AI DISCOURSE FOR BANKING INDUSTRY

Team ID : PNT2022TMID02916

TEAM MEMBERS:

Aravind S [TL] - 727720EUIT502

Ajithkumar P [TM1] - 727720EUIT501

Arsaad S [TM2] - 727720EUIT503

Deena P [TM3] - 727720EUIT033

TABLE OF CONTENT

TITLE	PAGENO
1. **INTRODUCTION**	**01**
1.1 Project Overview	01
1.2 Purpose	01
2. **LITERATURE SURVEY**	**02-05**
2.1 Existing problem	02
2.2 References	05
2.3 Problem Statement Definition	05
3. **IDEATION & PROPOSED SOLUTION**	**07-12**
3.1 Empathy Map Canvas	07
3.2 Ideation & Brainstorming	08
3.3 Proposed Solution	11
3.4 Problem Solution fit	12
4. **REQUIREMENT ANALYSIS**	**13-14**
4.1 Functional requirement	13
4.2 Non-Functional requirements	14
5. PROJECT DESIGN	**15-19**
5.1 Data Flow Diagrams	15
5.2 Solution & Technical Architecture	16
5.3 User Stories	19
6. PROJECT PLANNING & SCHEDULING	**20-23**
6.1 Sprint Planning & Estimation	20
6.2 Sprint Delivery Schedule	21
7. CODING & SOLUTIONING	**24-27**
7.1 Feature 1	24
7.2 Feature 2	25
8. TESTING	**28-30**
8.1 Test Cases	28
8.2 User Acceptance Testing	30
9. RESULTS	**31-32**
9.1 Performance Metrics	31
10. ADVANTAGES & DISADVANTAGES	**33**
11. CONCLUSION	**34**
12. FUTURE SCOPE	**35**
13. APPENDIX	**36-52**
13.1 Source Code	36
13.2 GitHub & Project Demo Link	52

CHAPTER 01

INTRODUCTION

1.1 PROJECT OVERVIEW

Digital technologies are connecting billions of consumers and allow the deployment of low cost connected devices in every business sector. The current generation is adjusted to the digital environment and naturally expects services and products to meet the current digital technology standards. Further, investments into digital technologies and businesses have risen and are rewarded by the public markets (PWC Editorial, 2016).

Artificial intelligence (AI) technologies are part of this development and the banking sector is hereby deemed to see a major impact. According to a report by Accenture, a global management consulting and professional services company, four out of five bankers assume that AI is going to revolutionise the way banking is executed. The report suggests that artificial intelligence will affect banking by enhancing the customer experience.

Banking products and service may become increasingly personalised giving customers the impression that their banking institutes know their specific habits and needs (Accenture, 2016). But the introduction of AI technologies comes with potential challenges and risks.

Banks are processing highly sensitive data. Thus, privacy and data security concerns are essential elements of the process. Additionally, customers might prefer the contact with persons regarding certain issues, leading to a rejection of AI based interfaces (Kelly, 2017). Hence, the introduction of such technologies into the active process should be executed with consideration of the possible risks.

1.2. PURPOSE

The purpose of this thesis is to analyse the motivations, challenges and opportunities for Swedish banking institutes to implement artificial intelligence based solutions into their customer service process.

CHAPTER 02

LITERATURE SURVEY

2.1 EXISTING PROBLEM

LITERATURE SURVEY- 1

TITLE:

To Study the Impact of Artificial Intelligence as Predictive Model inBanking Sector: Novel Approach. AUTHOR: Veer Anjaneyulu Veerla . Published Year: 2021

DESCRIPTION:

Artificial Intelligence (AI) has, during the past few years, made many signs ofprogress which have enabled the creation of professional financing applications, which would, perhaps, disrupt the finance industry. Thus, it is assumed that the AI could not only replace human capital in full or in part but also enhance its performance beyond human benchmarks. For companies around the world, there are a variety of programs. Artificial Intelligence (AI) for successful strategy implementation in India's banking.

ADVANTAGES:

Natural Language Generation (NLG) enables machines to generate naturallanguage so that machine may interact with human in their natural language. Use Cases: Machines can communicate to human customers in human language in an intelligent and understandable manner.

DISADVANTAGES:

A big disadvantage of AI is that it cannot learn to think outside the box. AIis capable of learning over time with prefer data and past experiences, but cannot be creative in its approach.

LITERATURE SURVEY- 2

TITLE:

BANKING WITH A CHATBOT – A STUDY ON TECHNOLOGYACCEPTANCE.

Published Year: **2021**

DESCRIPTION:

The implementation of chatbot technology is evolving rapidly in the banking industry, yet customer acceptance is behind. The aim of the present paper is to identify the factors that influence consumers' intention to use chatbot technology applied in the banking industry. The measurement development and hypotheses were based on the technology acceptance model extended with compatibility, customers' perceived privacy risk and awareness of the service

ADVANTAGES:

There are several managerial implications of this study for the banking sector. First, significant effects of perceived compatibility and perceived usefulnesson behavioral intention indicate that consumers expect banking chatbots to be compatible with their lifestyle and to provide benefits for them.

DISADVANTAGES:

While the current study adds to the existing literature, its limitations should be acknowledged. First, the questionnaire respondents were mainly young, highly educated individuals whose actions may vary somewhat from the population average. Thus, the study sample is not representative and the findings are not generalizable.

LITERATURE SURVEY- 3

TITLE:

A STUDY ON ARTIFICIAL INTELLIGENCE (AI) IN BANKING ANDFINANCIAL SERVICES. Author : A.Geetha . Published Year: 2021

DESCRIPTION:

This paper focuses on the artificial intelligence (AI) in the Banking and financial services in Chennai to oversee the application of artificial intelligence methodology in the banks as well as responses from the clients or consumers. Banks and other financial institution can mine the financial transaction data generated by the proliferation of digital payments and banking to better monitor, predict and respond to consumer behaviour. To identify the information used in the banking and financial services, the data is collected from secondary sources based on the literature review

ADVANTAGES:

There are also a range of improvements in the way communications, customer support, and recruiting and asset management take place throughout financial sector. Today, for example, stock investing and finance is all about technical skills and divine luck. Yet in the future, with the aid of sentiment analysis, crowd sourced data and algorithms, we will be able to handle money in a much different way.

DISADVANTAGES:

The purpose of this article was to determine the most prominent forms of AI within the banking industry. AI-driven customer service, real-time fraud prevention and risk management- it's the last one that might appeal most

LITERATURE SURVEY- 4

TITLE:

Virtual bank assistance: An AI based voice bot for better banking. Author : Sarath Chandra Oruganti. Published Year : 2020

DESCRIPTION:

A banking bot project is built using AI algorithms that analyse the user's queries and understand the user's message. The system is designed for banks touse where users can ask any bank related questions like loan, account, policy etc which are bank related queries. This application is developed for devices that haveinternet connectivity. The system recognizes the user's query and understands what he wants to convey and simultaneously answers them appropriately. Bankbot solves the issues a user has and clarifies it with its knowledge.

