# PROJECT REPORT

**PROJECT TITLE:** AI Based Discourse For Banking Industry

**TEAM ID:** PNT2022TMID14214

**TEAM MEMBERS:**
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# INTRODUCTION

## 1.1 Project Overview

Chatbots are the biggest development trend today. From emerging startups to large enterprises, chatbots play essential roles in businesses where automation is the need of the hour. Whether it's customer service or digital banking, chatbots are simplifying human-to-machine interactions.You might be wondering what banks have to do with chatbots. It's simple: automate service. Service today is slow and sometimes unpleasant because people are prone to mistakes and misunderstandings. A conversational AI chatbot can be your employee 24/7 – always on hand, never gets sick or forgets anything, never gets bored or unproductive.

As banking chatbots continue to evolve, many financial institutions are adopting conversational AI technology, with early successes coming in call center automation and marketing campaigns. This year at SXSW, Bank of America announced Project OpenWhisper, an open-source platform designed to help developers build better digital banking chatbots using the same underlying AI technologies that power its digital assistant, Cindy.

Digital agent assistants and chatbots have transformed personalized banking and customer service. Rapid processing requirements, unique customer needs, secure data management, and 24*7 availability have all been met with the advent of conversational AI Chatbots.Chatbots for banking enhance the omnichannel customer experience while also broadening their reach. Banks have been highly effective at striking the ball and integrating bots into their daily operations.

## 1.2 Purpose

Banking bots are proving to be extremely helpful in providing seamless customer service. In fact, chatbots are also helpful in analyzing data, detecting fraud, and capturing data. Automation enables the chatbot to inform the user about every transaction to prevent any form of miscommunication or mismanagement. This helps in preventing any kind of fraud by identifying possible discrepancies right from the initial stage. Users are always on top of their account activities because they receive notifications simultaneously. The bots can provide assistance to the customers at any time as they are trained to grasp their queries and provide the best possible solution, simultaneously making them feel like they are interacting with a human.The bots also aid the banks to address any customer complaints by analyzing the grievances of the customers and providing important insights. They also help the banks improve their services. It is also essential in improving product offerings

# 2.LITERATURE SURVEY

## 2.1Existing problem

Today's financial service companies not only find it difficult to attract customers, but they are also finding it difficult to attract employees. A lack of qualified talent to fill new IT roles, and a millennial workforce that shuns long-term employment, are leading factors in finding good help. Smaller companies are utilizing technology and data to deliver financial services in new ways, upping the ante for established financial institutions. In a PwC Global FinTech Survey, respondents thought a quarter of their business, or more, could be at risk of being lost to FinTech companies within five years. While FinTech companies are taking up some of the financial industry landscape, long-standing companies are still finding ways to stay in the game and even give the shiny upstarts a run for their money.

## 2.2References

- Vinod Kumar Shukla, Sasha Fathima Suhel, Sonali Vyas, Ved Prakash Mishra " **Conversation to Automation in Banking Through Chatbot Using Artificial Machine Intelligence Language** "
- Yomna Abdulla, Rabab Ebrahim, Sumathi Kumaraswamy "**Artificial Intelligence in Banking sector: Evidence from Bahrain**"
- Tebaga Lucky Mamela, Nita Sukdeo, Sambil Char les Mukwakungu "**Adapting to Artificial Intelligence through Workforce Re-skilling within the Banking Sector in South Africa**"
- Shashank Bairy, Rashmi R "**Conversation to Automation in Banking Through Chatbot Using Artificial Machine Intelligence Language**"
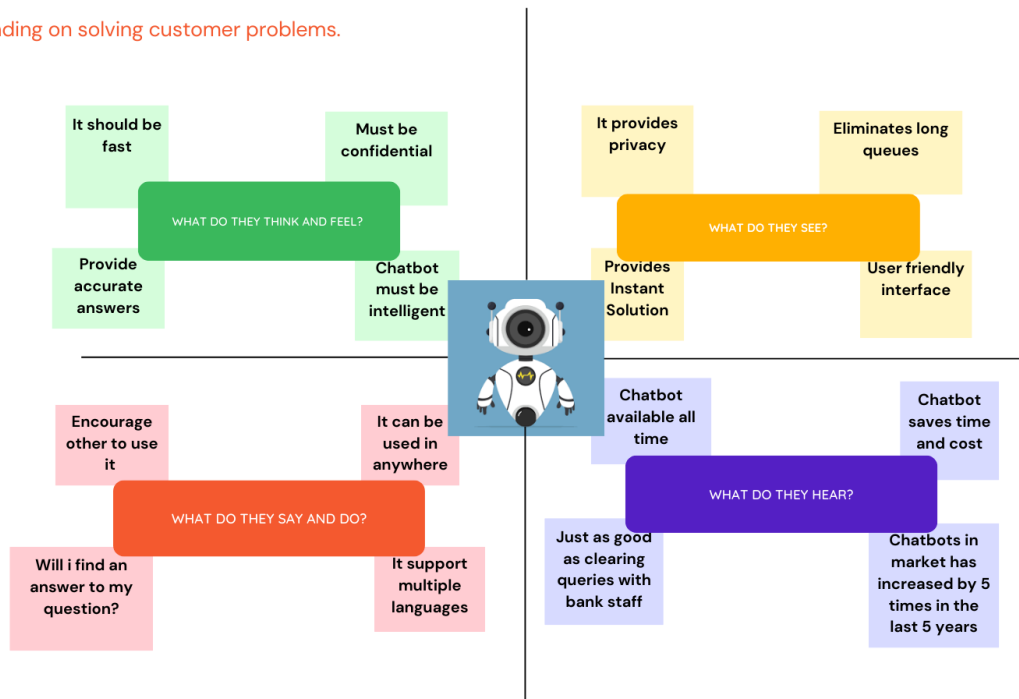
## 2.3 Problem Statement Definition

Banking is one the crucial sector, it deals with financial transactions which can be availed by everyone, but banks are not able to resolve the queries of customers at all times related to the products or services in satisfactory way in turn hinders the customer satisfaction. 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.

# 3. IDEATION & PROPOSED SOLUTION

## 3.1   Empathy Map Canvas

# EMPATHY MAP CANVAS

Gain insight and understanding on solving customer problems.



It should be fast

Must be confidential

**WHAT DO THEY THINK AND FEEL?**

Provide accurate answers

Chatbot must be intelligent

It provides privacy

Eliminates long queues

**WHAT DO THEY SEE?**

Provides Instant Solution

User friendly interface

Encourage other to use it

It can be used in anywhere

Chatbot available all time

Chatbot saves time and cost

**WHAT DO THEY SAY AND DO?**

**WHAT DO THEY HEAR?**

Will i find an answer to my question?

It support multiple languages

Just as good as clearing queries with bank staff

Chatbots in market has increased by 5 times in the last 5 years

# 3.2 Ideation & Brainstorming

**Ideation & Brainstorming**3.3



**Brainstorm & idea prioritization**

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

- 10 minutes to prepare
- 1 hour to collaborate
- 2-8 people recommended

**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.

⏱ 10 minutes

**Team gathering**
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.

**Set the goal**
Think about the problem you'll be focusing on solving in the brainstorming session.

**Learn how to use the facilitation tools**
Use the Facilitation Superpowers to run a happy and productive session.

Open article →

**Define your problem statement**

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

⏱ 5 minutes

How might we [your problem statement]?

**Key rules of brainstorming**
To run an smooth and productive session

- Stay in topic.
- Encourage wild ideas.
- Defer judgment.
- Listen to others.
- Go for volume.
- If possible, be visual.

**3**

## Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. In the last 10 minutes, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you and break it up into smaller sub-groups.

