ARTIFICIAL INTELLIGENCE

AI BASED DISCOURSE FOR BANKING INDUSTRY

PROJECT REPORT

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1. INTRODUCTION

Banking has become the part and parcel of everyone's life. Almost everyone uses the banking sector to perform their tasks. Most of the tasks are been carried out manually. Now the use of mobile and internet banking facility has reached greater heights. Chat bots is becoming trending today. They are Artificial Intelligence (AI) based computer programs that interact with users using natural languages. In this project we are trying to perform banking operations via AI based chat bots using Watson's Assistant.

PROJECT OVERVIEW

In this project, we will be building a chatbot using Watson's assistant. This chat should have the following capabilities:

- The Bot should be able to guide a customer to create a bank account.
- The Bot should be able to answer loan queries.
- The Bot should be able to answer general banking queries.
- The Bot should be able to answer queries regarding net banking.

PURPOSE

The main purpose of this project is to build a chatbot using watson's assistant that helps banks for automating business processes such as customer service by providing Accurate, Easy, and Interactive banking transactions.

The other significant purpose of the project is as follows:

- To ensure easier banking process.
- To minimize the time consumption.
- To has 24*7 accesses to the bank.

2. LITERATURE SURVEY

EXISTING PROBLEM

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. The users are bank customers who needs 24/7 service to clear all their queries and guide them through all the banking processes. So, an enhanced and smarter way of interaction with the customers has to be built to ensure efficient delivery of service.

REFERENCES

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2. Yomna Abdulla, Rabab Ebrahim, Sumathi Kumaraswamy," Artificial Intelligence in Banking sector: Evidence from Bahrain",2020

3. Tebaga Lucky Mamela, Nita Sukdeo, Sambil Char les Mukwakungu," Adapting to Artificial Intelligence through Workforce Re-skilling within the BankingSector in South Africa",2020.

4. Shashank Bairy, Rashmi R," Conversation to Automation in Banking Through Chatbot Using Artificial MachineIntelligence Language",2021.

PROBLEM STATEMENT DEFINITION

I am	I'm trying to	But	Because	Which makes me feel
a student who just created a bank account	understand more about the available features of the bank	I have to waste a lot of time at the bank	I have to ask a bank employee about my doubts	Irritated
a new customer	learn more about banking	it takes a long time	there is always a long queue as bank employees are busy	frustrated
an old customer at the bank	find out my balance and check my statement	I have to travel to the bank now and then	I have to speak to a bank employee to get the work done	exhausted

3. IDEATION & PROPOSED SOLUTION

EMPATHY MAP CANVAS
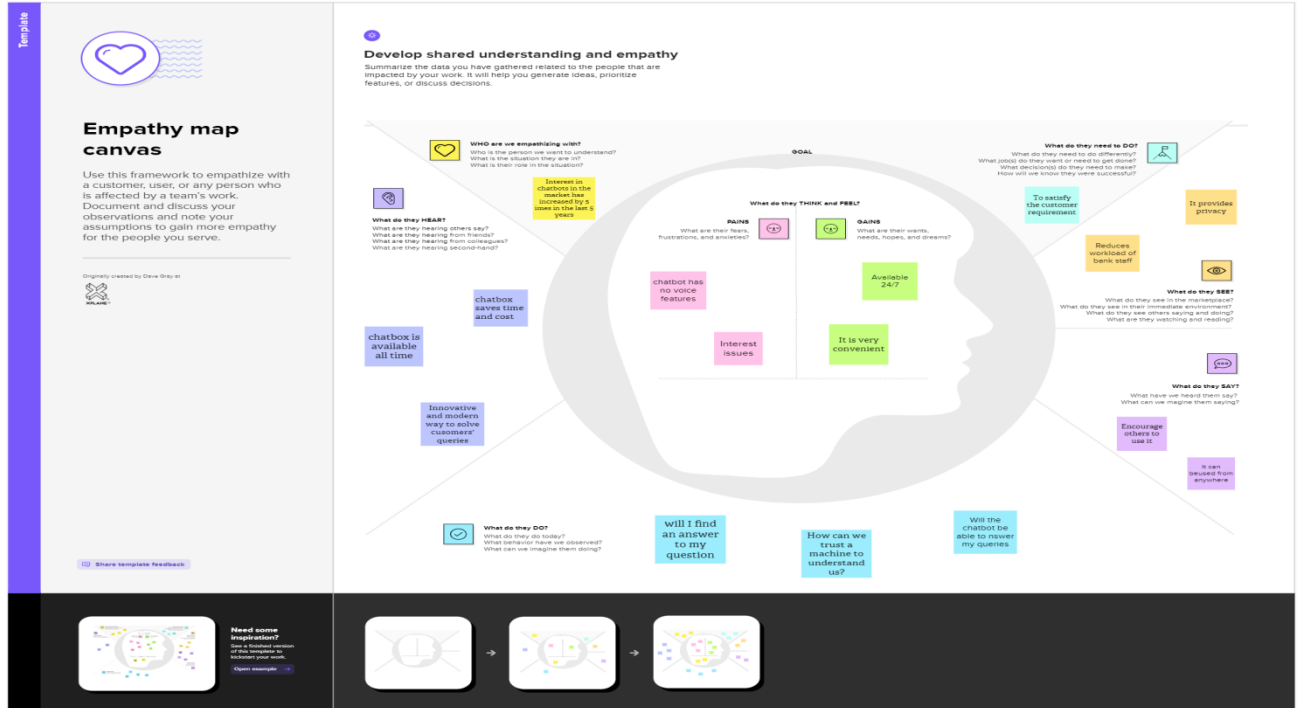
IDEATION & BRAINSTORMING
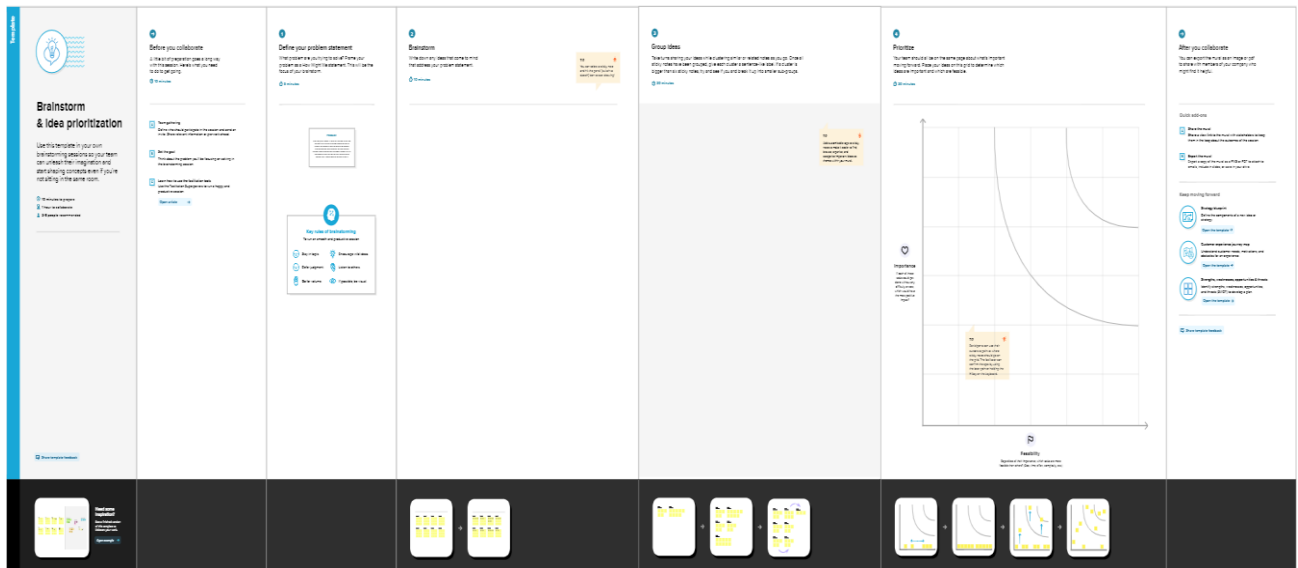
PROPOSED SOLUTION

