

PROJECT REPORT

AI BASED DISCOURSE FOR BANKING INDUSTRY

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TIRUPUR-638 108

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1. INTRODUCTION

1.1. Overview

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

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

1.2. Purpose

Chatbots are designed to give people an automated way to communicate with your company. They may answer basic questions, make product recommendations, and provide customer support designed to allow humans and computers to connect in a natural way. Over the last few years, these technologies have become more intelligent, and they have become one of the most potent tools for getting things done in a modern office setting.

2. LITERATURE SURVEY

2.1. Existing problem

Chatbots are intelligent conversational computer systems designed to mimic human conversation to enable automated online guidance and support. The increased benefits of chatbots led to their wide adoption by many industries in order to provide virtual assistance to customers. Chatbots utilize methods and algorithms from two Artificial Intelligence domains: Natural Language Processing and Machine Learning. However, there are many challenges and limitations in their application. In this survey we review recent advances on chatbots, where Artificial Intelligence and Natural Language processing are used. We highlight the main challenges and limitations of current work and make recommendations for future research investigation.

2.2 References

1.IEEE 46 Annual COMPSAC Computers, Software and Application Conference by Jordi chabot on 2022 with the method of A chatbot system for multidimensional datasets. It desire full fledged chatbots from API based open data sources maintained the accuracy On the scale of 1 to 5 the precision is 4.37

2.ACM/SIGAPP on Applied computing by Maria Helena Franciscatto On 2022 with the accuracy Model driven engineering for bot applications. It is a querying multidimensional bigdata through a chatbot systems maintained the 84.27%

3.SSRN Paper By Abhay chopde On 2022 Chatbot using deep learning. The data is learned and processed using a neural of all network layered with multilayers maintained the accuracy Precision is 0.2 from out profiles.

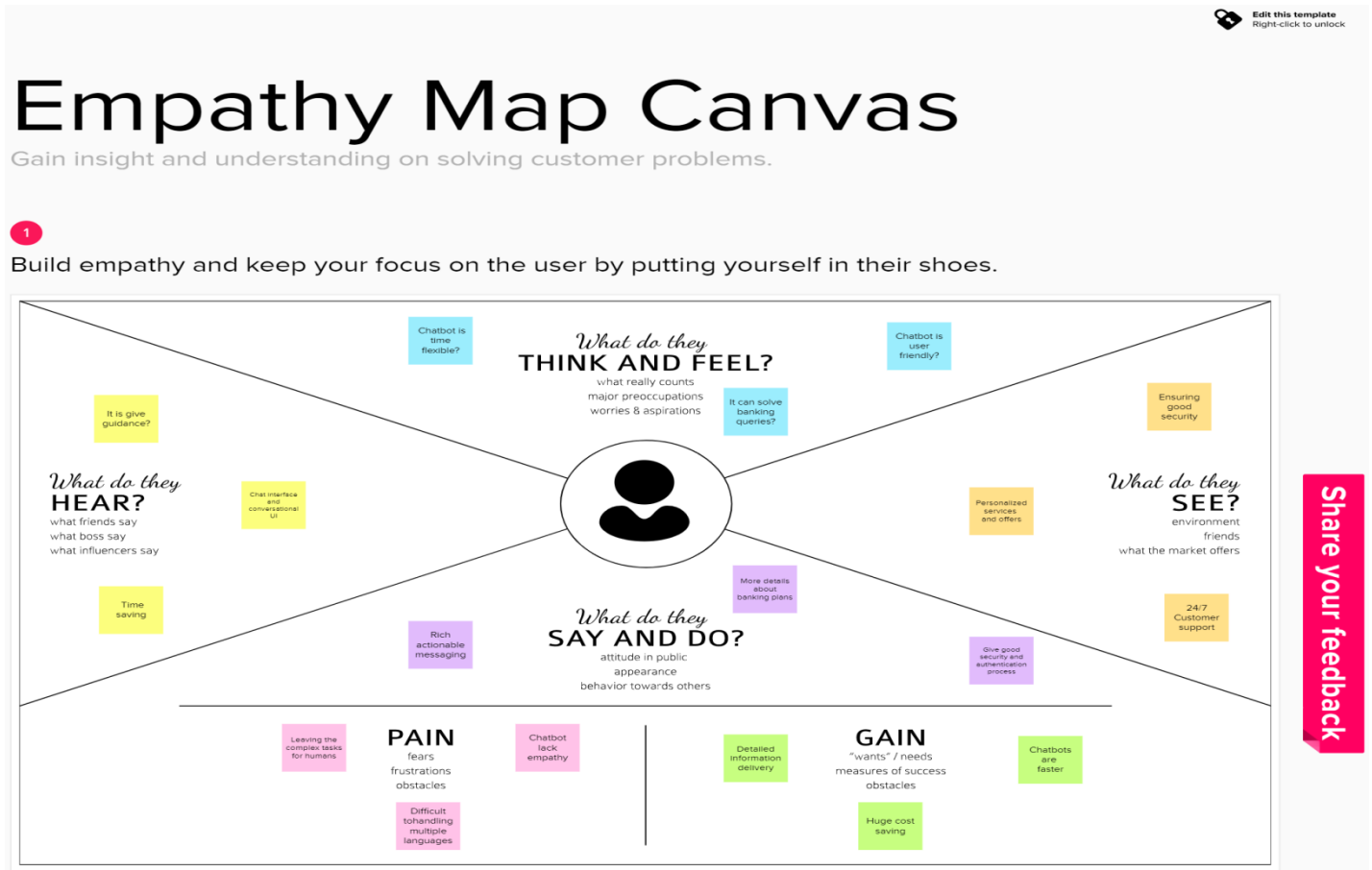
4.NLP for building Educational Applications Association for computational Linguistics by Gladys Tyen on 2022 with the method of Towards an open domain chatbot for language practice and an open domain text system for chit-chat which allow learners to practice chatting in any topic they choose maintained accuracy 93.26%