🕐 20 minutes

### Using Natural Language Processing

| It supports voice assistance feature | It is multilingual | It provides instant solution for general banking queries | It has an assured security and provides personalized service |

### Using Neural network

| It works in a very fast and intelligent manner | It provides quick responses for loan related queries | It provides reliable service on answering net banking queries | It provides efficient and convenient customer support |

### Using Artificial IIntelligence

| It is trustworthy | It maintains an user friendly interface | It facilitates constant guidance to customers on creating bank accounts | It maintains a confidential conversation with customers |

### Using Cloud technology

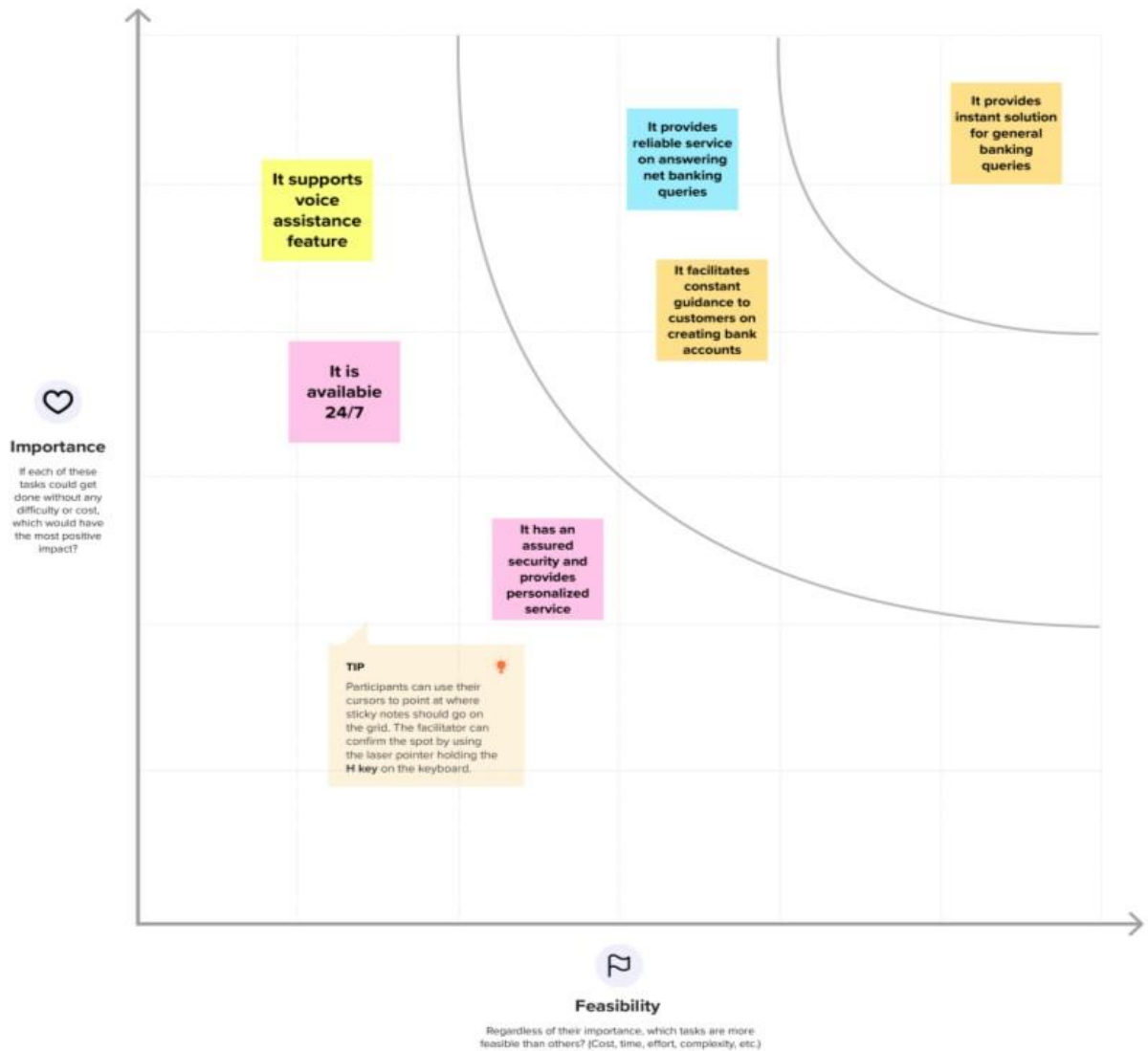| It is used to retrieve customer's old transaction history quickly | It is interoperable | It is availabie 24/7 | It saves user's time and cost |

**4**

## 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

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**It supports voice assistance feature**

**It provides reliable service on answering net banking queries**

**It provides instant solution for general banking queries**

**It facilitates constant guidance to customers on creating bank accounts**

**It is availabie 24/7**

**♡**

**Importance**

If each of these tasks could get done without any difficulty or cost, which would have the most positive impact?

**It has an assured security and provides personalized service**

**TIP** 💡

Participants can use their cursors to point at where sticky notes should go on the grid. The facilitator can confirm the spot by using the laser pointer holding the **H key** on the keyboard.

**⚑**

**Feasibility**

Regardless of their importance, which tasks are more feasible than others? (Cost, time, effort, complexity, etc.)

## 3.3 Proposed Solution

**Project Design Phase-I**
**Proposed Solution Template**

| Date | 09 October 2022 |
|---|---|
| Team ID | IBM-40462-1662631417 |
| Project Name | AI Based Discourse for Banking Industry |

## Proposed Solution Template:

| 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 | 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. |
| 3. | Novelty / Uniqueness | Chatbots developed using AI should be able to answer any general 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. |
| 4. | Social Impact / Customer Satisfaction | In order to attain 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. |
| 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 | AI Chatbots provides 24/7 service to clear all customer queries and guide them through all the banking processes. It supports voice assistance feature and maintains a confidential conversation with customers. 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. |

# 3.4 Problem Solution fit

## Problem-Solution fit canvas 2.0

Purpose / Vision **AI Based Discourse for Banking Industry**

### 1. CUSTOMER SEGMENT(S) — CS

Who is your customer?
i.e. working parents of 0-5 y.o. kids

- New customers who would like to learn more about the bank and how to create an account
- Regular customers who would like to access the various features and services of the bank

### 6. CUSTOMER CONSTRAINTS — CC

What constraints prevent your customers from taking action or limit their choices of solutions? i.e. spending power, budget, no cash, network connection, available devices.

- Network connection is required
- Unfamiliarity with/unaccustomed to chatting, especially among elders
- Unable to convey themselves properly through chat
- Safety and privacy concerns

### 5. AVAILABLE SOLUTIONS — AS

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.e. pen and paper is an alternative to digital notetaking

Customer care telephone lines and staff at banks are available to clear customer's queries. Both of these current methods are time consuming and can involve in the customer waiting for a long time to get their answers. A chatbot can squash these issues as they can provide answers instantly at any time from the convenience of the customer's phone.

*Define CS, fit into CC*
*Explore AS, differentiate*

### 2. JOBS-TO-BE-DONE / PROBLEMS — J&P

Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one; explore different sides.

- Answering customer queries correctly and quickly
- Convenience of banking guidance anywhere and anytime
- Cost and time efficiency and be improved

### 9. PROBLEM ROOT CAUSE — RC

What is the real reason that this problem exists?
What is the back story behind the need to do this job?
i.e. customers have to do it because of the change in regulations.

- Banking can initially be a slightly complicated task that people sometimes might want guidance or support while performing certain operations
- 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
- Banks can introduce new features regularly or might update existing features to keep up with changing regulations that can lead to confusions

### 7. BEHAVIOUR — BE

What does your customer do to address the problem and get the job done? i.e. directly related: find the right solar panel installer, calculate usage and benefits; indirectly associated: customers spend free time on volunteering work (i.e. Greenpeace)

Banking customers usually have queries related to creating a bank account, loans or general banking queries.
Currently, customers will have to rely either on customer care lines or will have to physically visit a bank, wait in line for their turn and then speak to a bank staff to clear their queries. Even the telephone lines are known to have a high wait time which can get frustrating.

*Focus on J&P, tap into BE, understand RC*

### 3. TRIGGERS — TR

What triggers customers to act? i.e. seeing their neighbour installing solar panels, reading about a more efficient solution in the news.

- Word of mouth about how convenient and easy it is to use
- Watching others use it from home or on the go instant instead of waiting in lines at the bank

### 4. EMOTIONS: BEFORE / AFTER — EM

How do customers feel when they face a problem or a job and afterwards? i.e. lost, insecure > confident, in control - use it in your communication strategy & design.

- Before: Frustrated, helpless, confused, nervous
- After: Confident, relieved, at-ease, interested

*Identify strong TR & EM*

### 10. YOUR SOLUTION — SL

If you are working on an existing business, write down your current solution first, fill in the canvas, 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 canvas and come up with a solution that fits within customer limitations, solves a problem and matches customer behaviour.

Customers can access an AI based chatbot that can be placed in the bank's website. This can then be used to clear the customer's queries instantly and can be used at any time of the day or from any place as long as the customer has an internet connection. This in turn also reduces the need for banks to employ a large workforce to clear customer queries. As the queries of the customers are answered correctly and in a convenient manner, it is a very efficient and satisfactory solution to the problem.

### 8. CHANNELS of BEHAVIOUR — CH

**8.1 ONLINE**
What kind of actions do customers take online? Extract online channels from #7

They search the web for answers to their queries which are usually scattered and are not reliable.

**8.2 OFFLINE**
What kind of actions do customers take offline? Extract offline channels from #7 and use them for customer development.

