

**PROJECT**

**AI BASED DISCOURSE FOR BANKING  
INDUSTRY**

**DONE BY**

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## 1. INTRODUCTION

### Project Overview

The Internet Banking Industry has seen tremendous growth in recent years mainly due to the massive advancement in technology. The thing with the internet is that everyone connected to it can access almost anything around the world. The involvement of the internet in the banking sector has made it more viable and user friendly than ever before. Customers of any bank could access their account details and the transactions across the world with ease and can work with ease around any branches. So, an enhanced and smarter way of interaction with the customers has to be built to ensure efficient delivery of service. In order to overcome the user satisfaction issues associated with banking services, a chatbot will provide personal and efficient communication between the user and the bank. It is built to be the overall virtual assistant that can facilitate customers to ask banking- related questions without visiting the bank or calling up customer service centres as well as providing them with relevant suggestions.

### Purpose

The main purpose of the chatbot is to provide the customers with all the information possible regarding any banking queries. It is built to be the overall virtual assistant that can facilitate customers to ask banking- related questions without visiting the bank or calling up customer service centres as well as providing them with relevant suggestions. Hence it essentially tries to eliminate the purpose of visiting a banking for basic queries and procedures.

## 2. LITERATURE SURVEY

### Existing problem

S. no	Author	Title of the Paper	Methodology	Pros (Advantage)	Cons (Disadvantage)
1	K. Satheesh Kumar, S. Tamil Selvan, B. Ibrahim Sha, S. Harish.	Conversation to Automation in Banking through Chatbot Using Artificial Intelligence Language	This paper examines some of the latest AI patterns and activities. System Chatbots are made. In the banking industry, the introduction of Artificial Intelligence has driven chatbots and changed the face of the interaction between bank and customers	Artificial Intelligence involves creating machines that are capable of simulating knowledge. Adopt Conversational AI Banking Chatbots. Automated Notifications and Reminders. Chatbots are available 24×7 and can respond to your customers instantly. Chatbots can be a great way to collect your audience data.	Implementing the proper algorithm. Although the AI works flawlessly with faster results, its accuracy depends on the algorithm it works on expensive. As we have seen the multiple benefits of AI for the financial industry, it has a relevant high cost too.

2	Dr.Shalini Sayiwal	Chatbox in banking industry : A case study	Chatbots designed with AI are one of the most promising strategies of a banking business that can lead the bank to win the satisfaction vote of their loyal customers.	Chatbots are relatively inexpensive to develop and maintain compared to the human equivalent. Chatbots are more intuitive and easier to use. There is no download required and the experience can be personalized over time through machine learning	Chatbots have significant limitations based on accents and languages.
3	Patil, Kanchan, Kulkarni, Mugdha	Artificial Intelligence in Financial Services: Customer Chatbot Advisor Adoption	Chatbots are predicted to play a key role in customer service based on recent advances in the area of Artificial Intelligence (AI). However, a lack of user trust impedes the wide-spread adoption of AI-based chatbots. Still, there is a lack of systematically derived design knowledge concerning user trust in those agents. In this short paper, we report on the first steps of our design science research project on which design principles are relevant for building trust in chatbots	Enhanced customer experience – Chatbots can effectively handle financial services and efficiently perform operations that were once handled by agents. Task automation – Financial companies are deploying chatbots to automate most of their tasks such as handling customer complaints	AI in finance has automated processes and drastically reduced the cost of serving customers. While AI has, on one hand, reduced the cost of financial services, on the other, it has made financing extremely convenient to avail.
4	Prashant Bansal	Artificial intelligence caters to banks and customer needs	Banking customers do not think, speak, text, or communicate as financial institutions do. They seek personalization, empathy, and a deeper understanding of their financial and life circumstances. Artificial intelligence has the ability to read customers' moods and aggregate data to	According to a survey of financial services professionals, 80 percent of banks are highly aware of the potential benefits presented by AI. Certain AI use cases have already gained prominence across banks' operations, with CHATBOT in the front office and	Although the AI works flawlessly with faster results, its accuracy depends on the algorithm it works on. An improper algorithm or command can bring unnecessary errors and wrong results. So, proper implementation of the algorithm is important.

			<p>predict further intention and needs, which opens up the opportunity for banks to bring more meaningful conversations and engagements with customers AI can also help financial institutions lower operating costs, ensuring time-effective and stringent business processes without much human intervention.</p>	<p>anti-payments fraud in the middle office the most mature</p>	<p>As we have seen the multiple benefits of AI for the financial industry, it has a relevant high cost too. It may not be possible for all the finance companies to go for this big expensive model initially</p>
5	<p>Tarun Lalwani, Shashank Bhalotia, Ashish Pal, Shreya Bisen, Vasundhara Rathod</p>	<p>Implementation of a Chatbot System using AI and NLP</p>	<p>Mainly a chatbot works by a user asking some question or initiating a new topic of discussion. Chat bots can be referred as software agents that pretend as human entity. These are the agents with AI embedded and using NLP they can answer to user questions</p>	<p>Implementation of a Chatbot System using AI and NLP. The bot will analyze user's queries and understand users' to provide an answer to the query of the user. To save the time of the user since he/she does not have to. This system will help the student to be updated about.</p>	<p>Chatbots sound too Mechanical Chatbots are created using Natural Language Processing which is extremely popular for customer support applications. Natural Language Processing is a part of Machine Learning which can be used to interact with the users in textual form and solve their queries</p>
6	<p>Dr. Anil B. Malali, Dr. S. Gopalakrishnan</p>	<p>Application of Artificial Intelligence and Its Powered Technologies in the Indian Banking and Financial Industry</p>	<p>Examine the dynamics of AI ecosystems in the banking and financial industry and how it is fast becoming a most important disrupter by looking at some of the critical unsolved problems in this area of business</p>	<p>AI will empower banking organizations to completely redefine how they operate, establish innovative products and services, and most importantly impact customer experience interventions.</p>	<p>AI and ML are replacing the human analysts in business activities since human selection involves high cost.</p>

7	Sewoong Hwang and Jonghyuk Kim	Chatbot for Financial Sustainability using AI	This study examines technology effectiveness for industry demand in which artificial intelligence (AI) is applied in the financial sector. It summarizes prior studies on chatbot and customer service and investigates theories on acceptance attitudes for innovative technologies. By setting variables, the study examines bank revenue methodologically and assesses the impact of customer service and chatbot on bank revenues through customer age classification.	When classified by age, purchases by the majority age group in the channel positively affect bank profits. Finally, there is a tendency to process small banking transactions through the chatbot system, which saves transaction and management costs, positively affecting profits.	This isn't a disadvantage, but it's worth remembering that like all improvements implemented in a company, it takes time until everything's 100% operational and showing actual results.
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## References

### Paper 1

Authors: K. Satheesh Kumar, S. Tamil Selvan, B. Ibrahim Sha, S. Harish.

Year: 2018

Title: Conversation to Automation in Banking through Chatbot Using Artificial Intelligence Language

Methodology: This paper examines some of the latest AI patterns and activities. System Chatbots are made. In the banking industry, the introduction of Artificial Intelligence has driven chatbots and changed the face of the interaction between bank and customers

Advantage: Artificial Intelligence involves creating machines that are capable of simulating knowledge. Adopt Conversational AI Banking Chatbots. Automated Notifications and Reminders. Chatbots are available 24x7 and can respond to your customers instantly. Chatbots can be a great way to collect your audience data.

Disadvantage: Implementing the proper algorithm. Although the AI works flawlessly with faster results, its accuracy depends on the algorithm it works on Expensive. As we have seen the multiple benefits of AI for the financial industry, it has a relevant high cost too.

## Paper 2

Authors: Dr. Shalini Sayiwal

Year: 2020

Title: Chatbot in banking industry: A case study

Methodology: Chatbots designed with AI are one of the most promising strategies of a banking business that can lead the bank to win the satisfaction vote of their loyal customers.

Advantage: Chatbots are relatively inexpensive to develop and maintain compared to the human equivalent. Chatbots are more intuitive and easier to use. There is no download required and the experience can be personalized over time through machine learning.

Disadvantage: Chatbots have significant limitations based on accents and languages.

## Paper 3

Authors: Patil, Kanchan & Kulkarni, Mugdha

Year: 2019

Title: Artificial Intelligence in Financial Services: Customer Chatbot Advisor Adoption

Methodology: Chatbots are predicted to play a key role in customer service based on recent advances in the area of Artificial Intelligence (AI). However, a lack of user trust impedes the wide- spread adaption of AI-based chatbots. Still, there is a lack of

systematically derived design knowledge concerning user trust in those agents. In this short paper, we report on the first steps of our design science research project on which design principles are relevant for building trust in chatbots

*Advantage:* Enhanced customer experience – Chatbots can effectively handle financial services and efficiently perform operations that were once handled by agents. Task automation – Financial companies are deploying chatbots to automate most of their tasks such as handling customer complaints

*Disadvantage:* AI in finance has automated processes and drastically reduced the cost of serving customers. While AI has, on one hand, reduced the cost of financial services, on the other, it has made financing extremely convenient to avail.

## **Paper 4**

*Authors:* Prashant Bansal

*Year:* 2022

*Title:* Artificial intelligence caters to banks and customer needs

*Methodology:* Banking customers do not think, speak, text, or communicate as financial institutions do. They seek personalization, empathy, and a deeper understanding of their financial and life circumstances. Artificial intelligence has the ability to read customers' moods and aggregate data to predict further intention and needs, which opens up the opportunity for banks to bring more meaningful conversations and engagements with customers. AI can also help financial institutions lower operating costs, ensuring time-effective and stringent business processes without much human intervention.

*Advantage:* According to a survey of financial services professionals, 80 percent of banks are highly aware of the potential benefits presented by AI. Certain AI use cases have already gained prominence across banks' operations, with CHATBOT in the front office and anti-payments fraud in the middle office the most mature



Disadvantage: Although the AI works flawlessly with faster results, its accuracy depends on the algorithm it works on. An improper algorithm or command can bring unnecessary errors and wrong results. So, proper implementation of the algorithm is important. As we have seen the multiple benefits of AI for the financial industry, it has a relevant high cost too. It may not be possible for all the finance companies to go for this big expensive model initially

## Paper 5

Authors: Tarun Lalwani, Shashank Bhalotia, Ashish Pal, Shreya Bisen, Vasundhara Rathod

Year: **2018**

Title: Implementation of a Chatbot System using AI and NLP

Methodology: Mainly a chatbot works by a user asking some question or initiating a new topic of discussion. Chatbots can be referred as software agents that pretend as human entity. These are the agents with AI embedded and using NLP they can answer to user questions.

Advantage: Implementation of a Chatbot System using AI and NLP. The bot will analyze user's queries and understand users to provide an answer to the query of the user. To save the time of the user since he/she does not have to. This system will help the student to be updated about.

