

# AI BASED DISCOURSE FOR BANKING INDUSTRY

**[PNT2022TMID41030]**

## **TEAM MEMBERS:**

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# INTRODUCTION:

## 1. Project Overview

- However, they also help the staff and prevent stressful situations that arise from Direct communication with clients.
- The core purpose of banking Chatbots is to provide the customers with prompt service and to improve the operational efficiency of the bank and its employees.
- Besides, Conversational AI in banking also assists the staff to distribute their workload.
- Chatbots allow businesses to connect with customers in a personal way without the expense of human representatives.
- For example, many of the questions or issues customers have been common and easily answered. That's why companies create FAQs and trouble shooting guides.
- Banking chatbots have huge potential in customer engagement.
- It gives customers 24/7 access to support and banks can make great use of Conversational AI and improve customer engagement to enhance the experience and improve retention

## 2. Purpose

- Chatbots are mainly used to provide customer support.
- It helps in catering a huge amount of target audience at the same time 24/7
- Can Schedule meetings, Broadcast newsletters, auto-sequences
- [Acquire leads from Comments](#)
- Create conversational forms and saving all the data on spreadsheets
- Chatbots are very intelligent. You train them once and they will communicate with your target audience in their language.  
Multilingual chatbots have saved you from investing much on hiring different languages resources.
- If you are a company that's functional all around the world, you get hands-on [chatbot](#) asap! Because, while you are asleep, your bot can entertain your customers anywhere in the world.

## **2.LITERATURE SURVEY**

### **Customer service/engagement (Chatbot)-**

Chatbots deliver a very high ROI in cost savings, making them one of the most commonly used applications of AI across industries. Chatbots can effectively tackle most commonly accessed tasks, such as balance inquiry, accessing mini statements, fund transfers, etc. This helps reduce the load from other channels such as contact centres, internet banking, etc.

### **Robo Advice-**

Automated advice is one of the most controversial topics in the financial services space. A robo-advisor attempts to understand a customer's financial health by analyzing data shared by them, as well as their financial history. Based on this analysis and goals set by the client, the robo-advisor will be able to give appropriate

### **General Purpose / Predictive Analytics-**

One of AI's most common use cases includes general-purpose semantic and natural language applications and broadly applied predictive analytics. AI can detect specific patterns and correlations in the data, which legacy technology could not previously detect. These patterns could indicate untapped sales opportunities, cross-sell opportunities, or even metrics around operational data, leading to a direct revenue impact.

### **Cybersecurity-**

AI can significantly improve the effectiveness of cybersecurity systems by leveraging data from previous threats and learning the patterns and indicators that might seem unrelated to predict and prevent attacks. In addition to preventing external threats, AI can also monitor internal threats or breaches and suggest corrective actions, resulting in the prevention of data theft or abuse

### **Credit Scoring / Direct Lending-**

AI is instrumental in helping alternate lenders determine the creditworthiness of clients by analyzing data from a wide range of traditional and non-traditional data sources. This helps lenders develop innovative lending systems backed by a robust credit scoring model, even for those individuals or entities with limited credit history. Notable companies include Affirm and GiniMachine. [3]

### **Personalized Customer Service-**

Banks are using AI to increase client satisfaction, improve efficiency and maintain customer loyalty in many ways. With AI in finance, it's possible to create intelligent products that can learn from the customer's financial data and determine what's working for them and what's not, and help them track their financial activities better.

### **Handle Risk Management-**

While extending loans is a complex and critical process, it requires both accuracy and confidentiality. AI can combine & analyse the data related to the latest transactions, market trends, and the most recent financial activities to identify the potential risks in giving the loan. Banks can also get an idea of the client's behaviour with AI-based risk assessment process. AI can minimize the probability of error in identifying even the slightest probability of fraud.

### **Compliance & Fraud Detection-**

With AI, it is possible to simulate umpteen situations where a fraud or cybercrime may occur. It follows a proactive approach to making the financial services' environment safe and breach-proof. AI is helping the field of finance to innovate freely by securing its products and services through a continuous understanding of human psychology. Besides, AI in finance also helps to keep a strict regulatory oversight. AI ensures that all policies, regulations, and security measures are being sincerely followed while designing and delivering any financial service.

### **AML Pattern Detection-**

In most cases, money launderers hide their actions through a series of steps that make it look like money that came from illegal or unethical sources are earned legitimately. Most of the major banks across the globe are shifting from rule based software systems to artificial intelligence based systems which are more robust and intelligent to the anti-money laundering patterns. Over the coming years, these systems are only set to become more and more accurate and fast with the continuous innovations and improvements in the field of artificial intelligence.

### **Process Automation-**

Process automation is one of the key drivers of automation in financial institutions. It's also evolving into cognitive process automation, where AI systems are able to perform more complex automation. AI in finance implies thorough research, understanding, and learning over long periods of time and vast volumes of data.

### **Cost Reduction-**

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.

### **Voice Assisted Banking-**

This technology empowers customers to use banking services with voice commands rather than a touch screen. The natural language technology can process queries to answer questions, find information, and connect users with various banking services.

### **Algorithmic Trading –**

Plenty of Hedge funds across the globe are using high end systems to deploy artificial intelligence models which learn by taking input from several sources of variation in financial markets and sentiments about the entity to make investment decisions on the fly. Reports claim that more than 70% of the trading today is actually carried out by automated artificial intelligence systems. Most of these hedge funds follow different strategies for making high frequency trades (HFTs) as soon as they identify a trading opportunity based on the inputs.

### **Predictive Analytics and wealth management for clients-**

Many consumers want some help when it comes to personal finance advice. Consumers want to be warned and reminded of important information about their own financial data, not told about issues after the fact. AI engines can provide insights on how to best service their high-net-worth clients. By automating large parts of the wealth management process, they would be able to offer personalized, tax-optimized investments to clients, who have far less in investable assets than what would usually qualify for professional wealth management.[4]

## **2.1 Existing problem:**

Banks will enable much and reliable services which will gain customer loyalty

## 2.2 References:

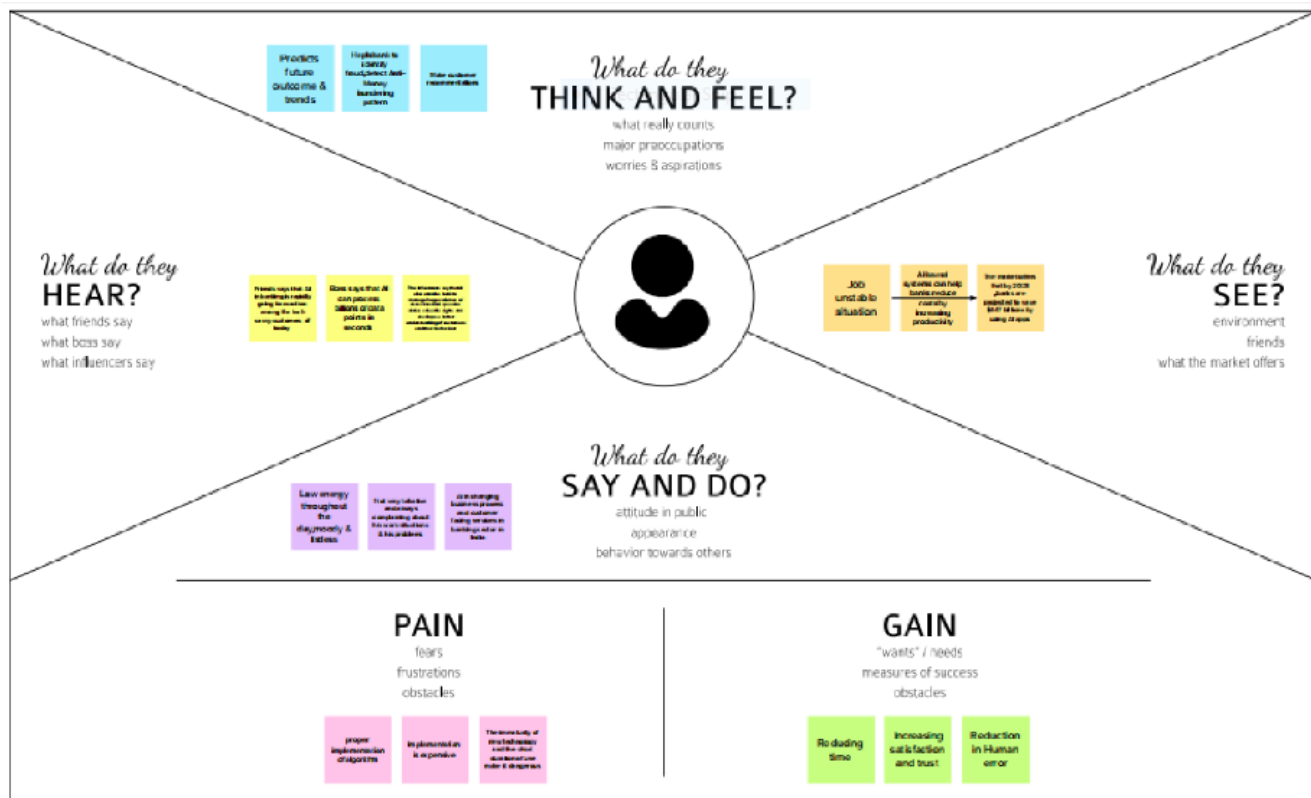
- [1].Web:https://www.online-sciences.com/robotics/artificial-intelligence-in-transportation-advantagesdisadvantages-applications/
- [2].Web: <https://ibsintelligence.com/ibsi-news/5-applications-of-artificial-intelligence-in-banking/>
- [3].Web:https://www2.deloitte.com/content/dam/Deloitte/us/Documents/process-and-operations/us-aitransforming-future-of-banking.pdf
- [4].Web:https://www.researchgate.net/publication/360782923\_A\_STUDY\_OF\_APPLICATIONS\_OF\_ARTIFICIAL\_INTELLIGENCE\_IN\_BANKING\_AND\_FINANCE\_SECTOR

### 2.3 Problem Statement Definition:


Currently, most banks offer a wide variety of products and services – credit cards, savings accounts, debit cards, financial planning, personal loans, mortgages, etc. Yet many customers are not always aware of all the products offered by the financial company they're doing business with.