- They visit banks and meet the bank staff to clear their queries
- They call the customer care/toll free number of the bank and speak to a customer care employee

*Extract online & offline CH of BE*

**★ AMALTAMA**

# 4. REQUIREMENT ANALYSIS

## 4.1 Functional requirement

| FR No. | Functional Requirement (Epic) | Sub Requirement (Story / Sub-Task) |
|--------|-------------------------------|-------------------------------------|
| FR-1 | **Savings Account Related Actions** | • Type of Savings Account Creation Details<br>• Interest Rate<br>• Minimum Balance<br>• Debit Card<br>• Credit Card |
| FR-2 | **Current Account Related Actions** | • Type of Company<br>• Current Account Closure Steps<br>• Update GSTIN<br>• Zero Balance Current Account |
| FR-3 | **Loan Account Related Actions** | • Type of Loan<br>• How long for approval<br>• Available Loan Amounts<br>• Loan Status<br>• Joint Loan |
| FR-4 | **General Queries Related Actions** | • Bank Working Days<br>• List of Braches<br>• Storage Locker Facility<br>• Currency Conversion Facility<br>• CIBIL<br>• Find a nearest branch |
| FR-5 | **Net Banking Related Actions** | • Login Steps<br>• Change Net Banking Password<br>• Daily Limit<br>• Types of Fund Transfer<br>• Add Beneficiary |

# 4.2   Non-Functional requirements

**Requirements:**

| NFR No. | Non-Functional Requirement | Description |
|---------|---------------------------|-------------|
| NFR-1 | **Usability** | Chatbots developed using AI should be able to answer any general 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. |
| NFR-2 | **Security** | The AI Chatbot maintains a confidential conversation with customers. Chatbot will provide personal and efficient communication between the user and the bank. |
| NFR-3 | **Reliability** | Chatbots are trained very well using AI to provide solutions for the popular and frequently asked questions, thereby providing the best suited service quickly. Thus AI Chatbots has a reliable end-user experience. |
| NFR-4 | **Performance** | AI Chatbots are a great way to overcome the limitation of workload of humans. There can be multiple instances of a single chatbot inquiring different people at the same time. Such chatbots work in real time with no need for the customers to wait. This ensures faster, easier and more efficient face-time with customers. |
| NFR-5 | **Availability** | AI Chatbots provide 24/7 service to clear all customer queries and guide them through all the banking processes. It is available to anyone with access to the internet with basic hardware. |
| NFR-6 | **Scalability** | AI Chatbots are helping banking industry to scale their customer service and to improve customer service satisfaction at the same time. 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. |

# 5. PROJECT DESIGN

## 5.1 Data Flow Diagrams

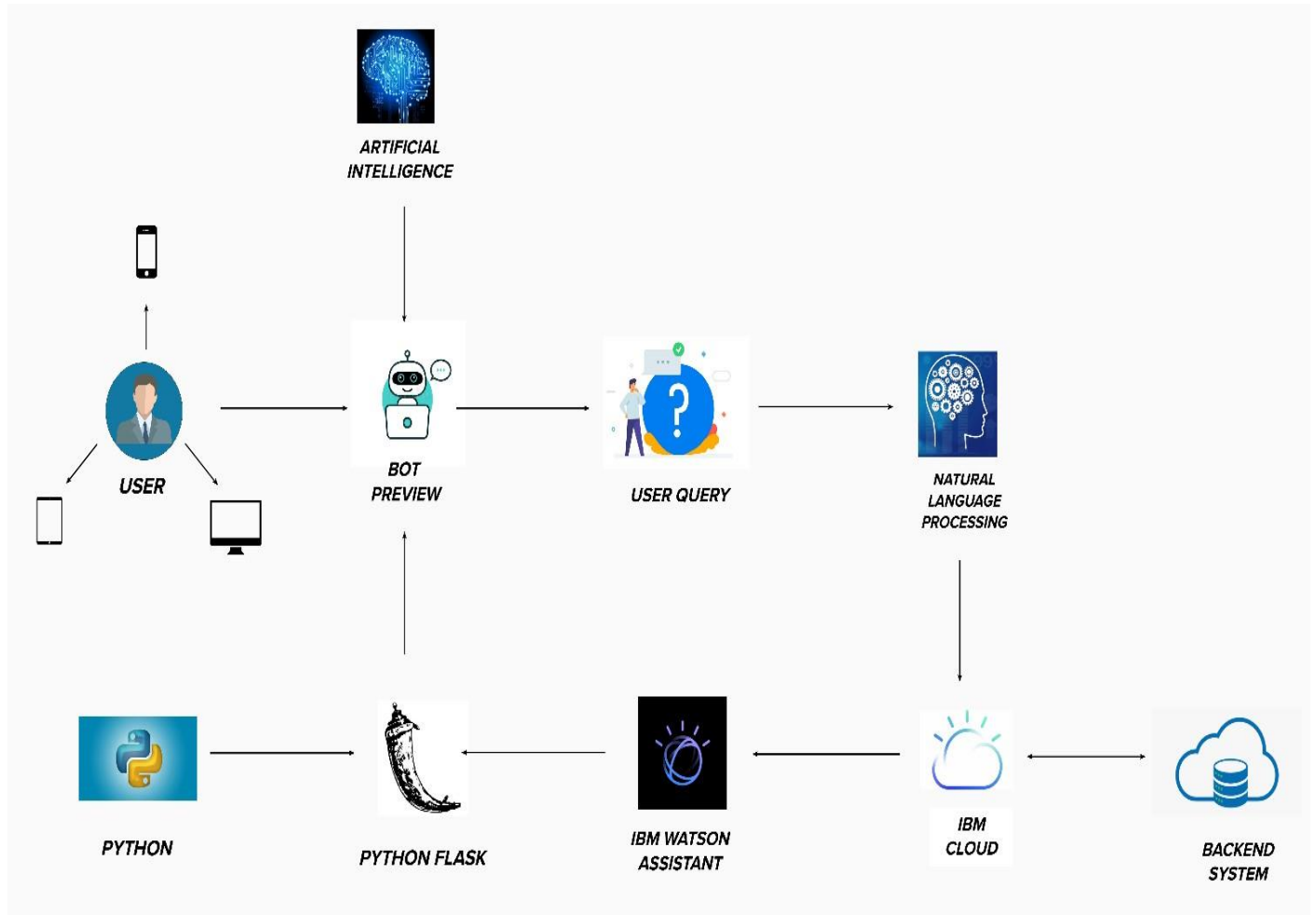**Project Design Phase-II**
**Data Flow Diagram & User Stories**

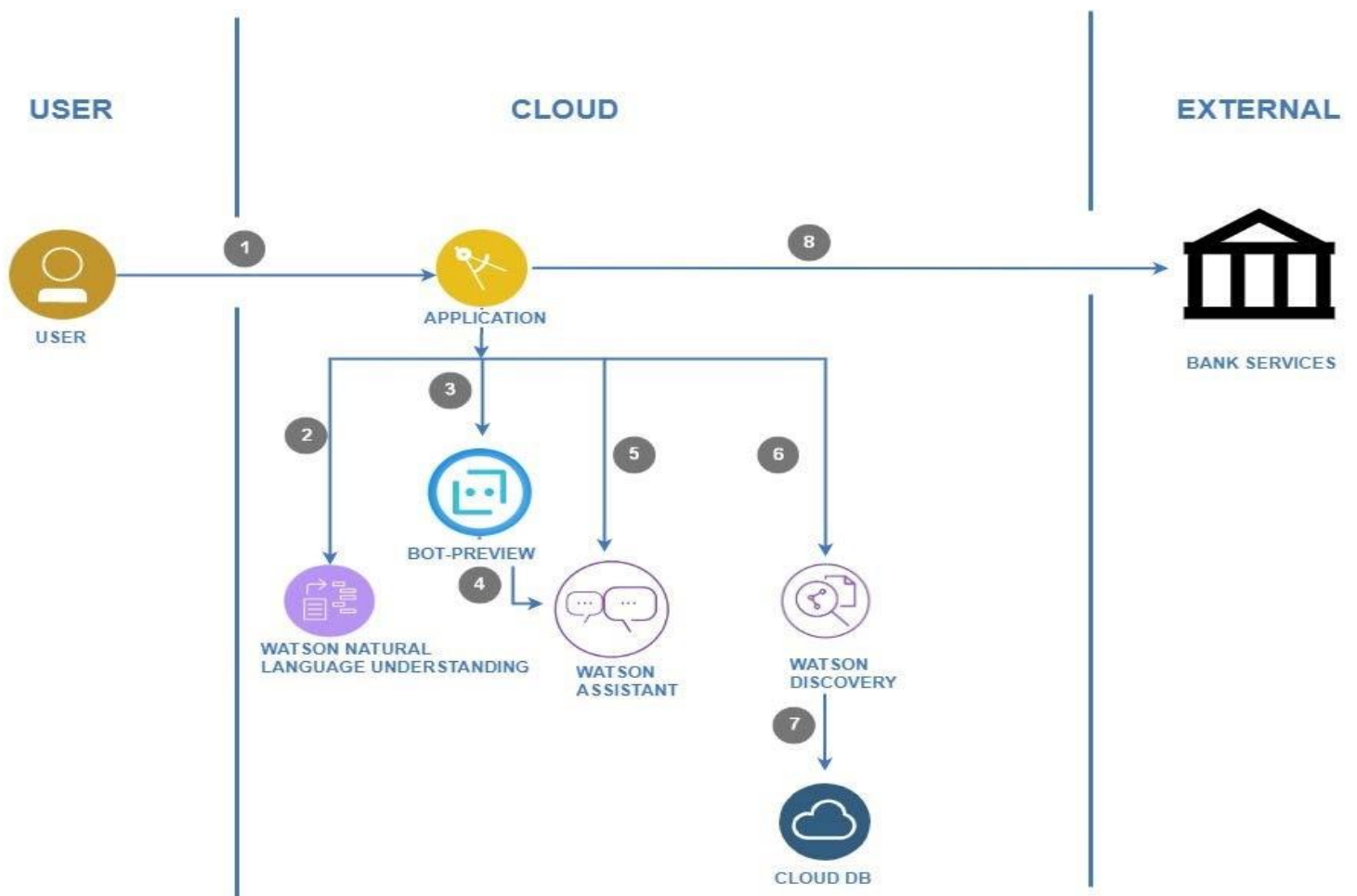| Date | 11 October 2022 |
|---|---|
| Team ID | PNT2022TMID27838 |
| Project Name | AI BASED DISCOURSE FOR BANKING INDUSTRY |
| Maximum Marks | 4 Marks |