Disadvantage: Chatbots sound too Mechanical Chatbots are created using Natural Language Processing which is extremely popular for customer support applications. Natural Language Processing is a part of Machine Learning which can be used to interact with the users in textual form and solve their queries

## Paper 6

Authors: Dr.Anil .B Malali, Dr.S.Gopalakrishnan

Year: 2020

Title: Application of Artificial Intelligence and Its Powered Technologies in the Indian Banking and Financial Industry

Methodology: Examine the dynamics of AI ecosystems in the banking and financial industry and how it is fast becoming a most important disrupter by looking at some of the critical unsolved problems in this area of business

Advantage: AI will empower banking organizations to completely redefine how they operate, establish innovative products and services, and most importantly impact customer experience interventions.

Disadvantage: AI and ML are replacing the human analysts in business activities since human selection involves high cost.

## Paper 7

Authors: Sewoong Hwang and Jonghyuk Kim

Year: 2020

Title: Chatbot for Financial Sustainability using AI

Methodology: This study examines technology effectiveness for industry demand in which artificial intelligence (AI) is applied in the financial sector. It summarizes prior studies on chatbot and customer service and investigates theories on

acceptance attitudes for innovative technologies. By setting variables, the study examines bank revenue methodologically and assesses the impact of customer service and chatbot on bank revenues through customer age classification.

**Advantage:** When classified by age, purchases by the majority age group in the channel positively affect bank profits. Finally, there is a tendency to process small banking transactions through the chatbot system, which **saves transaction and management costs, positively affecting profits.**

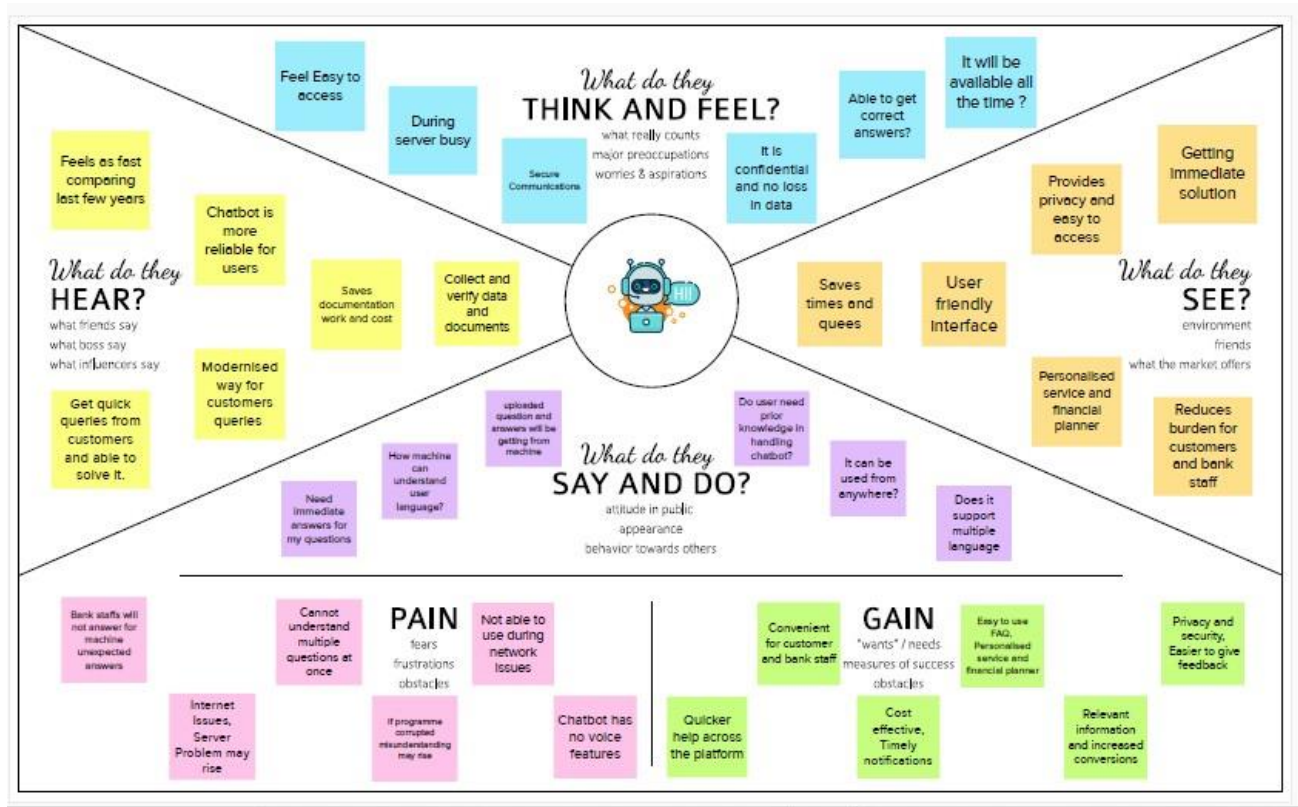
**Disadvantage:** This isn't a disadvantage, but it's worth remembering that like all improvements implemented in a company, it takes time until everything's 100% operational and showing actual results. Implementation, setup, and learning can take a while

## **Problem Statement Definition**

In order to guide the customers throughout all the financial services provided by the bank, an intelligent system has to be introduced to provide people with the best solution possible. The users are bank customers who need a service, available 24/7, to clear all their queries and guide them through the various banking processes. So, an enhanced and smarter way of interaction with the customers has to be built to ensure efficient delivery of service. In order to overcome the user satisfaction issues associated with banking services, a chatbot will provide personal and efficient communication between the user and the bank. It is built to be the overall virtual assistant that can facilitate customers to ask banking-related questions without visiting the bank or calling up customer service centres as well as providing them with relevant suggestions.

### 3. IDEATION & PROPOSED SOLUTION

#### Empathy Map Canvas



## **Ideation & Brainstorming**

Ideas laid out by each Team Member

- **JS. Nathaniel Nicholas**

- Idea 1: It facilitates constant guidance to customer on creating bank accounts
- Idea 2: It provides efficient and convenient customer support
- Idea 3: It has an assured security and provides personalized service
- Idea 4: It provides reliable service on answering net banking queries

- **M. Prasannakumar**

- Idea 1: Retrieve customer's old transaction history It is available 24/7
- Idea 2: It is available 24/7
- Idea 3: User friendly Interface
- Idea 4: Voice assistant feature

- **B.M. Don Davies**

- Idea 1: Efficient and convenient customer support
- Idea 2: Quick response to loan related queries
- Idea 3: Confidential conversation with customers
- Idea 4: It is interoperable. cost efficient

- **A. Manimaran**

- Idea 1: It provides instant solution for banking queries
- Idea 2: Easy to use everywhere
- Idea 3: It is available 24/7
- Idea 4: It works efficiently & saves user time

### Shortlisted Ideas

- Idea 1: It facilitates constant guidance to customer on creating bank accounts
- Idea 2: It provides reliable service on answering net banking queries
- Idea 3: It is trustworthy. Risk management

### Proposed Solution

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Banks are not able to resolve the queries of customers at all times related to the products or services in satisfactory way which in turn hinders the customer satisfaction. Customers need to visit banks frequently for simple queries.
2.	Idea / Solution description	Banking Chatbots can provide useful information. The best part is that customers don't have to wait for someone to attend to their queries. Chatbots are already trained to manage these queries and provide relevant support.
3.	Novelty / Uniqueness	Chatbots can collect user data and function as per customer needs and behavioural patterns with the help of AI, making the entire customer journey more personalized and customized.
4.	Social Impact / Customer Satisfaction	In banking and finance, chatbots have the potential to improve the customer experience by allowing customers to check their account balances, transfer money, learn about interest rates, change their billing addresses, and more. It is built to be the overall virtual assistant that can facilitate customers to ask banking- related questions without visiting the bank or calling up customer service centers as well as providing them with relevant suggestions.

5.	Business Model (Revenue Model)	Employing a chatbot will be a cost-effective solution to clear customer queries for banks. It eliminates the need for a massive customer care workforce and even reduces the workload of the bank employees whose efforts can be used elsewhere.
6.	Scalability of the Solution	As opposed to humans, the chatbot does not need to rest or go home. They can actively assist 24x7 customers. Chatbot gives banking sector an edge as they can function at any hour of the day, solving more problem.

## Problem Solution fit

Define CS, fit into CC	<b>1. CUSTOMER SEGMENT(S)</b> Who is your customer? <ul style="list-style-type: none"> <li>New customers who would like to learn more about the bank and how to create an account.</li> <li>Regular customers who would like to access the various features and services of the bank.</li> </ul>	<b>4. CUSTOMER CONSTRAINTS</b> What constraints prevent your customers from achieving their choices of solution? <i>i.e.</i> spending power, budget, no cash, network connection, available services. <ul style="list-style-type: none"> <li>Internet connection is required</li> <li>Will the customer's details be safe?</li> <li>Unfamiliarity with/unaccustomed to chatting, especially among elders.</li> </ul>	<b>5. AVAILABLE SOLUTIONS</b> Which solutions are available to the customers when they face the problem or need to get the job done? What have they tried in the past? What pros & cons do these solutions have? <i>i.e.</i> pen and paper is an alternative to digital networking. <ul style="list-style-type: none"> <li>Answer Basic Questions</li> <li>Provides on-time Notifications and Reminder</li> <li>Provide Complete Account Details</li> <li>Resolve Urgent Issues on Priority</li> </ul>	Explore AS, differentiate
	<b>2. JOBS-TO-BE-DONE / PROBLEMS</b> Which job-to-be-done (or problem) do you address in your comment? There could be more than one, explore different sides. <ul style="list-style-type: none"> <li>Answering customer queries correctly and quickly</li> <li>Convenience of banking guidance anywhere and anytime</li> <li>Cost and time efficiency and be improved</li> <li>Collect user's feedback</li> </ul>	<b>9. PROBLEM ROOT CAUSE</b> What is the real reason that this problem exists? What is the back story behind the need to do this job? <i>i.e.</i> customers have to do it because of the change in regulations. <ul style="list-style-type: none"> <li>Banking can initially be a slightly complicated task that people sometimes might want guidance or support while performing certain operations.</li> <li>As banking is essential, a lot of people need their queries cleared which requires a huge workforce to match the demand which can be very costly and still time taking.</li> </ul>	<b>7. BEHAVIOUR</b> What does your customer do to address the problem and get the job done? <i>i.e.</i> directly related: find the right solar panel transfer, calculate usage and benefits; indirectly associated: customers spend less time on voluntary work (i.e. housework). <ul style="list-style-type: none"> <li>Answer loan queries</li> <li>Guidance to customers on creating a bank account</li> <li>Answer queries regarding net banking</li> <li>Answer general banking queries</li> </ul>	Focus on J&P, tap into BE, understand RC
	<b>3. TRIGGERS</b> What triggers customers to act? <i>i.e.</i> seeing their neighbor installing solarpanels, reading about newer efficient solution to the same. <ul style="list-style-type: none"> <li>24/7 personalized customer service.</li> <li>Timely reminders and updates.</li> <li>Convenient and easy to use</li> </ul>	<b>10. YOUR SOLUTION</b> If you are working on an existing business, write down your current solution first, fill in the current, and check how much it fits reality. If you are working on a new business proposition, then keep it blank until you fill in the current and come up with a solution that fits within customer limitations, solves a problem and matches customer behavior. <ul style="list-style-type: none"> <li>This problem can be solved by using a chatbot, which is built through IBM Watson's assistant, which can solve customer queries related to banking.</li> <li>With this solution, banks could reduce employee's workloads and gain customer loyalty and satisfaction.</li> </ul>	<b>8. CHANNELS of BEHAVIOUR</b> ONLINE What kind of actions do customers take online? Extract online channels from 4/7 They search the web for answers to their queries which are usually scattered and are not reliable. OFFLINE What kind of actions do customers take offline? Extract offline channels from 4/7 and use them for customer development. <ul style="list-style-type: none"> <li>They visit banks and meet the bank staff to clear their queries.</li> <li>They call the customer care/toll free number of the bank and speak to a customer care employee.</li> </ul>	Extract online & offline CH of BE
Identify strong TR & EM	<b>4. EMOTIONS: BEFORE / AFTER</b> How do customers feel when they face a problem or a job and afterwards? <i>i.e.</i> lost, insecure > confident, in control < so it is your communication strategy design. <ul style="list-style-type: none"> <li>Before: Confused, Helplessness, Exhausted.</li> <li>After: Clarified, Satisfaction, Secure, Interested, Relaxed.</li> </ul>			