### 3. IDEATION & PROPOSED SOLUTION

### 3.1 Empathy Map Canvas



## 3.2 Ideation & Brainstorming



### Brainstorm & idea prioritization

Use this template to get your brainstorming session to your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

- 1. Welcome everyone
- 2. Share the challenge
- 3. Multiple contributions

#### 1. Rectangular Snip

**Before you collaborate**

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

[Instructions](#)

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**2. Welcome everyone**

Make sure that everyone is comfortable and ready. Make sure everyone knows the challenge.

**3. Share the challenge**

Make sure the group is clear on the challenge and the goals of the session.

**4. Multiple contributions**

Make sure everyone has a chance to contribute. Encourage everyone to share their ideas.

[Instructions](#)

#### 2. Define your problem statement

**Before you collaborate**

Make sure everyone is clear on the challenge and the goals of the session.

[Instructions](#)

**Challenge**

How might we... [insert challenge statement]...

**Key rules of brainstorming**

Make sure everyone is clear on the challenge and the goals of the session.

|                           |                           |
|---------------------------|---------------------------|
| 1. Welcome everyone       | 2. Share the challenge    |
| 3. Multiple contributions | 4. Multiple contributions |
| 5. Multiple contributions | 6. Multiple contributions |

3

## Brainstorm

Take about 10 minutes to think about your problem statement.

20 minutes

Tip

Don't think too much about what you should do. Just think about what you want to do.

Brainstorm



Brainstorm



Brainstorm



Brainstorm



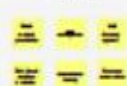
4

## Group ideas

Take time to check your ideas with others. Try to find a common theme or group of ideas that you can all agree on. Try to find a common theme or group of ideas that you can all agree on.

20 minutes

PULSE



PULSE as relationship managers of



Tip

Don't think too much about what you should do. Just think about what you want to do.

KNIFE OF BALANCE



FEATURES

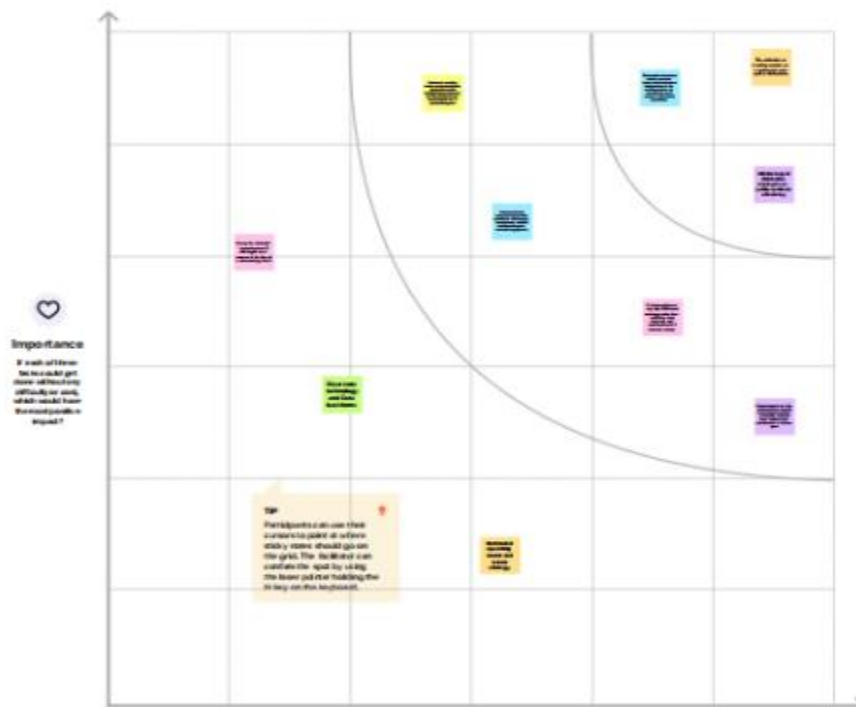


5

## Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes





### 3.3 Proposed Solution

| S.NO | Parameter                                | Description   |
|------|--|---|
| 01   | Problem Statement (Problem to be solved) | <b>Statement</b> -The handwritten digit recognition is the capability of computer applications to recognize the human handwritten digits.<br><b>Description:</b> It is a hard task for the machine because handwritten digits are not perfect and can be made with many different shapes and sizes.   |
| 02   | Idea / Solution description              | 1. It is the capability of a computer to fetch the mortal handwritten integers from different sources like images, papers, touch defences.<br>2. It allows user to translate all those signature and notes into electronic words in a text document format and this data only requires far less physical space than the storage of the physical copies. |
| 03   | Novelty / Uniqueness                     | Accurately recognize the digits rather than recognizing all the characters like OCR.  |
| 04   | Social Impact / Customer Satisfaction    | 1.Artificial Intelligence developed the app called Handwritten digit Recognizer.<br>2. It converts the written word into digital approximations and utilizes complex algorithms to identify characters before churning out a digital approximation  |
| 05   | Business Model (Revenue Model)           | • This system can be integrated with traffic surveillance cameras to recognize the vehicle's number plates for effective traffic management. • Can be integrated with Postal system to identify and recognize the pin-code details easily   |
| 06   | Scalability of the Solution              | • Ability to recognise digits in more noisy environments.<br>• There is no limit in the number of digits it can be recognized.  |

### 3.4 Problem Solution fit

#### Project DesignPhase-I-SolutionFit

Project Title: AI Based Discourse For Banking Industry

TeamID: PNT2022TMID41030

|  |  |  |  |  |
|--|--|--|--|--|
| Define CS, filter to CC                  | <b>1. CUSTOMER SEGMENT(S)</b> <span>CS</span> <ul style="list-style-type: none"> <li>Discover critical data points for customer segmentation</li> <li>Profile new customers into user specific segmentation</li> <li>Real time monitoring and reallocation of segments</li> <li>Support constant learning about each customer</li> </ul> | <b>2. CUSTOMER CONSTRAINTS</b> <span>CC</span> <ul style="list-style-type: none"> <li>The value of <u>reimagined</u> customer engagement</li> <li>Rising customer expectation</li> <li><u>Disintermediation</u></li> <li>Increasing human-like formats</li> </ul>  | <b>3. AVAILABLE SOLUTIONS</b> <span>AS</span> <ul style="list-style-type: none"> <li>Use machine <u>learning</u> to achieve robotic process automation</li> <li>Augment human analytical competencies by leveraging machine learning</li> <li>Use data <u>analytics</u> to make smart and timely decisions</li> </ul>  | Explore AS, differentiate                |
|  |  |  |  |  |
| Focus on J&P, tap into BE, understand RC | <b>4. JOBS-TO-BE-DONE/PROBLEMS</b> <span>J&amp;P</span> <ul style="list-style-type: none"> <li>High error rates</li> <li>Hard to access</li> <li>Hard to integrate with external sources</li> </ul>  | <b>5. PROBLEM ROOT CAUSE</b> <span>RC</span> <ul style="list-style-type: none"> <li>Security and compliance</li> <li>Localization</li> <li>Transparency, <u>Explainability</u></li> <li><u>Siloed</u> data</li> </ul>  | <b>6. BEHAVIOUR</b> <span>BE</span> <ul style="list-style-type: none"> <li>Reduced costs of <u>acquisition</u></li> <li>Lower costs to serve</li> <li>Lower risk</li> </ul>  | Focus on J&P, tap into BE, understand RC |
| Entity strong TR&EM                      | <b>7. TRIGGERS</b> <span>TR</span> <ul style="list-style-type: none"> <li>Triggers can be pieces of information which users create through their everyday actions that indicate they are either a potential customer/ prospect or otherwise</li> <li>A user transacts on a bank's ATM</li> </ul>   | <b>9. YOUR SOLUTION</b> <span>SOLN</span> <ul style="list-style-type: none"> <li>Establish one master version for each customer</li> <li>Predict next best action for each customer</li> <li>Profile new customer as soon as they sign up</li> <li>Achieve smarter cross sell and up sell of products</li> </ul> | <b>10. CHANNELS of BEHAVIOUR</b> <span>CB</span> <ol style="list-style-type: none"> <li><b>ONLINE</b> <ul style="list-style-type: none"> <li>Blending high tech and high touch banking experience</li> <li>Security and Privacy</li> </ul> </li> <li><b>OFFLINE</b> <ul style="list-style-type: none"> <li>No Immediate response, as there is a direct interaction.</li> <li>Taking time to</li> </ul> </li> </ol> | Extract Online and Offline CB, Hot BE    |
|  | <b>8. EMOTIONS: BEFORE/AFTER</b> <span>EM</span> <ul style="list-style-type: none"> <li>Before: Risk for storing data</li> <li>After: Easy to manage</li> </ul>  |  |  |  |