**Data Flow Diagrams:**
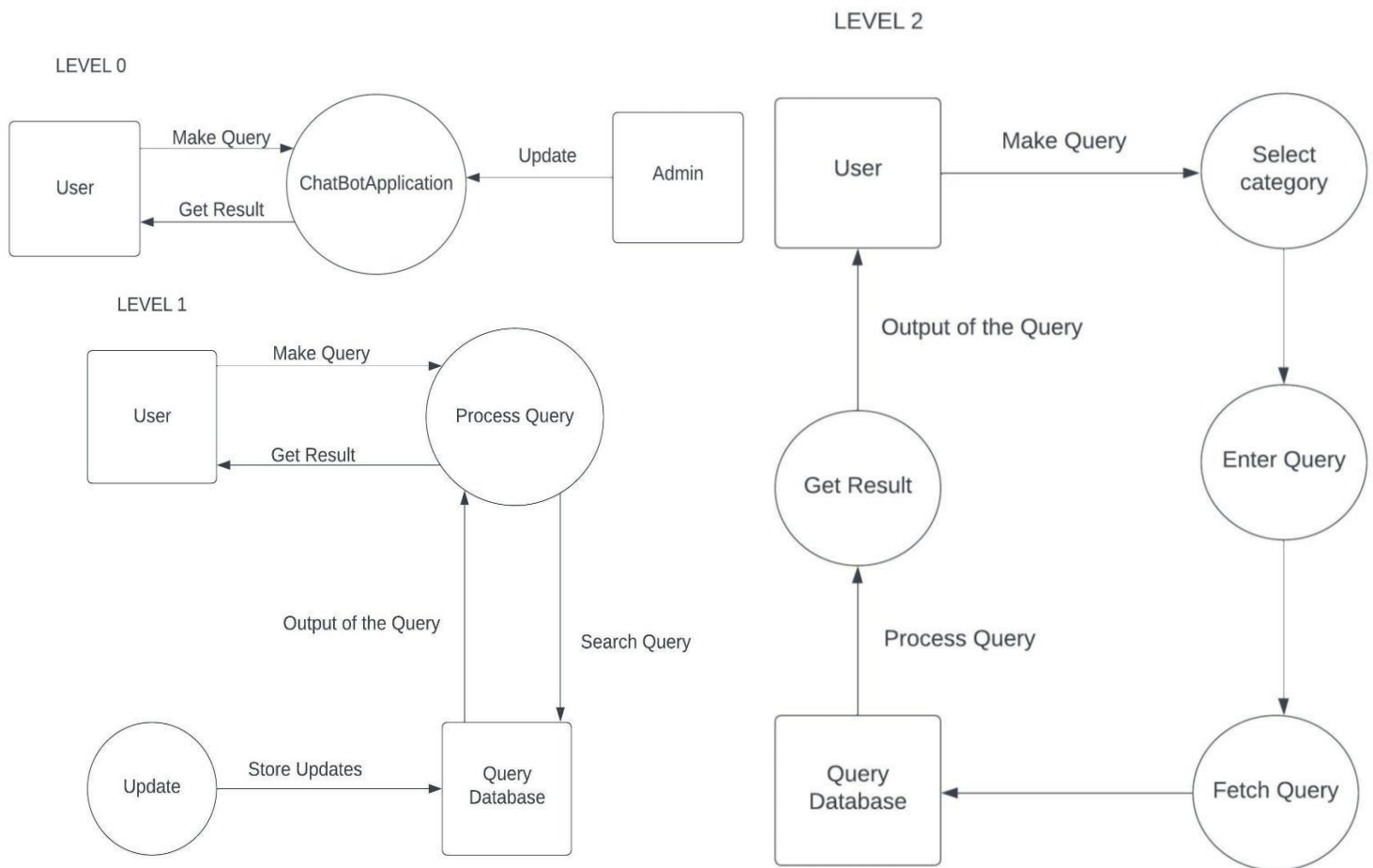
## 5.2   Solution & Technical Architecture

**Solution Architecture:**

**Technical Architecture:**

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

| S.No | Component | Description | Technology |
|------|-----------|-------------|------------|
| 1. | Bot Preview | A simple page is presented to the user with a chat layout that has an input box field available to get user queries and preset options are presented for the user to select. | HTML, CSS, JavaScript |
| 2. | Application Logic-1 | An input bar is provided that enables the user to type queries. | Java / Python |
| 3. | Application Logic-2 | Regularly asked queries or options are presented to the user. | IBM Watson STT service |
| 4. | Application Logic-3 | Processes responses to custom queries and displays a relevant response. | IBM Watson Assistant |
| 5. | Cloud Database | Queries and answers to queries are stored in the cloud and are accessed whenever a query is asked. | IBM Cloudant DB |
| 6. | External API-1 | It provides an interface between the application and the cloud to send the query from the application to the cloud. | Watson Assistant v2 API |
| 7. | External API-2 | A cloud based API that supports several cloud based applications and operations. | IBM Cloud API |
| 8. | Deep Learning Model | It is trained with several queries and uses that knowledge to provide relevant responses to queries with a good enough accuracy. | Deep Learning |
| 9. | Infrastructure (Server / Cloud) | Application Deployment on Local System / Cloud<br>Local Server Configuration: Flask Application<br>Cloud Server Configuration: IBM Cloud | Python Flask, IBM Cloud |

**Table-2: Application Characteristics:**

| S.No | Characteristics | Description | Technology |
|------|-----------------|-------------|------------|
| 1. | Open-Source Frameworks | List the open-source frameworks used | Python Flask, CSS Frameworks |
| 2. | Security Implementations | General access control and the built-in security features of IBM Cloud are present. | IBM Watson Assistant, IBM Cloudant DB |
| 3. | Scalable Architecture | The architecture consists of three tiers, the client side, the web server and the cloud server. Each of these can be scaled as per requirements. | Client Side: Flask (Python) Web Server: IBM Watson Assistant Cloud Server: IBM Cloud |
| 4. | Availability | The chatbot is available 24/7 on almost all devices that support an internet browser. | IBM Cloud, Flask (Python) |
| 5. | Performance | Responds to several thousands of queries at the same time. | IBM Load Balancer, IBM Cloud |