## 4.REQUIREMENT ANALYSIS

### Functional requirement

The following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	<b>Banking in Saving Account and Current Account Properties</b>	<ul style="list-style-type: none"><li>• Account maintenance</li><li>• Personal Checks</li><li>• Verifications Details</li><li>• Minimum Balance</li><li>• Interest Rate</li><li>• ATM use</li><li>• Debit Card</li></ul>
FR-2	<b>Business Account Properties</b>	<ul style="list-style-type: none"><li>• Type of Industries and Company</li><li>• Check our Personal Details</li><li>• Unique Identifications</li><li>• Location and Enrolment</li></ul>
FR-3	<b>Loan and Credit Decisions Properties</b>	<ul style="list-style-type: none"><li>• Type of Loan</li><li>• Loan amount limitations</li><li>• Loan term</li><li>• Credit score</li><li>• Credit History in CIBIL</li><li>• Joint loan</li></ul>
FR-4	<b>Customer Experience</b>	<ul style="list-style-type: none"><li>• Simplify and Expedite Account Opening Process</li><li>• Provide Fast Online Payment</li><li>• Flexible to change updates and Open Banking</li></ul>
FR-5	<b>Normal Banking Queries</b>	<ul style="list-style-type: none"><li>• Working Schedule</li><li>• Types of Branches</li><li>• Security Facility</li><li>• Conversion of Various Currency Facility</li></ul>
FR-6	<b>Online Banking Properties</b>	<ul style="list-style-type: none"><li>• Login Procedure</li><li>• Online Banking Password</li><li>• Verification Code</li><li>• Fund Transfer</li><li>• Beneficiary Policy</li></ul>



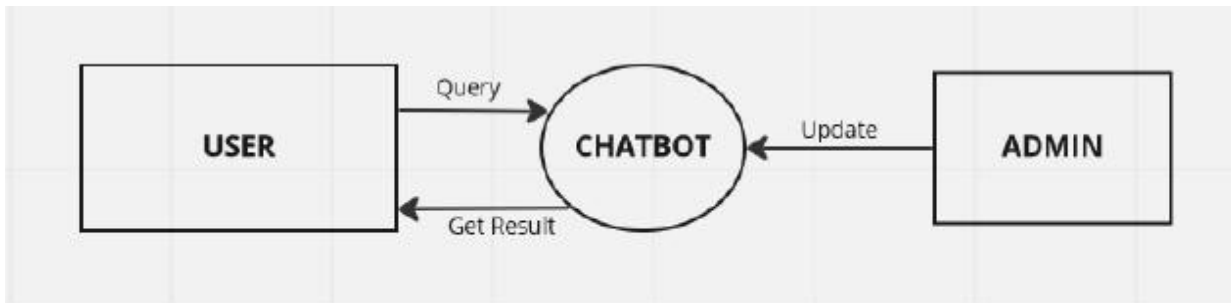
## Non-Functional requirements

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

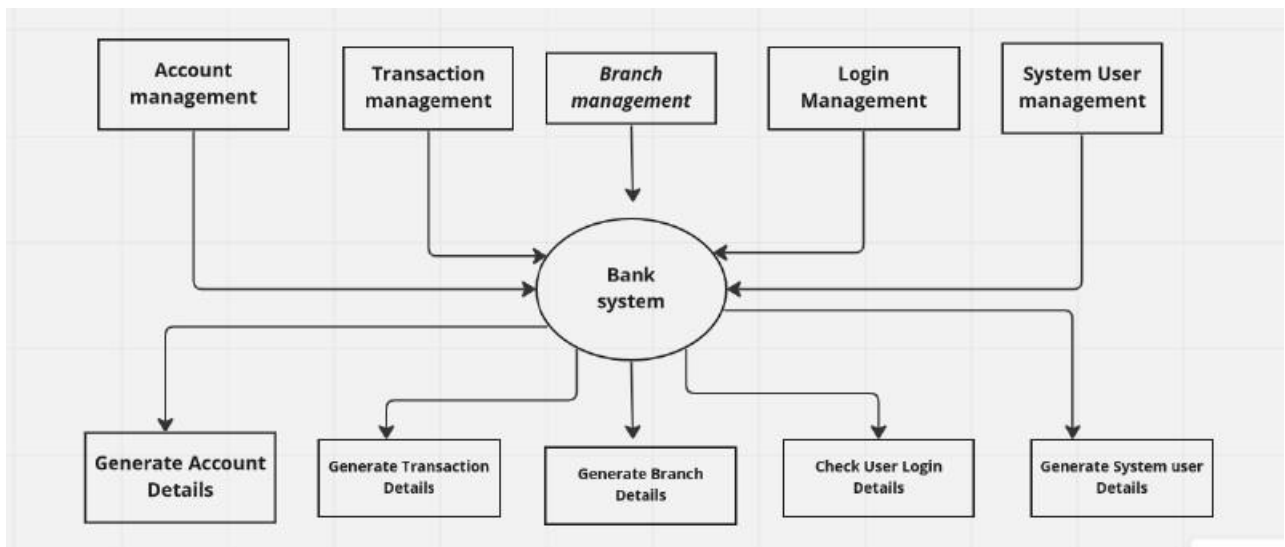
FR No.	Non-Functional Requirement	Description
NFR-1	<b>Usability</b>	Chatbot transforming banking by automating all processes. Chatbots ,as conversational AI ,are capable a wide range of customer support duties, freeing up the time of human agents .Banking chatbot also help to automate monotonous tasks Chat bots helps customers manage their finance,reduce the fraud financial and improve security, increase customer satisfaction
NFR-2	<b>Security</b>	Chatbots is developed by AI ,which gives a trusted conversion with customer. It gives a standard efficient communication with the user
NFR-3	<b>Reliability</b>	Chatbots using AI may assist customers in many ways .The most common use scenario for chatbots in bank customers service is the automation of repetitive mundane tasks
NFR-4	<b>Performance</b>	Chatbots are highly efficient and passed out the limitations of the humans .If we need to check the account balance within seconds, the chatbots check their account balances.AI assistants may also asses account balance and alert customers, if their accounts are going to fall below a specific limit. Customers can better manage their accounts without having to log into their e-banking account or call their bank
NFR-5	<b>Availability</b>	The chatbot are available 24 hours a day , seven days a week. It is used to improved the efficiency of the banking personnel used to guide the customer. It saves a lot of time for the customers by fetchingall the data and processing the payments quickly. Chatbots also help customers by reminding them of the due payments or bills
NFR-6	<b>Scalability</b>	Chatbot is a best part of customer service which their ability to help business grow and scale their performance and make them satisfy at the time