## 4. REQUIREMENT ANALYSIS

### 4.1 Functional requirement

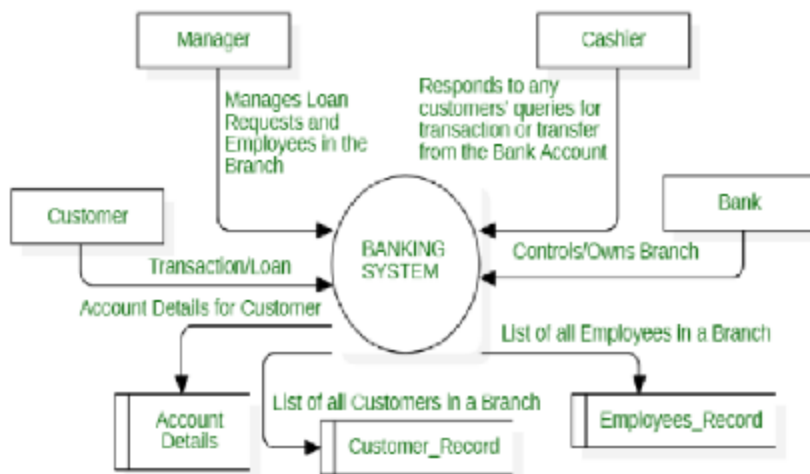
| FR No. | Functional Requirement (Epic) | Sub Requirement (Story / Sub-Task)  |
|--------|-------------------------------|---|
| FR-1   | User Registration             | Registration through Form<br>Registration through Gmail<br>Registration through LinkedIn  |
| FR-2   | User Confirmation             | Confirmation via Email<br>Confirmation via OTP  |
| FR-3   | Complex dialogue              | The best chatbots have advanced conversation features and can proactively search for information and ask clarifying questions even if the conversation is not linear.   |
| FR-4   | Flexible data connections     | The chatbot can capture, read and process large amounts of data to gain insights from relevant data and to quickly solve customer problems.   |
| FR-5   | Multi-channel capabilit       | For a seamless experience, it is also useful if data and context can be stored over several channels. If a customer shares his order, email address or other information with the bot, it can use this input for further actions on other channels.<br>Moreover, it should be possible to pass on all to a live agent if necessary.   |
| FR-6   | Fast Onboarding               | Even if chatbots often build on multi-layered and technologically complex software, this does not mean that getting started should be an equally complex process. It's definitely an advantage if a chatbot can be launched quickly.<br>"Plug & Talk" solutions that make a chatbot ready to go in 2-4 weeks are therefore very beneficial for companies.                   |
| FR-7   | Easy handling                 | Well-designed user interfaces and experiences (UI / UX), both on the company and customer side, are essential.<br>In addition, the chatbot software has to be able to handle the huge amount of data without any problems and GDPR settings have to be taken into account.<br>Being able to manage and handle a chatbot and its content easily can make all the difference! |
| FR-8   | Ongoing optimization          | Every single customer interaction represents a way of learning for artificial intelligence (AI).<br>Therefore, a chatbot software should continuously expand its own knowledge base by analyzing conversations.   |
| FR-9   | Analytics & reporting         | Choose a chatbot provider that provides in-depth Chatbot analytics and analysis of customer information, responses and requests, and gives you the information you need to tailor your products and services to your customers' expectations  |

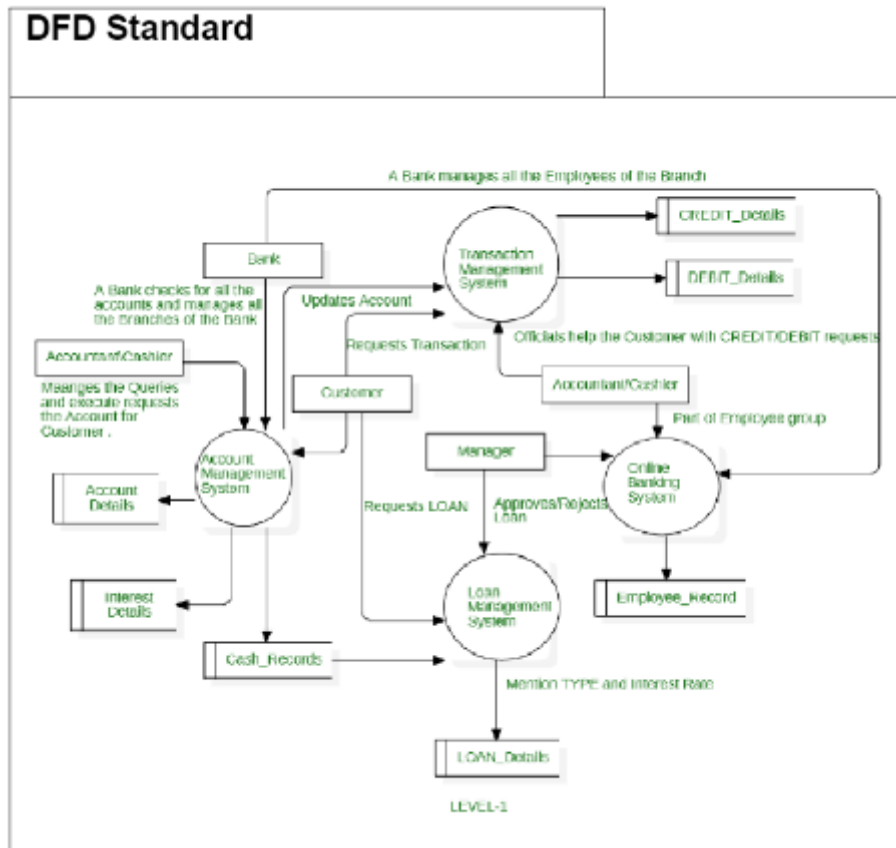
## 4.2 Non-Functional requirements

| S.NO  | Non-Functional Requirement | Description   |
|-------|----------------------------|---|
| NFR-1 | Usability                  | It doesn't specify parts of the system functionality, only how that functionality is to be perceived by the user, for instance how easy it must be to learn and how efficient it must be for carrying out user tasks.   |
| NFR-2 | Security                   | A set of specifications that describe the system's operation capabilities and constraints and attempt to improve its functionality.   |
| NFR-3 | Reliability                | The extent to which the software system consistently performs the specified functions without failure.  |
| NFR-4 | Performance                | <p>Performance defines how fast a software system or a particular piece of it responds to certain users' actions under a certain workload.</p> <p>In most cases, this metric explains how long a user must wait before the target operation happens (the page renders, a transaction is processed, etc.) given the overall number of users at the moment.</p> <p>But it's not always like that. Performance requirements may describe background processes invisible to users, e.g. backup. But let's focus on usercentric performance.</p> |
| NFR-5 | Availability               | Dynamically available and accessible in smart devices.  |
| NFR-6 | Scalability                | <p>Scalability assesses the highest workloads under which the system will still meet the performance requirements.</p> <p>There are two ways to enable your system scale as the workloads get higher: horizontal and vertical scaling.</p>  |

## 5. PROJECT DESIGN

### 5.1 Data Flow Diagrams





## 5.2 Solution & Technical Architecture:



**Table-1: Components & Technologies:**

| S.No | Component                       | Description   | Technology   |
|------|---------------------------------|---|--|
| 1.   | User Interface                  | How user interacts with application e.g. Web UI, Mobile App, Chatbot etc.                                     | HTML, CSS, JavaScript, Bootstrap                               |
| 2.   | Application Logic-1             | Logic for a process in the application  | Python   |
| 3.   | Application Logic-2             | Logic for a process in the application  | IBM Watson STT service   |
| 4.   | Application Logic-3             | Logic for a process in the application  | IBM Watson Assistant   |
| 5.   | Database                        | Data Type, Configurations etc.  | MySQL, NoSQL, etc.   |
| 6.   | Cloud Database                  | Database Service on Cloud   | IBM DB2, IBM Cloudant etc.                                     |
| 7.   | File Storage                    | File storage requirements   | IBM Block Storage or Other Storage Service or Local Filesystem |
| 8.   | External API-1                  | Purpose of External API used in the application   | IBM Weather API, etc.  |
| 9.   | External API-2                  | Purpose of External API used in the application   | Aadhar API, etc.   |
| 10.  | Machine Learning Model          | Purpose of Machine Learning Model   | Object Recognition Model, etc.                                 |
| 11.  | Infrastructure (Server / Cloud) | Application Deployment on Local System / Cloud<br>Local Server Configuration:<br>Cloud Server Configuration : | Local, Cloud Foundry, Kubernetes, etc.                         |

**Table-2: Application Characteristics:**

| S.No | Characteristics          | Description   | Technology  |
|------|--------------------------|---|---|
| 1.   | Open-Source Frameworks   | List the open-source frameworks used  | Anaconda Navigator, Keras, Tensor flow, Flask           |
| 2.   | Security Implementations | List all the security / access controls implemented, use of firewalls etc.  | e.g. SHA-256, Encryptions, IAM Controls, OWASP etc.     |
| 3.   | Scalable Architecture    | Justify the scalability of architecture (3 – tier, Micro-services)  | Response time, Throughput, CPU and network usages, etc. |
| 4.   | Availability             | Justify the availability of application (e.g. use of load balancers, distributed servers etc.)                            | All kind of users.                                      |
| 5.   | Performance              | Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDN's) etc. | Watson Assistant is used to build the chatbot.          |

## 5.3 User Stories

### Product Backlog, Sprint Schedule, and Estimation (4 Marks)

Use the below template to create product backlog and sprint schedule

| Sprint   | Functional Requirement (Epic)       | User Story Number | User Story / Task  | Story Points | Priority | Team Members |
|----------|-------------------------------------|-------------------|--|--------------|----------|--------------|
| Sprint-1 | Create IBM Watson Assistant Service | USN-1             | As a user, I can see a Watson Assistant.   | 8            | High     | All Member   |
| Sprint-1 | Chatbot Skills Creation             | USN-2             | As a user, I will see the Chatbot having banking-related skills                                  | 7            | Medium   | All Member   |
| Sprint-1 | Creating Saving Account Action      | USN-3             | As a user, I can converse with the chatbot regarding saving account-related queries and Action.  | 5            | High     | All Member   |
| Sprint-2 | Creating Current Account Action     | USN-4             | As a user, I can converse with the chatbot regarding current account-related queries and Action. | 8            | Medium   | All Member   |
| Sprint-2 | Creating Loan Account Action        | USN-5             | As a user, I can converse with the chatbot regarding loan account-related queries and Action.    | 12           | High     | All Member   |

| Sprint   | Functional Requirement (Epic)  | User Story Number | User Story / Task  | Story Points | Priority | Team Members |
|----------|--|-------------------|--|--------------|----------|--------------|
| Sprint-3 | Creating General Query Action  | USN-6             | As a user, I can converse with the chatbot regarding general queries and Action.             | 9            | High     | All Member   |
| Sprint-3 | Creating Net Banking Action  | USN-7             | As a user, I can converse with the chatbot regarding net banking-related queries and Action. | 6            | Medium   | All Member   |
| Sprint-3 | Creating Assistant & Integrate With Flask Web Page Build Python Code | USN-8             | As a user, I can see a flask web page for banking chatbot.                                   | 5            | High     | All Member   |
| Sprint-4 | Creating Assistant & Integrate With Flask Web Page Build Python Code | USN-9             | As a user, I can web pages integrated with a chatbot.  | 5            | High     | All Member   |
| Sprint-4 | Run The Application  | USN-10            | As a user, I can communicate with the chatbot 24*7 and easy to access.                       | 15           | Medium   | All Member   |