## 5.3 User Stories

| User Type | Functional Requirement (Epic) | User Story Number | User Story / Task | Acceptance criteria | Priority | Release |
|---|---|---|---|---|---|---|
| Customer (Mobile or Web user) | 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. | I can clear my queries regarding types of savings account | High | Sprint-1 |
| | | USN-2 | As a user, I can check the Interest Rates of Savings Account | I can clear my queries regarding interest rates of savings account | High | Sprint-1 |
| | | USN-3 | As a user, I can check the Minimum Balance of Savings Account | I can clear my queries regarding minimum balance of savings account | Medium | Sprint-2 |
| | 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 | I can clear my queries regarding types of companies | High | Sprint-1 |
| | | USN-5 | As a user, I want to get details on procedure to close my Current Account | I can clear my queries regarding current account closure | High | 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 | I can clear my queries regarding types of loan account | High | Sprint-1 |
| | | USN-7 | As a user, I can check the Loan Amounts that can be offered for corresponding Loan Accounts chosen | I can clear my queries regarding loan amounts of loan account | High | Sprint-2 |
| | | USN-8 | As a user, I can check the Status of Loan for my Loan Accounts | I can clear my queries regarding loan status of loan account | Low | 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 | I can clear my queries regarding currency conversion facilities of bank account | Low | Sprint-1 |
| | | USN-10 | As a user, I want to check my CIBIL score for my loan application and to ensure whether my loan application is approved by the bank. | I can clear my queries regarding CIBIL score of loan application | Medium | Sprint 3 |
| | | USN-11 | As a user, I want to get the procedure details for maintaining Storage Locker facility of my bank account | I can clear my queries regarding storage locker facilities of bank account | High | Sprint-3 |
| | Net Banking Related Actions | USN-12 | As a user, I want to get the procedure details for changing the Net Banking password of my bank account | I can clear my queries regarding change of net banking password | Medium | Sprint-2 |
| | | USN-13 | As a user, I can select types of fund transfers to get details regarding different services available in net banking | I can clear my queries regarding types of fund transfers in net banking | High | Sprint-3 |

| | | USN-14 | As a user, I want to get the procedure details for adding beneficiaries to my net banking account. | I can clear my queries regarding adding beneficiaries in net banking | Low | Sprint-3 |
|---|---|---|---|---|---|---|
| Administrator | | USN-15 | As an admin, I can change responses to queries and modify them as and when needed. | I can modify responses of the chatbot | Medium | Sprint-1 |
| | | USN-16 | As an admin, I can added more options to queries and add new options as new features get added. | I can add more options and queries into the chatbot | Medium | Sprint-1 |

# 6. PROJECT PLANNING & SCHEDULING

## 6.1   Sprint Planning & Estimation

### Project Planning Phase
**Project Planning (Product Backlog, Sprint Planning, Stories, Story points)**

| Date | 04 November 2022 |
|---|---|
| Team ID | IBM-40462-1662631417 |
| Project Name | AI BASED DISCOURSE FOR BANKING INDUSTRY |

**Product Backlog, Sprint Schedule, and Estimation**

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 | 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 | AVINASH S , SAI GOWTHAM A |
| Sprint-1 | | USN-2 | As a user, I can check the Interest Rates of Savings Account | 4 | High | SAI GOWTHAM A , HARSHA VARDHAN D |
| Sprint-1 | | USN-3 | As a user, I can check the Minimum Balance of Savings Account | 3 | Medium | AVINASH S , CHERRISH B |
| 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 | AVINASH S |
| Sprint-1 | | USN-5 | As a user, I want to get details on procedure to close my Current Account | 4 | High | AVINASH S |
| 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 | SAI GOWTHAM A,   CHERRISH B |
| Sprint-2 | | USN-7 | As a user, I can check the Loan Amounts that can be offered for corresponding Loan Accounts chosen | 3 | High | AVINASH S , HARSHA VARDHAN D |
| Sprint-2 | | USN-8 | As a user, I can check the Status of Loan for my Loan Accounts | 1 | Low | AVINASH S |
| **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 | AVINASH S |

| Sprint-2 | | USN-10 | As a user, I want to check my CIBIL score for my loan application and to ensure whether my loan application is approved by the bank. | 1 | Low | SAI GOWTHAM A , CHERRISH B |
|---|---|---|---|---|---|---|
| Sprint-2 | | USN-11 | As a user, I want to get the procedure details for maintaining Storage Locker facility of my bank account | 3 | High | CHERRISH B ,HARSHA VARDHAN D |
| Sprint-2 | Net Banking Related Actions | USN-12 | As a user, I want to get the procedure details for changing the Net Banking password of my bank account | 3 | High | CHERRISH B |
| Sprint-2 | | USN-13 | As a user, I can select types of fund transfers to get details regarding different services available in net banking | 2 | Medium | SAI GOWTHAM A |
| Sprint-2 | | USN-14 | As a user, I want to get the procedure details for adding beneficiaries to my net banking account. | 2 | Medium | HARSHA VARDHAN D |
| Sprint-3 | Web Application | USN-15 | As a user, I want to access the chatbot in a web browser that can be accessed from almost all devices. | 20 | High | AVINASH S,CHERRISH B, SAI GOWTHAM A |
| Sprint-4 | User Interface and Web Pages | USN-16 | As a user, I want to view pages of the banking website and have access to the chatbot easily. | 20 | High | SAI GOWTHAM A , HARSHA VARDHAN D |

## 6.3 Sprint Delivery Schedule

**Project Tracker, Velocity & Burndown Chart:**

| Sprint | Total Story Points | Duration | Sprint Start Date | Sprint End Date (Planned) | Story Points Completed (as on Planned End Date) | Sprint Release Date (Actual) |
| --- | --- | --- | --- | --- | --- | --- |
| Sprint-1 | 20 | 6 Days | 24 Oct 2022 | 29 Oct 2022 | 18 | 02 Nov 2022 |
| Sprint-2 | 20 | 6 Days | 31 Oct 2022 | 05 Nov 2022 | 22 | 05 Nov 2022 |
| Sprint-3 | 20 | 6 Days | 07 Nov 2022 | 12 Nov 2022 | 20 | 12 Nov 2022 |
| Sprint-4 | 20 | 6 Days | 14 Nov 2022 | 19 Nov 2022 | 20 | 19 Nov 2022 |

**Burndown Chart:**
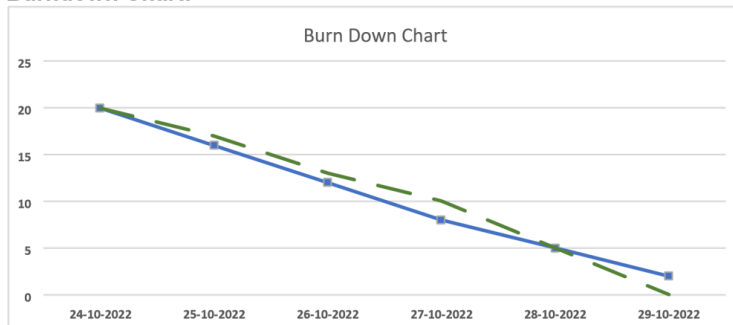


Sprint 1
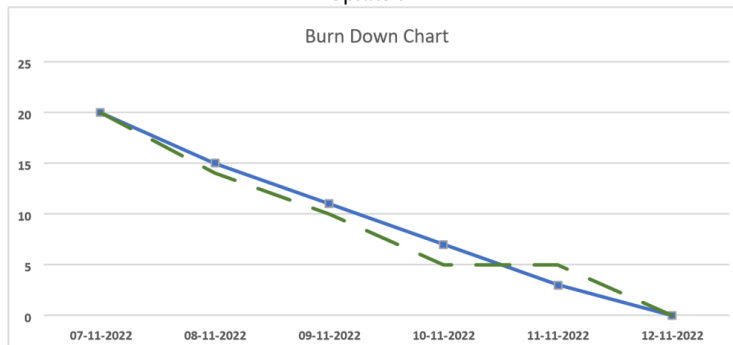


Sprint 2
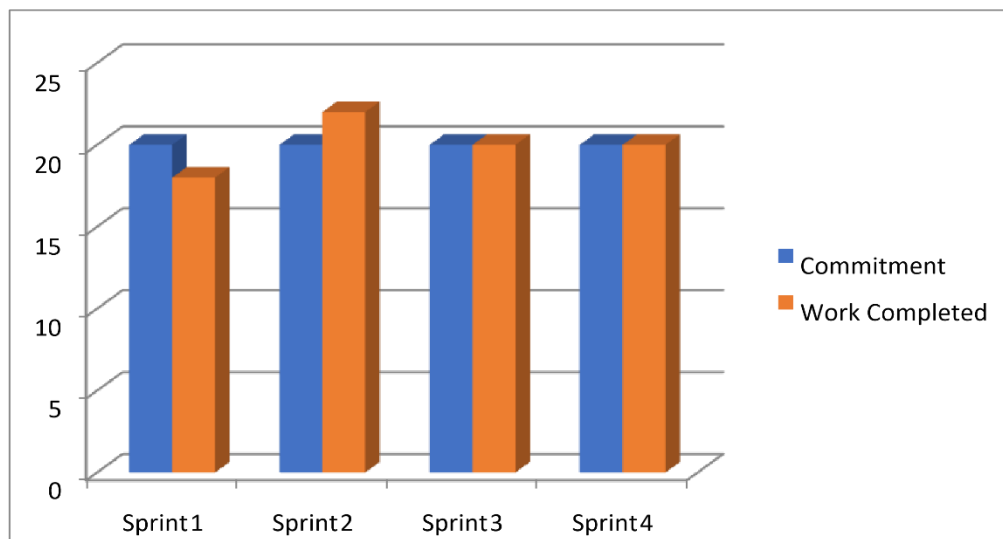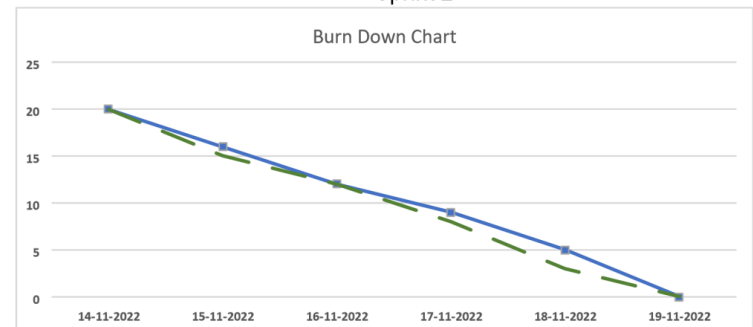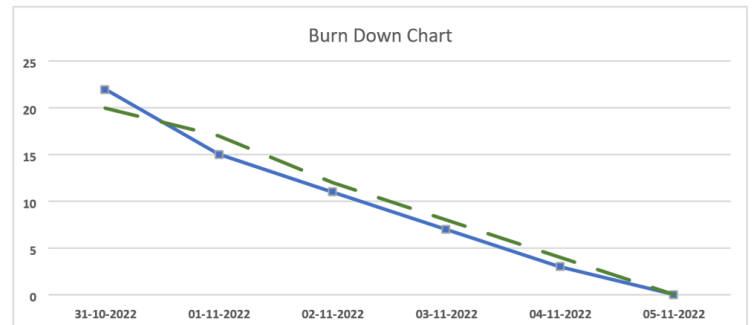
# 7.CODING & SOLUTIONING