## 5. PROJECT DESIGN

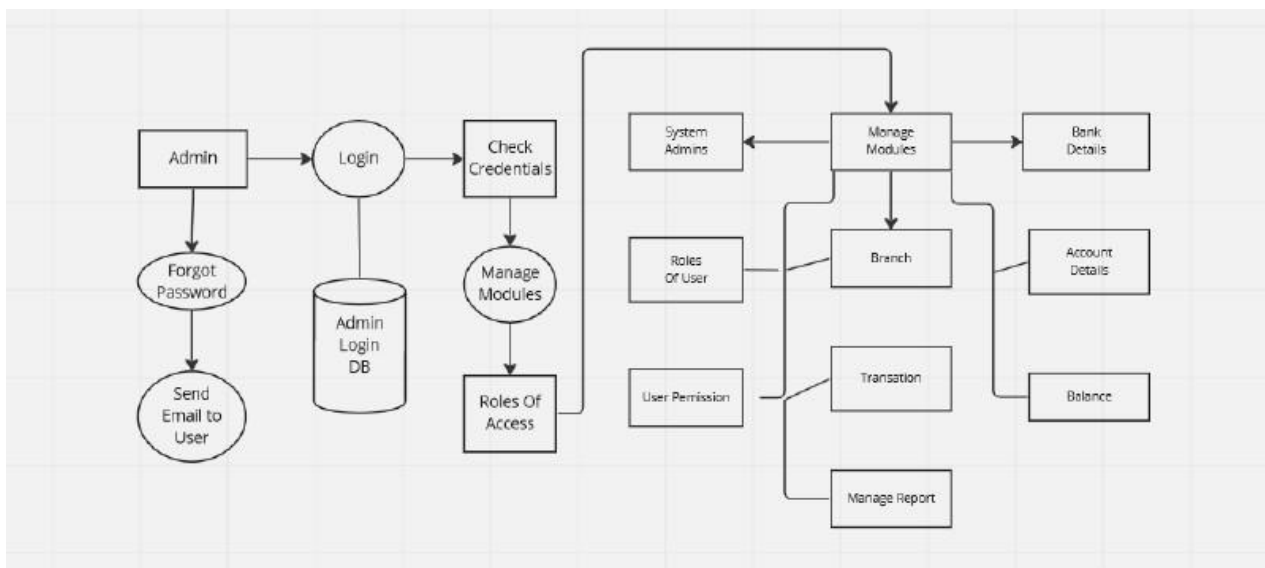
### Data Flow Diagrams

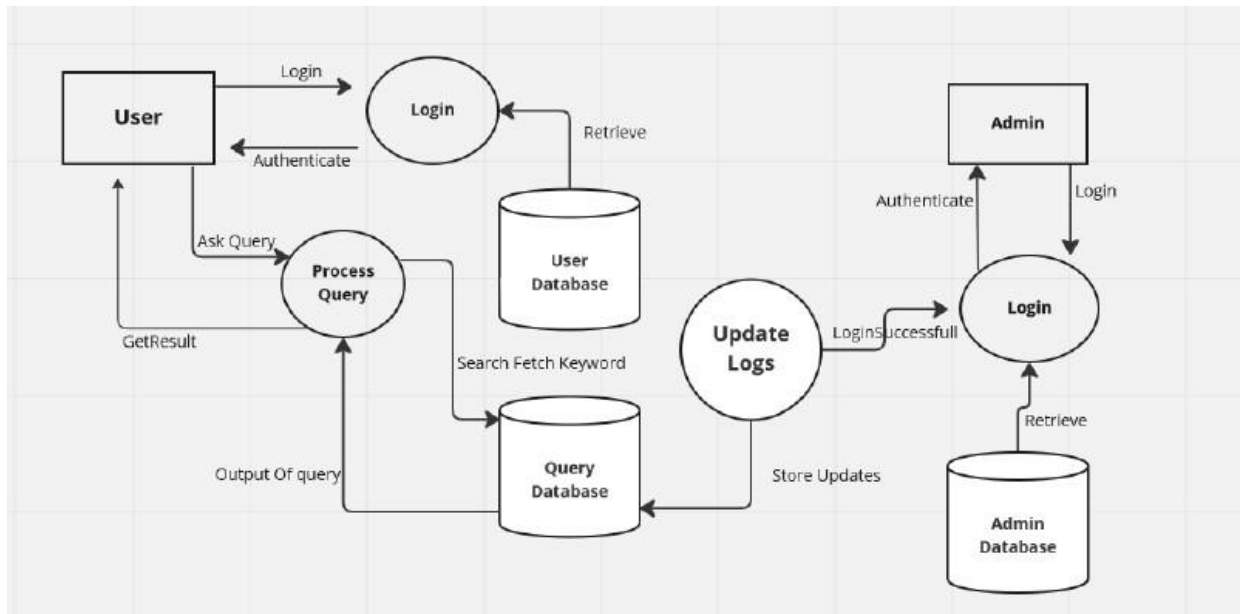


Zero level DFD of Chatbot system

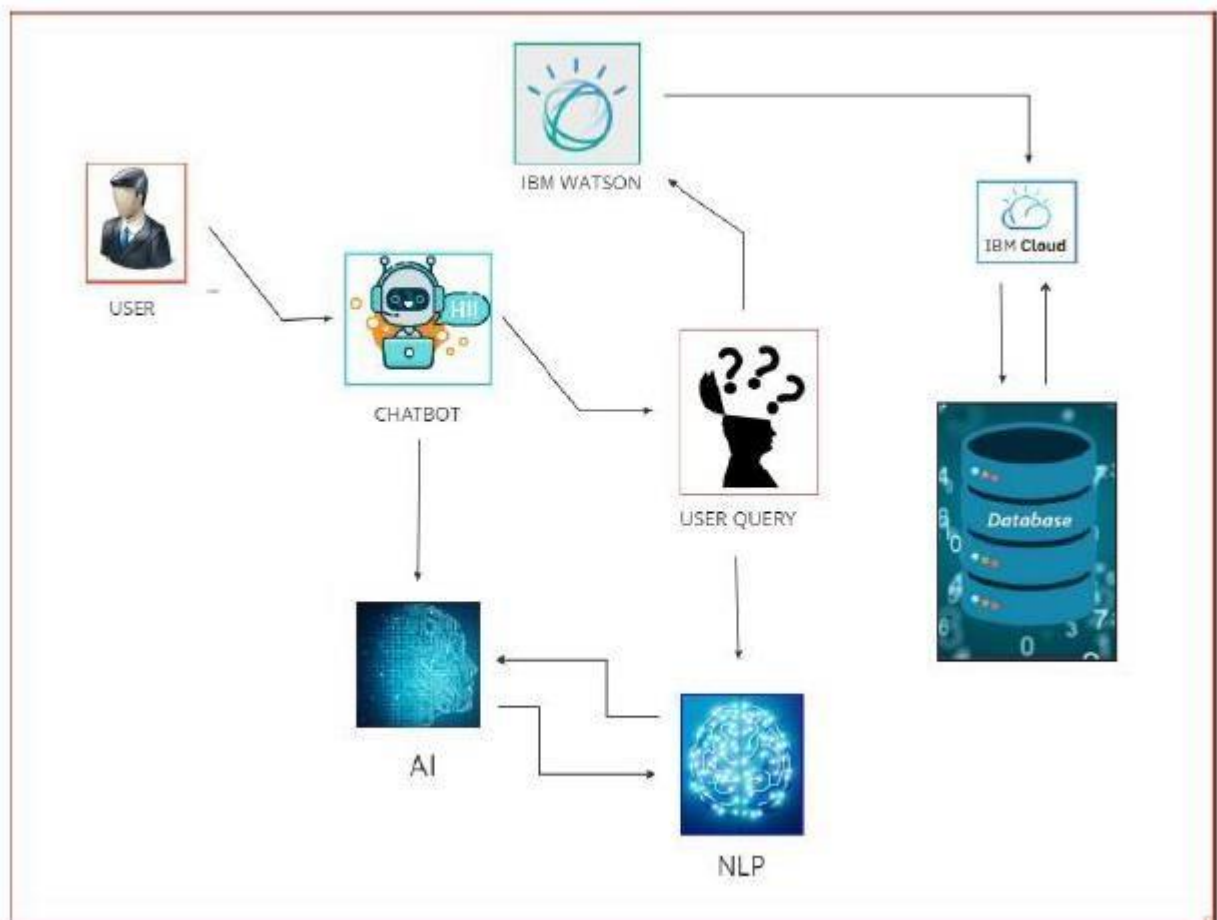


First level DFD of Chatbot system





## Solution & Technical Architecture



## User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Registration	USN-1	As a user, I can register for the application by entering my email, password, and conforming my password.	I can access my account /dashboard	High	Sprint-1
Customer (Mobile user)	Registration	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
Customer (Mobile user)	Registration	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
Customer (Mobile user)	Registration	USN-4	As a user, I can register for the application through Gmail	I can register & access the dashboard with Gmail login	Medium	Sprint-1
Customer (Mobile user)	Login	USN-5	As a user, I can log into the application by entering email & password	I can log in & access the dashboard with email and password	High	Sprint-1
Customer (Mobile user)	Dashboard	USN-6	As a user, I can access the dashboard	I can access the dashboard	High	Sprint-1
Customer (Web user)	Registration	USN-7	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account/dashboard in web	High	Sprint-1
Customer Care Executive	Balance	USN-8	As a user, I want to check balance of my bank account	I can see the balances displayed	High	Sprint-1
Administrator	Transfer money	USN-9	As a user, I want to transfer money from my account to another bank account	I can transfer money from my account to another bank account	High	Sprint-1

## 6.PROJECT PLANNING & SCHEDULING

### Sprint Planning & Estimation

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Savings Account Related Actions	USN-1	As a user, in the Savings Account option, I can select Types of Savings Account to get details regarding documents required for creating that savings account.	4	High	NATHANIEL NICHOLAS
Sprint-1		USN-2	As a user, I can check the Interest Rates of Savings Account	4	High	NATHANIEL NICHOLAS
Sprint-1		USN-3	As a user, I can check the Minimum Balance of Savings Account	3	Medium	MANIMARAN
Sprint-1	Current Account Related Actions	USN-4	As a user, I can choose the Type of Company to know the information on documents to be submitted for creating current account	5	High	NATHANIEL NICHOLAS
Sprint-1		USN-5	As a user, I want to get details on procedure to close my Current Account	4	High	MANIMARAN
Sprint-2	Loan Account Related Actions	USN-6	As a user, I can choose the Type of Loans to know the information on choosing an essential loan scheme	3	High	MANIMARAN
Sprint-2		USN-7	As a user, I can check the Loan Amounts that can be offered for corresponding Loan Accounts chosen	3	High	NATHANIEL NICHOLAS
Sprint-2		USN-8	As a user, I can check the Status of Loan for my Loan Accounts	1	Low	NATHANIEL NICHOLAS

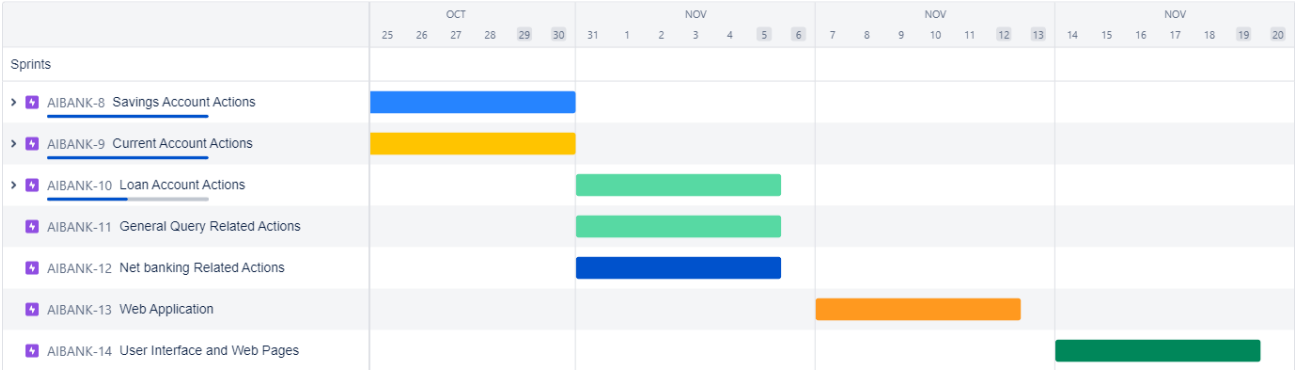
Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-2	General Queries Related Actions	USN-9	As a user, I want to get the procedure details for Currency Conversion facility of my bank account	2	Medium	PRASANNA KUMAR
Sprint-2		USN-10	As a user, I want to get the procedure details for maintaining Storage Locker facility of my bank account	3	High	PRASANNA KUMAR
Sprint-2	Net Banking Related Actions	USN-11	As a user, I want to get the procedure details for Changing the Net Banking password of my bank account	3	High	NATHANIEL NICHOLAS
Sprint-2		USN-12	As a user, I can select types of fund transfers to get details regarding different services available in net banking	2	Medium	DON DAVIES
Sprint-2		USN-13	As a user, I want to get the procedure banking account.	2	Medium	DON DAVIES
Sprint-3	Web Application	USN-14	As a user, I want to access the chatbot almost all devices.	20	High	NATHANIEL NICHOLAS, MANIMARAN, PRASANNA KUMAR, DON DAVIES
Sprint-4	User Interface and Web Pages	USN-15	As a user, I want to view pages of the easily.	20	High	NATHANIEL NICHOLAS, MANIMARAN

## Sprint Delivery Schedule

Phase	Phase Description	Week	Dates	Activity	Student Responsibility
5	<b>Project Planning Phase</b> (Milestones & Tasks, Sprint Schedules )	Week-9	17 - 22 Oct 2022	Prepare Milestone & Activity List, Sprint Delivery Plan	Submit the Project Delivery Schedule as per the standard template in GitHub

6	<b>Project Development Phase</b> (Coding Solutioning, Acceptance Testing, Performance Testing) &	Week-10	24 - 29 Oct 2022	Project Development - Delivery of Sprint-1	Sprint-1 Delivery: Develop the Code, Test and push it to GitHub.
		Week-11	31 Oct - 5 Nov 2022	Project Development - Delivery of Sprint-2	Sprint-2 Delivery: Develop the Code, Test and push it to GitHub.
		Week-12	7 - 12 Nov 2022	Project Development - Delivery of Sprint-3	Sprint-3 Delivery: Develop the Code, Test and push it to GitHub.
		Week-13	14 - 19 Nov 2022	Project Development - Delivery of Sprint-4	Sprint-4 Delivery: Develop the Code, Test and push it to GitHub.