S.NO.	PARAMETER	DESCRIPTION
1.	Problem statement (Problem to be solved)	To build an efficient AI based banking chatbot or banking assistant to effectively to curb out the following constraints: • Guiding customer on account creation, net banking, etc., • Answering queries regarding financial and loan instantly.
2.	Idea/Solution description	The following approaches are used to built an efficient chatbot for banking industry: • IBM Watson Assistant – To build chatbot interface • Flask – Web framework for the chatbot • NLP – Answering customer queries • AI, DL – To Automate the banking process
3.	Novelty/Uniqueness	This AI powered chatbot gives a 24*7 efficient automated banking process to both customers and staffs by giving solutions their queries which saves time and effort.
4.	Social Impact/Customer Satisfaction	This chatbot provides a huge and effective banking process to the Banking staff, customer, borrowers, lenders, depositor etc.,
5.	Business Model (Revenue Model)	By implementing this chatbot banks can enable more reliable services to customers which gains customer loyalty and saves the cost needed for manual support.
6.	Scalability of the solution	Implementing this chatbot banks can manage and measure demands in the sectors and improve the profit for the management with the help of measured volumes of the needed services.

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.

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.

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

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

4. REQUIREMENT ANALYSIS

FUNCTIONAL REQUIREMENT

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	• Registration through Form • Registration through Gmail • Registration through LinkedIN
FR-2	User Confirmation	• Confirmation via Email • Confirmation via OTP
FR-3	User Login	• Validation of Login ID and Password.
FR-4	Query Support	• AI chatbot for supporting guidelines.
FR-5	Existing user Support	• Change of ownership • Mistakes Correction Query support • Bank Card (Debit and Credit) • Shift in Branches • Account Freeze action and Security services. • Changes made confirmation through mail or OTP.
FR-6	Loan Related Service	• Types of Loan Details. • Interest and Benefit Schemes. • Instant Details of Loan status. • Verification of User Identity

FR-7	Online Banking Support	• UPI linkage to account.
		• Security Services in unauthorized UPI linkage.
		• Account Balance Check
		• Instant Money transfer Action.
		• Message when Money transaction.
		• Account Freeze action.

NON-FUNCTIONAL REQUIREMENT

NFR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Customer can access chatbot more efficiently and in a simpler way. Multilanguage functionality is supported. Top chat topics are displayed for easy access.
NFR-2	**Security**	Customer can have utmost security of their information. The details are stored in cloud where the bank employee have total control in accessing valuable information. Customers also get a mail if requested for a confidential information.
NFR-3	**Reliability**	If the criteria or the topic which customer expects is not met via chatbot, bank employee will be able to provide details for that issue within a short span of time.
NFR-4	**Performance**	Chatbot can provide consistency and frequent updating of queries are made without any loss in information.

NFR-5	**Availability**	It is available 24x7 and the progress is not lost, even if the servers go down. Cloud storage ensures that data is protected and can we retrieved whenever needed.
NFR-6	**Scalability**	New user interfaces are made in the chatbot for good customer experience. It can support wide range of users queries and provide instant responses. The queries of more than 1000 people can be answered using the chatbot.

5.PROJECT DESIGN

DATA FLOW DIAGRAMS

SOLUTION & TECHNICAL ARCHITECTURE:
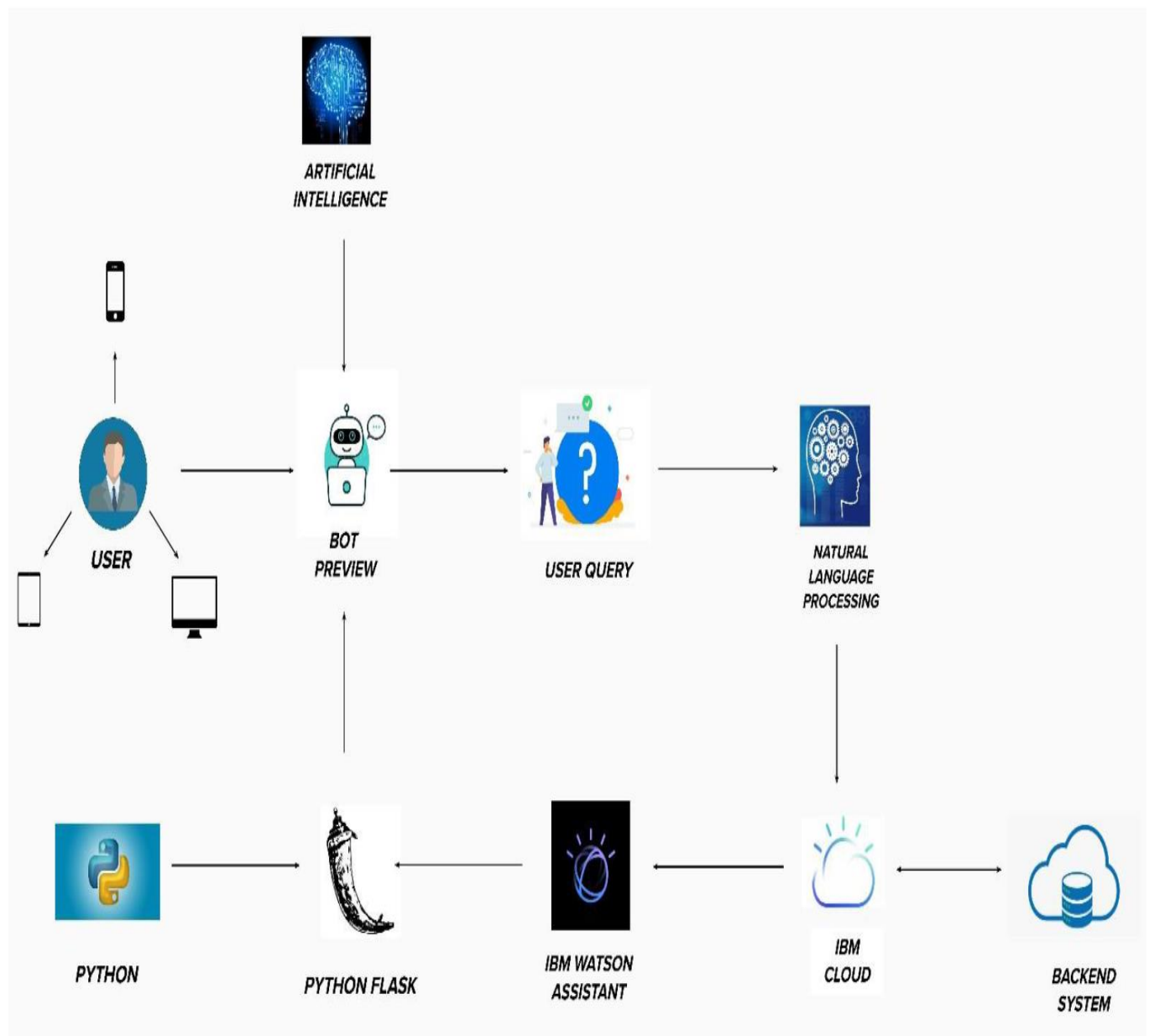
USER STORIES:

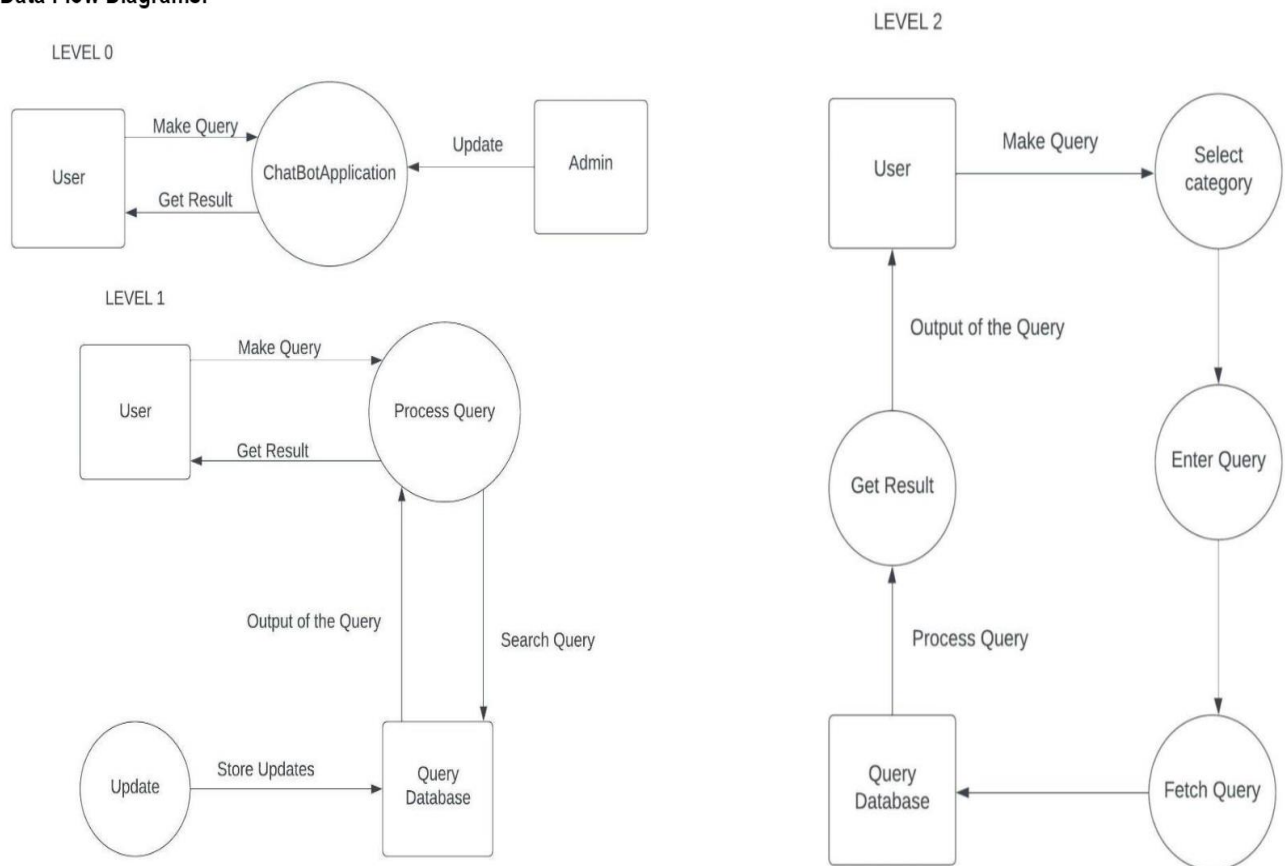| User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard	High	Sprint-1
		USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	High	Sprint-1
		USN-3	As a user, I can register for the application through Facebook	I can register & access the dashboard with Facebook Login	Low	Sprint-2
		USN-4	As a user, I can register for the application through Gmail		Medium	Sprint-1
	Login	USN-5	As a user, I can log into the application by entering email & password		High	Sprint-1
	Dashboard	USN-6	As a user, I can get the application completion status and files to be required to create the account.	I can receive completion status and create the account.	Low	Sprint-2
Customer (Web user)	Registration	USN-1	As a web user, I can go through many social media websites, get the details and I can register for the application	I can access my application dashboard	High	Sprint-1
		USN-2	As a user, I can get the details of the application through email.	I can receive confirmation email to link my application	Medium	Sprint-1
	Login	USN-3	As a user, I can link my google account to register my application.	I can register my application.	High	Sprint-1
	Dashboard	USN-4	As a user, I can manage and get a detailed view of the application	Any changes in the application comes to my knowledge while checking dashboard.	Low	Sprint-2
Customer Care Executive	IBM Watson		AI based IBM Watson provides full support for the customer to guide and create new banking account	I can fill the respective details in the respective field.	High	Sprint-1
	Support		Customer support is also mentioned for describing important issue faced by the customer.	I can get the detailed solution for the queries	Medium	Sprint-1
Administrator	Verification		Administrator can completely verify the submitted application.	I can get verified for application.	High	Sprint-1

5. PROJECT PLANNING & SCHEDULING

PROJECT PLANNING & ESTIMATION

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Savings Account Related Actions	USN-1	As a user, in the Savings Account option, I can select Types of Savings Account to get details regarding documents required for creating that savings account.	4	High	LAKSHMI PRIYA.S
Sprint-1		USN-2	As a user, I can check the Interest Rates of Savings Account	4	High	RAGASUTHA.S. P
Sprint-1		USN-3	As a user, I can check the Minimum Balance of Savings Account	3	Medium	LAKSHMI PRIYA.S
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	SHANMUGA PRIYA PRIYADHARSHINI
Sprint-1		USN-5	As a user, I want to get details on procedure to close my Current Account	4	High	SHANMUGA PRIYA PRIYADHARSHINI
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	PRIYADHARSHINI
Sprint-2		USN-7	As a user, I can check the Loan Amounts that can be offered for corresponding Loan Accounts chosen	3	High	SHANMUGA PRIYA
Sprint-2		USN-8	As a user, I can check the Status of Loan for my Loan Accounts	1	Low	LAKSHMI PRIYA.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	SHANMUGA PRIYA

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
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	PRIYADHARSHINI
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	LAKSHMI PRIYA.S
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	RAGASUTHA.S. P
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	SHANMUGA PRIYA
Sprint-2		USN-14	As a user, I want to get the procedure details for adding beneficiaries to my net banking account.	2	Medium	PRIYADHARSHINI
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	LAKSHMI PRIYA.S
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	RAGASUTHA.S. P

SPRINT DELIVERY SCHEDULE

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

REPORTS FROM JIRA
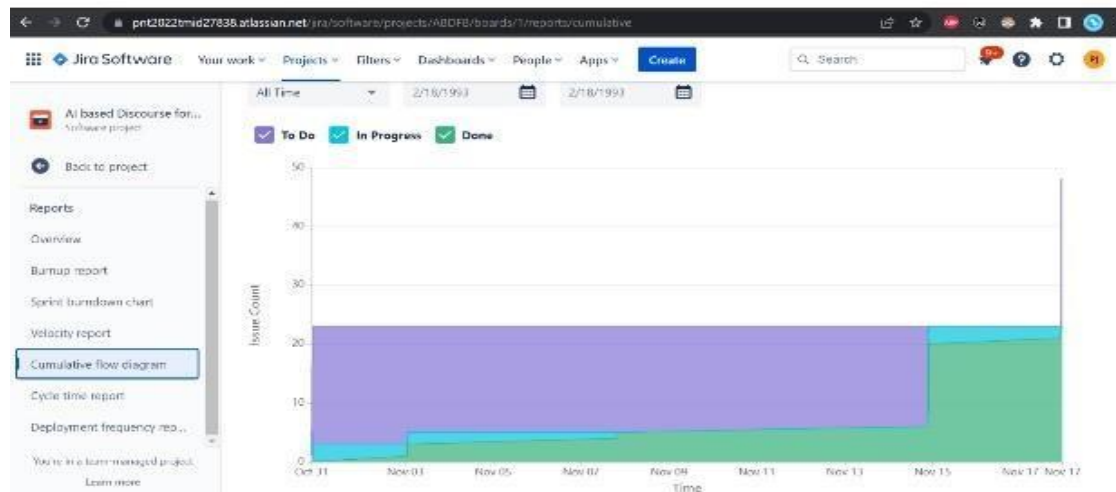
6.CODING & SOLUTIONING

FEATURE 1

CREATING CHATBOT & INTEGRATE WITH FLASK WEB PAGE

Importing Libraries

```
from flask import Flask, render_template
```

Importing the flask module into the project is mandatory. An object of the Flask class is our WSGI application. Flask constructor takes the name of the current module (_name_).