## 7.1 Feature 1

- IBM Watson Assistant
- Web UI
- Python Code
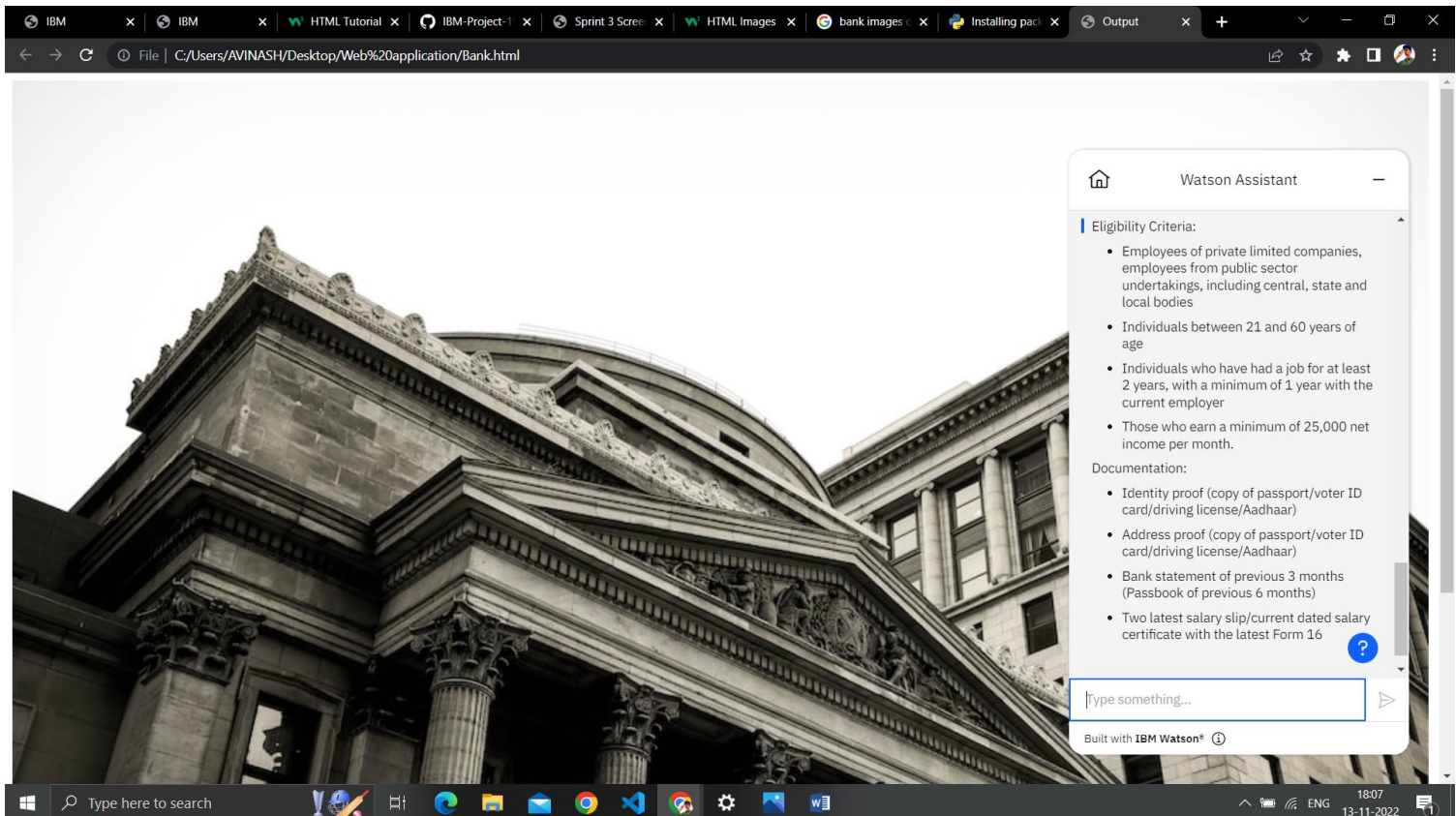- HTML
- CSS