2.3.Problem statement definition

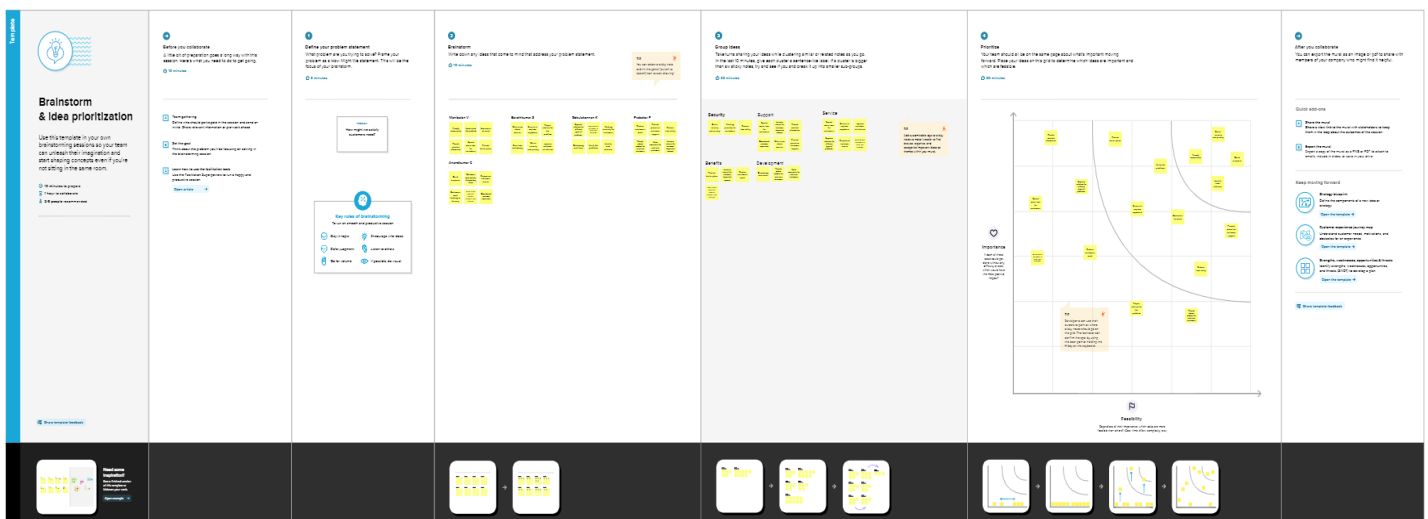
PROBLEM	DESCRIPTION
When does the problem affects?	Illiterate or old people or people who are new to banking environment
What is the issue?	Customers who are not having the awareness of Banking Services.
What are the boundaries of the problem?	Customers of Banking Sectors, Banking Sectors
When does the issues occurs?	<p>In today's busy world people cannot wait for long hours in order to do basic Banking services.</p> <p>Therefore, AI chatbots can help the customers to work quickly and smartly without any fear and worry.</p> <p>Human errors can also be avoided.</p> <p>Even the people can use the banking services easily in comfort for their native languages.</p>

3. IDEATION and PROPOSED SOLUTION

3.1 Empathy Map Canvas



3.2 Ideation & Brainstorming



3.3 Proposed Solution

Proposed Solution Template:

Project team shall fill the following information in the proposed solution template.

S.No	Parameter	Description
1.	Problem Statement (Problem to be solved)	In chatbot to avoid the language barriers for the user/customers who can ask bank related questions like to create a bank account, able to answer loan queries, able to answer general banking queries, and also able to answer queries regarding net banking.
2.	Idea / Solution description	To avoid the language barriers, we can create a Chatbot that can respond according to the user/customers languages all over the world.
3.	Novelty / Uniqueness	-create a virtual keyboard with popular and continental languages. -automated smart responses and achieve marketing goals efficiently. -Handling more unique and complex queries. - Connect people globally due to its versatility with multiple languages.

3.4 Problem Solution fit

Project Title: AI based discourse for Banking Industry

Project Design Phase-I - Solution Fit

Team ID: PNT2022TMID44248

Define CS, fit into CC	1. CUSTOMER SEGMENT(S) CS - Bank account holders	6. CUSTOMER CONSTRAINTS CC - Good Internet connectivity - Basic knowledge of using mobile or PC - User should be able to understand English - The probability of occurrence of clerical errors while typing is high - The user should be able to covert his doubts into queries understandable to chat bot	5. AVAILABLE SOLUTIONS AS - EVA: For customers of HDFC Bank, EVA (Electronic Virtual Assistant) is an AI-powered banking assistant. EVA offers assistance with loan and interest rate info., branch addresses, IFSC codes,&other things. - KEYA: Kotak Mahindra Bank's banking assistant. It is integrated with Kotak's phone-banking help line, & therefore it has augmented the traditional interactive voice response (IVR) system.	Explore AS, differentiate
	2. JOBS-TO-BE-DONE / PROBLEMS J&P - Customers need to have the basic knowledge of using Computer - Customers of different native language must have basic knowledge of English - Customers need to have good Internet connection for faster response	9. PROBLEM ROOT CAUSE RC Conversational Banking is a smarter way to retain loyal customers by offering a quick response to their queries. But the problem is to train the employees to get absolute knowledge to answer every query and having good skills of handling customers. Even if there is an employee with knowledge & soft skills answering queries may affect their productive time. Moreover the employees can't provide 24*7 secure, reliable and personalized service.	7. BEHAVIOUR BE - The customers have to type the query to the chatbot. - The customers need to login to the website for getting personalized service. - The customers of the bank may need to submit some forms, certificates in the bank.	
Identify strong TR & EM	3. TRIGGERS TR - Most of the customers of the bank has lots of question but may hesitate to ask the employee - Its an overhead to appoint a staff to address queries - For simple queries the users need not to go to bank	10. YOUR SOLUTION SL The solution that we have designed it to develop an chat bot that utilizes the AI of IBM watsonassistant to provide a better & user friendly chat botthat could address ● General and net banking query ● Loan and Insurance query ● Guidance for account creation The chat bot is supposed to be integrated with a flask web page which is the official web site of that bank.	8. CHANNELS of BEHAVIOUR CH 8.1 ONLINE - The customers have to login and use the web site for accessing the web page. 8.2 OFFLINE - The customers may be asked to submit some forms or certificates in the bank in-person for verification	Identify strong TR & EM
	4. EMOTIONS: BEFORE / AFTER EM - Clueless > Aware e.g. : The new user may not have idea about creation of bank account and its pros and cons. Thus the chat bot helps to understand and guide him in creation process - Dubious > Decisive e.g. : The user may have lot of queries about loan, insurance etc. The chat bot address the queries and make their doubt clarified			

4. REQUIREMENT ANALYSIS

4.1 Functional requirement

Functional Requirements:

Following are the functional requirements of the proposed solution.

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	Greeting	The MIS Assistant needs the capability to accurately tell time so as it greets users appropriately.
FR-4	Help support	1.It should also have predefined questions and keywords with their expected answers. 2.The MIS Assistant needs the ability to quickly and accurately look up the question from its templates.
FR-5	Set Remainder	The MIS Assistant needs the ability to save and display reminders as requested by the users of the system.
FR-6	Announcement	This chatbot needs the capability of broadcasting a message to all users.
FR-7	Events	This chatbot needs the capability of retrieving and displaying events for a system

