with clear agenda that the journey should be intelligent, engaging and simple. It should include decent degree of intelligent nudges, using internal as well as external services to do maximum prefill (for existing as well as new to BALIC customer/Partner). One may choose one or many journeys from list of below option:

(a) Partner Onboarding

(b) Lead Nurturing

(c) Journey for New Application – new to BALIC Customer

(d) Journey for New Application – existing BALIC Customer

(e) Sales Team Productivity Tracking Journey

User personal can be BALIC employee, BALIC partner and / or BALIC Customer.

EXAMPLE

Simplification and intelligent journey for New Partner onboarding or new Application journeys in a way that users may have only a fewer click and pages.

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PROBLEM STATEMENT IX

PROBLEM STATEMENT: FORGERY OF DOCUMENTS

Empowering Personalized Notifications and Dynamic Pages for a Health-centric Mobile or Web App

BRIEF

Forgery/tampered documents submitted during insurance claims poses a significant challenge for insurance companies and can result in financial losses, fraudulent payouts, and compromised trust in the system.

SOLUTION OPPORTUNITIES

The challenge here is to identify the forged/tampered documents submitted during claims by to altering, counterfeiting and creating fake/fabricated documents by various editing tools.

SOLUTION REQUIRED

Our aim is to get a robust system that can effectively identify forged documents submitted during insurance claims across all lines of business (LOBs)

SUCCESS CRITERIA

Accuracy: The solution should achieve a high level of accuracy in detecting forged documents, minimizing false positives and false negatives.

Comprehensive Coverage: It should be able to identify various types of forged documents, including but not limited to altered documents, counterfeit documents, and fabricated documents.

Efficiency: It process documents efficiently, providing quick results to minimize delays in claim processing while maintaining accuracy.

Scalability: It should be scalable to handle large volumes of claims and adapt to new types of forgery techniques as they emerge.

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PROBLEM STATEMENT X

PROBLEM STATEMENT: THIRD PARTY LEGAL CLAIMS

BRIEF

Preparation of Written statements, objections, Interlocutory applications, written notes of arguments with inputs on specific defences take lot of time causing delay and thus jeopardizing our defence before the court.

Indian and foreign Judgements, citations, Research, case studies, articles on specific law and on available evidence in cases takes a lot of time for reading and manual search.

Proper and effective Repudiation letters considering the facts and law that would hold good in the court of law if challenged are a major concern.

SOLUTION REQUIRED

Our aim is to develop a solution which will give inputs on specific case details, material for effective contest tailor made for the case to be made available. Accurate to the point drafts of various letters like repudiation letters, drafts to be sent to advocates & investigators etc which would be available by applying the legal principles basing on the facts of the case.

SUCCESS CRITERIA

- Context based case details are made available.
- Pointed drafts generated with specific inputs on requirements should be readily available.

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PROBLEM STATEMENT XI

VISUAL TESTING AT SCALE

Our design team has created a visual design language that is followed by the app and website. This is laid down in the Figma designs that describe how the screens would look like on app, web (mobile) and web (Desktop).

The website and app screens are developed against this library of components as documented in Figma. There are predefined rules (font size, padding, number of text lines, etc.). For every component that define how the component will look on desktop and mobile viewports.

OBJECTIVE

The objective of this project will be to develop a validation model that will be trained using Figma, approved screenshots, and component designs. The model will then be used to rate new screens and pages developed for compliance/adherence to the Figma design. A human will then review the deviations and decide if this warrants a bug or not.

This model should be accessible through an API, for this to be integrated with the testing pipeline. This will enable the QA team to perform visual testing of new pages quickly, and with minimal manual intervention.

There is tool used in industry – Percy, which does something similar. But the tool uses screenshots of websites as reference and is very sensitive. Even simple text changes will be shown as a deviation, whereas the website itself may be compliant.

TYPICAL TECH STACK

Unleash Python, TensorFlow or similar ML modelling platform, Computer Vision

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PROBLEM STATEMENT XII

PROBLEM STATEMENT

Graph data provides a powerful way to represent and identify linkages. How can the representation (graph data model) with graph machine learning assist in taking data science applications to enhanced levels is a critical capability. The problem statement explores how graph representation coupled with graph query (insights) coupled with graph machine learning (like GNNs. Etc.) can provide next generation viable business capability. The solution and approach also need to address optimal/viable architectures to work on optimal memory and overall commodity-based hardware (servers). This problem will explore an end to end nature on building scalable graph-based capability with a technical frame using big data, data pre and post processing, data models for Graph/ML/analytics consumption.

The requirement is to explore these aspects, we use the SNAP product co-purchasing networks (details provided). The key task is to (first) identify a good problem to solve that will address some potential business use case (you need to identify this). This solution (second) needs to include a graph-based approach with the steps identified in the submission/evaluation section. The final (third)solution must showcase an integration to a mobile app/ web front end (with API integration). The data is based on the data based on a large ecommerce platform and hence some use cases linked to that can also be considered.

TECHNICAL STACK (MANDATORY TO FOLLOW)

Dataset & Technical Stack			
Data Set Details Product co-purchasing networks - SNAP**)**	Link	**Code IDE(s) & Notebook**	Google collab **(Link)** Visual Studio Code (**Link)**
Data Set: Meta Data	Link	**Languages & framework**	**Core**: Python **Processing**: Pyspark | Spark 3.4.0+2.4+
Data Set: To use	Link	**Graph Components**	**Core Graph Database: (Mandatory to choose one of the following)** Option 1: JanusGraph Option 2: BlazeGraph
Visualisation Tools	Link	**Graph Query / Models /API Interface**	gremlinpython Output:

OUTCOMES EXPECTED

- Post understanding the dataset (both transaction and meta data) identify a problem that you would want to solve. Clearly articulate the problem statement.
- Data processing (including Loading and transformations) of the data set (combination of pyspark & python-based code) or other high-performance libraries (in case being used, need to mention with details)
- The data processing/analysis needs to use both transaction and meta-data(semi/(un)structured)
- Creation of intermediate and base analytical data models (using both transaction and meta data)
- Create the graph-based model to help solve your problem statement basis the standard libraries mentioned; in case you have a better library, please call-out purpose of using them including providing specifics on them.
- In case the models require post process for computation; please factor the needful details on how they have been used.
- The final (third)solution must showcase an integration to a mobile app/ web front end (with API integration).

SUBMISSION & EVALUATION BROAD METRICS (USING TECHNICAL STACK)

- Problem statement definition (well-defined)
- Pre-processing and data cleaning (including standardising)
- Building reference/base data sets that facilitate modelling
- Exploratory Data Analysis (linked to problem statement)
- Data Processing pipelines
- Model Build Approach & Selection (includes testing) (using Graph based approach)
- Model Execution |Results & relevance as per problem statement
- Integration Approach | Mobile Application or Web Application
- Model Management and Performance Tracking Approach
- Guidance to Code level
    a) Inline | Code | Documentation | Markdowns
    b) High Quality (modular, coding guidelines, etc.)
    c) Optimisations and efficiency codified basis your assignment
        i. Algorithm/Time complexity, scalability & efficiency)
        ii. Performance (time, memory metrics, etc.)
        iii. Integrations

SUBMISSION SPECIFICS

- Must be a notebook / project code (runnable live) as per platforms indicated above.
- **Notebook must be named:** HealthRx40_Hackathon_23_<NameOfTeam_Person>
- **Additional Document (if required):** HealthRx40_Hackathon_23_<NameOfTeam_Person>.doc
- Additional aspects can also be covered in the notebook as markdown or additional document can also be considered.
- Code must be high quality and shared for evaluation