Reports from JIRA



## 7. CODING & SOLUTIONING

### Feature 1

The screenshot displays the IBM Watson Assistant interface. The top navigation bar includes 'IBM Watson Assistant', 'Upgrade', 'MY BOT', and 'Learning center'. The main workspace is divided into three panels:

- Queries:** Shows a list of queries. The first query is 'Select the General Queries list below.' with a count of 3 total steps, 0 end steps, and 0 re-ask steps. Below it, a list of queries is shown: 'find the near...', 'What are the ...', and 'Bank working time'.
- Conversation steps:** Shows a list of steps. Step 1 is 'Select the General Queries list below.' with a count of 1. Step 2 is 'Working hours of branches will be from 10.00 a.m. to 4.00 p.m.' with a count of 2. Step 3 is 'What are the bank's fees?' with a count of 1.
- Assistant says:** Shows the text 'Select the General Queries list below.' and a 'Choose an option' button. Below it, a list of options is shown: 'find the nearest branch', 'What are the bank's fees?', 'What are the minimum balance ...', 'Does the checking account offer...', and 'Bank working time'.

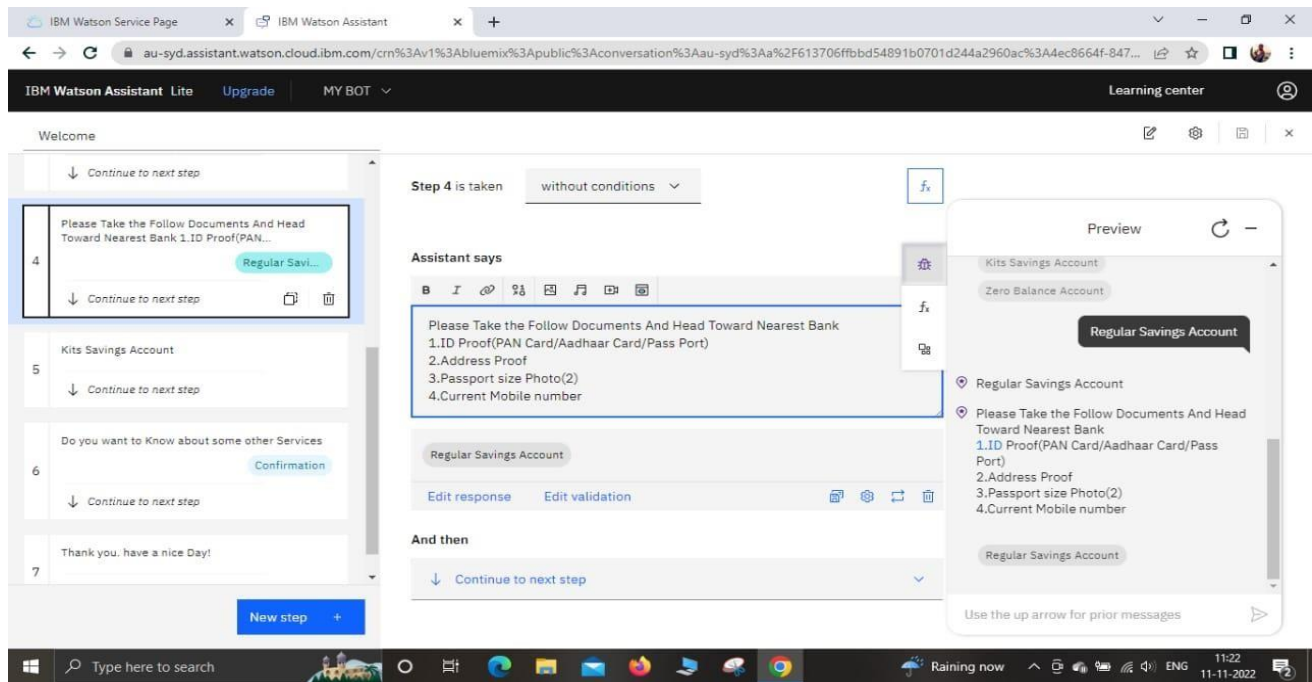
A 'Preview' window is open on the right, showing the 'Select an option' dialog with the same list of options. A 'Save your action.' message is displayed at the bottom of the preview window.

The screenshot displays the IBM Watson Assistant interface. The top navigation bar includes 'IBM Watson Assistant', 'Upgrade', 'MY BOT', and 'Learning center'. The main workspace is divided into three panels:

- Welcome:** Shows a list of welcome messages. The first message is 'Welcome to MY BOT.GOOD TO SEE YOU' with a count of 1. Below it, a list of messages is shown: 'Savings Acco...', 'Current Acco...', and 'Zero Balance Savings Account'.
- Conversation steps:** Shows a list of steps. Step 1 is 'Welcome to MY BOT.GOOD TO SEE YOU' with a count of 1. Step 2 is 'This step has no content' with a count of 2.
- Assistant says:** Shows the text 'Welcome to MY BOT.GOOD TO SEE YOU' and a list of options: 'Savings Account', 'Current Account', and 'Zero Balance Savings Account'.

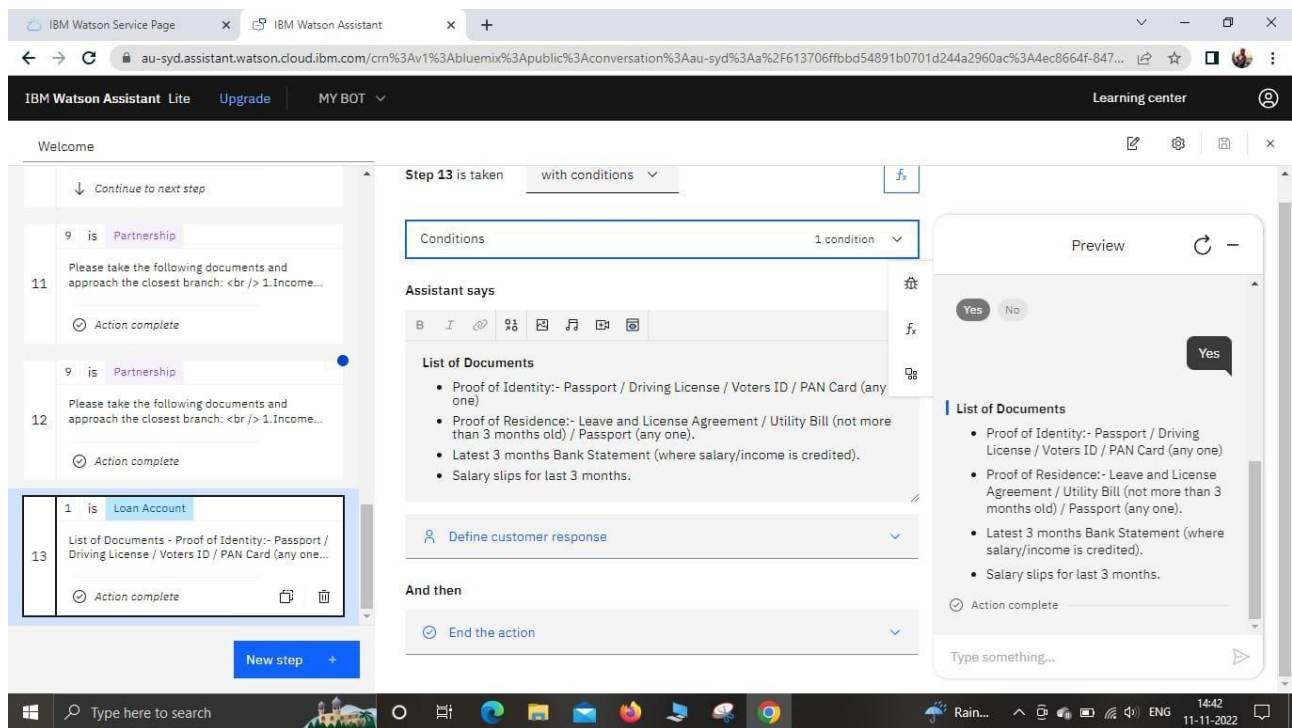
A 'Preview' window is open on the right, showing the 'Welcome to MY BOT.GOOD TO SEE YOU' message and the list of options. A 'Preview' button is visible at the bottom right of the preview window.





## Feature 2

### Create Loan Account



IBM Watson Assistant interface showing a conversation flow for "Queries".

**Customer starts with:**

3 total steps, 0 end steps, 0 re-ask steps

**Conversation steps:**

- Select the General queries list below.
  - 1 find the near... What are the ... + 4
  - Continue to next step
- 1 is Bank working time
  - Working hours of branches will be from 10.00 a.m. to 4.00 p.m.
  - Go to action: Fallback
- 1 is What are the bank's fees?

**Customer starts with:**

Enter phrases that a customer types or says to start the conversation about a specific topic. These phrases determine the task, problem, or question your customer has.

The more phrases you enter, the better your assistant can recognize what the customer wants.

Enter phrases your customer might use to start this action Total: 1

Enter a phrase

Queries

**Preview:**

Greet customer [default]

Welcome, how can I assist you?

Queries

Queries recognized

Select the General queries list below.

Select an option

Use the up arrow for prior messages

IBM Watson Assistant interface showing a conversation flow for "NetBanking".

**Go to action: Fallback**

- 1 is How do you Netbanking to Pay Bills.
  - 1. Gather your bills, including account numbers and the addresses to where you mail the...
  - Go to action: Fallback
- 1 is Netbanking to Apply for Loans.
  - If you are an existing customer you can apply for the loan on the bank's mobile app or through you...
  - Go to action: Fallback
- 1 is What details we need for net banking?
  - For netbanking to work, you need to know your User ID and password to log into your internet banking account. This User ID is different from your bank account number, which serves as the primary identity of your bank account. You have to request your bank to generate a User ID and password.
  - Go to action: Fallback

**Assistant says**

New condition group +

Define customer response

**And then**

Go to another action

**Preview:**

How do you Netbanking to Pay Bills.

Netbanking to Apply for Loans.

What details we need for net banking?

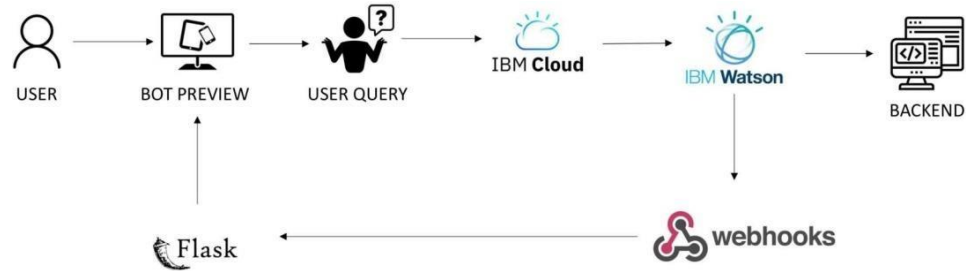
What details we need for net banking?