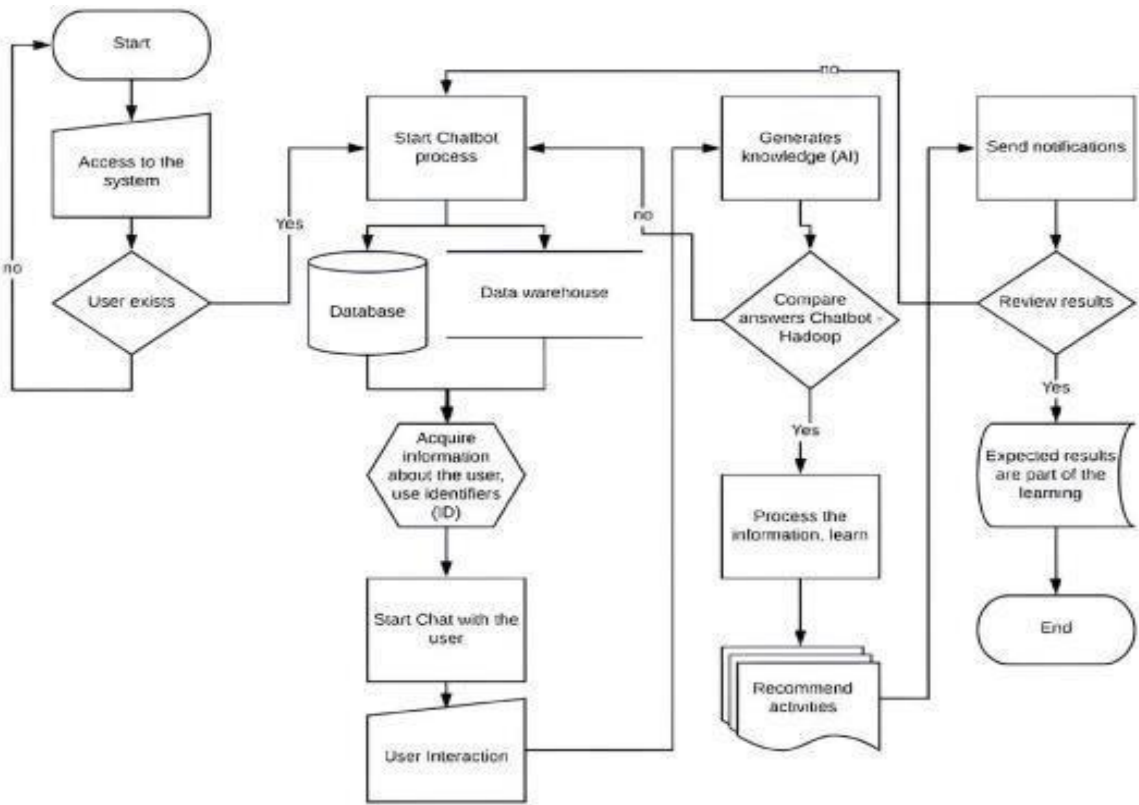
4.2 Non-Functional requirements

Web application is a software or application that can be accessed through the internet using multiple web browsers. Sometimes people think website and web applications are same but actually not in website client can only read the context of the page he has no ability to change the data of the page but in web application user can read and change the data as well Chatbot is a system in web application that is a computer program which is enabled with artificial intelligence technology to do conversation via voice or text methods. The artificially intelligent system is designed in such a way that it will answer the query in a way like a human does. The AI gives the chatbox system to reach the next stage. The advances of Artificial Intelligence improved to the place where chatbots can not only perform the dialogue with people but also they can perform the task which are necessary for us.

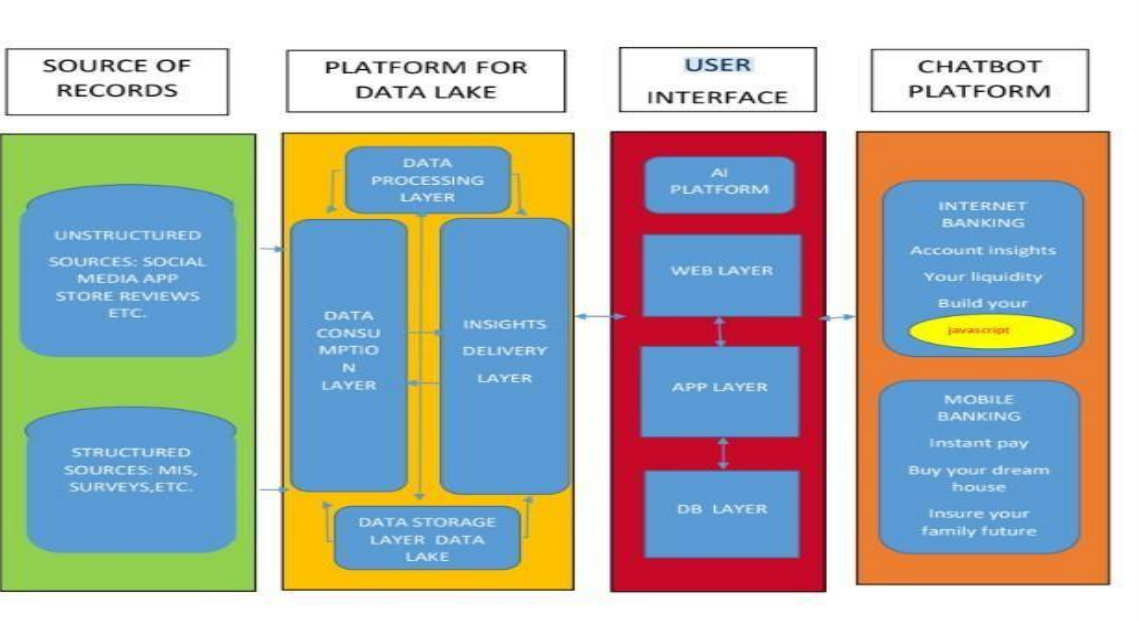
In the field of software engineering requirements are needed at first. Similarly to build a web application some requirements are needed which are categorized into two parts, functional requirements and non functional requirements Non-functional requirements deal with any software that how should this software work. In this paper we discuss about the non-functional requirements of web application based on chatbot. We will discuss various non-functional requirements such as:Accuracy permannence security based on chatbot. To build a software or to build a web application it is necessary to focus on the requirements. Otherwise the web application can't give the client satisfaction. For that the software or the web application can't improve itself So it is the must discussed topic to focus on the requirements.

5. PROJECT DESIGN

5.1 Data Flow Diagrams



5.2 Solution & Technical Architecture



5.3 User Stories

User stories are a vital tool in the design and testing of chatbots. They are stories about fictional users, what they want, and how they will interact with your bot. When we create a user story, it needs to be as close to a real user as possible. They should be based on a real user or the type of user that would be using your chatbot. If you have existing customers that you are wanting to target your chatbot toward then you can create data-driven user stories.

6. PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning & Estimation

Sprint is a part of the Scrum framework. In Scrum, large projects are broken down into a series of iterations of smaller manageable bits that teams can handle. These iterations are called sprints. A Sprint is a time-boxed period during which a Scrum team must complete an amount of work. Sprints are pivotal to the Scrum framework, and companies can help teams produce high-quality software faster and more frequently if they get them right. Furthermore, when teams work in Sprints, they enjoy more flexibility and become more adaptable. Manage project status, plan sprints, and create insightful reports to drive data-driven decisions in Gmail with the Gmail extension.

6.2 Sprint Delivery Schedule

Sprint planning is an event in scrum that kicks off the sprint. The purpose of sprint planning is to define what can be delivered in the sprint and how that work will be achieved. Sprint planning is done in collaboration with the whole scrum team. However, before you can leap into action you have to set up the sprint. You need to decide on how long the time box is going to be, the sprint goal, and where you're going to start. The sprint planning session kicks off the sprint by setting the agenda and focus.