## 8. TESTING AND RESULTS

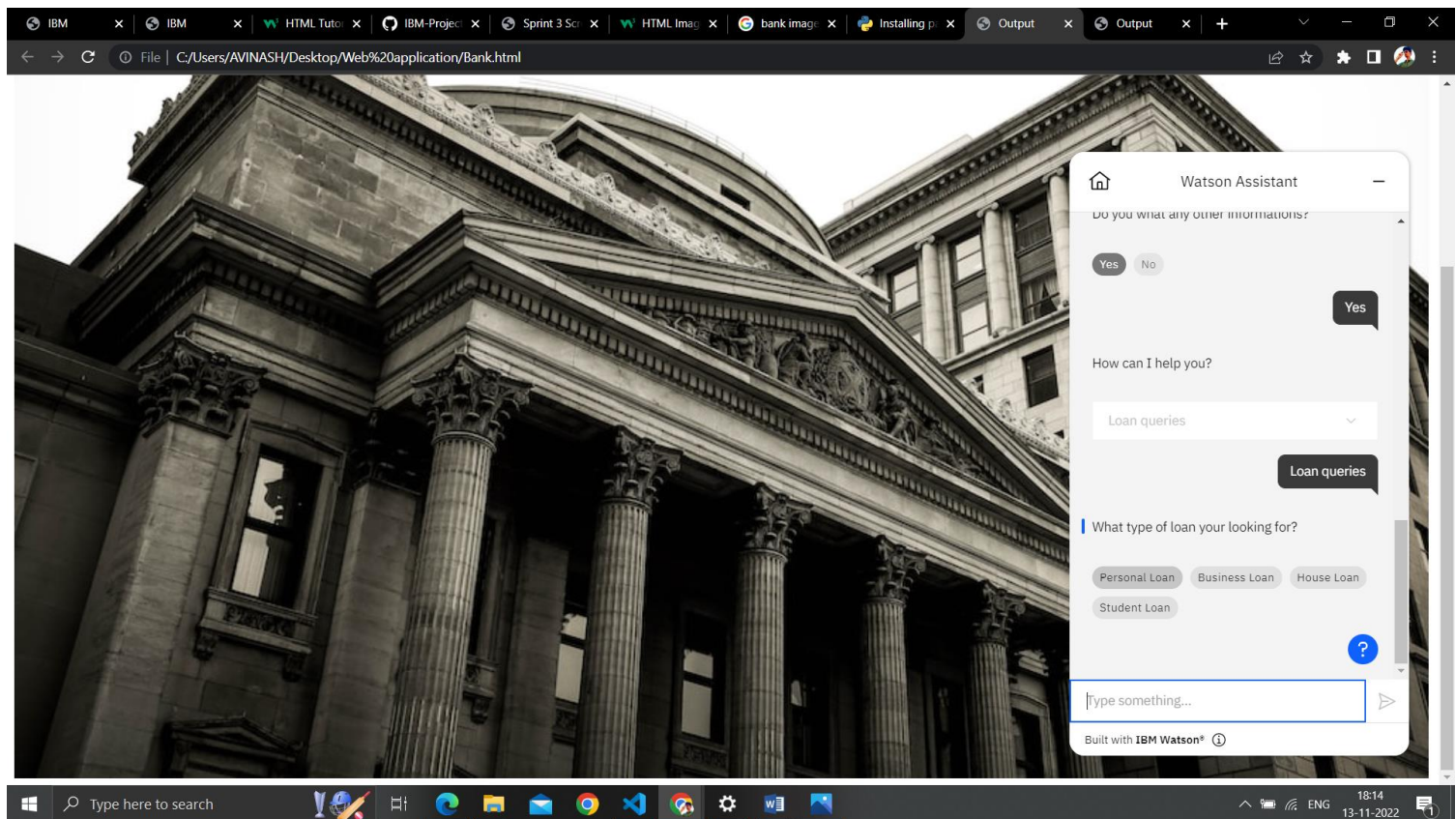### 8.1   Test Cases
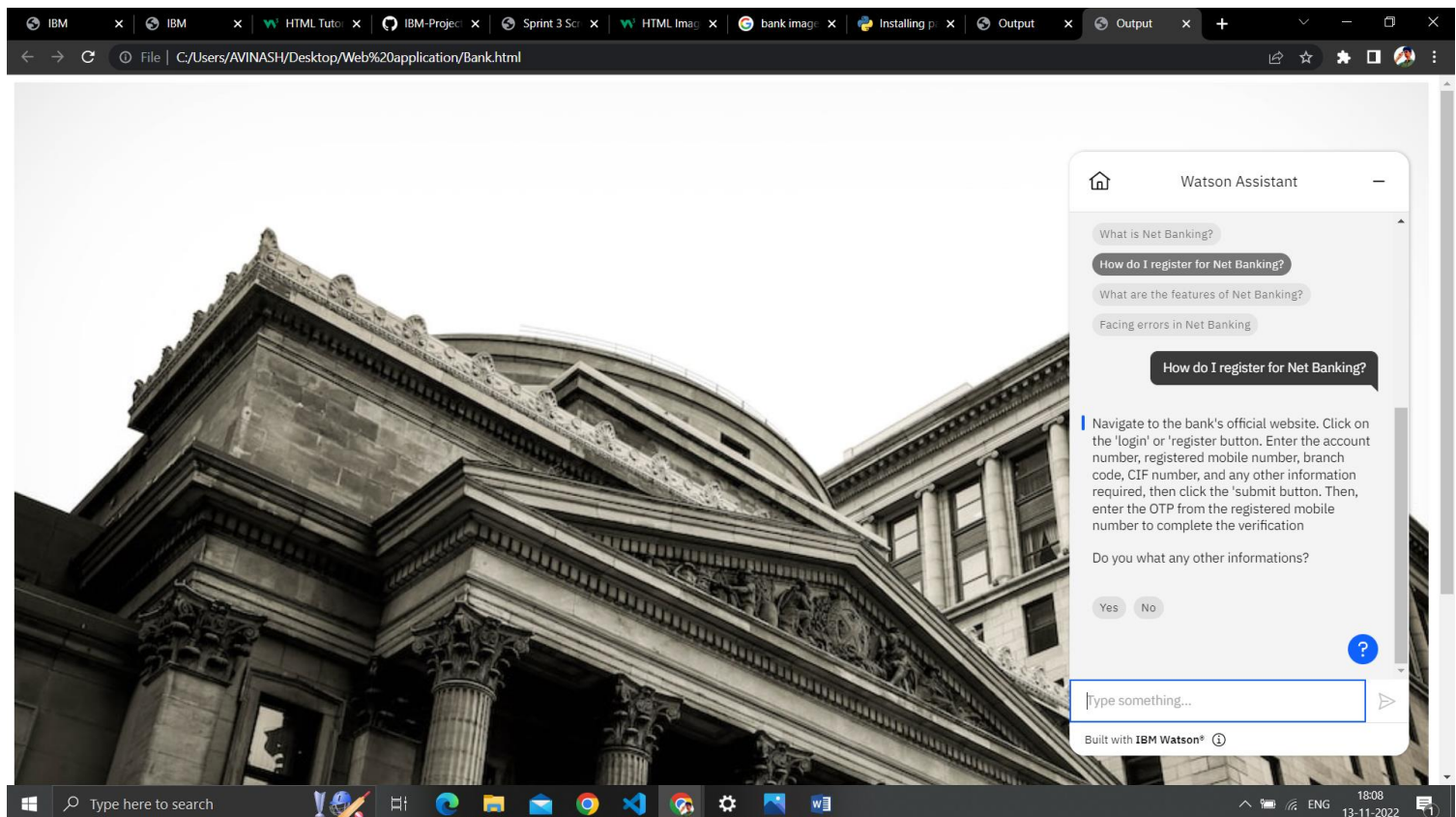
**TEST CASE 1**
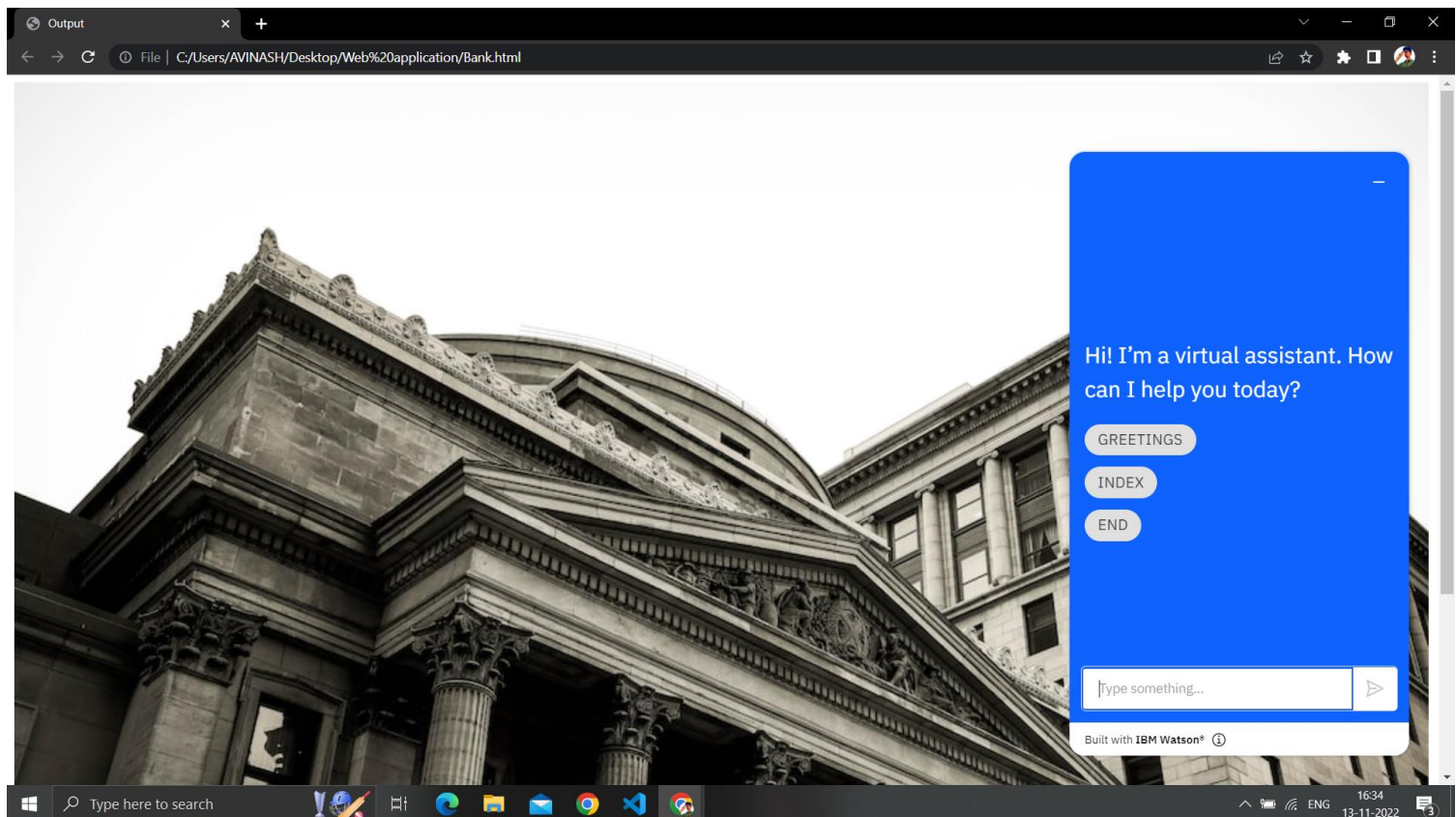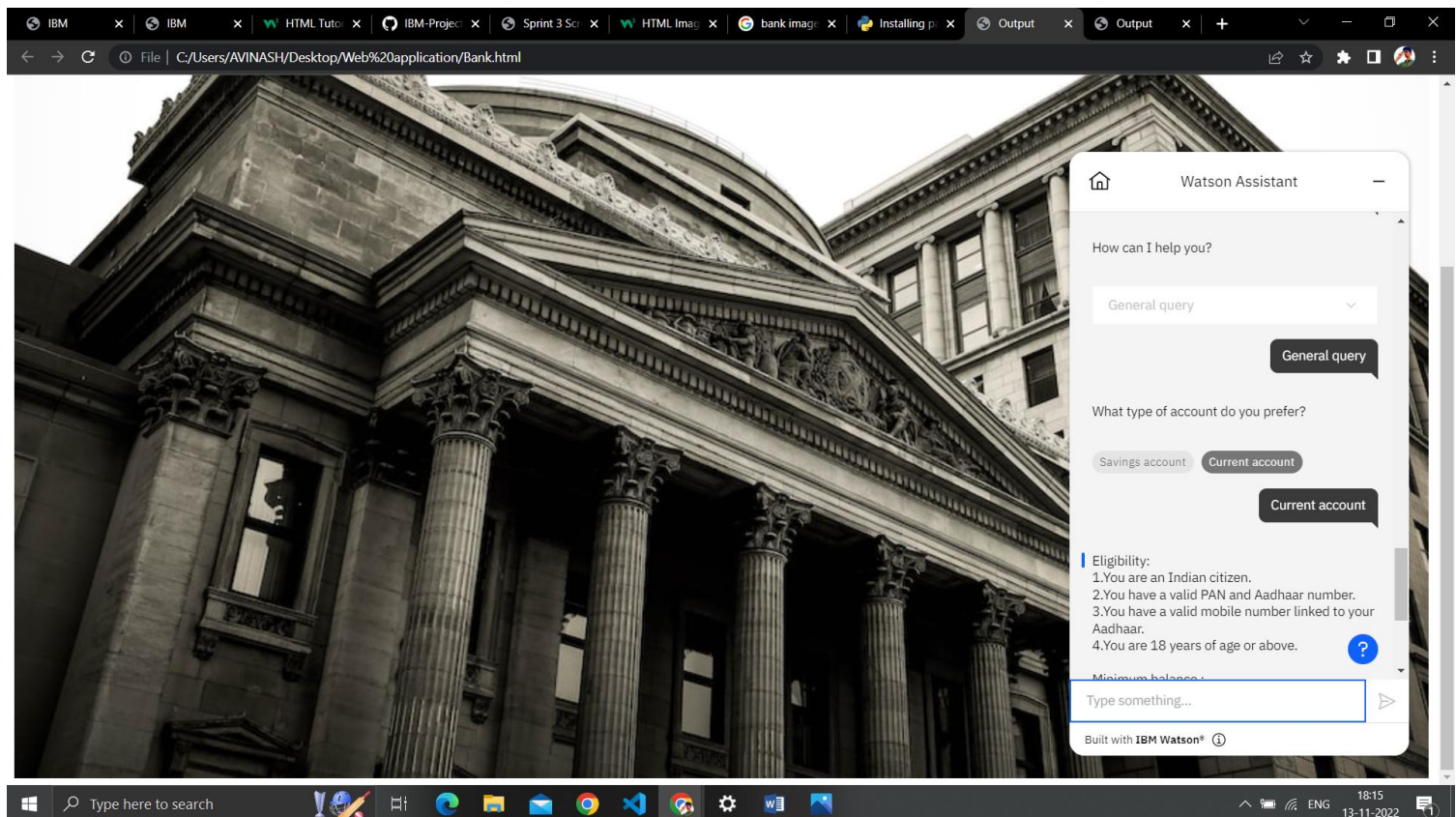
# TEST CASE 2
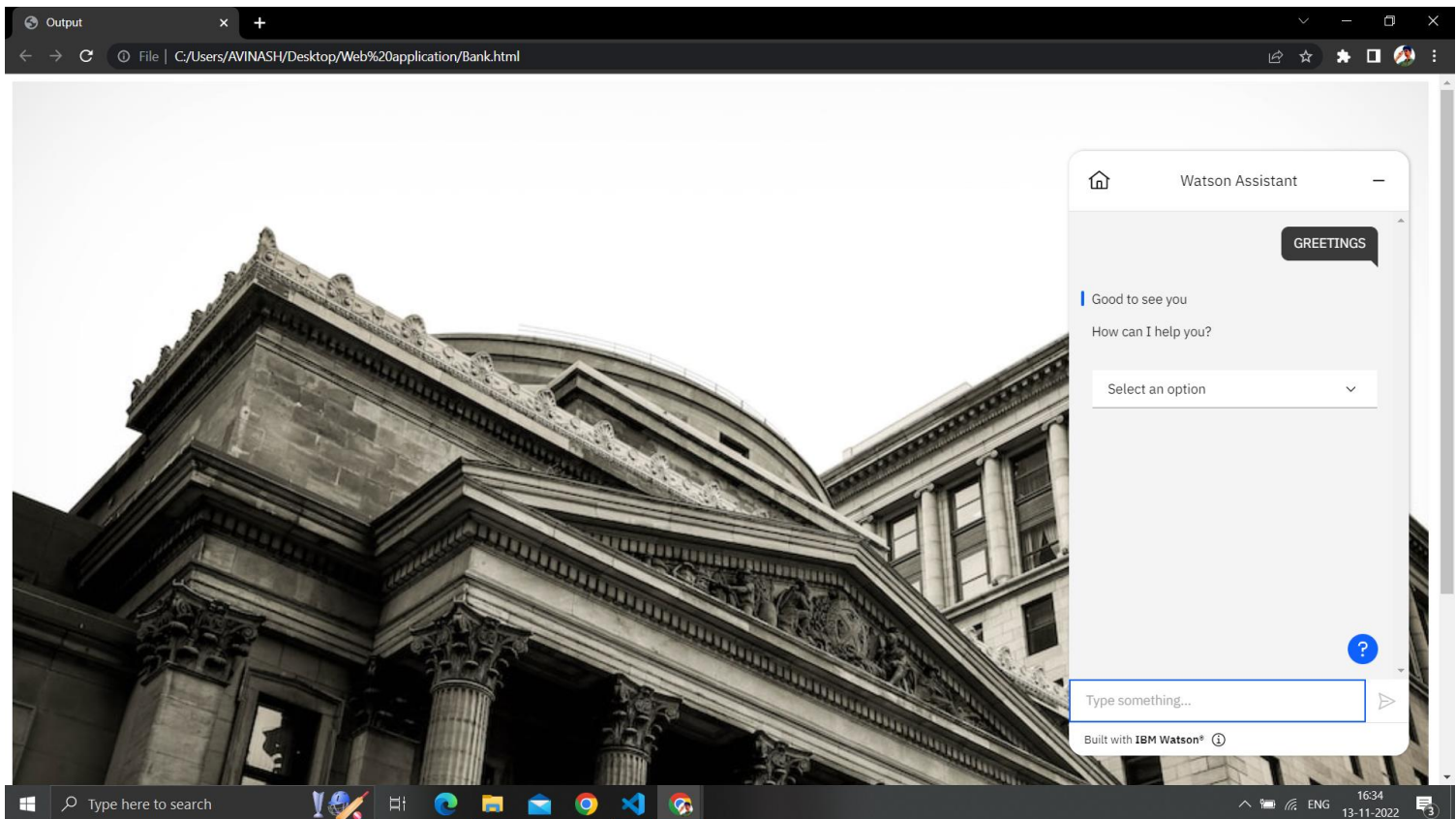