For netbanking to work, you need to know your User ID and password to log into your internet banking account. This User ID is different from your bank account number, which serves as the primary identity of your bank account. You have to request your bank to generate a User ID and password.

There are no additional steps for this action. Add a new step or end the action.

Type something...

## Database Schema



## TESTING

### 1. TESTING

#### Test Cases

	Test Scenarios
1	Verify user is able to open and view chatbot UI
2	Verify user is able to interact with chatbot or not
3	Verify chatbot is able to respond to user queries immediately
4	Verify chatbot is able to provide options for user to choose various choices
	<b>Savings Account Related Actions</b>
1	Verify user is able to select type of savings account
2	Verify user is able to know the procedure to create savings account for selected type
3	Verify user is check the minimum balance
4	Verify user is able to find interest rate
	<b>Current Account Related Actions</b>
1	Verify user is able to select type of company
2	Verify user is able to know the procedure to create current account for selected type
3	Verify user is able to know about zero balance current account
4	Verify user is able to know the procedure to close current account
	<b>Loan Account Related Actions</b>
1	Verify user is able to choose options for selecting type of available loan policies
2	Verify user is able to know about available loan amounts
3	Verify user is able to check the loan status
4	Verify user is able to know about joint loan

	<b>General Query Related Actions</b>
1	Verify user is able to know about bank working days
2	Verify user is able to know about list of branches
3	Verify user is able to find the nearest branch
4	Verify user is able to know about storage locker facility
5	Verify user is able to know about currency conversion facility
	<b>Net banking Related Actions</b>
1	Verify user is able to know the procedure to login netbanking account
2	Verify user is able to know the procedure to change netbanking password
3	Verify user is able to choose options for selecting type of fund transfers
4	Verify user is able to know about daily transaction limit

## User Acceptance Testing

Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Comments	TC for Automation(Y/N)	BUGID	Executed By
Chatbot_TC_OO1	UI	Home Page	Verify user is able to open and view chatbot UI	None	1.Enter URL and click go 2.Click on chatbot icon 3.Verify chatbot UI displayed or not	URL link	Chatbot UI is able to be viewed by user	Working as expected	Pass	-	N	-	JS. Nathaniel Nicholas
Chatbot_TC_OO2	Functional	Home Page	Verify user is able to interact with chatbot or not	Chatbot is accessible	1.Click on chatbot icon 2.Type the query in the chat window	User query	User is able to interact with chatbot easily	Working as expected	Pass	-	N	-	JS. Nathaniel Nicholas
Chatbot_TC_OO3	Functional	Home page	Verify chatbot is able to respond to user queries immediately	Chatbot is accessible	1.Click on chatbot icon 2.Type the query in the chat window 3. Press enter	User query	Chatbot is able to provide instant replies for user queries	Working as expected	Pass	-	N	-	JS. Nathaniel Nicholas
Chatbot_TC_OO4	Functional	Home page	Verify chatbot is able to provide options for user to choose various choices	Chatbot is accessible	1.Click on chatbot icon 2.Type the query in the chat window 3. Press enter	User query	Chatbot is able to provide options for user to choose various choices	Working as expected	Pass	-	N	-	JS. Nathaniel Nicholas
Savings_TC_OO1	UI	Chatbot	Verify user is able to select type of savings account	Chatbot is accessible	1.Click on chatbot icon 2.Type the query in the chat window 3. Press enter 4.Select the desired option	User query	User is able to select type of savings account	Working as expected	Pass	-	N	-	JS. Nathaniel Nicholas
Savings_TC_OO2	Functional	Chatbot	Verify user is able to know the procedure to create savings account for selected type	Chatbot is accessible	1. Click on chatbot icon 2.Type the query in the chat window 3. Press enter 4.Select the desired option	User query	User is able to know the steps to create savings account for selected type	Working as expected	Pass	-	N	-	M. Prasannakumar
Savings_TC_OO3	Functional	Chatbot	Verify user is check the minimum balance	Chatbot is accessible	1.Click on chatbot icon 2.Type the query in the chat window 3. Press enter 4.Select the desired option	User query	User is able to check the minimum balance	Working as expected	Pass	-	N	-	M. Prasannakumar
Savings_TC_OO4	Functional	Chatbot	Verify user is able to find interest rate	Chatbot is accessible	1. Click on chatbot icon 2.Type the query in the chat window 3. Press enter 4.Select the desired option	User query	User is able to find interest rate	Working as expected	Pass	-	N	-	M. Prasannakumar
Current_TC_OO1	UI	Chatbot	Verify user is able to select type of company	Chatbot is accessible	1.Click on chatbot icon 2.Type the query in the chat window 3. Press enter 4.Select the desired option	User query	User is able to select type of company	Working as expected	Pass	-	N	-	M. Prasannakumar
Current_TC_OO2	Functional	Chatbot	Verify user is able to know the procedure to create current account for selected type	Chatbot is accessible	1. Click on chatbot icon 2.Type the query in the chat window 2. Press enter 4.Select the desired option	User query	User is able to know the steps to create current account for selected type	Working as expected	Pass	-	N	-	M. Prasannakumar

Current_TC_003	Functional	Chatbot	Verify user is able to know about zero balance current account	Chatbot is accessible	1.Click on chatbot icon 2.Type the query in the chat window 3. Press enter 4.Select the desired option	User query	User is able to know about zero balance current account	Working as expected	Pass	-	N	-	A. Manimaran
Current_TC_004	Functional	Chatbot	Verify user is able to know about the procedure to close current account	Chatbot is accessible	1.Click on chatbot icon 2.Type the query in the chat window 3. Press enter 4.Select the desired option	User query	User is able to know about the procedure to close current account	Working as expected	Pass	-	N	-	A. Manimaran
Loan_TC_001	UI	Chatbot	Verify user is able to choose options for selecting type of available loan policies	Chatbot is accessible	1. Click on chatbot icon 2.Type the query in the chat window 3. Press enter 4. Select the desired option	User query	User is able to choose options to select type of available loan policies	Working as expected	Pass	-	N	-	A. Manimaran
Loan_TC_002	Functional	Chatbot	Verify user is able to know about available loan amounts	Chatbot is accessible	1.Click on chatbot icon 2.Type the query in the chat window 3. Press enter 4.Select the desired option	User query	User is able to know about available loan amounts	Working as expected	Pass	-	N	-	A. Manimaran
Loan_TC_003	Functional	Chatbot	Verify user is able to check the loan status	Chatbot is accessible	1. Click on chatbot icon 2.Type the query in the chat window 3. Press enter 4. Select the desired option	User query	User is able to check the loan status	Working as expected	Pass	-	N	-	A. Manimaran
Loan_TC_004	Functional	Chatbot	Verify user is able to know about joint loan	Chatbot is accessible	1.Click on chatbot icon 2.Type the query in the chat window 3. Press enter 4. Select the desired option	User query	User is able to know about joint loan	Working as expected	Pass	-	N	-	B.M. Don Davies
General_TC_001	Functional	Chatbot	Verify user is able to know about bank working days	Chatbot is accessible	1.Click on chatbot icon 2.Type the query in the chat window 3. Press enter 4. Select the desired option	User query	User is able to know about bank working days	Working as expected	Pass	-	N	-	B.M. Don Davies
General_TC_002	Functional	Chatbot	Verify user is able to know about list of branches	Chatbot is accessible	1. Click on chatbot icon 2.Type the query in the chat window 3. Press enter 4. Select the desired option	User query	User is able to know about list of branches	Working as expected	Pass	-	N	-	B.M. Don Davies
General_TC_003	Functional	Chatbot	Verify user is able to find the nearest branch	Chatbot is accessible	1.Click on chatbot icon 2.Type the query in the chat window 3. Press enter 4. Select the desired option	User query	User is able to find the nearest branch	Working as expected	Pass	-	N	-	B.M. Don Davies
General_TC_004	Functional	Chatbot	Verify user is able to know about storage locker facility	Chatbot is accessible	1. Click on chatbot icon 2.Type the query in the chat window 3. Press enter 4. Select the desired option	User query	User is able to know about storage locker facility	Working as expected	Pass	-	N	-	B.M. Don Davies
General_TC_005	Functional	Chatbot	Verify user is able to know about currency conversion facility	Chatbot is accessible	1.Click on chatbot icon 2.Type the query in the chat window 3. Press enter 4. Select the desired option	User query	User is able to know about currency conversion facility	Working as expected	Pass	-	N	-	B.M. Don Davies
Netbank_TC_001	Functional	Chatbot	Verify user is able to know the procedure to login netbanking account	Chatbot is accessible	1. Click on chatbot icon 2.Type the query in the chat window 3. Press enter 4. Select the desired option	User query	User is able to know the steps to login netbanking account	Working as expected	Pass	-	N	-	J.S. Nathaniel Nicholas
Netbank_TC_002	Functional	Chatbot	Verify user is able to know the procedure to change netbanking password	Chatbot is accessible	1.Click on chatbot icon 2.Type the query in the chat window 3. Press enter 4. Select the desired option	User query	User is able to know the steps to change netbanking password	Working as expected	Pass	-	N	-	M. Prasannakumar
Netbank_TC_003	UI	Chatbot	Verify user is able to choose options for selecting type of fund transfers	Chatbot is accessible	1.Click on chatbot icon 2.Type the query in the chat window 3. Press enter 4. Select the desired option	User query	User is able to choose options for selecting type of fund transfers	Working as expected	Pass	-	N	-	A. Manimaran

Nethank_TC_004	Functional	Chatbot	Verify user is able to know about daily transaction limit	Chatbot is accessible	1. Click on chatbot icon 2.Type the query in the chat window 3. Press enter 4.Select the desired option	User query	User is able to know about daily transaction limit	Working as expected	Pass	-	N	-	B.M. Dan Davies
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# Test Report

## 1. Purpose of Document

The purpose of this document is to briefly explain the test coverage and open issues of the AI based Discourse for Banking Industry project at the time of the release to User Acceptance Testing (UAT).