ADVANTAGES:

A chatbot can help you provide a strong user experience in a number of ways are Respond immediately, Stay open all time Always, conversational, Cost reduction, Improve loyalty.

DISADVANTAGES:

Banking has become increasingly dependent on information systems and the use of most modern technology has also become increasingly significant. But, the lack of voice assistants is being seen in banks. All banks do have the same features as Net Banking, Credit card services, etc. Apart from providing Business Intelligence and schemes, services in attracting people, banks should also provide voice assistant services to attract illiterates to use their banking services.

2.2 REFERENCES

[1] Amir Shevat , Creating Conversational Experiences “Designing Bot” May 2017

[2] B Setiaji, Chat bot using knowledge in database ”Human to Machine” Mar 2016

[3] Srini Janarthanam, Hands on chat bot and conversation Dec 2017

[4] Michael Justao Yuan, Building Intelligent

[5] Micheal Washington, Introduction to Microsoft Bot 2016

[6] Rashid Khan, Anik Das, Build Better Chat Bot Dec 2017

2.3 PROBLEM STATEMENT

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 interactionwith the customers has to be built to ensure efficient delivery of service. 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 centres as well as providing them with relevant suggestions.

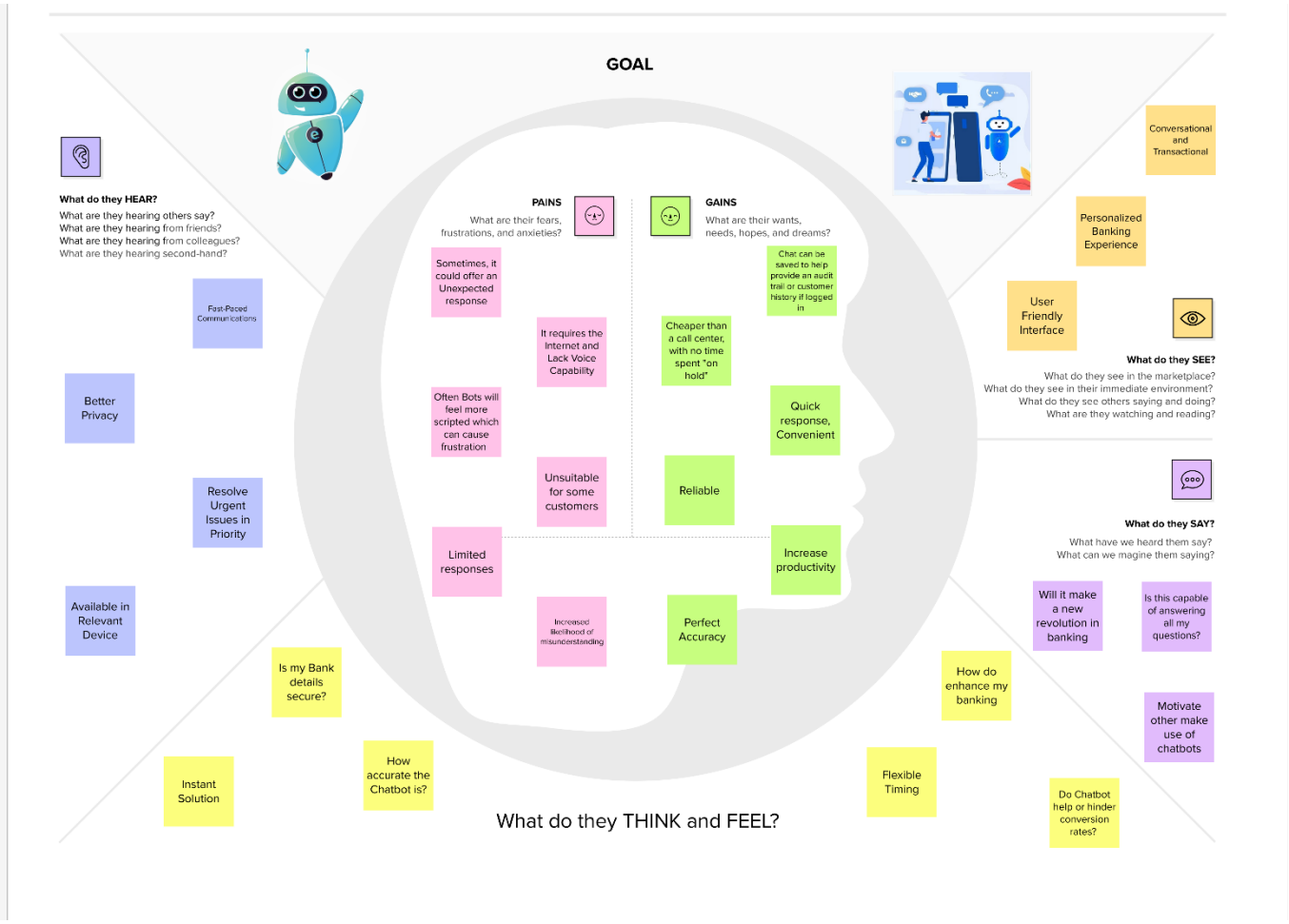
Who does the problem affect?	A customer of the bank
What are the boundaries of the problem?	Customers who have queries related to banking or trying to use various services of the bank
What is the issue?	Customers need to visit banks frequently for simple queries. Banks are not able to answer huge volumes of customers queries efficiently.
When does the issue occur?	When the customer is unable to visit a bank
Where does the issue occur?	It occurs in banking industries
Why is it important that we fix the problem?	It addresses the queries of customers immediately and effectively in a cost efficient manner.
What solution to solve this issue?	Chatbot should be able to answer any general banking queries on account creation, loan, net banking, other services etc. AI chatbots can help the customers to complete their work quickly and efficiently.