## 6. PROJECT PLANNING & SCHEDULING:

### 6.1 Sprint Planning & Estimation

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

| Sprint   | Total Story Points | Duration | Sprint Start Date | Sprint End Date(Planned) | Story Points Completed (as onPlanned End Date) | Sprint Release Date (Actual) |
|----------|--------------------|----------|-------------------|--------------------------|--|------------------------------|
| Sprint-1 | 20                 | 6 Days   | 24 Oct 2022       | 29 Oct 2022              | 20   | 29 Oct 2022                  |
| Sprint-2 | 20                 | 6 Days   | 31 Oct 2022       | 05 Nov 2022              | 20   | 04 Nov 2022                  |
| Sprint-3 | 20                 | 6 Days   | 07 Nov 2022       | 12 Nov 2022              | 20   | 11Nov 2022                   |
| Sprint-4 | 20                 | 6 Days   | 14 Nov 2022       | 19 Nov 2022              | 20   | 18 Nov 2022                  |

#### Velocity:

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

$$AV = \text{Velocity} / \text{Sprint duration}$$

$$AV = 20/6$$

$$AV = 3.34$$

## 6.2 Sprint Delivery Schedule:

### Sprint 1

#### CREATE IBM WATSON ASSISTANT SERVICE

The screenshot displays the IBM Cloud Watson Assistant management interface. The browser address bar shows the URL: `cloud.ibm.com/services/conversation/crn%3Av1%3Abluemix%3Apublic%3Aconversation%3Aus-south%3Aa%2F8dc22086a97c449db1bbf6e507ca33a...`. The IBM Cloud header includes a search bar and navigation links for Catalog, Manage, and Monisha J's Account. The main content area is titled 'Watson Assistant-zj' and is marked as 'Active'. A left sidebar under the 'Manage' tab lists 'Service credentials', 'Plan', and 'Connections'. The main panel features a 'Start by launching the tool' section with a 'Launch Watson Assistant' button, a 'Getting started tutorial' link, and an 'API reference' link. A 'Full-screen Snip' button is also present. To the right, the 'Plan' section shows 'Lite' and an 'Upgrade' button. Below these, the 'Credentials' section displays the API key (masked with dots) and the URL (`https://api.us-south.assistant.watson.cloud.ibm.com`), with 'Download' and 'Show credentials' links.



IBM Watson Assistant

Chatbot using Flask API with

us-south.assistant.watson.cloud.ibm.com/crn%3Av1%3Abluemix%3Apublic%3Aconversation%3Aus-south%3Aa%2F8dc22086a97c449db1bbf6e507ca...

GmailYouTubeMaps

IBM Watson Assistant LiteUpgrademonisha

Learning center

Home

Assistant name

monisha

Description

going to associate

Assistant language

English (US)

Task tracker

Enhance your assistant

5 steps left 11 min

16%

Test and refine your assistant

3 steps left 5 min

25%

Deploy your assistant

2 steps left 7 min

50%

Live assistant status

Full-screen Snip

Channels

Web chat

Resolution Methods

V1 10/03/2022 10:10PM Live

Extensions

Search

Powered by IBM Watson D...

Extend what your assistant can answer by searching your ...

Try Plus Plan +

View live environment

Actions

| Name | Last edited | Examples Count | Status |
|------|-------------|----------------|--------|
|------|-------------|----------------|--------|

Type here to search

32°C02:14 PM04-11-2022

IBM Watson Assistant

Chatbot using Flask API with

us-south.assistant.watson.cloud.ibm.com/crm%3Av1%3Abluemix%3Apublic%3Aconversation%3Aus-south%3Aa%2F8dc22086a97c449db1bbf6e507ca...

GmailYouTubeMaps

IBM Watson Assistant LiteUpgrademonisha

Learning center

Actions

Actions

Created by you

Set by assistant

Variables

Created by you

Set by assistant

Set by integration

Saved responses

New action

| Name | Last edited | Examples Count | Status |
|------|-------------|----------------|--------|
| hii  | 2 days ago  | 1              |        |

Items per page: 50Showing 1–1 of 1 actions

11 of 1 pages

Preview

Type here to search

32°C

02:15 PM

04-11-2022

Actions

| Actions            |             |                |        |  |
|--------------------|-------------|----------------|--------|--|
| Created by you     |             |                |        |  |
| Set by assistant   |             |                |        |  |
| Variables          |             |                |        |  |
| Created by you     |             |                |        |  |
| Set by assistant   |             |                |        |  |
| Set by integration |             |                |        |  |
| Saved responses    |             |                |        |  |
| Name               | Last edited | Examples Count | Status |  |
| Greet customer     | 2 days ago  | 0              | ✓      |  |
| No action matches  | 18 days ago | 0              | ✓      |  |
| Fallback           | 18 days ago | 5              | ✓      |  |

Preview

Greet customer

Assistant starts with step 1

Conversation steps

1welcomeCreate a new...Continue to next step

2please enter your nameTry Free textContinue to next step

3please enter your emailRegexContinue to next step

4Enter your Aadhaar NumberNumberContinue to next step

5successfully Open your Account

New step +

Action starts

When your assistant is first opened or engaged with.

Window Snip

No training examples necessary.

Use the default greeting or customize your own.

Preview

Greet customer [default]

welcomeCreate a new accountCreate a new account

please enter your nameMONISHA

please enter your email

type something...

PREREQUISITES.pdf

Show all

Type here to search

26°C 10:04 AM 03-11-2022

# CHATBOT SKILL CREATION

The screenshot displays the IBM Watson Assistant Lite web interface in a browser. The browser's address bar shows the URL: `us-south.assistant.watson.cloud.ibm.com/crn%3Av1%3Abluemix%3Apublic%3Aconversation%3Aus-south%3Aa%2F8dc22086a97c449db1bbf6e507ca33a0...`. The interface has a dark header with "IBM Watson Assistant Lite", "Upgrade", and "RestroBot" on the left, and "Learning center" and user icons on the right.

The main content area is titled "Greet customer" and includes a settings icon, a save icon, and a close icon. On the left, a sidebar titled "Assistant starts with step 1" shows a list of "Conversation steps":

- Step 1: "welcome" with a "Create a new..." button and a "Continue to next step" arrow.
- Step 2: "please enter your name" with a "Free text" input type and a "Continue to next step" arrow.
- Step 3: "please enter your email" with a "Regex" input type and a "Continue to next step" arrow.
- Step 4: "Enter your Aadhaar Number" with a "Number" input type and a "Continue to next step" arrow.
- Step 5: "successfully Open your Account".

A "New step +" button is at the bottom of the sidebar. The main area features an "Action starts" section with the text: "When your assistant is first opened or engaged with. No training examples necessary. Use the default greeting or customize your own." A "Window Snip" button is also present.

On the right, a "Preview" window shows a simulated chat conversation:

- System: "Greet customer [default]"
- System: "welcome"
- User: "Create a new account"
- System: "Create a new account"
- User: "please enter your name"
- User: "MONISHA"
- User: "please enter your email"

The preview window has a "type something..." input field and a send button. At the bottom of the interface, a taskbar shows a search bar with "Type here to search", several application icons, and system information: "26°C", "10:04 AM", "03-11-2022", and "ENG".

# CREATING SAVING ACCOUNT ACTION

IBM Watson Assistant Lite Upgrade Saving Account ... Learning center

Welcome

Step 7 is taken without conditions

Assistant says

Thank you

And then

Continue to next step

Preview

Welcome recognized

I want to transfer money

how much

how much

How much do you want to transfer

3000 40000

3000

give your name

Abinaya Bharathi Thiya

Bharathi

Use the up arrow for prior messages

How much do you want to transfer

2

3000 40000

Continue to next step

give your name

3

Abinaya Bharathi +1

Continue to next step

Give your account number

4

123456789 0987654321

Continue to next step

Give your IFSC code

5

333333245 14031403

Continue to next step

Give your Bank name

6

Indian Bank Kannada Bank

Continue to next step

Thank you

7

okk welcome

Continue to next step

New step +

Full-screen Snip

okk welcome

Edit response Edit validation

28°C 10:36 AM 03-11-2022

## SPRINT 2

## CREATING CURRENT ACCOUNT

The screenshot displays the IBM Watson Assistant interface in a web browser. The browser tabs include "IBM", "IBM Watson Service Page", and "IBM Watson Assistant". The address bar shows a URL from "au-syd.assistant.watson.cloud.ibm.com". The interface has a dark header with "IBM Watson Assistant Lite", an "Upgrade" button, a dropdown menu for "Current account...", and a "Learning center" link.