Creating our flask application and loading

```
app = Flask(__name__)
```

Routing to the Html Page

Here, the declared constructor is used to route to the HTML page created earlier.

The '/' route is bound with the bot function. Hence, when the home page of a web server is opened in the browser, the HTML page will be rendered.

```
@app.route('/')
def bot():
    return render_template('chatbot.html')
```

Main Function

This is used to run the application in localhost.

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

FEATURE 2

AUTO GENERATED SOURCE CODE IS COPIED FROM IBM WATSON'S ASSISTANT AND PLACE INSIDE BODY TAG.

```
<script>
            window.watsonAssistantChatOptions = {
             integrationID: "ee5f1f2d-b3b8-46e1-8bae-7b717fca68e4", // The ID of this
        integration.
              region: "us-south", // The region your integration is hosted in.
              serviceInstanceID: "bcc8994a-87d9-419c-9749-73689e7b11ef", // 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>
```

Through this code, the created CHATBOT with the functionalities,

- Savings Account Action
- Current Account Action
- Loan Account Action
- Net Banking Action
- General Query Action can be achieved.
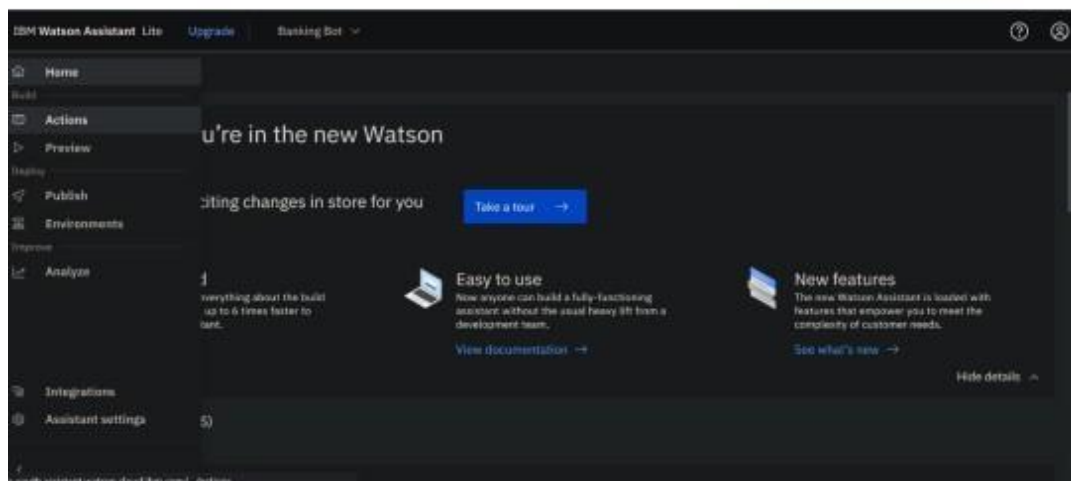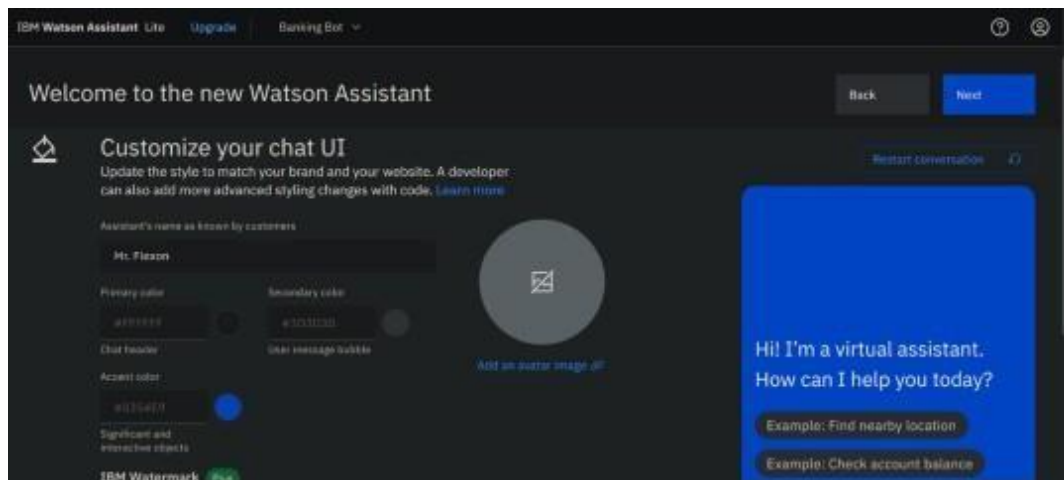
6. TESTING

TEST CASES

		Test Scenarios
		Test Scenarios
	1	Verify user is able to open and view chatbot UI
	2	Verify user is able to interact with chatbot or not
	3	Verify chatbot is able to respond to user queries immediately
	4	Verify chatbot is able to provide options for user to choose various choices
		Savings Account Related Actions
	1	Verify user is able to select type of savings account
	2	Verify user is able to know the procedure to create savings account for selected type
	3	Verify user is check the minimum balance
	4	Verify user is able to find interest rate
		Current Account Related Actions
	1	Verify user is able to select type of company
	2	Verify user is able to know the procedure to create current account for selected type
	3	Verify user is able to know about zero balance current account
	4	Verify user is able to know the procedure to close current account
		Loan Account Related Actions
	1	Verify user is able to choose options for selecting type of available loan policies
	2	Verify user is able to know about available loan amounts
	3	Verify user is able to check the loan status
	4	Verify user is able to know about joint loan
		General Query Related Actions
	1	Verify user is able to know about bank working days
	2	Verify user is able to know about list of branches
	3	Verify user is able to find the nearest branch
	4	Verify user is able to know about storage locker facility
	5	Verify user is able to know about currency conversion facility

USER ACCEPTANCE TESTING

1. Purpose of Document

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

2. Defect Analysis

This report shows the number of resolved or closed bugs at each severity level, and how they were resolved

Section	Total Cases	Not Tested	Fail	Pass
Print Engine	1	0	0	1
Client Application	1	0	0	1
Security	1	0	0	1

Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
By Design	1	0	0	0	1
Duplicate	3	1	0	1	5
External	1	3	0	1	5
Fixed	2	5	3	2	12
Not Reproduced	0	0	0	1	1
Skipped	0	0	0	0	0
Won't Fix	0	0	0	0	0
Totals	7	9	3	5	24

3. Test Case Analysis

This report shows the number of test cases that have passed, failed, and untested

Outsource Shipping	0	0	0	0
Exception Reporting	1	0	0	1
Final Report Output	1	0	0	1
Version Control	1	0	0	1

7. RESULTS

PERFORMACE METRICS

Model Performance Testing

S.No.	Parameter	Values	Screenshot
1	MODEL SUMMARY	The chatbot is used by the user to interact and select queries that are populated based on frequently asked question of banking customers. There can be multiple instances of a single chatbot inquiring different user at the same time. It quickly responds with expected answers to frequently asked customer queries. It can be scaled as per the requirements of the bank to include answers to queries related to any new feature or service introduced by the bank.	
2.	ACCURACY	Training Accuracy – 100% Validation Accuracy – 100%	

8. ADVANTAGES AND DISADVANTAGES

ADVANTAGES

1. Round-the-clock support: Chatbots provide 24/7 client support, so existing and potential customers can try and solve their banking problems after work hours and on weekends. This ultimately also leads to better customer experience.

2. Enhanced productivity of bank personnel: Not all clients' problems require the help of a staff member. Artificial intelligence may successfully deal with minor issues leaving only the most urgent and complicated cases for the human approach.