Customer Problem Statement:

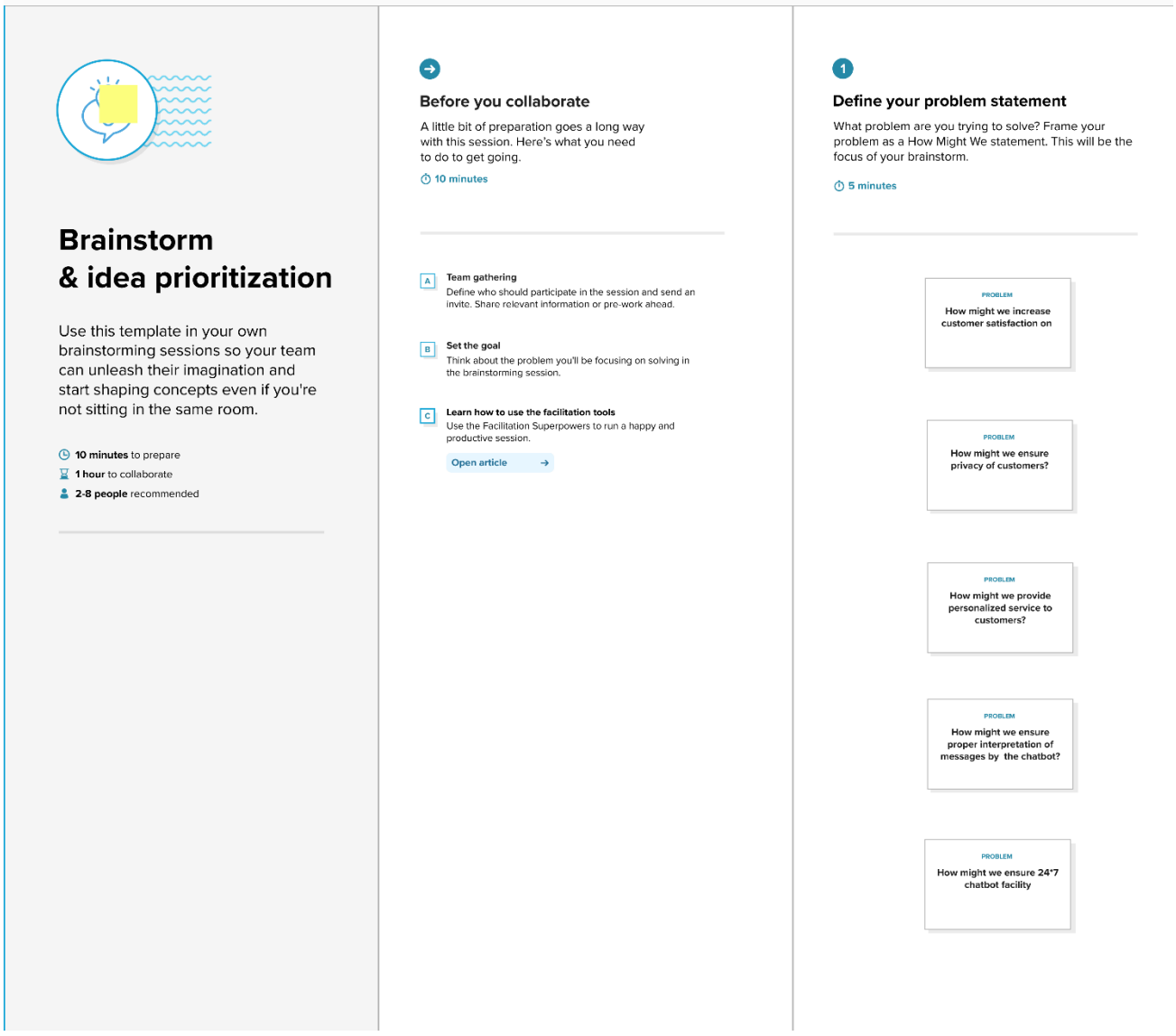
Problem Statement (PS)	**I am (Customer)**	**I'm trying to**	**But**	**Because**	**Which makes me feel**
PS-1	A student who just created a bank account	Understand more about the available features of the bank	I have to waste a lot of time at the bank	I have to as a bank employee about my doubts	irritated
PS-2	A new customer	Learn more about banking	It takes a long time	There is always a long queue as bank employees are busy	frustrated
PS-3	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

CHAPTER – 03
IDEATION & PROPOSED SOLUTION

3.1 EMPATHY MAP CANVAS



3.2 IDEATION & BRAINSTORMING



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

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

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

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

Open article

1 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

PROBLEM
How might we increase customer satisfaction on

PROBLEM
How might we ensure privacy of customers?

PROBLEM
How might we provide personalized service to customers?

PROBLEM
How might we ensure proper interpretation of messages by the chatbot?

PROBLEM
How might we ensure 24*7 chatbot facility

2

Brainstorm

Write down any ideas that come to mind that address your problem statement.

10 minutes

AJITHKUMAR P

- Ensuring about the security
- Less process time
- Input through text format
- Full Screen window
- Simple interface
- Reduce work load
- Ensure privacy

ARAVIND S

- Provide omnichannel support
- Assisting to create an new Bank account
- Connect with bank staffs
- Change of themes
- Providing interest related advice
- Instance responce
- Tackling suspicious activities

ARSAAD S

- Assist to creating the new account based on customer preference
- Make the chatbot to understands the naturals
- Storing the customer conversation
- Providing assistance in cancelation of an account
- Detailed information will be provided for customer query
- Giving simple solution
- Improved efficiency

DEENA P

- Providing roundtheclock support
- Predefined question
- Guide us about credit plans and policies
- Improve facilities for future
- Automatic notification
- Feedback
- Suggestion

3

Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, 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

GENERAL EXPECTATION

- Simple interface
- Assisting to create an new Bank account
- Make the chatbot to understands the naturals
- Providing assistance in cancelation of an account

SECURITY

- Ensuring about the security
- Ensure privacy
- Tackling suspicious activities

CLOUD

- Connect with bank staffs
- Storing the customer conversation
- Feedback
- Suggestion

PERFORMANCE

- Improved efficiency
- Giving simple solution
- Improve facilities for future
- Reduce work load

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.