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	IBM Watson Assistant Creation	USN-1	As a user, I can register for IBM skills build and create a Watson Assistant Service.	12	High	Manibalan , Gokulakannan
Sprint-1	Action Skills Creation	USN-2	As a user, I can add new action skills to resolve customer queries.	4	High	Prabakar, Anandhakumar
Sprint-1	Savings Account Action	USN-3	As a user, I can get the details of required documents for Regular Savings Account, Kids Savings Account, and Zero-Balance Savings Account.	4	Low	Barathkumar
Sprint-2	Current Account Action	USN-4	As a user, I can get the details of required documents for creating Partnership, Proprietorship Account.	10	Medium	Manibalan, Barathkumar
Sprint-2	Loan Action	USN-5	As a user, I can get the details of required documents for availing gold loan, top-up	10	High	Prabakar

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
			loan, housing loan, vehicle loan from the bank.			Anandhakumar
Sprint-3	General Query Action	USN-6	As a user, I can get resolved for the queries like CIBIL score, storage facilities available in the bank, currency conversion policy, list of branches, nearest branch available.	10	High	Gokulakannan, Prabakar
Sprint-3	Net Banking Action	USN-7	As an user, I can get resolved for the queries like features of net banking, issues regarding net banking, etc.,	10	Medium	Manibalan, Barathkumar
Sprint-4	Building Python code (using Flask framework)	USN-8	As an admin, I make use of the Flask framework to link a html web page.	12	High	Prabakar, Gokulakannan, Anandhakumar
Sprint-4	Building HTML code	USN-9	As an admin, I make use of html to create the web page as a front-end for the application.	6	High	Barathkumar, Gokulakannan
Sprint-4	Executing the application	USN-10	As an admin, I can integrate the chat bot with our web page. As an user, I can interact with the chatbot in the web page.	2	Medium	Manibalan, Anandhakumar

6.3 Reports from JIRA

Sprint burndown

BETA ? ▾

20 points done, 0 points to go

✓ On track



Sprint burndown

BETA ? ▾

20 points done, 0 points to go

✓ On track



Sprint burndown

BETA ? ▾

20 points done, 0 points to go

✓ On track



Sprint burndown

BETA ? ▾

20 points done, 0 points to go

✓ On track

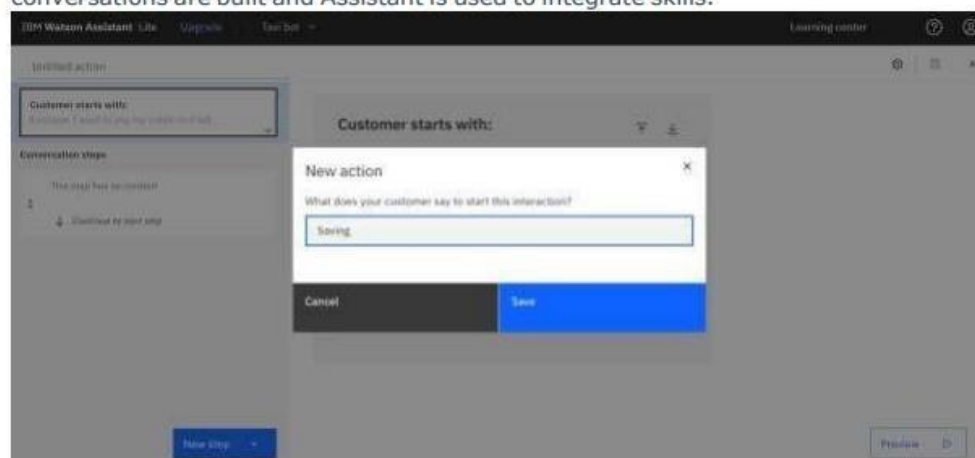


7. CODING & SOLUTIONING

7.1 Feature 1

Creating Skills & Assistant For Chatbot

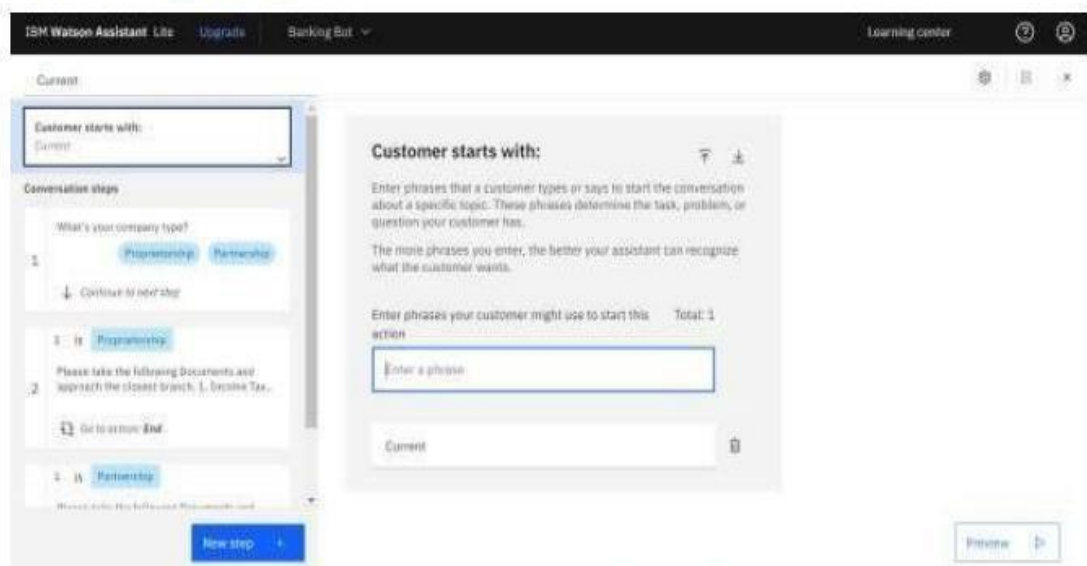
Skills are nothing but actions and steps. Steps are the subset of actions where conversations are built and Assistant is used to integrate skills.



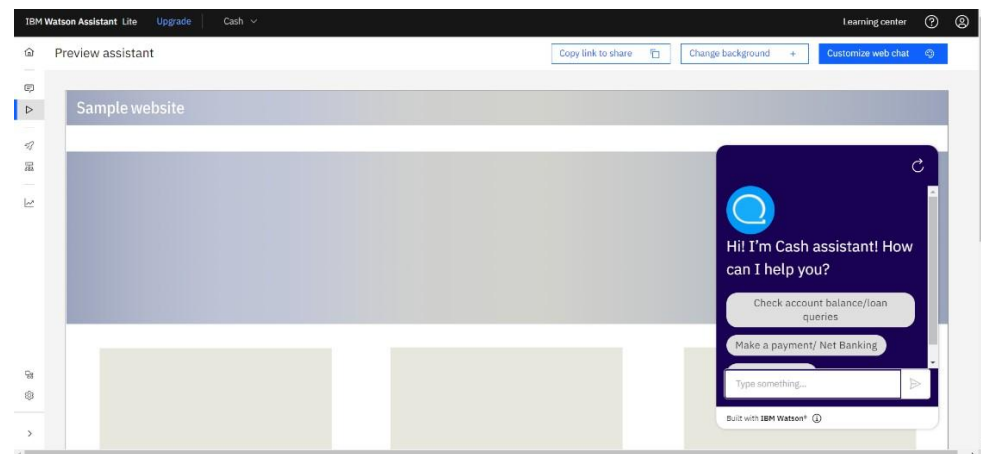
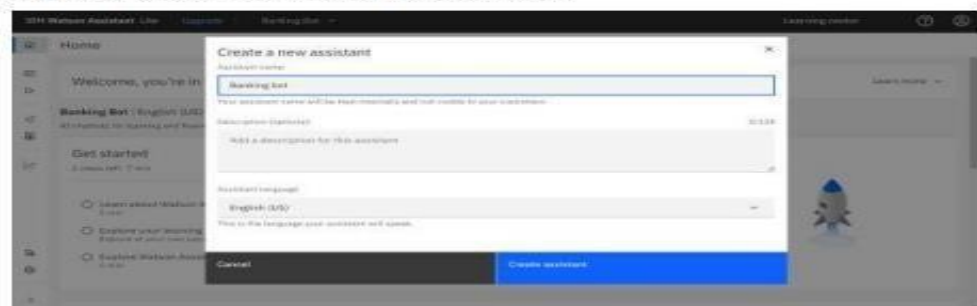
7.2 Feature 2