3. More convenient mode of communication: Chatbots may combine various functionalities that would make them convenient for customers of different age groups.

DISADVANTAGES

1. Internet Issues: Chatbots will not work without the internet. If there is a network problem, chatbots may stop working and will not respond to client queries.

2. Requirement of technical knowledge: Users who make use of chatbots must know how to use chatbots. Otherwise, it is difficult to do interaction with chatbot.

3. Providing unexpected answers: Chatbots in some cases may get confused due to prolonged user inputs and may provide irrelevant answers.

4. Inability to interpret multiple queries: Chatbots can't understand multiple questions at a time if a user continuously posts queries to it. So it is necessary for a user to post queries one-by-one.

11. CONCLUSION

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

12. FUTURE SCOPE

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

1. Bots for Internal Business Communications

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

2. Content Marketing

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

3. Social Media

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

4. Use of AI in contact centres

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

14. APPENDIX

SOURCE CODE

app.py

```python
from flask
import Flask,
render_template

app = Flask(__name__)

@app.route('/')
def bot():
    return render_template('chatbot.html')


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

chatbot.html

```html
<!DOCTYPE
html>
<html lang="en">
<head>
    <title>AI BASED DISCOURSE FOR BANKING INDUSTRY</title>
    <link rel="stylesheet" href="{{ url_for('static',
filename='style.css') }}">
</head>
<body>

    <div class="main">
        <div class="navbar">
            <div class="icon">
                <h2 class="logo">BankingBot</h2>
            </div>

            <div class="menu">
                <ul>
                    <li><a href="#">HOME</a></li>
```

```html
                    <li><a href="#">ACCOUNTS</a></li>
                    <li><a href="#">SERVICE</a></li>
                    <li><a href="#">CONTACT</a></li>
                    <li><a href="#">ABOUT</a></li>
                </ul>
            </div>

            <div class="search">
                <input class="srch" type="search" name="" placeholder="Type
To text">
                <a href="#"> <button class="btn">Search</button></a>
            </div>

        </div>
        <div class="content">
            <h1>AI Based Discourse for <br><span>Banking</span>
<br>Industry</h1>
            <p class="par">- Project Nalaiya Thiran 2022 <br> TEAM ID:
PNT2022TMID46529  <br> TEAM MEMBERS:<br> <B>     SHANMUGA PRIYA RK<br>
LAKSHMI PRIYA S<br>PRIYADHARSHINI K<br>  RAGASUTHA SP </B></p>

                <button class="cn"><a href="#">JOIN US</a></button>

                <div class="form">
                    <h2>Login Here</h2>
                    <input type="email" name="email" placeholder="Enter
Email Here">
                    <input type="password" name="" placeholder="Enter
Password Here">
                    <button class="btnn"><a href="#">Login</a></button>

                    <p class="link">Don't have an account<br>
                    <a href="#">Sign up </a> here</a></p>
                    <p class="liw">Log in with</p>

                    <div class="icons">
                        <a href="#"><ion-icon name="logo-facebook"></ion-
icon></a>
                        <a href="#"><ion-icon name="logo-instagram"></ion-
icon></a>
                        <a href="#"><ion-icon name="logo-twitter"></ion-
icon></a>
                        <a href="#"><ion-icon name="logo-google"></ion-
icon></a>
                        <a href="#"><ion-icon name="logo-skype"></ion-
icon></a>
```

```html
                </div>

            </div>
                </div>
            </div>
        </div>
    </div>
    <script
src="https://unpkg.com/ionicons@5.4.0/dist/ionicons.js"></script>
    <script>
        window.watsonAssistantChatOptions = {
            integrationID: "ee5f1f2d-b3b8-46e1-8bae-7b717fca68e4", // The ID
of this integration.
            region: "us-south", // The region your integration is hosted in.
            serviceInstanceID: "bcc8994a-87d9-419c-9749-73689e7b11ef", // 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>
```

style.css

```css
*{
    margin: 0;
    padding: 0;
}

.main{
    width: 100%;
    background: linear-gradient(to top, rgba(0,0,0,0.5)50%,rgba(0,0,0,0.5)50%),
url("https://raw.githubusercontent.com/IBM-EPBL/IBM-Project-15624-
1659601914/306206e5873938cd7be1bc520315bf7b5a909bab/Project%20Development%20Phase
/Sprint%203/display.jpg");
```

```css
        background-position: center;
        background-size: contain;
        height: 100vh;
        filter: brightness(1.5);
    }

    .navbar{
        width: 1200px;
        height: 75px;
        margin: auto;
    }

    .icon{
        width: 200px;
        float: left;
        height: 70px;
    }

    .logo{
        color: #fff;
        font-size: 35px;
        font-family: Arial;
        padding-left: 20px;
        float: left;
        padding-top: 10px;
        margin-top: 5px
    }

    .menu{
        width: 400px;
        float: left;
        height: 70px;
    }

    ul{
        float: left;
        display: flex;
        justify-content: center;
        align-items: center;
    }

    ul li{
        list-style: none;
        margin-left: 62px;
        margin-top: 27px;
        font-size: 14px;
```

```css
}

ul li a{
    text-decoration: none;
    color: #fff;
    font-family: Arial;
    font-weight: bold;
    transition: 0.4s ease-in-out;
}

ul li a:hover{
    color: #ff7200;
}

.search{
    width: 330px;
    float: left;
    margin-left: 270px;
}

.srch{
    font-family: 'Times New Roman';
    width: 200px;
    height: 40px;
    background: transparent;
    border: 1px solid #ff7200;
    margin-top: 13px;
    color: #fff;
    border-right: none;
    font-size: 16px;
    float: left;
    padding: 10px;
    border-bottom-left-radius: 5px;
    border-top-left-radius: 5px;
}

.btn{
    width: 100px;
    height: 40px;
    background: #ff7200;
    border: 2px solid #ff7200;
    margin-top: 13px;
    color: #fff;
    font-size: 15px;
     border-bottom-right-radius: 5px;
     border-bottom-right-radius: 5px;
```

```css
        transition: 0.2s ease;
        cursor: pointer;
    }
    .btn:hover{
        color: #000;
    }

    .btn:focus{
        outline: none;
    }

    .srch:focus{
        outline: none;
    }

    .content{
        width: 1200px;
        height: auto;
        margin: auto;
        color: #fff;
        position: relative;
    }

    .content .par{
        padding-left: 20px;
        padding-bottom: 25px;
        font-family: Arial;
        letter-spacing: 1.2px;
        line-height: 30px;
    }

    .content h1{
        font-family: 'Times New Roman';
        font-size: 50px;
        padding-left: 20px;
        margin-top: 9%;
        letter-spacing: 2px;
    }

    .content .cn{
        width: 160px;
        height: 40px;
        background: #ff7200;
        border: none;
        margin-bottom: 10px;
        margin-left: 20px;
```

```css
        font-size: 18px;
        border-radius: 10px;
        cursor: pointer;
        transition: .4s ease;

}

.content .cn a{
        text-decoration: none;
        color: #000;
        transition: .3s ease;
}

.cn:hover{
        background-color: #fff;
}

.content span{
        color: #ff7200;
        font-size: 65px
}

.form{
        width: 250px;
        height: 380px;
        background: linear-gradient(to top, rgba(0,0,0,0.8)50%,rgba(0,0,0,0.8)50%);
        position: absolute;
        top: -20px;
        left: 870px;
        transform: translate(0%,-5%);
        border-radius: 10px;
        padding: 25px;
}

.form h2{
        width: 220px;
        font-family: sans-serif;
        text-align: center;
        color: #ff7200;
        font-size: 22px;
        background-color: #fff;
        border-radius: 10px;
        margin: 2px;
        padding: 8px;
}
```