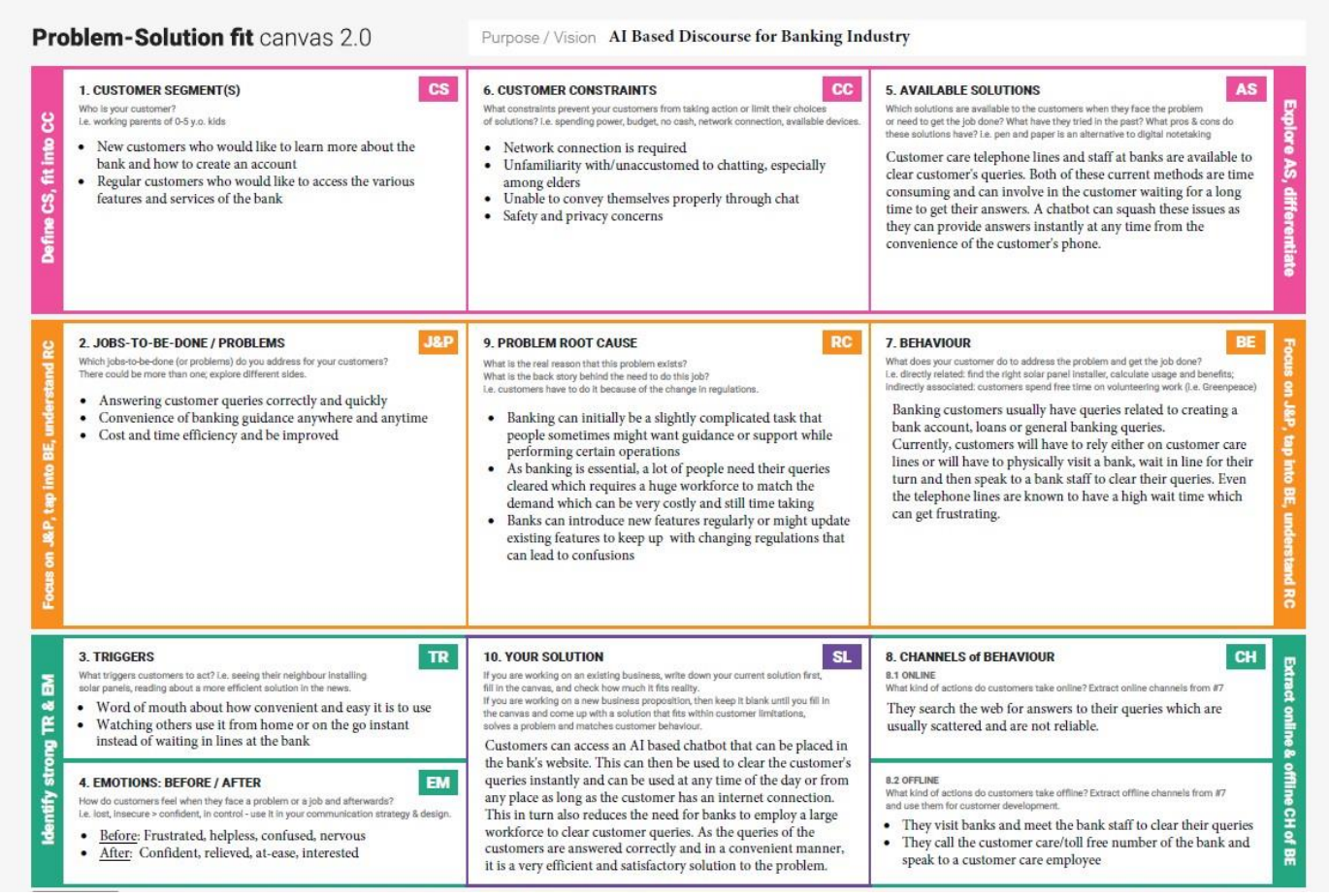
20 minutes

3.3 PROPOSED SOLUTION

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

S.No.	Parameter	Description
•	Problem Statement (Problem to be solved)	Digital banking sector can be deployed to accomplish several tasks and improve the customer experience.
•	Idea / Solution description	1. Rising customer expectations 2.Disintermediation 3.Increasingly human like formats.
•	Novelty / Uniqueness	Adopt a holistic,data driven approach to understanding how customers engage with the bank.
•	Social Impact / Customer Satisfaction	It set a high bar for speed safety and amicable service supported by frictionless end to end customer journeys.
•	Business Model (Revenue Model)	To estimate that these integrated networks will generate approximately 60 trillion dollars in global annual revenues by 2025.
•	Scalability of the Solution	1. Increased access and scale 2.Higher efficiencies 3.New value propositions 4.More convenience

3.4 PROBLEM SOLUTION FIT



Problem-Solution fit canvas 2.0

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

Define CS, fit into CC

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.

Explore AS, differentiate

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

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

Identify strong TR & EM

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

Extract online & offline CH of BE

CHAPTER 04

REQUIREMENT ANALYSIS

4.1 FUNCTIONAL REQUIREMENT

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

4.2 NON-FUNCTIONAL REQUIREMENTS

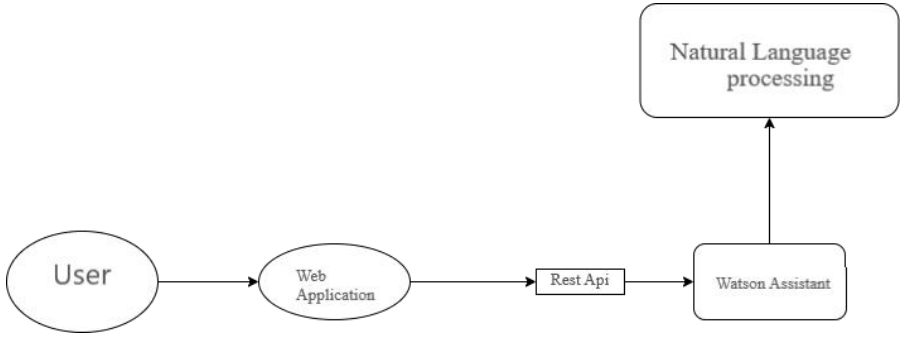
NFR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Chatbots developed using AI should be able to answer any general banking queries on account creation, loan, net banking, other services etc. It addresses the queries of customers immediately and effectively in a cost efficient manner.
NFR-2	**Security**	The AI Chatbot maintains a confidentialconversation with customers. Chatbot will provide personal and efficient communication between theuser 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 thebanking processes. It is available to anyone with access to the internet with basic hardware.
NFR-6	**Scalability**	AI Chatbots are helping banking industry to scaletheir customer service and to improve customerservice satisfaction at the same time. It can bescaled as per the requirements of the bank to include answers to queries related to any new feature or service introduced by the bank.