The main workspace is titled "I want to transfer money". It features a left-hand pane with a list of six steps in a conversation flow:

- Step 1: "hi abinaya" with input buttons "hi da", "hi di", and "+1".
- Step 2: "i want to check my balance" with input buttons "what account", "how much ba...", and "+1".
- Step 3: "give your account number" with input buttons "12345678910" and "0987654321".
- Step 4: "what is your name" with input buttons "Abinaya" and "Bharathi".
- Step 5: "give your IFSC code" with input buttons "3333333333" and "4444444444".
- Step 6: "Thank you" with input buttons "welcome" and "okk".

Each step includes a "Continue to next step" button. A "New step" button with a plus icon is at the bottom of the list.

The right-hand pane shows the "Assistant says" section. It includes a "Step 6 is taken" dropdown set to "without conditions" and a function icon. Below this, the assistant's response is "Thank you". There are buttons for "Edit response" and "Edit validation".

A "Preview" window is open on the right, showing a simulated chat conversation. The messages in the preview are:

- System: "Greet customer [default]"
- Assistant: "Welcome, how can I assist you?"
- User: "hi"
- System: "I want to transfer money recognized"
- User: "i want to check my balance"
- User: "what account" (input button)
- User: "how much balance" (input button)
- User: "how much" (input button)
- User: "what account" (input button)
- User: "give your account number"
- User: "12345678910" (input button)
- User: "0987654321" (input button)
- User: "12345678910" (input button)

The preview window has a "Use the up arrow for prior messages" prompt at the bottom.

The Windows taskbar at the bottom shows the search bar, task view button, and several application icons. The system tray on the right indicates a temperature of 27°C, system icons, and the date/time: 10:13 AM, 03-11-2022.

## CREATING LOAN ACCOUNT ACTION:

The screenshot displays the IBM Watson Assistant configuration interface for a 'loan account action'. The interface is divided into several sections:

- Left Panel (Steps):** A list of steps for the action. Step 9 is highlighted and selected. The steps are:
  - Step 7: 'indentification like adhar,passbook,community...' with a response 'here you are,...'.
  - Step 8: 'everything is ok.' with a response 'what is the n...'.
  - Step 9: 'don't worry about that,we'll let you know when the loan is ready' with a response 'thank you for...'.
- Central Editor (Step 9):** The editor for the selected step. It shows the step title, a response box with the text 'don't worry about that,we'll let you know when the loan is ready', and a response box with the text 'thank you for...'. There are buttons for 'Edit response' and 'Edit validation'.
- Right Panel (Preview):** A preview window showing a chat conversation. The messages are:
  - User: 'what is the next step sir?'
  - Assistant: 'don't worry about that,we'll let you know when the loan is ready'
  - User: 'thank you for your help.'
  - Assistant: 'thank you for your help.'

The interface also includes a top navigation bar with 'IBM Watson Assistant Lite' and 'Upgrade' buttons, and a bottom status bar with system information like '31°C' and '03:41 PM 03-11-2022'.



## SPRINT 3

### CREATING GENERAL QUERY ACTION:

The screenshot displays the IBM Watson Assistant interface in a web browser. The browser's address bar shows the URL: `au-syd.assistant.watson.cloud.ibm.com/crn%3Av1%3Abluemix%3Apublic%3Aconversation%3Aau-syd%3Aa%2F60b082ac977846ed80c101a437a2f4a9%3A...`. The interface is titled "IBM Watson Assistant Lite" and "General Query A...".

The main content area is divided into two panels. The left panel, titled "Brief me about yourself", shows a conversation flow with five steps:

- Step 1: "breif me about yourself" (Note: typo in image). The user input is "My name is b..." and "my village is ...". The assistant response is "Continue to next step".
- Step 2: "Why do you want to join the banking sector". The user input is "Avoid sharing...". The assistant response is "Continue to next step".
- Step 3: "What are types of accounts in banking sector". The user input is "Indian Bank" and "Kannada Bank". The assistant response is "Continue to next step".
- Step 4: "What are the necessary documents". The user input is "Aathar" and "Debit card". The assistant response is "Continue to next step".
- Step 5: "Is really helps banking industry". The user input is "Confirmation". The assistant response is "Continue to next step".

The right panel, titled "Assistant says", shows the assistant's response "Thank you". Below this, there is a "Preview" window showing a chat interface with the following messages:

- User: "Greet customer [default]"
- Assistant: "Welcome, how can I assist you?"
- User: "hi"
- Assistant: "Did you mean:"
- User: "Brief me about yourself"
- Assistant: "Tell me brief about yourself"
- User: "None of the above"
- Assistant: "Brief me about yourself"
- User: "Brief me about yourself recognized"
- Assistant: "breif me about yourself"
- User: "My name is bharathi" and "my village is sankari"
- Assistant: "I am a engineer"
- User: "My name is bharathi"

The bottom of the interface shows a Windows taskbar with the search bar, task view button, and several application icons. The system tray on the right shows the date and time: "03:12 PM 03-11-2022".

# CREATING NET BANKING ACTION:

The screenshot displays the IBM Watson Assistant console interface for creating a net banking action. The browser address bar shows the URL: `au-syd.assistant.watson.cloud.ibm.com/crm%3Av1%3Abluemix%3Apublic%3Aconversation%3Aau-syd%3Aa%2F60b082ac977846ed80c101a437a2f4a9%3A...`.

**Customer starts with:** `hiiii`

**Conversation steps:**

- Step 1:** What you use in online banking to do  
Buttons: `Check balance...`, `Send money ...`  
Action: `Continue to next step`
- Step 2:** What are the limitation of net banking  
Buttons: `No cashless ...`, `Internet requ...`  
Action: `Continue to next step`
- Step 3:** what are the major problem in online banking  
Buttons: `Security and ...`  
Action: `Continue to next step`
- Step 4:** Is really transaction is safe  
Buttons: `Confirmation`  
Action: `Continue to next step`
- Step 5:** How do you transfer money in mobile  
Buttons: `With the help...`  
Action: `Continue to next step`

**Step 7 is taken** without conditions

**Assistant says**

Thank you

*User enters free text*

**And then**

`Continue to next step`

**Preview:**

`Greet customer` [default]  
Welcome, how can I assist you?

`hiiii` recognized

What you use in online banking to do

`Check balance at any time`  
`Send money to Anyone`

`Check balance at any time`

What are the limitation of net banking

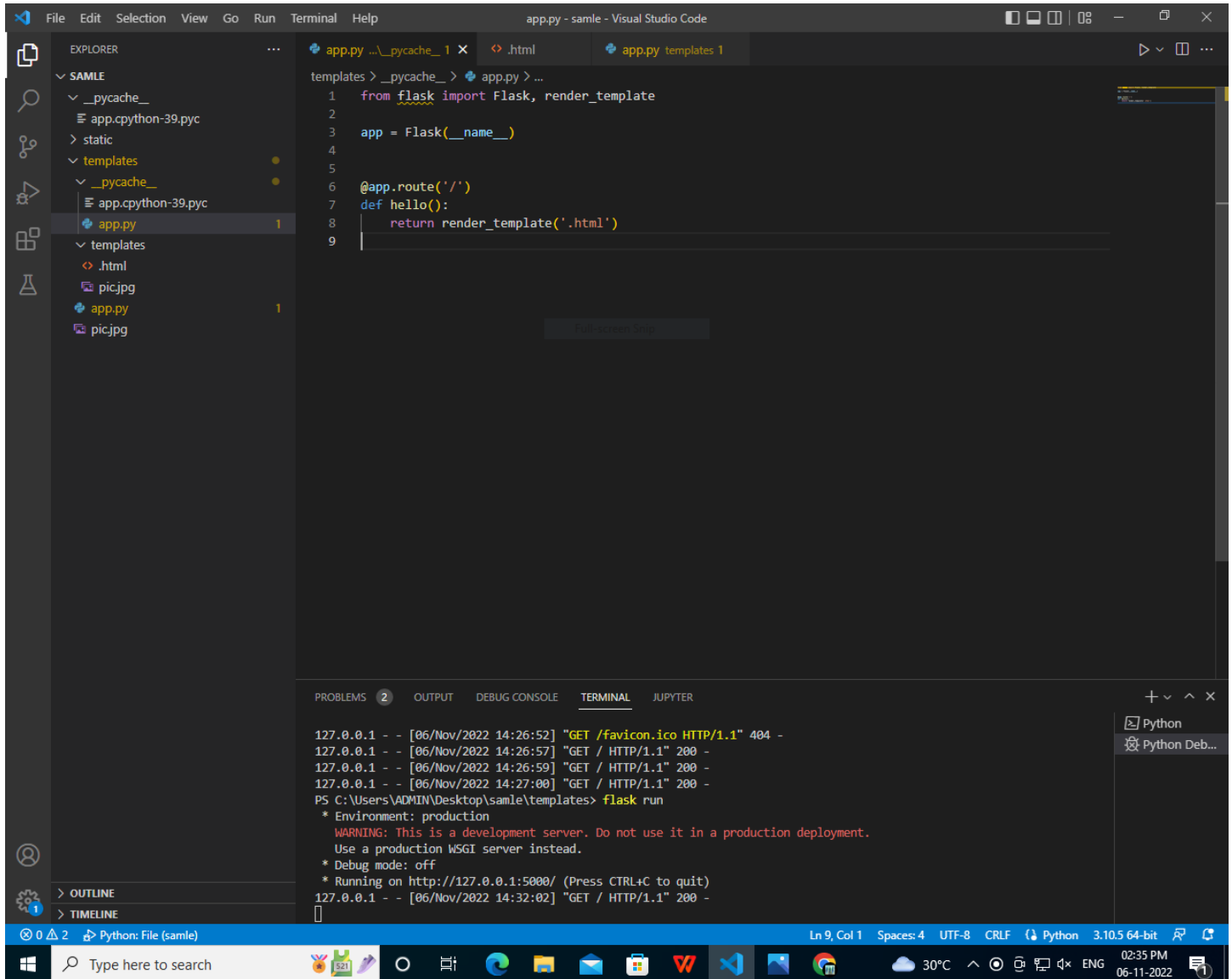
`No cashless deposit option`  
`Internet requirements`