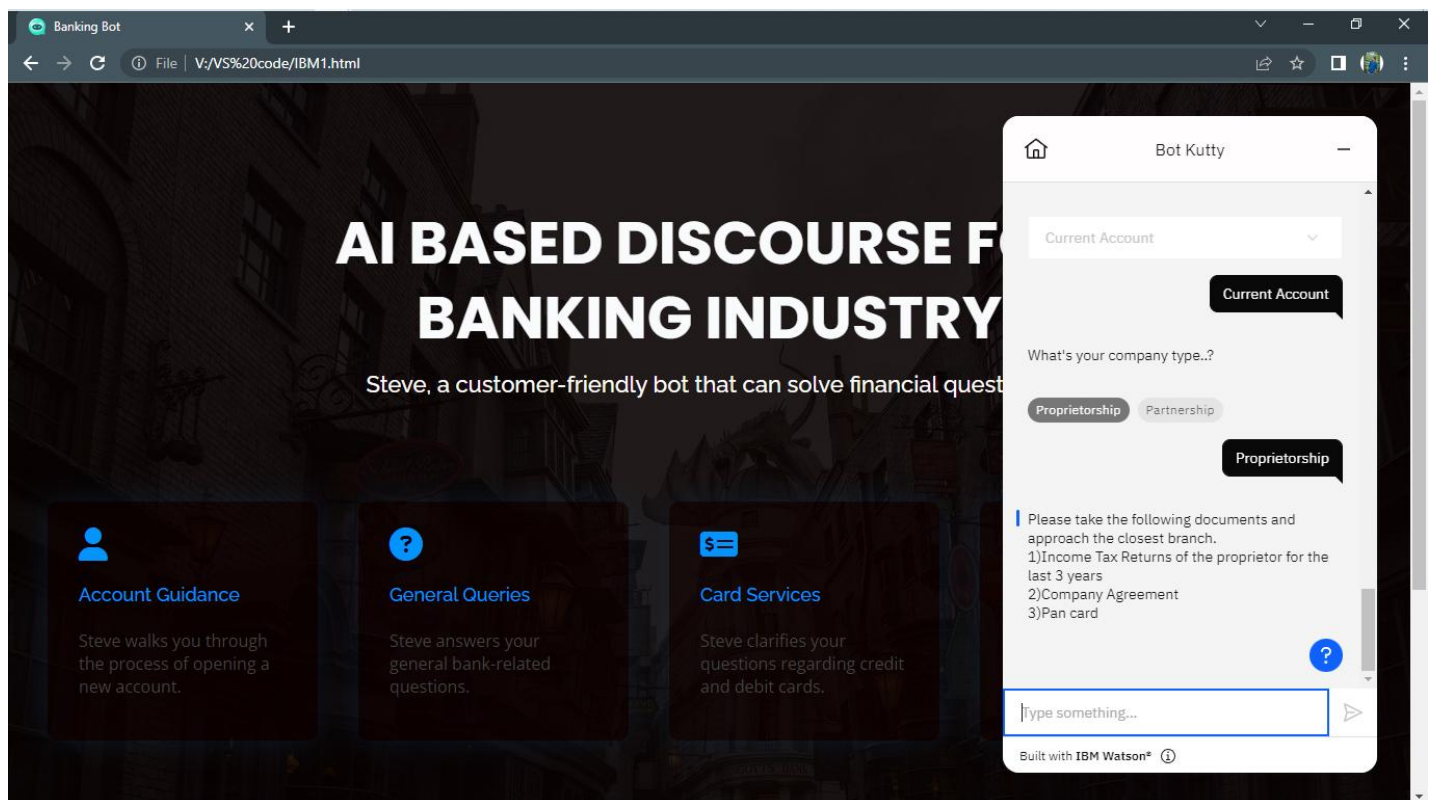
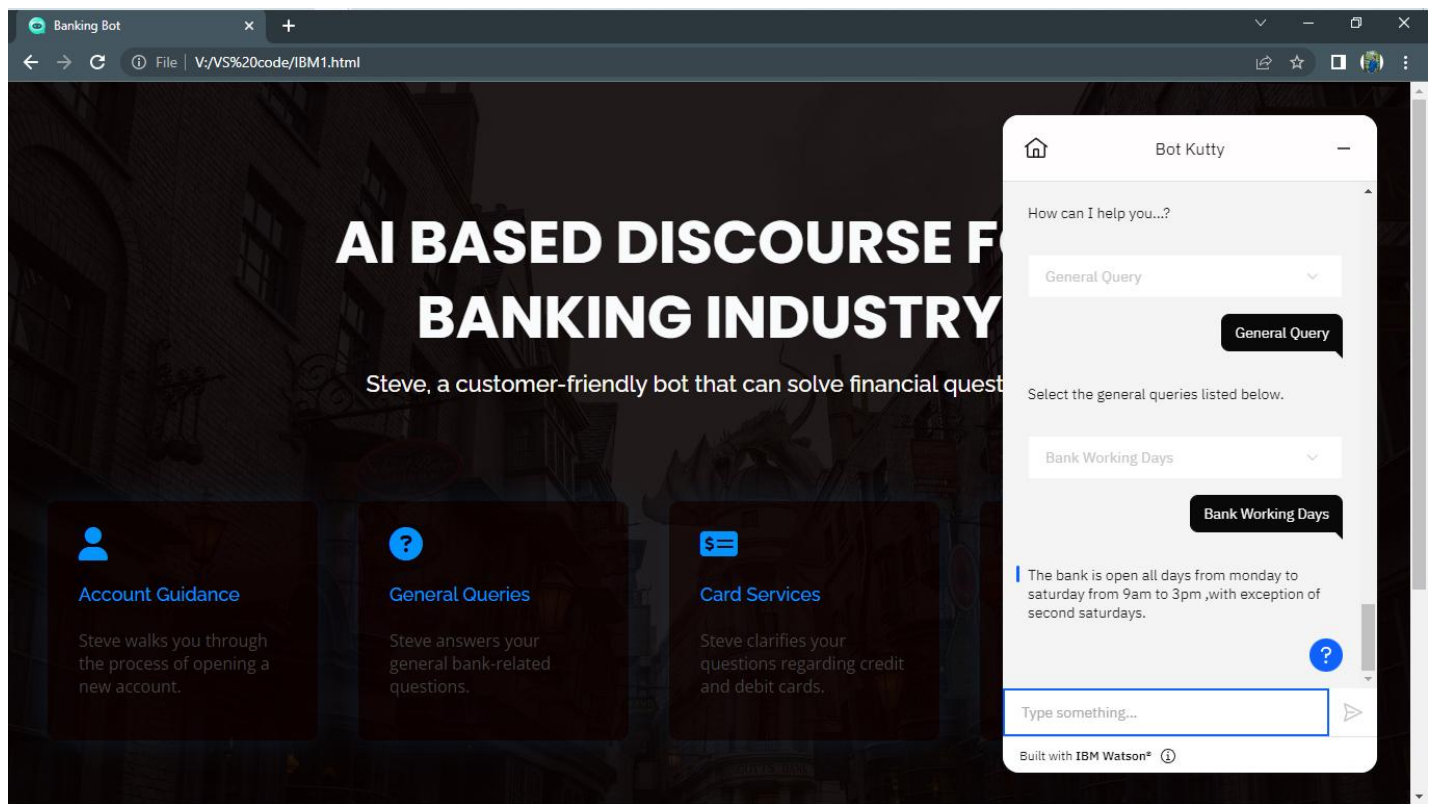
Creating Current Account Action