```css
.form input{
    width: 240px;
    height: 35px;
    background: transparent;
    border-bottom: 1px solid #ff7200;
    border-top: none;
    border-right: none;
    border-left: none;
    color: #fff;
    font-size: 15px;
    letter-spacing: 1px;
    margin-top: 30px;
    font-family: sans-serif;
}

.form input:focus{
    outline: none;
}

::placeholder{
    color: #fff;
    font-family: Arial;
}

.btnn{
    width: 240px;
    height: 40px;
    background: #ff7200;
    border: none;
    margin-top: 30px;
    font-size: 18px;
    border-radius: 10px;
    cursor: pointer;
    color: #fff;
    transition: 0.4s ease;
}
.btnn:hover{
    background: #fff;
    color: #ff7200;
}
.btnn a{
    text-decoration: none;
    color: #000;
    font-weight: bold;
}
.form .link{
```
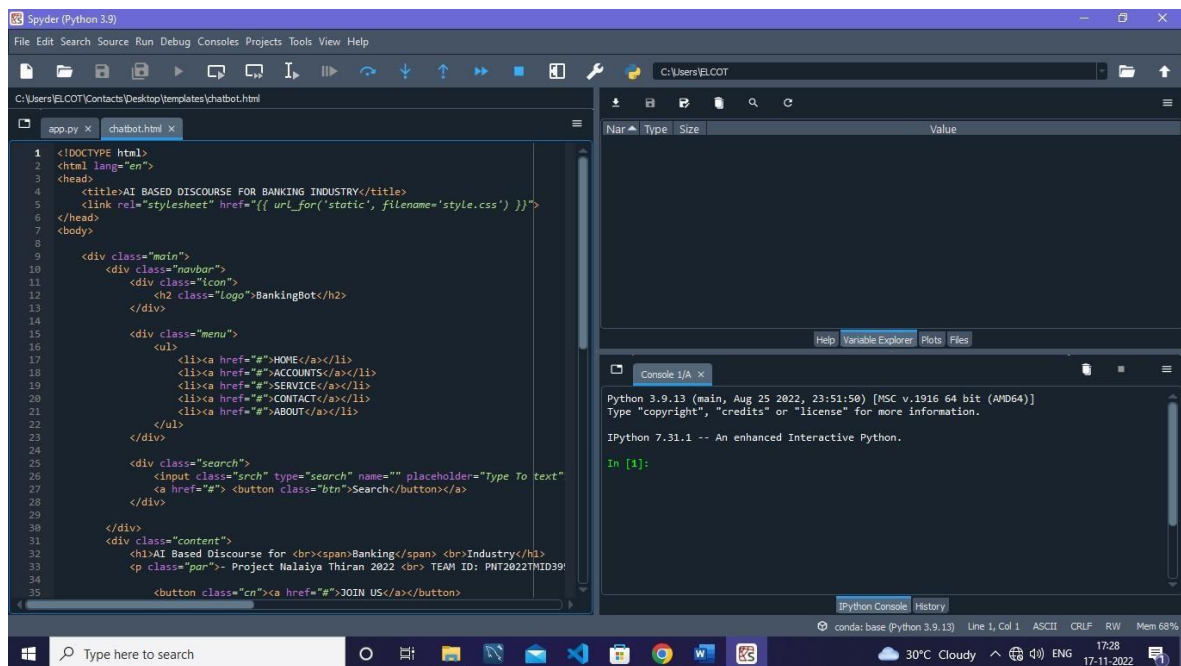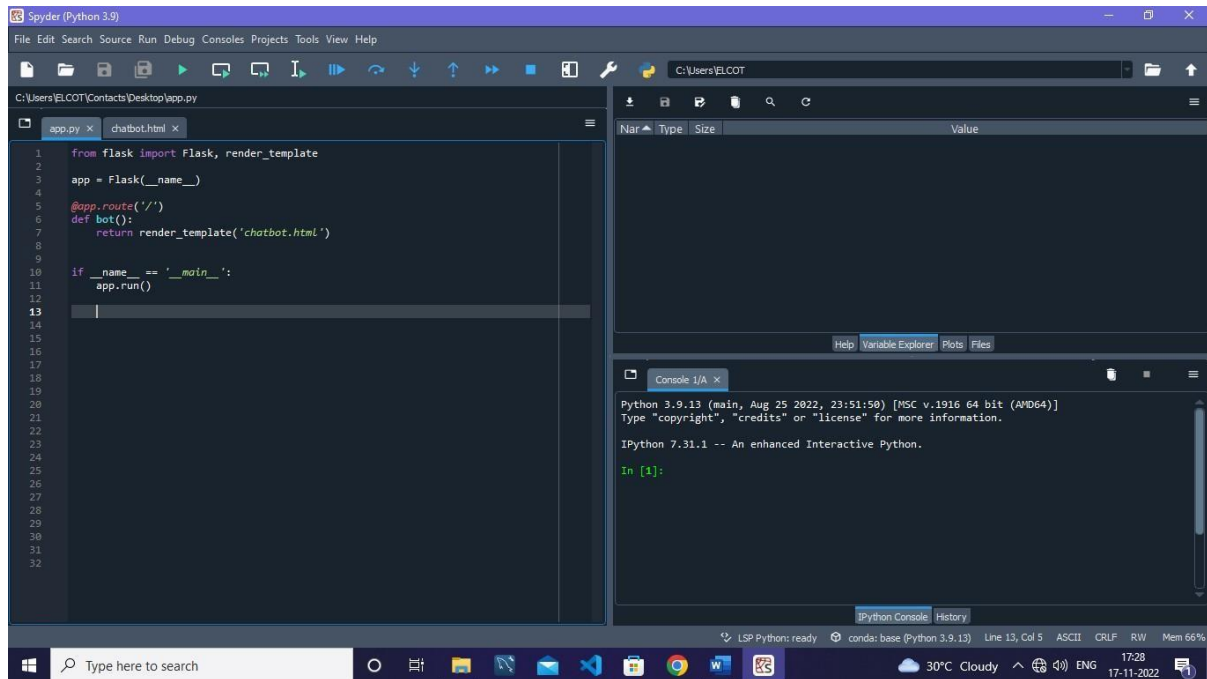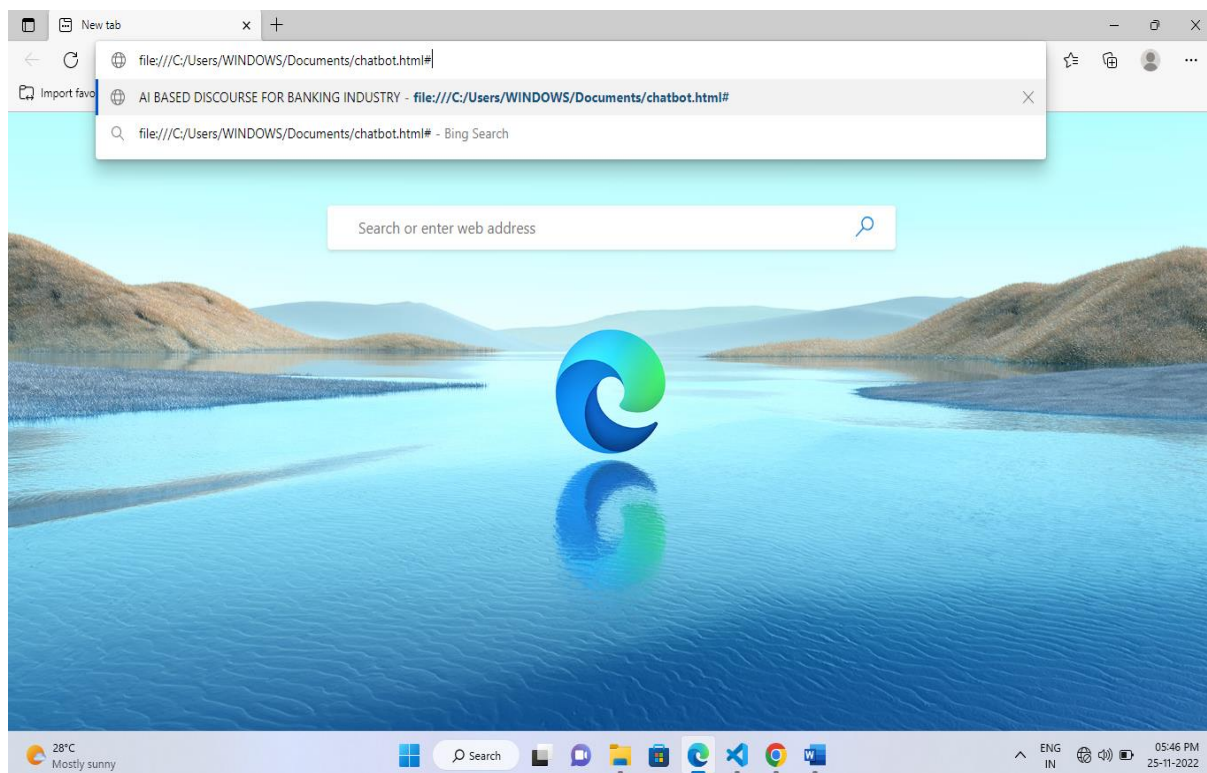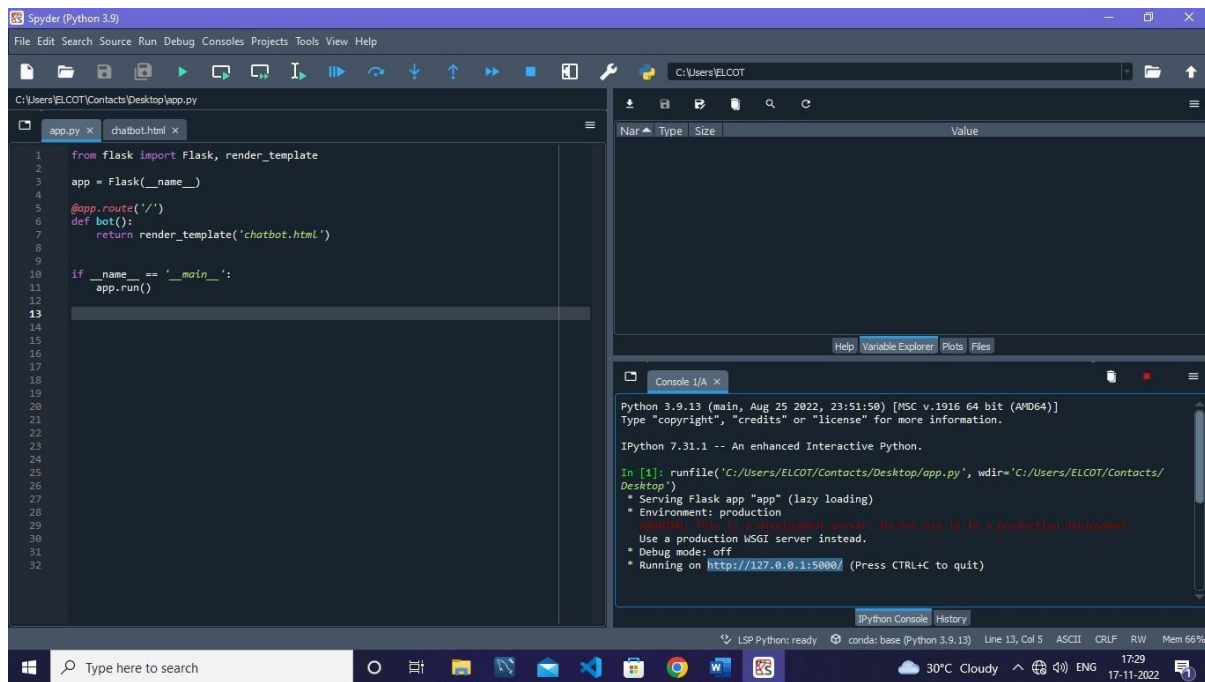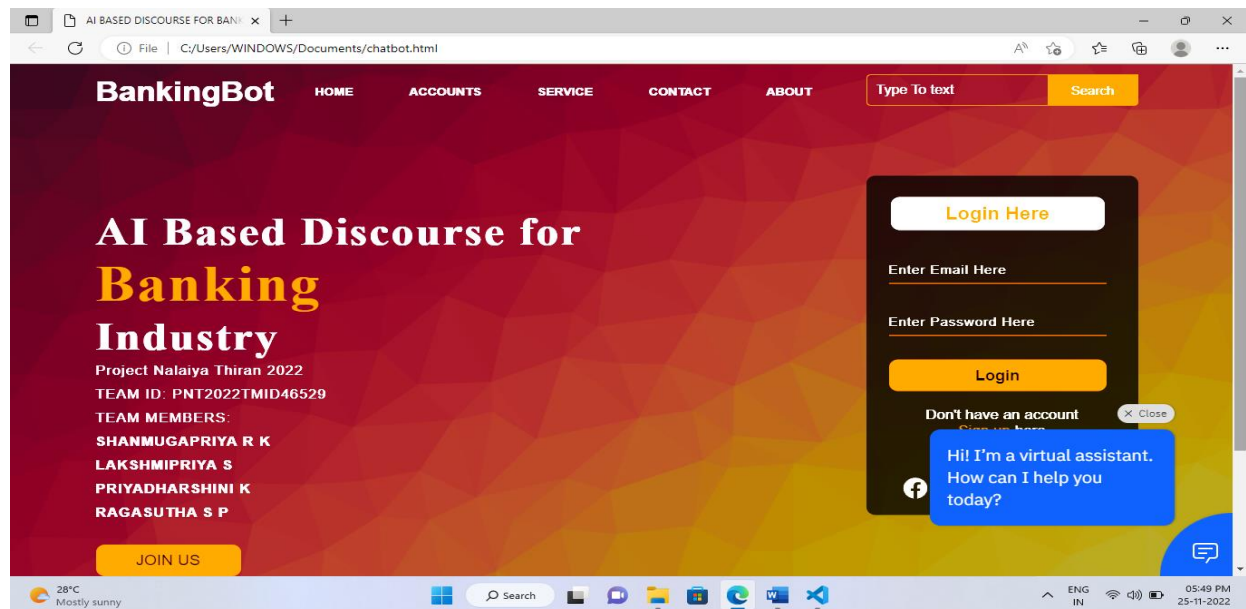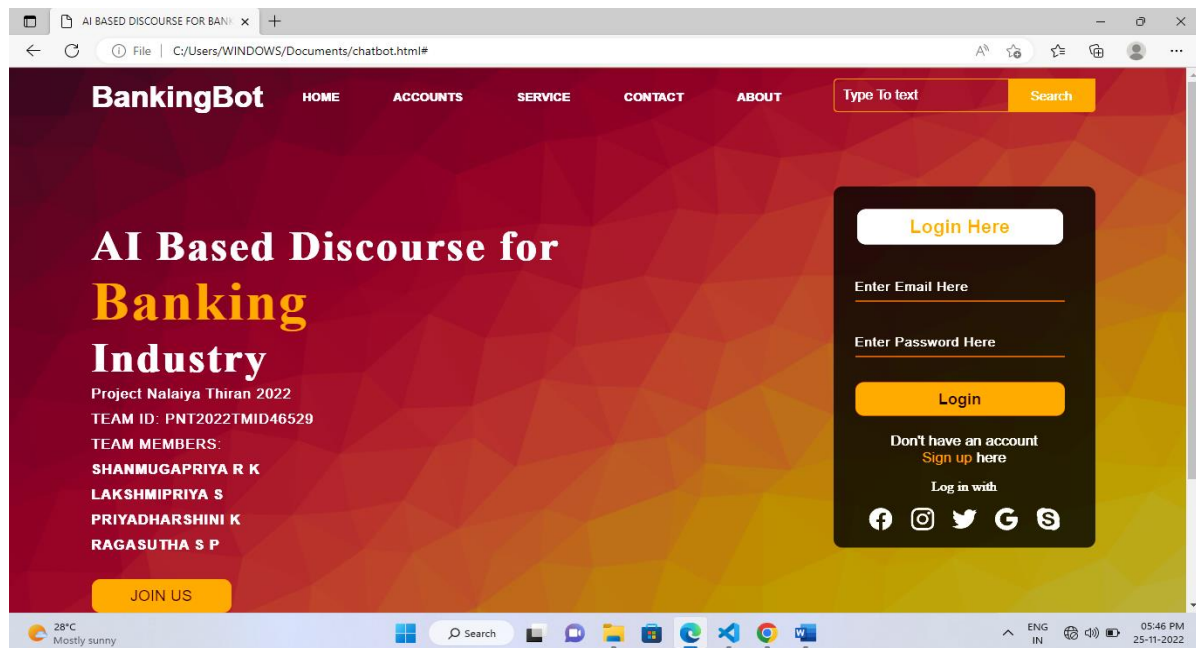