`No cashless deposit option`

Use the up arrow for prior messages

# CREATING ASSISTANT & INTEGRATE WITH FLASK WEB PAGE

## BUILD PYTHON CODE:



```
File Edit Selection View Go Run Terminal Help
app.py - samle - Visual Studio Code

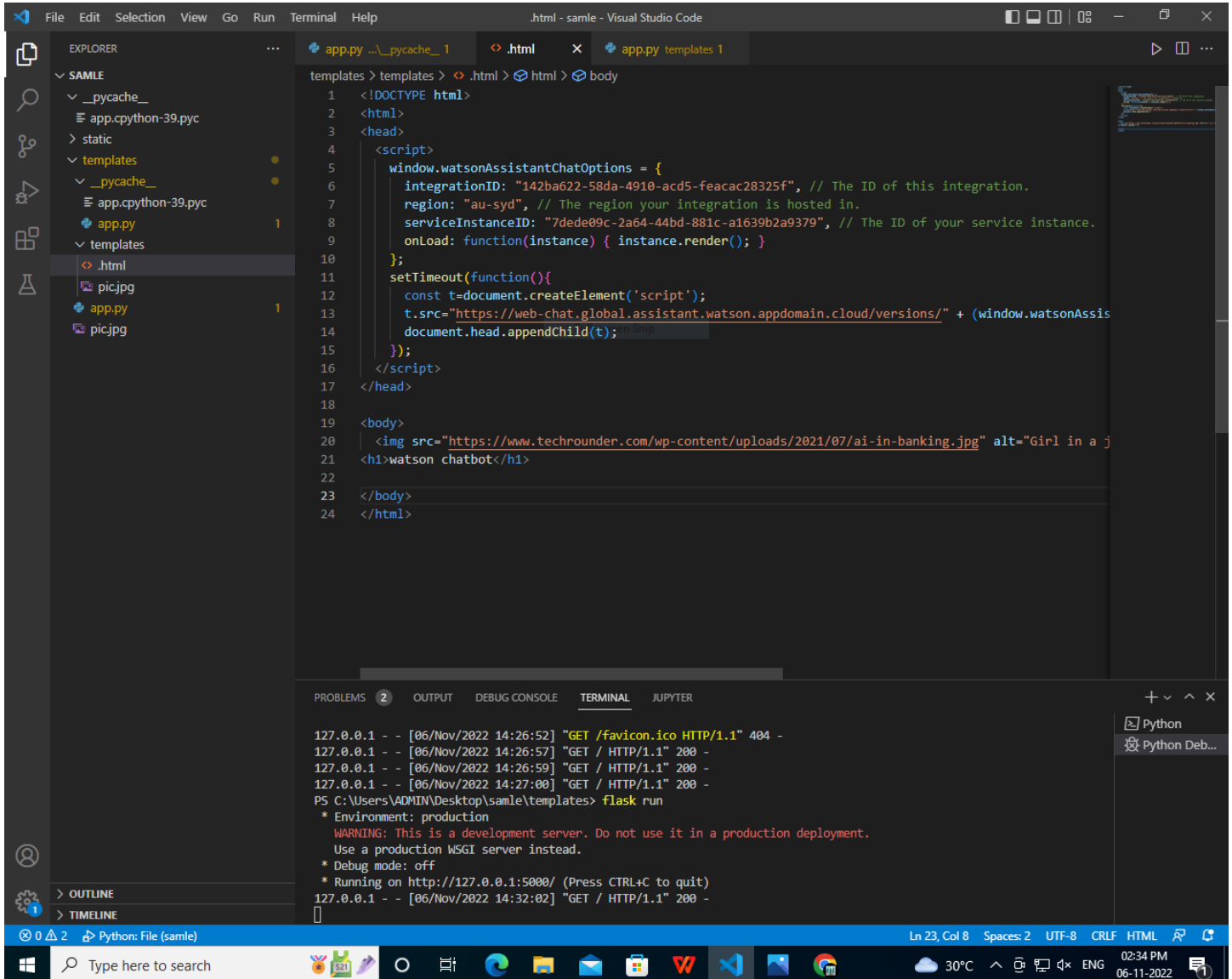
EXPLORER
SAMLLE
  __pycache__
    app.cpython-39.pyc
  static
  templates
    __pycache__
      app.cpython-39.pyc
    app.py
    templates
      .html
      pic.jpg
      app.py
      pic.jpg

templates > __pycache__ > app.py > ...
1 from flask import Flask, render_template
2
3 app = Flask(__name__)
4
5
6 @app.route('/')
7 def hello():
8     return render_template('.html')
9

127.0.0.1 - - [06/Nov/2022 14:26:52] "GET /favicon.ico HTTP/1.1" 404 -
127.0.0.1 - - [06/Nov/2022 14:26:57] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [06/Nov/2022 14:26:59] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [06/Nov/2022 14:27:00] "GET / HTTP/1.1" 200 -
PS C:\Users\ADMIN\Desktop\samle\templates> flask run
* Environment: production
  WARNING: This is a development server. Do not use it in a production deployment.
  Use a production WSGI server instead.
* Debug mode: off
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
127.0.0.1 - - [06/Nov/2022 14:32:02] "GET / HTTP/1.1" 200 -
```

## SPRINT 4

### BUILD HTML CODE:

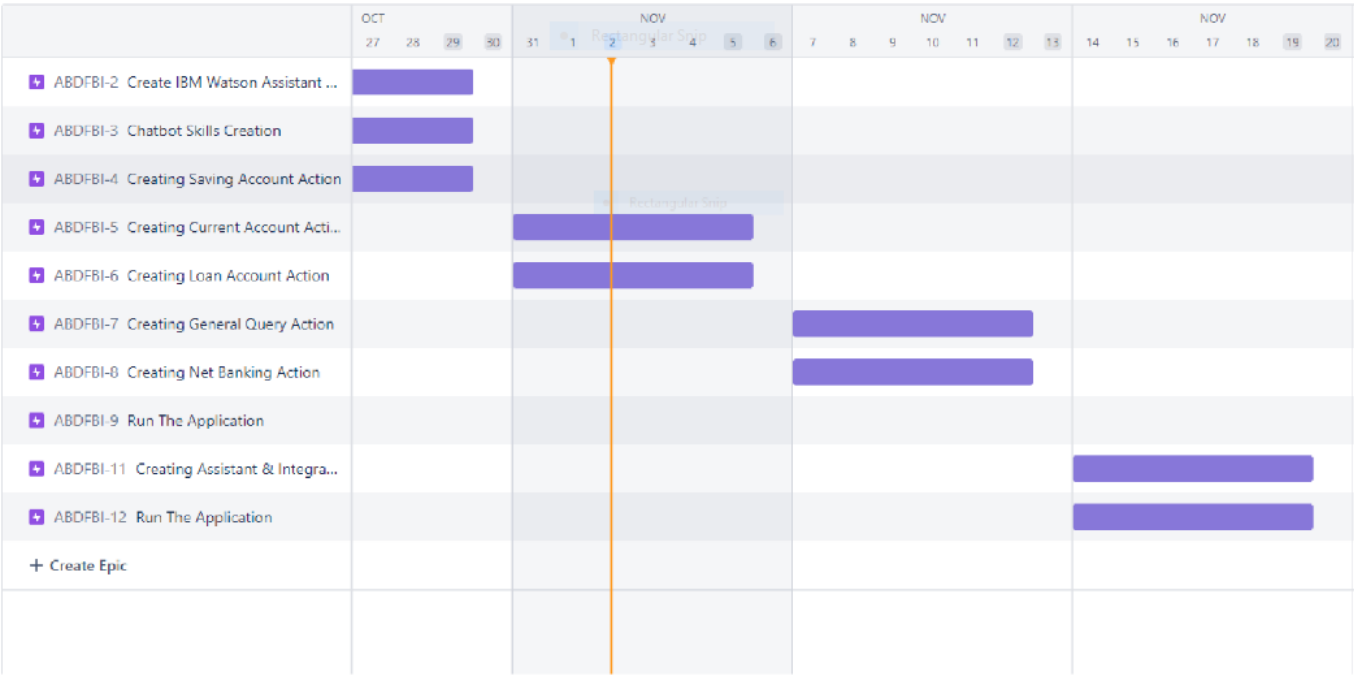


The screenshot shows the Visual Studio Code interface with a project named 'samle'. The Explorer panel on the left shows the file structure: 'static' folder, 'templates' folder containing 'app.py', 'pic.jpg', and 'templates' subfolder containing 'app.py' and 'pic.jpg'. The main editor displays the 'app.py' file in the 'templates' folder, which contains HTML code for a chatbot interface. The code includes a script to load the Watson Assistant chatbot options and a link to a chatbot page. The terminal at the bottom shows the output of the 'flask run' command, indicating the application is running on http://127.0.0.1:5000/.