Add steps in savings action.



A default template chatbot is created. Need to add actions.





8. TESTING

8.1 Test Cases

Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Comments	TC for Automation (Y/N)	BUG ID	Executed By
BankingBot_TC_001	UI	Home Page	Verify that the user can access the bot.	-	1. Enter URL and click go 2. Click on Chatbot icon 3. Verify chatbot preview is displayed or not.	URL Link	Bot preview should be displayed.	Working as expected	Pass	Steps are clear to follow	N	-	Manibalan V
BankingBot_TC_002	Functional	Bot Preview	Verify the user and the bot can communicate.	-	1. Click on the Chatbot icon 2. Type Query in the message bar.	User Query	User should interact with the chatbot easily.	Working as expected	Pass	Steps are clear to follow	N	-	Barathkumar S
BankingBot_TC_003	Functional	Bot Preview	Verify how soon and accurately the bot responds.	-	1. Click on the Chatbot icon 2. Type Query in the message bar. 3. Press Enter	User Query	Chatbot should provide timely and accurate responses.	Working as expected	Pass	Steps are clear to follow	N	-	Prabakar P
BankingBot_TC_004	Functional	Bot Preview	Verify whether the bot can offer options for the user to choose varies choices.	-	1. Click on the Chatbot icon 2. Type Query in the message bar. 3. Press Enter. 4. Select the desired actions.	User Query	Chatbot should be able to provide options to select.	Working as expected	Pass	Steps are clear to follow	N	-	Gokulakannan K
BankingBot_TC_001	Functional	Bot Preview	Verify the user can able to choose the type of savings account.	-	1. Click on the Chatbot icon 2. Type savings account in the message bar. 3. Press Enter. 4. Select the desired actions.	User Query	Chatbot should provide the desired options in Savings account.	Working as expected	Pass	Steps are clear to follow	N	-	Anath Kumar C

BankingBot_TC_002	Functional	Bot Preview	Verify the user is able to know the process to create the selected type.	-	1. Click on the Chatbot icon 2. Type savings account in the message bar. 3. Press Enter. 4. Select the desired actions. 5. Process will be displayed.	User Query	Chatbot should display the process on the selected option.	Working as expected	Pass	Steps are clear to follow	N	-	Manibalan V
BankingBot_TC_001	Functional	Bot Preview	Verify user is able to select the type of company.	-	1. Click on the Chatbot icon 2. Type current account in the message bar. 3. Press Enter. 4. Select the desired actions.	User Query	Chatbot should provide the desired options in Current account.	Working as expected	Pass	Steps are clear to follow	N	-	Barathkumar S
BankingBot_TC_002	Functional	Bot Preview	Verify user is able to know the process to create the selected type.	-	1. Click on the Chatbot icon 2. Type current account in the message bar. 3. Press Enter. 4. Select the desired actions. 5. Process will be displayed.	User Query	Chatbot should display the process on the selected option.	Working as expected	Pass	Steps are clear to follow	N	-	Prabakar P
BankingBot_TC_001	Functional	Bot Preview	Verify user is able to choose options for selecting type of loan policies.	-	1. Click on the Chatbot icon 2. Type loan account in the message bar. 3. Press Enter. 4. Select the desired actions.	User Query	Chatbot should provide the desired options in loan account.	Working as expected	Pass	Steps are clear to follow	N	-	Gokulakannan K
BankingBot_TC_002	Functional	Bot Preview	Verify user is able to know the process to create the selected type.	-	1. Click on the Chatbot icon 2. Type loan account in the message bar. 3. Press Enter. 4. Select the desired actions. 5. Process will be displayed.	User Query	Chatbot should display the process on the selected option.	Working as expected	Pass	Steps are clear to follow	N	-	Anath Kumar C
BankingBot_TC_003	Functional	Bot Preview	Verify user is able to access Loan FAQ's	-	1. Click on the Chatbot icon 2. Type loan queries in the message bar. 3. Press Enter. 4. Select the desired actions.	User Query	Chatbot should display the loan FAQ's .	Working as expected	Pass	Steps are clear to follow	N	-	Manibalan V

BankingBot_TC_004	Functional	Bot Preview	Verify user is able to view fresh updates on Loan	-	1. Click on the Chatbot icon 2. Type loan updates in the message bar. 3.Press Enter. 4. Select the desired actions.	User Query	Chatbot should display the posters on loan updates.	Working as expected	Pass	Steps are clear to follow	N	-	Manibalan V
BankingBot_TC_001	Functional	Bot Preview	Verify user is able to know about bank working days	-	1. Click on the Chatbot icon 2. Type bank working days in the message bar. 3.Press Enter.	User Query	Chatbot should display the information on the selected option.	Working as expected	Pass	Steps are clear to follow	N	-	Barathkumar S
BankingBot_TC_002	Functional	Bot Preview	Verify user is able to know about list of branches	-	1. Click on the Chatbot icon 2. Type list of branches in the message bar. 3.Press Enter.	User Query	The Chatbot should take the user to Google Maps to view a list of branches.	Working as expected	Pass	Steps are clear to follow	N	-	Prabakar P
BankingBot_TC_003	Functional	Bot Preview	Verify user is able to find the nearest branch	-	1. Click on the Chatbot icon 2. Type the nearest branch in the message bar. 3.Press Enter.	User Query	The Chatbot should take the user to Google Maps to view the banks near me.	Working as expected	Pass	Steps are clear to follow	N	-	Gokulakannan K
BankingBot_TC_004	functional	Bot Preview	Verify user is able to know about storage locker facility	-	1. Click on the Chatbot icon 2. Type storage locker facility in the message bar. 3.Press Enter.	User Query	The Chatbot should take the user to Google Maps to view the storage locker facility.	Working as expected	Pass	Steps are clear to follow	N	-	Anath Kumar C
BankingBot_TC_005	functional	Bot Preview	Verify user is able to know about currency conversion facility	-	1. Click on the Chatbot icon 2. Type currency conversion facility in the message bar. 3.Press Enter.	User Query	The Chatbot should display the desired information.	Working as expected	Pass	Steps are clear to follow	N	-	Prabakar P
BankingBot_TC_001	functional	Bot Preview	Verify user is able to know about Net Banking Registration	-	1. Click on the Chatbot icon 2. Type Net Banking Registration in the message bar. 3.Press Enter.	User Query	The Chatbot should display the desired information	Working as expected	Pass	Steps are clear to follow	N	-	Gokulakannan K