## 2. Defect Analysis

Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
By Design	0	0	2	1	3
Duplicate	0	0	0	0	0
External	0	0	0	0	0
Fixed	0	0	2	1	3
Not Reproduced	0	0	0	0	0
Skipped	0	0	0	0	0
Won't Fix	0	0	0	0	0
Totals		0	2	2	6

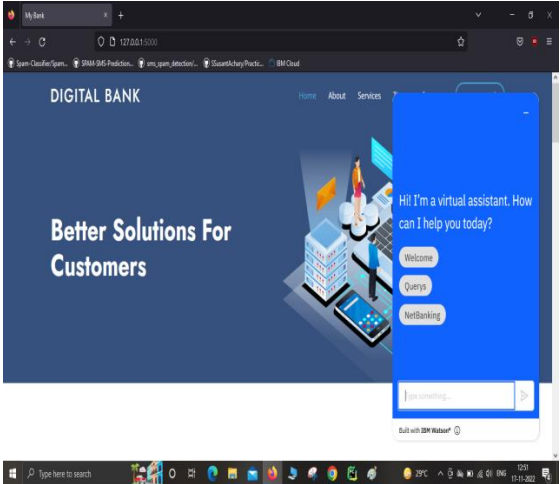
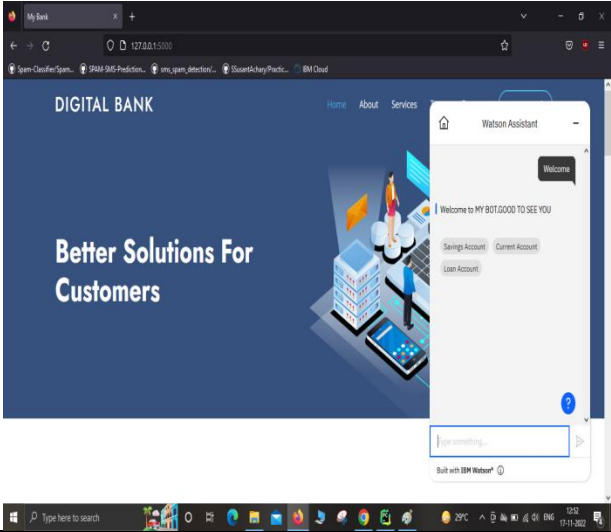
## 3. Test Case Analysis

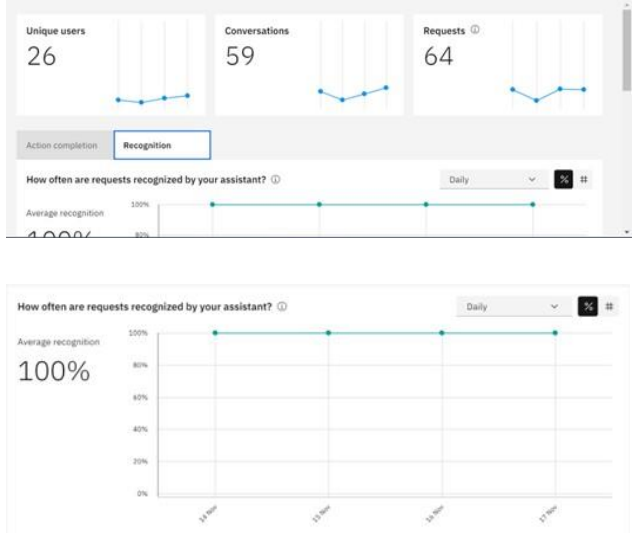
Section	Total Cases	Not Tested	Fail	Pass
Print Engine	0	0	0	0
Client Application	25	0	0	25
Security	0	0	0	0
Outsource Shipping	0	0	0	0
Exception Reporting	0	0	0	0
Final Report Output	25	0	0	25
Version Control	0	0	0	0

9. RESULTS

9.1Performance Metrics

Model Performance Testing:

S.No.	Parameter	Values	Screenshot
1.	Model Summary	The chatbot is used by the user to interact and select queries that are populated based on frequently asked question of banking customers. There can be multiple instances of a single chatbot inquiring different user atthe same time. It quickly responds with expected answers to frequently asked customer queries. It can be scaled as per the requirements of the bank to include answers to queries related to any new feature or service introduced by the bank.	 

2.	Accuracy	<p>Training Accuracy – 100%</p> <p>Validation Accuracy – 100%</p>	
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## 9. ADVANTAGES AND DISADVANTAGES

### Advantages

1. **Round-the-clock support:** Chatbots provide 24/7 client support, so existing and potential customers can try and solve their banking problems after work hours and on weekends. This ultimately also leads to better customer experience.
2. **Enhanced productivity of bank personnel:** Not all clients' problems require the help of a staff member. Artificial intelligence may successfully deal with minor issues leaving only the most urgent and complicated cases for the human approach.
3. **More convenient mode of communication:** Chatbots may combine various functionalities that would make them convenient for customers of different age groups.

### Disadvantages

1. **Internet Issues:** Chatbots will not work without the internet. If there is a network problem, chatbots may stop working and will not respond to client queries.
2. **Requirement of technical knowledge:** Users who make use of chatbots must know how to use chatbots. Otherwise, it is difficult to do interaction with chatbot.
3. **Providing unexpected answers:** Chatbots in some cases may get confused due to prolonged user inputs and may provide irrelevant answers.
4. **Inability to interpret multiple queries:** Chatbots can't understand multiple questions at a time if a user continuously posts queries to it. So it is necessary for a user to post queries one-by-one.



## **11. CONCLUSION**

Chatbots developed using AI are able to answer any frequently asked banking queries on account creation, loan, net banking, other services etc. It addresses the queries of customers immediately and effectively in a cost efficient manner. It eliminates the need for a massive customer care workforce and even reduces the workload of the bank employees whose efforts can be used elsewhere. AI Chatbots provides 24/7 service to clear all customer queries and guide them through all the banking processes. It can be scaled as per the requirements of the bank to include answers to queries related to any new feature or service introduced by the bank. In order to overcome the user satisfaction issues associated with banking services, chatbot will provide personal and efficient communication between the user and the bank. It is built to be the overall virtual assistant that can facilitate customers to ask banking-related questions without visiting the bank or calling up customer service centers as well as providing them with relevant suggestions.

## **12. FUTURE SCOPE**

Chatbots help people obtain the information they need and solve their problems. The technology sector has seen a massive increase in AI development, which has led to the creation of chatbots that can help users easily find the information they need online. AI Chatbots effectively create a strong brand image. They will continue to evolve and play an important role in customer service for businesses.

### **1. Bots for Internal Business Communications**

Chatbots can be used for various purposes, including addressing common problems, communicating with employees, and finishing HR-related tasks and transactional functions. Chatbots for websites are acting as a guide to new employees through company protocols, recording answers for screen questions, and assisting with the onboarding process for new employees. Chatbots can save time for IT desk agents and help with more complicated issues.

### **2. Content Marketing**

Chatbots can communicate with the target market by speaking with them in complete sentences with a natural and easy-going conversational flow. Some markets use these bots to serve customer service and retail, amongst others. Chatbots can segment consumers for future marketing campaigns. This can be incredibly useful for creating more accurate target marketing. Based on the information from dialogue with chatbots, marketers can use this information to help with personalizing brand content.

### **3. Social Media**

Chatbots have better customer interaction rates on social media. Chatbot interactions increase consumer confidence in a brand or business. Customers are informed with daily or weekly announcements about deals, events, and promotions via social media. With time, it is used for voicing opinions, ordering products and services, offering reviews, and even getting in touch with businesses.

### **4. Use of AI in contact centers**

AI chatbots without human involvement can handle simple requests such as changing a password, requesting a balance, scheduling an appointment, etc.

## 13.APPENDIX:

### SOURCE CODE:

#### ***Build PYTHON FLASK Code:***

```
from flask import Flask,render_template

app = Flask(__name__)

@app.route("/")
def home():
    return render_template("index.html")

if __name__ == "__main__":
    app.run()
```

#### ***Build HTML and CSS Code***

##### INDEX.HTML

```
<!DOCTYPE html>
<html lang="en">

<head>
<meta charset="utf-8">
<meta content="width=device-width, initial-scale=1.0" name="viewport">

<title>My Bank</title>
<meta content="" name="description">
<meta content="" name="keywords">

<!-- Favicons -->
<link href="static/img/favicon.png" rel="icon">
<link href="static/img/apple-touch-icon.png" rel="apple-touch-icon">

<!-- Google Fonts -->
<link
href="https://fonts.googleapis.com/css?family=Open+Sans:300,300i,400,400i,600,600i,700,700i|Jost:300,300i,400,400i,500,500i,600,600i,700,700i|Poppins:300,300i,400,400i,500,500i,600,600i,700,700i" rel="stylesheet">

<!-- Vendor CSS Files -->
<link href="static/vendor/aos/aos.css" rel="stylesheet">
<link href="static/vendor/bootstrap/css/bootstrap.min.css" rel="stylesheet">
<link href="static/vendor/bootstrap-icons/bootstrap-icons.css" rel="stylesheet">
<link href="static/vendor/boxicons/css/boxicons.min.css" rel="stylesheet">
<link href="static/vendor/glightbox/css/glightbox.min.css" rel="stylesheet">
<link href="static/vendor/remixicon/remixicon.css" rel="stylesheet">
<link href="static/vendor/swiper/swiper-bundle.min.css" rel="stylesheet">

<!-- Template Main CSS File -->
```

```

<link href="static/css/style.css" rel="stylesheet">

</head>

<body>

<!-- ===== Header ===== -->
<header id="header" class="fixed-top ">
  <div class="container d-flex align-items-center">

    <h1 class="logo me-auto"><a href="index.html">Digital bank</a></h1>
    <!-- Uncomment below if you prefer to use an image logo -->
    <!-- <a href="index.html" class="logo me-auto"></a>-->

    <nav id="navbar" class="navbar">
      <ul>
        <li><a class="nav-link scrollto active" href="#hero">Home</a></li>
        <li><a class="nav-link scrollto" href="#about">About</a></li>
        <li><a class="nav-link scrollto" href="#services">Services</a></li>
        <li><a class="nav-link scrollto" href="#team">Team</a></li>
        <li><a class="nav-link scrollto" href="#contact">Contact</a></li>
        <li><a class="getstarted scrollto" href="#about">Get Started</a></li>
      </ul>
      <i class="bi bi-list mobile-nav-toggle"></i>
    </nav><!-- .navbar -->

  </div>
</header><!-- End Header -->

<!-- ===== Hero Section ===== -->
<section id="hero" class="d-flex align-items-center">

  <div class="container">
    <div class="row">
      <div class="col-lg-6 d-flex flex-column justify-content-center pt-4 pt-lg-0 order-2 order-lg-1" data-aos="fade-up" data-aos-delay="200">
        <h1>Better Solutions For Customers</h1>
      </div>
      <div class="col-lg-6 order-1 order-lg-2 hero-img" data-aos="zoom-in" data-aos-delay="200">
        
      </div>
    </div>
  </div>
</section><!-- End Hero -->

<!-- ===== About Us Section ===== -->
<section id="about" class="about">
  <div class="container" data-aos="fade-up">

    <div class="section-title">
      <h2>About Us</h2>
    </div>

    <div class="row content">
      <div class="col-lg-6">
        <p>
          We provide services such as savings accounts, current accounts, short-term loans, overdraft protection, etc.
        </p>
      </div>
      <div class="col-lg-6 pt-4 pt-lg-0">
        <p>

```

Banks lend money by making advances to customers on current accounts,  
by making installment loans,  
and by investing in marketable debt securities and other forms of money lending.