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <script>
5   window.watsonAssistantChatOptions = {
6     integrationID: "142ba622-58da-4910-acd5-feacac28325f", // The ID of this integration.
7     region: "au-syd", // The region your integration is hosted in.
8     serviceInstanceID: "7dede09c-2a64-44bd-881c-a1639b2a9379", // The ID of your service instance.
9     onLoad: function(instance) { instance.render(); }
10  };
11  setTimeout(function(){
12    const t=document.createElement('script');
13    t.src="https://web-chat.global.assistant.watson.appdomain.cloud/versions/" + (window.watsonAssis
14    document.head.appendChild(t);
15  });
16 </script>
17 </head>
18
19 <body>
20   watson chatbot</h1>
22
23 </body>
24 </html>
```

```
127.0.0.1 - - [06/Nov/2022 14:26:52] "GET /favicon.ico HTTP/1.1" 404 -
127.0.0.1 - - [06/Nov/2022 14:26:57] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [06/Nov/2022 14:26:59] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [06/Nov/2022 14:27:00] "GET / HTTP/1.1" 200 -
PS C:\Users\ADMIN\Desktop\samle\templates> flask run
 * Environment: production
WARNING: This is a development server. Do not use it in a production deployment.
Use a production WSGI server instead.
 * Debug mode: off
 * Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
127.0.0.1 - - [06/Nov/2022 14:32:02] "GET / HTTP/1.1" 200 -
```

### 3. Reports from JIRA



## 7. CODING & SOLUTIONING

### 1. Feature:

- Banks that offer Internet banking are open for business transactions anywhere a client might be as long as there is an internet connection, Apart from the periods of website maintenance, The services are available 24 hours a day and 365 days around the year.
- if the internet connection is unavailable, The customer services are provided round the clock via the telephone, where the actual time account balances and the information are availed, This has tens banking processes hence increasing their efficiency and effectiveness.
- Online banking allows automatic funding of accounts from long-established bank accounts via electronic funds transfers, and the client can monitor his spending via a virtual wallet through certain banks and the applications and enable the payments.
- The speed of transaction is faster relative to use of ATM's or the customary banking, Online banking allows easier updating and maintaining of direct accounts, The time for changing mailing address is greatly reduced, ordering of additional checks are availed and provision of actual time interest rates.
- It is available all the time, You can perform your tasks from anywhere and at any time, even in the night when the bank is closed or on holidays, The only thing you need to have is an active internet connection, It is fast and efficient, The funds get transferred from one account to the other very fast, and you can also manage several accounts easily through Internet banking
- Online accounts are easy to set up and require no more information than a traditional bank account, Many offer options of inputting your data online or downloading the forms and mailing them in, If you run into a problem, you have the option of calling or emailing the bank directly, One advantage of using online checks is that the payee's information is retained, which eliminates having to reenter the information on the subsequent checks to the same payee.
- You can control your transactions and the account balance all the time, This facility also keeps your account safe, You can monitor your account at any time, you can know about any fraudulent activity or threat to your account before it can pose your account to severe damage.

## 8. TESTING

### 1. TEST CASE

#### 1. 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        |

#### 2. 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    |

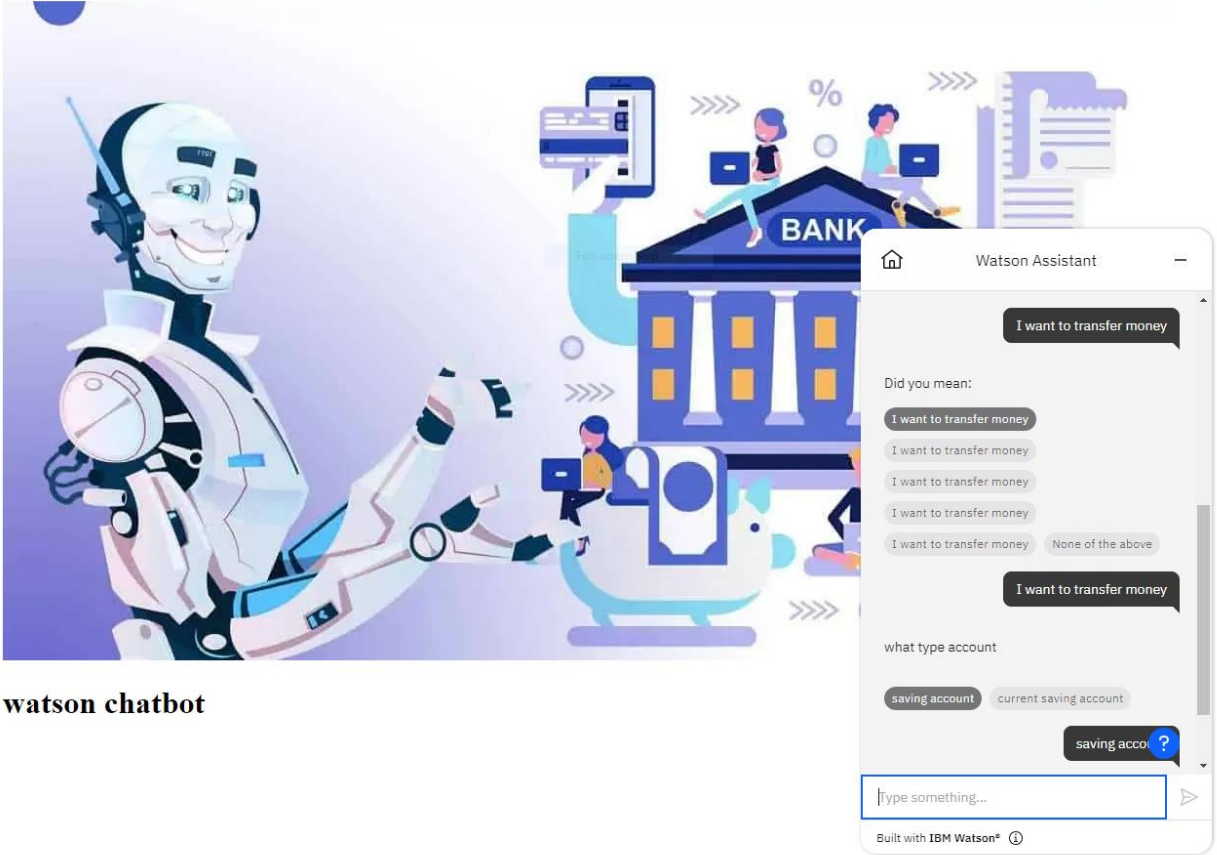
## 2.User Acceptance Testing

| Test Case ID   | Feature Type | Component | Test Scenario   | Pre-Req/Setup        | Steps To Execute  | Test Data            | Expected Result   | Actual Result       | Status | Comments | TC for Automation Type | BUG ID | Executed By    |
|----------------|--------------|-----------|---|----------------------|---|----------------------|---|---------------------|--------|----------|------------------------|--------|----------------|
| Charbot_TC_001 | UI           | Home Page | Verify user is able to verify chatbot icon while website is loaded  | None                 | 1. Move cursor on chatbot icon<br>2. Click on chatbot icon<br>3. Verify chatbot is displayed or not | <a href="#">Link</a> | Chatbot icon is displayed by user                                       | Working as expected | Pass   | NA       | NA                     | —      | MOHANA S       |
| Charbot_TC_002 | Functional   | Home Page | Verify the chatbot icon is displayed on the home page   | Chatbot is available | 1. Click on chatbot icon<br>2. Verify the chatbot icon is displayed or not                          | <a href="#">Link</a> | Chatbot icon is displayed with chatbot only                             | Working as expected | Pass   | NA       | NA                     | —      | MOHANA S       |
| Charbot_TC_003 | Functional   | Home Page | Verify user is able to verify chatbot icon while website is loaded. How can help you today?<br>Banking Inquiry Loan | Chatbot is available | 1. Click on chatbot icon<br>2. Verify the chatbot icon is displayed or not<br>3. Press enter        | <a href="#">Link</a> | Chatbot icon is displayed with chatbot only                             | Working as expected | Pass   | NA       | NA                     | —      | MOHANA S       |
| Charbot_TC_004 | Functional   | Chatbot   | Verify Chatbot is able to provide options for user to choose new choice   | Chatbot is available | 1. Click on chatbot icon<br>2. Verify the chatbot icon is displayed or not<br>3. Press enter        | <a href="#">Link</a> | Chatbot icon is displayed with chatbot only                             | Working as expected | Pass   | NA       | NA                     | —      | MOHANA S       |
| Savings_TC_001 | UI           | Chatbot   | Verify user is able to select type of savings account   | Chatbot is available | 1. Click on chatbot icon<br>2. Verify the chatbot icon is displayed or not<br>3. Press enter        | <a href="#">Link</a> | User is able to select type of savings account                          | Working as expected | Pass   | NA       | NA                     | —      | MOHANA S       |
| Savings_TC_002 | Functional   | Chatbot   | Verify user is able to know the procedure to create new account for selected type                                   | Chatbot is available | 1. Click on chatbot icon<br>2. Verify the chatbot icon is displayed or not<br>3. Press enter        | <a href="#">Link</a> | User is able to know the steps to create new account for selected type  | Working as expected | Pass   | NA       | NA                     | —      | ABHIRAM S      |
| Savings_TC_003 | Functional   | Chatbot   | Verify user is able to check the minimum balance  | Chatbot is available | 1. Click on chatbot icon<br>2. Verify the chatbot icon is displayed or not<br>3. Press enter        | <a href="#">Link</a> | User is able to check the minimum balance                               | Working as expected | Pass   | NA       | NA                     | —      | ABHIRAM S      |
| Savings_TC_004 | Functional   | Chatbot   | Verify user is able to find interest rate   | Chatbot is available | 1. Click on chatbot icon<br>2. Verify the chatbot icon is displayed or not<br>3. Press enter        | <a href="#">Link</a> | User is able to find interest rate                                      | Working as expected | Pass   | NA       | NA                     | —      | ABHIRAM S      |
| Current_TC_001 | UI           | Chatbot   | Verify user is able to select type of company   | Chatbot is available | 1. Click on chatbot icon<br>2. Verify the chatbot icon is displayed or not<br>3. Press enter        | <a href="#">Link</a> | User is able to select type of company                                  | Working as expected | Pass   | NA       | NA                     | —      | ABHIRAM S      |
| Current_TC_002 | Functional   | Chatbot   | Verify user is able to know the procedure to create new account for selected type                                   | Chatbot is available | 1. Click on chatbot icon<br>2. Verify the chatbot icon is displayed or not<br>3. Press enter        | <a href="#">Link</a> | User is able to know the steps to create new account for selected type  | Working as expected | Pass   | NA       | NA                     | —      | ABHIRAM S      |
| Current_TC_003 | Functional   | Chatbot   | Verify user is able to know about zero balance current account  | Chatbot is available | 1. Click on chatbot icon<br>2. Verify the chatbot icon is displayed or not<br>3. Press enter        | <a href="#">Link</a> | User is able to know about zero balance current account                 | Working as expected | Pass   | NA       | NA                     | —      | ABHIRAM S      |
| Current_TC_004 | Functional   | Chatbot   | Verify user is able to choose options for selecting type of available policies                                      | Chatbot is available | 1. Click on chatbot icon<br>2. Verify the chatbot icon is displayed or not<br>3. Press enter        | <a href="#">Link</a> | User is able to choose options for selecting type of available policies | Working as expected | Pass   | NA       | NA                     | —      | ABHIRAM S      |
| Loan_TC_001    | UI           | Chatbot   | Verify user is able to know about available loan amounts  | Chatbot is available | 1. Click on chatbot icon<br>2. Verify the chatbot icon is displayed or not<br>3. Press enter        | <a href="#">Link</a> | User is able to know about available loan amounts                       | Working as expected | Pass   | NA       | NA                     | —      | DINESH Kumar S |