# TEST CASE 3

# TEST CASE 4



# TEST CASE 5

**TEST CASE 6**



## 9. ADVANTAGES

- Improved support efficiency
- Decreased wait times
- Cost-effective 24/7 support

## 10.DISADVANTAGES

- Impersonal
- Must keep information up-to-date
- Technology issues

## 11.CONCLUSION

Using chatbots for your customer service will help you have consistent messaging with your customers. This is because you will have one voice and one tone for all communications with customers.

It will also ensure that your messaging stays the same for each customer! With human operators, there is a chance they will begin to get fatigued when they are dealing with customer service issues for hours on end. Chatbots can help you avoid errors.

## 12.FUTURE SCOPE

Most importantly, chatbots in banking will eventually become much more advanced in their ability to connect with the consumer on a more human level, turning interactions that have traditionally been very transactional into an experience that would be closer to the real life.

# 13. APPENDIX

## 13.1 Python Source Code

```python
from flask import Flask , render_template
app=Flask(__name__)
@app.route('/')
def bank():
return render_template('Bank.html')
if __name__=='__main__':
app.run(debug = True)
```

## 13.2 Html Source Code

```html
<html>
<head>
<title>Output</title>
</head>
<body>

<image src="bank.jpg"  width="1500">

<script>
  window.watsonAssistantChatOptions = {
    integrationID: "ac975b2b-4900-48ed-b736-3bc45478a41e", // The ID of this integration.
    region: "us-south", // The region your integration is hosted in.
    serviceInstanceID: "f8ac7479-cff6-4f2c-a289-be79c37b2dac", // 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>
</body>
</html>
```

## 13.3 GitHub

https://github.com/IBM-EPBL/IBM-Project-40462-1660629642