</p>

</div>

</div>

</div>

</section><!-- End About Us Section -->

<!-- ===== Services Section ===== -->

<section id="services" class="services section-bg">

<div class="container" data-aos="fade-up">

<div class="section-title">

<h2>Services</h2>

<p>Banking services are checking and savings accounts, loan and mortgage services, wealth management, providing Credit and Debit Cards, Overdraft services.</p>

</div>

<div class="row">

<div class="col-xl-3 col-md-6 d-flex align-items-stretch" data-aos="zoom-in" data-aos-delay="100">

<div class="icon-box">

<div class="icon"><i class="bx bx1-dribbble"></i></div>

<h4><a href="">Checking and Saving account</a></h4>

<p>(basic) Checking accounts, Premium checking accounts, Student checking accounts,</p>

</div>

</div>

<div class="col-xl-3 col-md-6 d-flex align-items-stretch mt-4 mt-md-0" data-aos="zoom-in" data-aos-delay="200">

<div class="icon-box">

<div class="icon"><i class="bx bx-file"></i></div>

<h4><a href="">Loan</a></h4>

<p>Home Loans,Car Loans,Two-Wheeler Loans,Small Business Loans.</p>

</div>

</div>

<div class="col-xl-3 col-md-6 d-flex align-items-stretch mt-4 mt-xl-0" data-aos="zoom-in" data-aos-delay="300">

<div class="icon-box">

<div class="icon"><i class="bx bx-tachometer"></i></div>

<h4><a href="">Wealth Management</a></h4>

<p>Wealth management is a branch of financial services dealing with the investment needs of affluent clients.</p>

</div>

</div>

<div class="col-xl-3 col-md-6 d-flex align-items-stretch mt-4 mt-xl-0" data-aos="zoom-in" data-aos-delay="400">

<div class="icon-box">

<div class="icon"><i class="bx bx-layer"></i></div>

<h4><a href="">Credit Card</a></h4>

<p>A credit card is a type of credit facility, provided by banks that allow customers to borrow funds within a pre-approved credit limit.</p>

</div>

</div>

</div>

</div>

</section><!-- End Services Section -->

<!-- ===== Team Section ===== -->

<section id="team" class="team section-bg">

```

<div class="container" data-aos="fade-up">

  <div class="section-title">
    <h2>Team</h2>
  </div>

  <div class="row">

    <div class="col-lg-6">
      <div class="member d-flex align-items-start" data-aos="zoom-in" data-aos-delay="100">
        <div class="pic"></div>
        <div class="member-info">
          <h4>Nathaniel Nicholas JS</h4>
          <span>Team Leader</span>
          <div class="social">
            <a href=""><i class="ri-twitter-fill"></i></a>
            <a href=""><i class="ri-facebook-fill"></i></a>
            <a href=""><i class="ri-instagram-fill"></i></a>
            <a href=""><i class="ri-linkedin-box-fill"></i></a>
          </div>
        </div>
      </div>
    </div>

    <div class="col-lg-6 mt-4 mt-lg-0">
      <div class="member d-flex align-items-start" data-aos="zoom-in" data-aos-delay="200">
        <div class="pic"></div>
        <div class="member-info">
          <h4>Prasanna kumar M</h4>
          <span>Team Member-1</span>
          <div class="social">
            <a href=""><i class="ri-twitter-fill"></i></a>
            <a href=""><i class="ri-facebook-fill"></i></a>
            <a href=""><i class="ri-instagram-fill"></i></a>
            <a href=""><i class="ri-linkedin-box-fill"></i></a>
          </div>
        </div>
      </div>
    </div>

    <div class="col-lg-6 mt-4">
      <div class="member d-flex align-items-start" data-aos="zoom-in" data-aos-delay="300">
        <div class="pic"></div>
        <div class="member-info">
          <h4>Don Davies B M</h4>
          <span>Team Member-2</span>
          <div class="social">
            <a href=""><i class="ri-twitter-fill"></i></a>
            <a href=""><i class="ri-facebook-fill"></i></a>
            <a href=""><i class="ri-instagram-fill"></i></a>
            <a href=""><i class="ri-linkedin-box-fill"></i></a>
          </div>
        </div>
      </div>
    </div>

    <div class="col-lg-6 mt-4">
      <div class="member d-flex align-items-start" data-aos="zoom-in" data-aos-delay="400">
        <div class="pic"></div>
        <div class="member-info">
          <h4>Manimaran A</h4>

```

```
<span>Team Member-3</span>
<div class="social">
  <a href=""><i class="ri-twitter-fill"></i></a>
  <a href=""><i class="ri-facebook-fill"></i></a>
  <a href=""><i class="ri-instagram-fill"></i></a>
  <a href=""><i class="ri-linkedin-box-fill"></i> </a>
</div>
</div>
</div>
</div>
</div>
```

```
</div>
</section><!-- End Team Section -->
```

```
<!-- ===== Contact Section ===== -->
<section id="contact" class="contact">
  <div class="container" data-aos="fade-up">
```

```
    <div class="section-title">
      <h2>Contact</h2>
      <p>Powered by Plaid is a native Salesforce app that enables the customer to easily authenticate bank account which enables the business to verify the identity of the consumer, income, static, and automatically pulls bank transaction data.</p>
    </div>
```

```
    <div class="row">

      <div class="col-lg-5 d-flex align-items-stretch">
        <div class="info">
          <div class="address">
            <i class="bi bi-geo-alt"></i>
            <h4>Location:</h4>
            <p>120 MIET, Trichy, TN-620007</p>
          </div>

          <div class="email">
            <i class="bi bi-envelope"></i>
            <h4>Email:</h4>
            <p>npmdbank@gmail.com</p>
          </div>

          <div class="phone">
            <i class="bi bi-phone"></i>
            <h4>Call:</h4>
            <p>+91 9876543219</p>
          </div>

        </div>

      </div>

    </div>
```

```
    </div>

    <div class="col-lg-7 mt-5 mt-lg-0 d-flex align-items-stretch">
      <form action="static/forms/contact.php" method="post" role="form" class="php-email-form">
        <div class="row">
          <div class="form-group col-md-6">
            <label for="name">Your Name</label>
            <input type="text" name="name" class="form-control" id="name" required>
          </div>
          <div class="form-group col-md-6">
```

```

        <label for="name">Your Email</label>
        <input type="email" class="form-control" name="email" id="email" required>
    </div>
</div>
<div class="form-group">
    <label for="name">Subject</label>
    <input type="text" class="form-control" name="subject" id="subject" required>
</div>
<div class="form-group">
    <label for="name">Message</label>
    <textarea class="form-control" name="message" rows="10" required></textarea>
</div>
<div class="my-3">
    <div class="loading">Loading</div>
    <div class="error-message"></div>
    <div class="sent-message">Your message has been sent. Thank you!</div>
</div>
<div class="text-center"><button type="submit">Send Message</button></div>
</form>
</div>

</div>

</div>
</section><!-- End Contact Section -->

</main><!-- End #main -->

<!-- ===== Footer ===== -->
<footer id="footer">
    <div class="footer-top">
        <div class="container">
            <div class="row">

                <div class="col-lg-3 col-md-6 footer-contact">
                    <h3>Banking</h3>
                    <p>
                        120<br>
                        MIET, Trichy-TN-620007<br>
                        Tamilnadu-India<br><br>
                        <strong>Phone:</strong> +91 9876543211<br>
                        <strong>Email:</strong> npmdbank@gmail.com<br>
                    </p>
                </div>

                <div>
                    <div>
                        <h4>Useful Links</h4>
                        <ul>
                            <li><i class="bx bx-chevron-right"></i> <a href="#">Home</a></li>
                            <li><i class="bx bx-chevron-right"></i> <a href="#">About us</a></li>
                            <li><i class="bx bx-chevron-right"></i> <a href="#">Services</a></li>
                            <li><i class="bx bx-chevron-right"></i> <a href="#">Terms of service</a></li>
                        </ul>
                    </div>
                    <div class="social-links mt-3">
                        <a href="#" class="twitter"><i class="bx bxl-twitter"></i></a>
                        <a href="#" class="facebook"><i class="bx bxl-facebook"></i></a>
                        <a href="#" class="instagram"><i class="bx bxl-instagram"></i></a>
                        <a href="#" class="google-plus"><i class="bx bxl-skype"></i></a>
                        <a href="#" class="linkedin"><i class="bx bxl-linkedin"></i></a>
                    </div>
                </div>
            </div>
        </div>
    </div>

```

```

</div>

</div>
</div>
</div>

<div class="container footer-bottom clearfix">
  <div class="copyright">
    &copy; Copyright <strong><span>PNT2022TMID45335</span></strong>. All Rights Reserved
  </div>
  <div class="credits">
    <!-- All the links in the footer should remain intact. -->
    <!-- You can delete the links only if you purchased the pro version. -->
    <!-- Licensing information: https://bootstrapmade.com/license/ -->
    <!-- Purchase the pro version with working PHP/AJAX contact form: https://bootstrapmade.com/arsha-free-bootstrap-html-template-corporate/ -->
    Designed by <a href="mailto:npmdbank@gmail.com">NPMD bros</a>
  </div>
</div>
</footer><!-- End Footer -->

<div id="preloader"></div>
<a href="#" class="back-to-top d-flex align-items-center justify-content-center"><i class="bi bi-arrow-up-short"></i></a>

<!-- Vendor JS Files -->
<script src="static/vendor/aos/aos.js"></script>
<script src="static/vendor/bootstrap/js/bootstrap.bundle.min.js"></script>
<script src="static/vendor/lightbox/js/lightbox.min.js"></script>
<script src="static/vendor/isotope-layout/isotope.pkgd.min.js"></script>
<script src="static/vendor/swiper/swiper-bundle.min.js"></script>
<script src="static/vendor/waypoints/noframework.waypoints.js"></script>
<script src="static/vendor/php-email-form/validate.js"></script>
<script>
window.watsonAssistantChatOptions = {
  integrationID: "193c6c6b-6d3f-4e44-95d8-9a4e6e70fb4b", // The ID of this integration.
  region: "au-syd", // The region your integration is hosted in.
  serviceInstanceID: "4ec8664f-8478-47b8-acf2-6b544a86d644", // The ID of your service instance.
  onLoad: function(instance) { instance.render(); }
};
setTimeout(function(){
  const t=document.createElement('script');
  t.src="https://web-chat.global.assistant.watson.appdomain.cloud/versions/" + (window.watsonAssistantChatOptions.clientVersion ||
'latest') + "/WatsonAssistantChatEntry.js";
  document.head.appendChild(t);
});
</script>

<!-- Template Main JS File -->
<script src="static/js/main.js"></script>

</body>

</html>

```



## IBM Chatbot Integration:

```
<script>
window.watsonAssistantChatOptions = {
  integrationID: "193c6c6b-6d3f-4e44-95d8-9a4e6e70fb4b", //
```

The ID of this integration.

```
  region: "au-syd", // The region your integration is hosted in.
  serviceInstanceID: "4ec8664f-8478-47b8-acf2-
```

6b544a86d644", // The ID of your service instance.

```
  onLoad: function(instance) { instance.render(); }
};
```

```
setTimeout(function(){
```

```
  const t=document.createElement('script');
```

```
  t.src="https://web-
```

```
chat.global.assistant.watson.appdomain.cloud/versions/" +
```

```
(window.watsonAssistantChatOptions.clientVersion || 'latest') +
```

```
"/WatsonAssistantChatEntry.js";
```

```
  document.head.appendChild(t);
```

```
});
```

```
</script>
```

## GITHUB LINK:

<https://github.com/IBM-EPBL/IBM-Project-35126-1660281771>

## PROJECT DEMO LINK:

[https://drive.google.com/file/d/1HkLpfFW8BoM7GVQasaJLtXmsFpkJFY\\_p/view](https://drive.google.com/file/d/1HkLpfFW8BoM7GVQasaJLtXmsFpkJFY_p/view)