8.2 User Acceptance Testing

UAT Execution & Report Submission

a) 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).

b) Defect Analysis

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

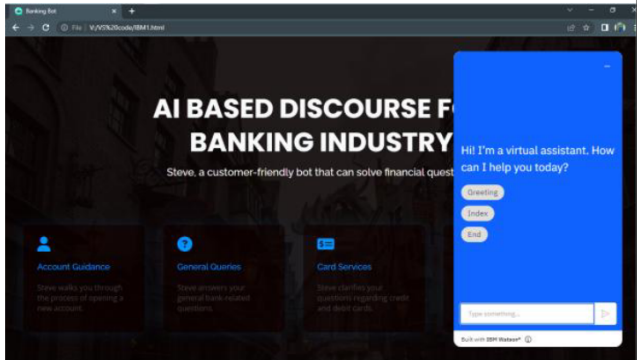
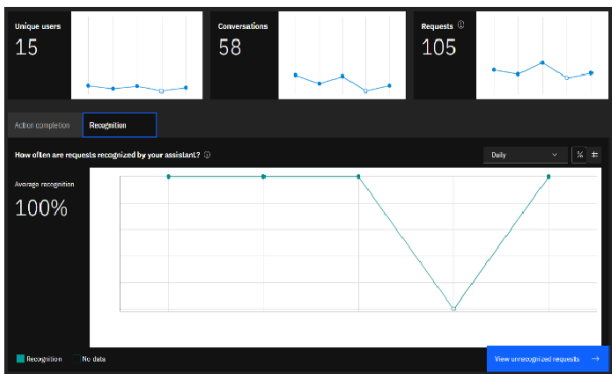
Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
By Design	1	0	0	0	1
Duplicate	3	1	0	1	5
External	1	3	0	1	5
Fixed	2	5	3	2	12
Not Reproduced	0	0	0	1	1
Skipped	0	0	0	0	0
Won't Fix	0	0	0	0	0
Totals	7	9	3	5	24

C) Test Case Analysis

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

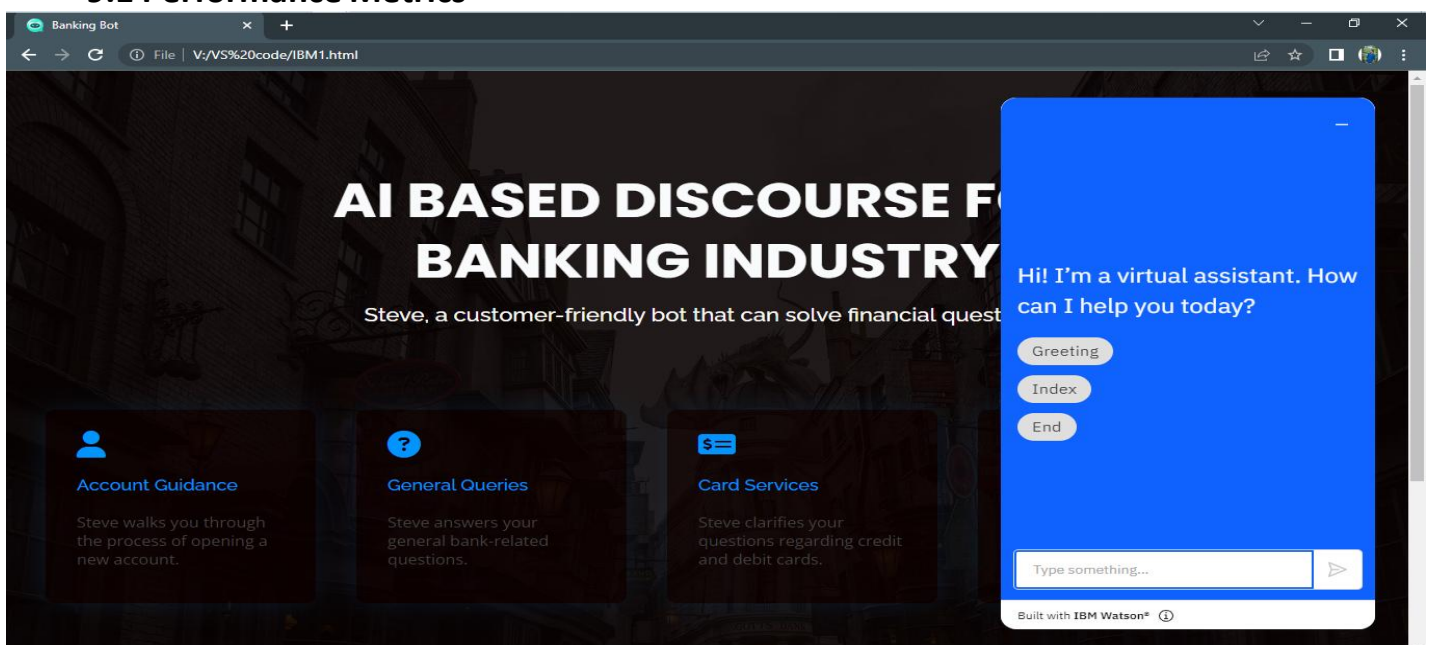
Section	Total Cases	Not Tested	Fail	Pass
Print Engine	1	0	0	1
Client Application	1	0	0	1
Security	1	0	0	1
Outsource Shipping	0	0	0	0
Exception Reporting	1	0	0	1
Final Report Output	1	0	0	1
Version Control	1	0	0	1

8.3 PERFORMANCE TESTING

S.No.	Parameter	Values	Screenshot
1.	Watson Assistant Summary	<ul style="list-style-type: none"> IBM Watson Assistant uses artificial intelligence to give quick, consistent, and accurate responses across any application, device, or platform. With the leader in trustworthy AI, you can remove the frustration of long wait times, time-consuming searches, and unhelpful chatbots. 	
2.	Accuracy	<p>Training Accuracy – 100%</p> <p>Validation Accuracy – 100%</p>	

9. RESULTS

9.1 Performance Metrics



10. ADVANTAGES and DISADVANTAGES

ADVANTAGES

1. Chatbots have 24/7 Availability: Chatbots can be available to solve customer problems 24/7 whether it is day or night! They don't need to sleep after all! This is much more difficult to achieve using human customer service as it would require rotating teams that would be more complicated to manage as well.
2. Chatbots can gather Customer Insights: Companies thrive on customer data! The more data they have, the better they can cater to their customers and be much more successful. That's where chatbots can be a big help. Whenever you interact with any chatbots on a company page, you provide basic data such as user preferences, buying habits, sentiments, etc. which can then be analysed to understand market trends, operational risks, etc. And using this information, the company can solve customer issues much easier and create targeted products. This will help in increasing their customer loyalty!