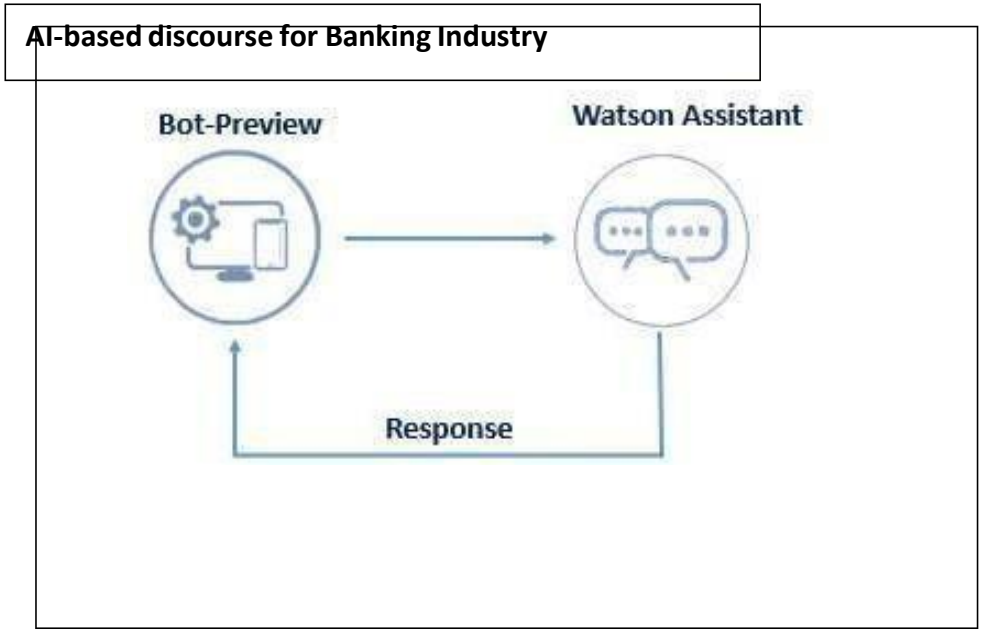
CHAPTER 05
PROJECT DESIGN

5.1 DATA FLOW DIAGRAMS

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.

Example: **(Simplified)**





5.2 TECHNICAL ARCHITECTURE

Table-1: Components & Technologies

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

Table-2: Application Characteristics:

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

5.3 USER STORIES

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority
Customer (Mobile user)	Download thedatabase	USN-1	As a user, I can register for the application by entering my email, and password, and confirming my password.	I can access my account /dashboard	High
	Register	USN-2	As a user, I can register for the application by entering my email, and password, and confirming my password.	I can receive a confirmationemail & click confirm	High
	Login	USN-3	As a user, I will receive a confirmation email once Ihave registered for the application	I can register & access the dashboard with FacebookLogin	Low
	Querying	USN-4	User query with a chatbot for clarifications.		Medium
Customer (Webuser)	The functional requirements aresame as a mobile user	Same as a mobile user	Same as a mobile user	Same as a mobile user	High when compared tomobile users

CHAPTER 06
PROJECT PLANNING & SCHEDULING

6.1 SPRINT PLANNING & ESTIMATION

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	20	26 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	02 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	09 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20	16 Nov 2022

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

Average Velocity = Sprint duration / Velocity

= 20 / 6 = 3.33

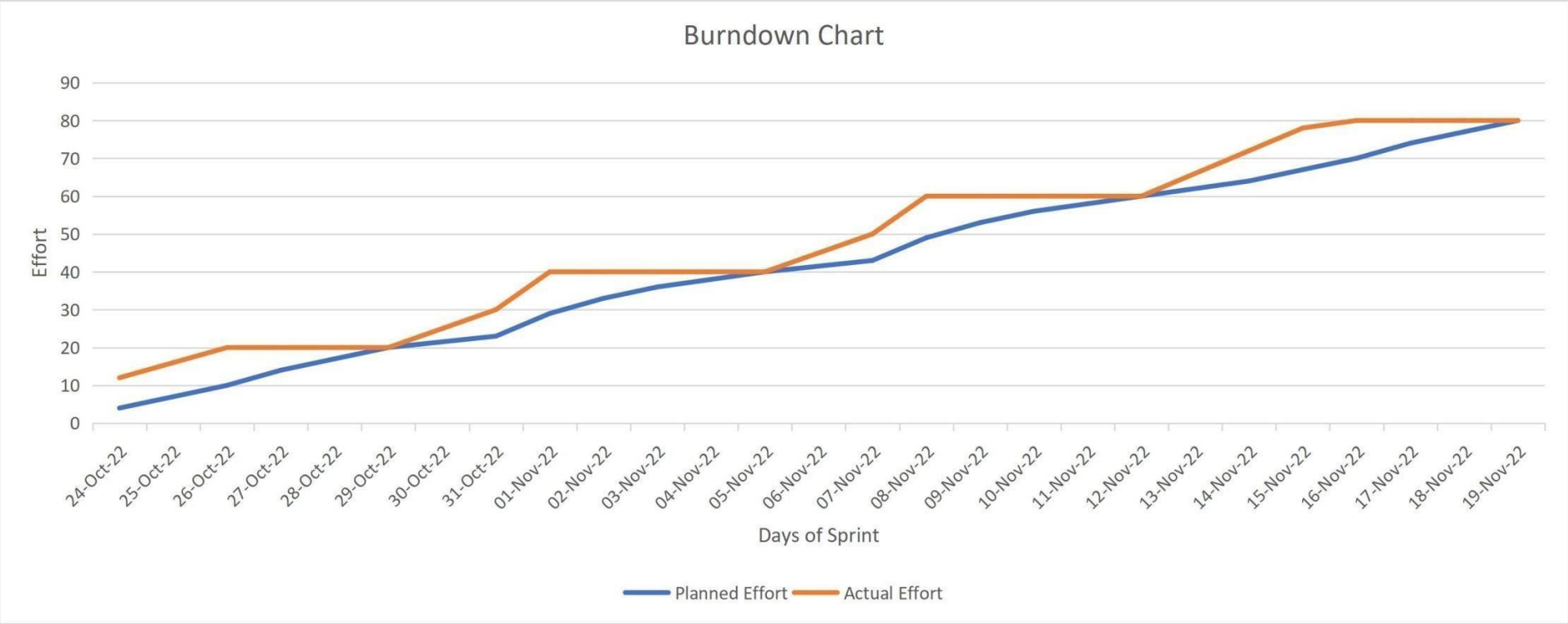
Burndown Chart:

A burn down chart is a graphical representation of work left to do versus time. It is often used in agile software development methodologies suchas Scrum. However, burn down charts can be applied to any project containing measurable progress over time.

6.2 SPRINT DELIVERY SCHEDULE

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 andcreate a Watson Assistant Service.	12	High	Arsaad, Ajithkumar, Aravind, Deena
Sprint-1	Action Skills Creation	USN-2	As a user, I can add new action skills to resolvecustomer queries.	4	High	Aravind, Arsaaad
Sprint-1	Savings AccountAction	USN-3	As a user, I can get the details of required documents for Regular Savings Account, KidsSavings Account, and Zero-Balance Savings Account.	4	Low	Ajithkumar,Deena
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	Ajithkumar ,Arsaad ,Deena
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	Aravind