| Loan_TC_002    | Functional   | Chatbot   | Verify user is able to check the loan status  | Chatbot is available | 1. Click on chatbot icon<br>2. Verify the chatbot icon is displayed or not<br>3. Press enter        | <a href="#">Link</a> | User is able to check the loan status                                   | Working as expected | Pass   | NA       | NA                     | —      | DINESH Kumar S |
| Loan_TC_003    | Functional   | Chatbot   | Verify user is able to know about joint loan  | Chatbot is available | 1. Click on chatbot icon<br>2. Verify the chatbot icon is displayed or not<br>3. Press enter        | <a href="#">Link</a> | User is able to know about joint loan                                   | Working as expected | Pass   | NA       | NA                     | —      | DINESH Kumar S |
| Loan_TC_004    | Functional   | Chatbot   | Verify user is able to know about bank working days   | Chatbot is available | 1. Click on chatbot icon<br>2. Verify the chatbot icon is displayed or not<br>3. Press enter        | <a href="#">Link</a> | User is able to know about bank working days                            | Working as expected | Pass   | NA       | NA                     | —      | DINESH Kumar S |
| Recur_TC_001   | Functional   | Chatbot   | Verify user is able to know about list of branches  | Chatbot is available | 1. Click on chatbot icon<br>2. Verify the chatbot icon is displayed or not<br>3. Press enter        | <a href="#">Link</a> | User is able to know about list of branches                             | Working as expected | Pass   | NA       | NA                     | —      | MOHANA S       |
| Recur_TC_002   | Functional   | Chatbot   | Verify user is able to find the nearest branch  | Chatbot is available | 1. Click on chatbot icon<br>2. Verify the chatbot icon is displayed or not<br>3. Press enter        | <a href="#">Link</a> | User is able to find the nearest branch                                 | Working as expected | Pass   | NA       | NA                     | —      | MOHANA S       |
| Recur_TC_003   | Functional   | Chatbot   | Verify user is able to know about currency conversion facility  | Chatbot is available | 1. Click on chatbot icon<br>2. Verify the chatbot icon is displayed or not<br>3. Press enter        | <a href="#">Link</a> | User is able to know about currency conversion facility                 | Working as expected | Pass   | NA       | NA                     | —      | MOHANA S       |
| Recur_TC_004   | Functional   | Chatbot   | Verify user is able to know the steps to log out banking account  | Chatbot is available | 1. Click on chatbot icon<br>2. Verify the chatbot icon is displayed or not<br>3. Press enter        | <a href="#">Link</a> | User is able to know the steps to log out banking account               | Working as expected | Pass   | NA       | NA                     | —      | MOHANA S       |
| Recur_TC_005   | Functional   | Chatbot   | Verify user is able to know the steps to change net banking password  | Chatbot is available | 1. Click on chatbot icon<br>2. Verify the chatbot icon is displayed or not<br>3. Press enter        | <a href="#">Link</a> | User is able to know the steps to change net banking password           | Working as expected | Pass   | NA       | NA                     | —      | MOHANA S       |
| Recur_TC_006   | UI           | Chatbot   | Verify user is able to choose options for selecting type of fund transfers  | Chatbot is available | 1. Click on chatbot icon<br>2. Verify the chatbot icon is displayed or not<br>3. Press enter        | <a href="#">Link</a> | User is able to choose options for selecting type of fund transfers     | Working as expected | Pass   | NA       | NA                     | —      | MOHANA S       |
| Recur_TC_007   | Functional   | Chatbot   | Verify user is able to know about daily transaction limit   | Chatbot is available | 1. Click on chatbot icon<br>2. Verify the chatbot icon is displayed or not<br>3. Press enter        | <a href="#">Link</a> | User is able to know about daily transaction limit                      | Working as expected | Pass   | NA       | NA                     | —      | MOHANA S       |



## 9.RESULTS:

### Performance Metrics



The screenshot shows a web browser window with multiple tabs. The active tab displays a chatbot interface titled "Watson Assistant". The background of the page features a stylized illustration of a robot and a bank building. The chatbot window shows a conversation history and a current input field.

**watson chatbot**

Watson Assistant

I want to transfer money

Did you mean:

- I want to transfer money
- I want to transfer money
- I want to transfer money
- I want to transfer money
- I want to transfer money
- None of the above

I want to transfer money

what type account

- saving account
- current saving account

saving accou?

Type something...

Built with IBM Watson®

Windows taskbar: Type here to search, 30°C, 02:40 PM, 06-11-2022

## 10. ADVANTAGES

- Artificial\_intelligence can use analytics in banks, it can test vast quantities of data to search for patterns, groupings, and correlations, Machine learning can improve processes such as fraud detection, risk modeling, biometric identification or credit underwriting.
- Most leading banks have already added virtual assistants to their instant website chatbots, voice response systems, and mobile applications, Artificial\_Intelligence considers each interaction as a teachable moment, so the chatbots (virtual assistants) keeps getting better while understanding customers, With AI, virtual assistants can deliver better customer support.
- Artificial\_intelligence can detect the factors involved in frauds & support investigators, It improves financial security with advanced fraud prevention, Artificial\_Intelligence works as a real-time scam solution for the banking sector while handling complex situations, AI can detect fraud by flagging unusual transactions, It feeds back into the consumer's profile which subsequently builds a secure environment.
- AI can complete many tasks through complex automation, resulting in better productivity, Based on a machine\_learning algorithm, AI can quickly consume and process a massive amount of data at an expedited level, The enormous speed brings efficiency to financial services, providing scope for personalized offerings to consumers, AI makes faster decisions while carrying out actions quickly.
- The finance industry is harnessing machine\_learning to lower operational costs & drive profitability, This field involves both front-and back-office activities across multiple institutions, Machine\_learning algorithms can analyze thousands of data points in real time and flag suspicious or plain-right fraudulent transactions, stopping many fraudulent claims in the process.
- Artificial\_intelligence increase efficiency, accuracy, and speed of mathematical calculations, it can handle large quantities of data, banks can find the best combination of the initial margin reducing trades at a given time based on the degree of initial margin reduction in the past under different combinations of those trades

## DISADVANTAGES

- The production & maintenance of artificial\_intelligence requires high costs as they are very complex machines, AI consists of advanced software\_programs that require regular updates to meet the needs of the changing environment, In the case of critical failures, the procedure to reinstate the system and recover lost codes may require enormous time & cost.
- Although Artificial\_Intelligence can learn & improve, it still can't make judgment calls, Humans can take individual circumstances and judgment calls into account when making decisions, something that AI might never be able to do, Replacing adaptive human behavior with AI may cause irrational behavior within ecosystems of humans & things.
- AI can offer a lot of power to the few individuals who are controlling it, so, AI carries the risk and takes control away from humans while dehumanizing actions in several ways, Artificial Intelligence delivered to wrong hands can turn out to be a serious threat to humankind, If individuals start thinking destructively, they can generate havoc with these advanced machines.
- Artificial\_intelligence allows you to replace the workforce with machines that can lead to wide-reaching unemployment, if the use of AI becomes rampant, people will be highly dependent on the machines & lose their creative power, Be it banking or any other sector, AI can increase the unemployment rate, Individuals with nothing to do can lead to the devastating use of their minds.

## CONCLUSION:

Robust and rapid processing needs, advent of mobile technology, data availability, and proliferation of opensource software offer AI a huge scope in the banking sector. Though AI has been used in banking for decades, it remained unnoticed. In today's app-driven world, the banking sector eyes on leveraging with the help of mobile app development companies. In all these ways, AI in banking is continuing to transform the industry to provide a greater level of value to their customers, reduce risks, and increase opportunities as the financial engines of our modern economy. processes to fully realize the benefits that AI promises to deliver. Even so, technological advances could potentially outpace industry adoption, even as banks embrace an accelerated journey toward modernization. To successfully realize the benefits that AI can deliver in the future, banks must stay the course today, which, for some, can be easier said than done.

## Source Code:

```
<script>
  window.watsonAssistantChatOptions = {
    integrationID: "85e0cdaf-3469-40f7-bc8f-ebbed6d4bf69", // The ID of this
integration.
    region: "us-south", // The region your integration is hosted in.
    serviceInstanceID: "17716baf-6fe8-4782-be1d-b9657b195767", // 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>
```

## GITHUP LINK:

**MONISHA J:** <https://github.com/MONISHASUBA/>

**DINESHKUMAR M:** <https://github.com/dinesh7339/>

**GOKULRAJ S:** <https://github.com/gokul17s/>

**ABINAYA S:** <https://github.com/Abinaya2023/>

## Project Demo Link:

<https://drive.google.com/file/d/1SvCq2cNXluOruaVyOBRI72HjWpCmYQH/view?usp=share>

link