DISADVANTAGES

1. Chatbots sound too Mechanical: Chatbots are not human and so obviously they cannot interact as a human with customers. They sound too mechanical and can only give answers to problems that they have been programmed with. They cannot answer a customer according to the context and they cannot show any emotions if needed. Chatbots also cannot maintain a natural-sounding conversation in-depth with customers and that is why they are only useful in solving basic queries. But this can create a disconnect with customers who prefer the human approach when solving their problems.
2. Chatbots can only handle basic Questions: Chatbots are still a basic Artificial Intelligence technology and so they can only answer the basic questions of customers and provide general information that is already available to them. They cannot solve complicated queries or answer out of script questions and companies need to have human customer service employees that can manage these for them. However, this is changing with time and currently, more and more advanced chatbots are entering the market.

11. CONCLUSION

In this paper we have provided a survey of relevant works of literature on the subject, and we have analysed the state of the art in terms of language models, applications, datasets used, and evaluation frameworks. We have also underlined current challenges and limitations, as well as gaps in the literature. Despite technological advancements, AI chatbots are still unable to simulate human speech. This is due to a faulty approach to dialogue modeling and a lack of domain-specific data with open access. For Information Retrieval chatbots, there is also a lack of a learnt AI model. There is still a gap to be closed in terms of applications between Industry models and current advancements in the sector. Large models necessitate a lot of computing power and a lot of training data. There is no universal framework for evaluating chatbots. Several models depend on human evaluation, yet human evaluation is expensive, time-consuming, difficult to scale, biased, and lacks coherence. A new, reliable automatic evaluation approach should be provided to overcome these restrictions.

12. FUTURE SCOPE

Chatbots are Now Based on Natural Language Processing(NLP)

The goal is to allow users and Artificial Intelligence to communicate naturally and understand complex requests. This would mean that customer service agents would be able to focus on other tasks while the AI takes care of customers' queries. Chatbots in finance, in the digital banking and healthcare industries might save more than 12 billion USD in a year by 2022. According to several estimates, financial organizations might save 2 trillion USD by 2030 by implementing artificial intelligence and cutting costs by 35%. In the digital banking business, banks with Chatbots can automate a variety of functions in addition to enhancing everyday operations and the universal consumer experience as fund transfer, Notifications & Alerts at the Right Time, Get help from a Customer Service Representative, simple lead generation.

13. APPENDIX

Source Code:

IBM1.HTML

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

<head>
  <meta charset="UTF-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Banking Bot</title>

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

  <link rel="icon" href="https://cdn-icons-png.flaticon.com/512/5226/5226034.png" type="image/x-icon">

  <script src="https://kit.fontawesome.com/ffb80bac3c.js" crossorigin="anonymous"></script>
</head>

<!------- CSS Code ----->
<style>
  body {
    background: url("https://wallpaperaccess.com/full/272740.jpg");
    background-size: cover;
  }

  body:before {
    content: "";
    background: url("https://wallpaperaccess.com/full/272740.jpg");
    background-size: cover;
    background: rgba(7, 0, 0, 0.889);
    position: absolute;
    top: 0;
    bottom: 0;
    left: 0;
    right: 0;
  }

  .main_txt h1 {
    position: relative;
    margin: 0;
    padding-top: 110px;
    font-size: 57px;
    font-weight: 800;
    line-height: 72px;
    color: #f9fbfc;
    font-family: "Poppins", sans-serif;
    text-align: center;
  }

  .main_txt h2 {
    position: relative;
    color: #fefbfb;
    margin: 15px 0 0 0;
```

```

    font-size: 22px;
    text-align: center;
    font-family: "Raleway", sans-serif;
    font-weight: 500;
}

.icon-box {
    padding: 25px 30px;
    position: relative;
    overflow: hidden;
    background: rgba(15, 0, 0, 0.521);
    box-shadow: 0 0 29px 0 rgba(18, 66, 101, 0.352);
    border-radius: 10px;
    display: inline-block;
    font-family: "Open Sans", sans-serif;
    width: 200px;
    color: #444444;
    margin-right: 5px;
    margin-top: 100px;
    margin-left: 30px;
}

.icon-box .title a {
    text-decoration: none;
    color: #0295ff;
    margin-bottom: 12px;
    font-size: 18px;
    text-align: center;
    font-family: "Raleway", sans-serif;
    font-weight: 500;
}

.icon-box i {
    color: #0295ff;
}

.icon-box:hover {
    transform: scale(1.08);
}
</style>

```

```

<!------- JS Code ----->
----->

```

```

<script>
    window.watsonAssistantChatOptions = {
        integrationID: "de00fe10-eec7-4862-a4d4-a7a41d9463a8", // The ID of this integration.
        region: "us-south", // The region your integration is hosted in.
        serviceInstanceID: "df17370f-101b-4ccd-b045-763f4d088c69", // 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>

```

```

<!------- HTML Body ----->
----->

```

```
<body>
  <div class="main_txt">
    <h1>AI BASED DISCOURSE FOR<br>BANKING INDUSTRY</h1>
    <h2>Steve, a customer-friendly bot that can solve financial questions.</h2>
  </div>

  <div class="icon-box">
    <i class="fa-solid fa-user fa-2x"></i>
    <h4 class="title"><a href="#">Account Guidance</a></h4>
    <p class="description">Steve walks you through the process of opening a new account.</p>
  </div>

  <div class="icon-box">
    <i class="fa-solid fa-circle-question fa-2x"></i>
    <h4 class="title"><a href="#">General Queries</a></h4>
    <p class="description">Steve answers your general bank-related questions.</p>
  </div>

  <div class="icon-box">
    <i class="fa-solid fa-money-check-dollar fa-2x"></i>
    <h4 class="title"><a href="#">Card Services</a></h4>
    <p class="description">Steve clarifies your questions regarding credit and debit cards.</p>
  </div>

  <div class="icon-box">
    <i class="fa-solid fa-mobile-screen-button fa-2x"></i>
    <h4 class="title"><a href="#">Net Banking</a></h4>
    <p class="description">Steve addresses your concerns regarding Net banking.</p>
  </div>

  <div class="icon-box">
    <i class="fa-solid fa-sack-dollar fa-2x"></i>
    <h4 class="title"><a href="#">Loan</a></h4>
    <p class="description">Steve guides you to apply for a loan and solves related queries.</p>
  </div>
</body>
</html>
```


APP.PY:

```
from flask import Flask,render_template

app = Flask(__name__)

@app.route('/')
def bot():
    return render_template("IBM1.html");

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

GitHub and Project Demo Link:

<https://github.com/IBM-EPBL/IBM-Project-42831-1660710060>

<https://drive.google.com/file/d/1xg2a5h1luajCceDU2cWcgeYvLOn9mJsZ/view?usp=drivesdk>