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
			loan,housing loan,vehicle loan from the bank.			Arsaad
Sprint-3	General Query Action	USN-6	As a user, I can get resolved for the queries likeCIBIL score, storage facilities available in the bank, currency conversion policy, list of branches, nearest branch available.	10	High	Deena, Ajith kumar, Arsaad
Sprint-3	Net Banking Action	USN-7	As an user, I can get resolved for the querieslike features of net banking, issues regardingnet banking, etc.,	10	Medium	Aravind, Arsaad
Sprint-4	Building Python code(using Flask frame work)	USN-8	As an admin, I make use of the Flaskframework to link a html web page.	12	High	Ajithkumar Deena
Sprint-4	Building HTML code	USN-9	As an admin, I make use of html to create theweb page as a front-end for the application.	6	High	Ajithkumar ,Deena ,Arsaad
Sprint-4	Executing the application	USN-10	As an admin, I can integrate the chat bot withour web page. As an user, I can interact with the chatbot in theweb page.	2	Medium	Arsaad, Ajithkumar, Aravind, Deena


Burndown Chart
Effort
90
80
70
60
50
40
30
20
10
0
24-Oct-22
25-Oct-22
26-Oct-22
27-Oct-22
28-Oct-22
29-Oct-22
30-Oct-22
31-Oct-22
01-Nov-22
02-Nov-22
03-Nov-22
04-Nov-22
05-Nov-22
06-Nov-22
07-Nov-22
08-Nov-22
09-Nov-22
10-Nov-22
11-Nov-22
12-Nov-22
13-Nov-22
14-Nov-22
15-Nov-22
16-Nov-22
17-Nov-22
18-Nov-22
19-Nov-22
Days of Sprint
Planned Effort
Actual Effort

CHAPTER 07
CODING & SOLUTIONING

7.1 FEATURE 1

IBM WATSON

IBM Watson Assistant users artificial intelligence that understands the customers in context to provide fast, consistent, and accurate answers across any application, device or channel.

Remove the frustration of the long wait times, tedious searches, and unhelpful chatbots with the leader in trustworthy AI.

COMPREHENSIVE

Easily recognize more topics and content than any other chatbot. Give your customers truly accurate and complete answers with robust topic understanding, AI-powered intelligent search, and human agent handoff.

FAST

Answer questions with real-time Natural Language Processing (NLP) in very few steps. Efficient and tailored interactions, including rich media, results in a high completion and containment rate.

ADAPTABLE

Keep the conversation going with AI that adapts to customer needs and doesn’t break when deviations occur in conversations.

7.2 FEATURE 2

HTML

The **HyperText Markup Language** or **HTML** is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript.

Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

HTML can embed programs written in a scripting language such as JavaScript, which affects the behavior and content of web pages. The inclusion of CSS defines the look and layout of content. The World Wide Web Consortium (W3C), former maintainer of the HTML and current maintainer of the CSS standards, has encouraged the use of CSS over explicit presentational HTML since 1997.A form of HTML, known as HTML5, is used to display video and audio, primarily using the <**canvas**> element, in collaboration with javascript.

CSS

CSS is designed to enable the separation of content and presentation, including layout, colors, and fonts.[3] This separation can improve content accessibility; provide more flexibility and control in the specification of presentation characteristics; enable multiple web pages to share formatting by specifying the relevant CSS in a separate .css file, which reduces complexity and repetition in the structural content; and enable the .css file to be cached to improve the page load speed between the pages that share the file and its formatting.

Separation of formatting and content also makes it feasible to present the same markup page in different styles for different rendering methods, such as on-screen, in print, by voice (via speech-based browser or screen reader), and on Braille-based tactile devices. CSS also has rules for alternate formatting if the content is accessed on a mobile device.

CSS information can be provided from various sources. These sources can be the web browser, the user, and the author. The information from the author can be further classified into inline, media type, importance, selector specificity, rule order, inheritance, and property definition. CSS style information can be in a separate document, or it can be embedded into an HTML document. Multiple style sheets can be imported. Different styles can be applied depending on the output device being used; for example, the screen version can be quite different from the printed version, so authors can tailor the presentation appropriately for each medium.

PYTHON FLASK

Flask is a web framework, it’s a Python module that lets you develop web applications easily. It’s has a small and easy-to-extend core: it’s a microframework that doesn’t include an ORM (Object Relational Manager) or such features.

It does have many cool features like url routing, template engine. It is a WSGI web app framework.

WEB FRAMEWORK

A Web Application Framework or a simply a Web Framework represents a collection of libraries and modules that enable web application developers to write applications without worrying about low-level details such as protocol, thread management, and so on.

Flask is a web application framework written in Python. It was developed by Armin Ronacher, who led a team of international Python enthusiasts called Poocco. Flask is based on the Werkzeg WSGI toolkit and the Jinja2 template engine.Both are Pocco projects.

WSGI

The Web Server Gateway Interface (Web Server Gateway Interface, WSGI) has been used as a standard for Python web application development. WSGI is the specification of a common interface between web servers and web applications.

Werkzeug

Werkzeug is a WSGI toolkit that implements requests, response objects, and utility functions. This enables a web frame to be built on it. The Flask framework uses Werkzeg as one of its bases.