```css
        font-family: Arial, Helvetica, sans-serif;
        font-size: 17px;
        padding-top: 20px;
        text-align: center;
}
.form .link a{
        text-decoration: none;
        color: #ff7200;
}
.liw{
        padding-top: 15px;
        padding-bottom: 10px;
        text-align: center;
}
.icons a{
        text-decoration: none;
        color: #fff;
}
.icons ion-icon{
        color: #fff;
        font-size: 30px;
        padding-left: 14px;
        padding-top: 5px;
        transition: 0.3s ease;
}
.icons ion-icon:hover{
        color: #ff7200;
}
```

OUTPUT SCREENSHOTS

Spyder (Python 3.9)

File Edit Search Source Run Debug Consoles Projects Tools View Help

C:\Users\ELCOT\Contacts\Desktop\app.py

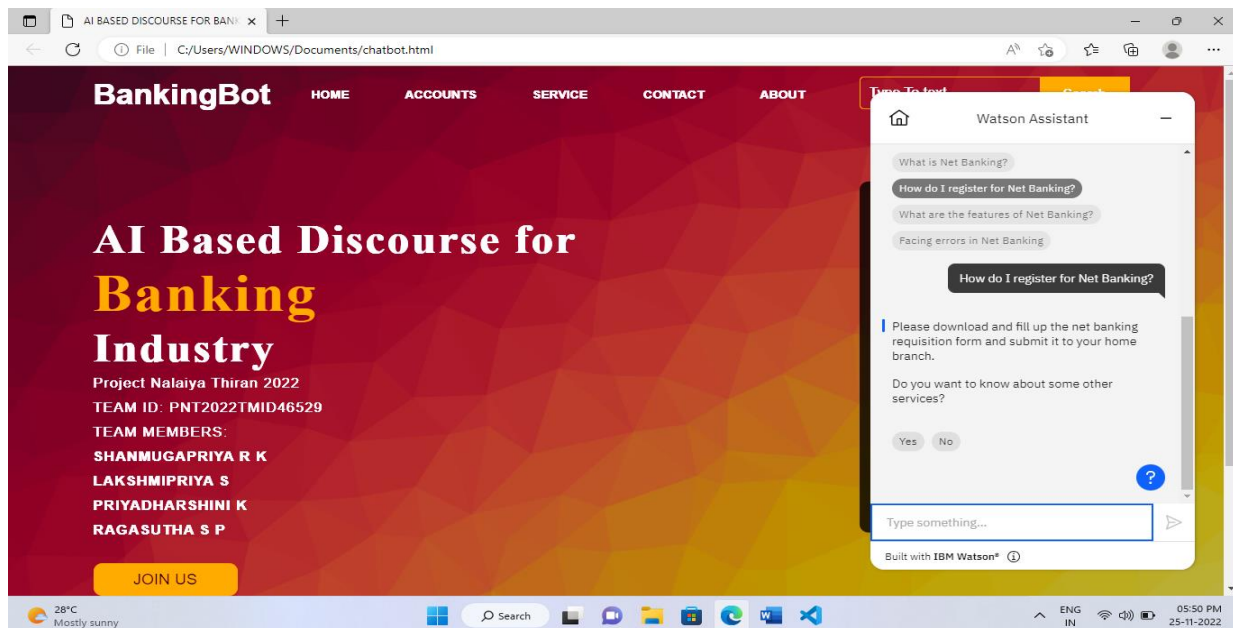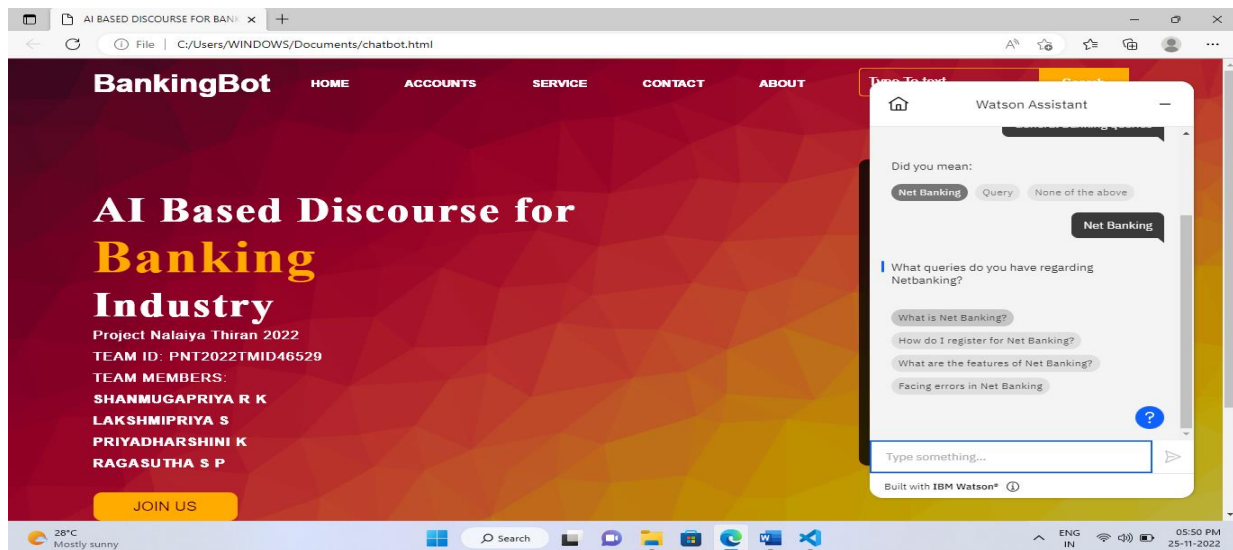app.py   chatbot.html

```python
from flask import Flask, render_template

app = Flask(__name__)

@app.route('/')
def bot():
    return render_template('chatbot.html')


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

```
Python 3.9.13 (main, Aug 25 2022, 23:51:50) [MSC v.1916 64 bit (AMD64)]
Type "copyright", "credits" or "license" for more information.

IPython 7.31.1 -- An enhanced Interactive Python.

In [1]: runfile('C:/Users/ELCOT/Contacts/Desktop/app.py', wdir='C:/Users/ELCOT/Contacts/
Desktop')
 * Serving Flask app "app" (lazy loading)
 * 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)
```


New tab

file:///C:/Users/WINDOWS/Documents/chatbot.html#

AI BASED DISCOURSE FOR BANKING INDUSTRY - file:///C:/Users/WINDOWS/Documents/chatbot.html#

file:///C:/Users/WINDOWS/Documents/chatbot.html# - Bing Search

Search or enter web address

GITHUB LINK

https://github.com/IBM-EPBL/IBM-Project-18399-1664280304