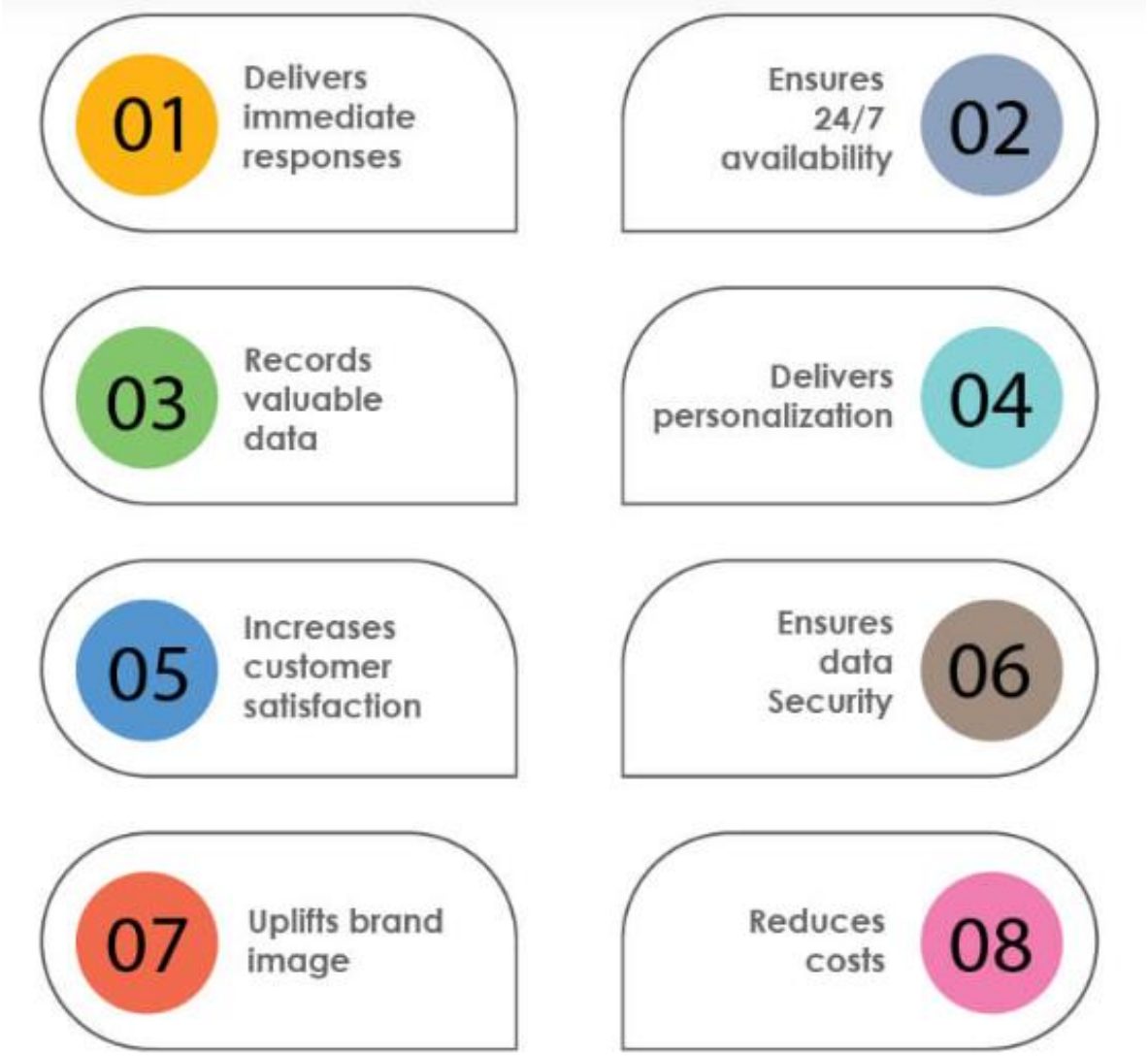
jinja2

jinja2 is a popular template engine for Python.A web template system combines a template with a specific data source to render a dynamic web page.

CHAPTER 08

TESTING

8.1 TEST CASES



1. Delivers immediate responses:

Chatbots can respond quickly as soon as it receives customer queries. It helps businesses meet the ever-rising customer demand for quick query resolution and deliver immediate responses in real-time.

2. Ensures 24/7 availability:

Today, customers want business services to be available 24/7 and need their queries to be solved at the click of a button. AI conversational bots resolve customer queries in real-time 24/7, which ultimately enhances CX.

3. Records valuable data:

Conversational bots record various types of data when it interacts with the users, such as customer likes, dislikes, preferences, and this information is then used by businesses to increase user engagement.

4. Delivers personalization:

AI-based bots are backed by ML and NLP technology, which helps bots learn information explicitly from past interactions. Thus, they provide a more accurate and personalized response to users.

5. Increases customer satisfaction:

AI conversational bots ensure faster delivery of responses and customized or personalized responses, which ultimately increases customer engagement and leads to customer satisfaction.

6. Ensures data Security:

AI chatbot ensures data security as it is end-to-end encrypted, authenticated, and authorized. It follows specific regulatory policies/protocols and ensures no data leak happens when a user interacts with it.

7. Uplifts brand image:

A conversational agent or bot helps businesses deliver accurate and timely responses to customers. This not only increases CX but also uplifts the brand's image.

8. Reduces costs:

Chatbots help in reducing overall costs by reducing manpower. By leveraging these bots, businesses can automate many business processes, which ultimately leads to reduced costs and enhanced CX.

8.2 USER ACCEPTANCE TESTING

The importance of assuring the quality of chatbot is very important. So, the main priority is to test that the chatbot functionality is as per requirements and goals. It is very important that user testing is done on a chatbot before releasing it to the market. Also, it is very important to test the chatbot with different users and people with different personalities.

UAT should be carried out after full implementation of the bot is complete including integration of intents, entities, Smalltalk, fallback, and fulfilment

CHAPTER 09
RESULT

9.1 PERFORMANCE METRICS:

- Decrease of first-level call rate
- Duration of calls generated by the chatbot (via web-callback)
- Email reduction rate
- Escalation rate

1. **Self-service rate:**

   percentage of user sessions that did not end with a contact action after using the bot.

2. **Performance rate:**

   number of correct answers divided by the number of active sessions (a correct answer is an answer suggested by the bot and clicked by the user in case of multiple choices – or opened instantly in case of strong semantic matching).

3. **Usage rate per login:**

   volume of active user sessions on the chatbot. To balance out with the average number of sessions on your website.

4. **Bounce rate:**

   volume of sessions where the chatbot was opened but not used

5. **Satisfaction rate:**

   average grade given when evaluating the chatbot's answers (to balance out with the evaluation rate).

6. **Evaluation rate:**

   percentage of user sessions that have given an evaluation of the chatbot's answers at least once.

7. **Average chat time:**

   allows you to evaluate your users' interest for your chatbot.

8. **Average number of interactions:**

   used to evaluate the Customer Effort Score on the chatbot and must be correlated to the satisfaction rate. If the latter is very low, the bot may be engaging the users in too many branches and steps to meet their needs. In this case, a resolution can be to correct the decision trees or knowledge base architecture.

9. **Goal completion rate:**

   in case your bot contains targeted actions like CTAs, a form or some cross-selling, that is the rate of users who have reached that specific action through the chatbot.

10. **Non-response rate:**

    the amount of times the chatbot has failed to push some content following a user question (due to lack of content or misunderstanding).

CHAPTER 10

ADVANTAGES AND DISADVANTAGES

ADVANTAGES

Natural Language Generation (NLG) enables machines to generate naturallanguage so that machine may interact with human in their natural language.

Use Cases: Machines can communicate to human customers in human language in an intelligent and understandable manner.

There are several managerial implications of this study for the banking sector.

First, significant effects of perceived compatibility and perceived usefulness on behavioral intention indicate that consumers expect banking chatbots to be compatible with their lifestyle and to provide benefits for them.

DISADVANTAGES

A big disadvantage of AI is that it cannot learn to think outside the box. AIis capable of learning over time with prefer data and past experiences, but cannot be creative in its approach.

While the current study adds to the existing literature, its limitations should be acknowledged. First, the questionnaire respondents were mainly young, highly educated individuals whose actions may vary somewhat from the population average.

Thus, the study sample is not representative and the findings are not generalizable.

CHAPTER 11

CONCLUSION

Thus this project banking bot will be more efficient while it is been put into practice and it helps the customers to easily perform the user's action of performing various banking tasks. It allows the user having various bank accounts to integrate into a single interface and he/she can add their account details into this bot account and easily perform their banking operations within seconds. The user will definitely have accounts in various banks. It will be tedious for the user to login to the various internet banking site every time so this bot will be handy at this situation and it is interactive too. If we consider the bot's safety, it is been secured through the one time password. So user will have no issues in using this bot.

This banking bot will be really helpful when it is been integrated with the payment gateway. Still no such development like this is not been implemented in real time environment.

When this is been implemented in the real time the customers will be able to access all the banking information from a single integrated site that can be any like social media or web application.

Since the information has the OTP generation, the application will be a protected one and this can be safely integrated in the real time basis.

CHAPTER 12
FUTURE SCOPE

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 are increasingly used in different sectors. They can communicate with your target market by speaking with them in complete sentences with a natural and easy-going conversational flow. Some markets that these bots serve include customer service and retail, amongst others.

CHAPTER 13
APPENDIX

13.1 SOURCE CODE

HTML:

```
<html>

<head>
    <base href="/">
    <title>Open Financial Cognitive Conversation</title>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta property="og:image" content="conversation.svg" />
    <meta property="og:title" content="Conversation Chat Simple" />
    <meta property="og:description"
        content="Sample application that shows how to use the Conversation API to identify user
intents" />
    <link rel="shortcut icon" href="favicon.ico" type="image/x-icon">
    <link rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/4.0.0/css/bootstrap.min.css"
        integrity="sha384-
Gn5384xqQ1aoWXA+058RXPxPg6fy4IWvTNh0E263XmFcJlSAwiGgFAW/dAiS6JXm"
crossorigin="anonymous">
    <link rel="stylesheet" href="css\app.css">
    <style type="text/css">
        body {
            padding-top: 3.5rem;
        }
    </style>
</head>

<body>

    <nav class="navbar navbar-expand-md navbar-dark fixed-top bg-dark">
        <a class="navbar-brand" href="#">Open Financial Bank</a>
        <button class="navbar-toggler" type="button" data-toggle="collapse" data-
target="#navbarsExampleDefault"
```

```
        aria-controls="navbarsExampleDefault" aria-expanded="false" aria-label="Toggle
navigation">
        <span class="navbar-toggler-icon"></span>
      </button>

      <div class="collapse navbar-collapse" id="navbarsExampleDefault">
        <ul class="navbar-nav mr-auto">
          <li class="nav-item active">
            <a class="nav-link" href="#">Home <span class="sr-only">(current)</span></a>
          </li>
          <li class="nav-item">
            <a class="nav-link" href="#">About Us</a>
          </li>
          <li class="nav-item dropdown">
            <a class="nav-link dropdown-toggle" href="#" id="dropdown01" data-
toggle="dropdown"
              aria-haspopup="true" aligned="false">Services</a>
            <div class="dropdown-menu" aria-labelledby="dropdown01">
              <a class="dropdown-item" href="#">Banking</a>
              <a class="dropdown-item" href="#">Investment</a>
              <a class="dropdown-item" href="#">Home Loan</a>
            </div>
          </li>
        </ul>
        <ul class="navbar-nav navbar-right">
          <li class="nav-item">
            <a class="nav-link" href="#">Login</a>
          </li>
          <li class="nav-item">
            <a class="nav-link" href="#">Register</a>
          </li>
        </ul>
      </div>
    </nav>

    <main role="main">
      <div class="jumbotron">
        <div class="container">
          <center><h1 class="display-3">Welcome to Open Financial Bank</h1>
```

```
            <p>We provide extensive services from retail banking, investment, home loan, auto
loan and many more</p>
            <p><a class="btn btn-danger btn-lg" href="#" role="button">Learn more
&raquo;</a></p></center>
          </div>
        </div>
    <script>
        window.watsonAssistantChatOptions = {
          integrationID: "04b5ca2a-9903-4410-b6a2-91aeffe95822", // The ID of this integration.
          region: "us-south", // The region your integration is hosted in.
          serviceInstanceID: "a6e52938-6422-421c-bb44-02b6c7fa7d7c", // 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>
    <script src="https://code.jquery.com/jquery-3.2.1.slim.min.js"
        integrity="sha384-
KJ3o2DKtIkvYIK3UENzmM7KCkRr/rE9/Qpg6aAZGJwFDMVNA/GpGFF93hXpG5KkN"
        crossorigin="anonymous"></script>
    <script src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.12.9/umd/popper.min.js"
        integrity="sha384-
ApNbgh9B+Y1QKtv3Rn7W3mgPxhU9K/ScQsAP7hUibX39j7fakFPskvXusvfa0b4Q"
        crossorigin="anonymous"></script>
    <script src="https://maxcdn.bootstrapcdn.com/bootstrap/4.0.0/js/bootstrap.min.js"
        integrity="sha384-
JZR6Spejh4U02d8jOt6vLEHfe/JQGiRRSQQxSfFWpi1MquVdAyjUar5+76PVCmYl"
        crossorigin="anonymous"></script>
  </body>
</html>
```

CSS

```
* {
  -webkit-box-sizing: border-box;
  -moz-box-sizing: border-box;
  box-sizing: border-box;
}

body {
    background-color: white;
    background-repeat:no-repeat;
    background-position:left;
    background-attachment:fixed;
  margin: 0;
    padding: 0;
    background-size:cover;
    }

div {
  word-wrap: break-word;
  line-height: 1.25rem;
}

#view-change-button {
  display: inline-block;
  position: absolute;
  width: 3.125rem;
  height: 3.125rem;
  border-radius: 1.5625rem;
  background: #AB72F8;
  top: 0.3125rem;
  right: 0.3125rem;
  line-height: 3.125rem;
  vertical-align: middle;
}

#view-change-button img {
  display: none;
  width: 100%;
  height: 100%;
```

```
  vertical-align: middle;
}

#view-change-button:not(.full) .not-full {
  display: inline-block;
}

#view-change-button.full .full {
  display: inline-block;
}

.responsive-columns-wrapper {
  display: -ms-flexbox;
  display: -webkit-flex;
  display: flex;
  flex-direction: row;
  -ms-display: flex;
  -ms-flex-direction: row;
}

.responsive-column {
  -webkit-flex: 1;
  -ms-flex: 1;
  flex: 1;
  overflow: auto;
}

#chat-column-holder {
  text-align: center;
}

.chat-column {
  height: 60%;
  padding: 0.9375rem 0 0.625rem 0;
  margin: auto;
  position: absolute;
  bottom: 10;
  right:3%;
  text-align: left;
  max-width: 25rem;
```

```
  min-width: 9.375rem;
  border: 1px solid #b2b2b2;
  border-color:none;
  background-color: #f2f4f4;
  box-shadow: rgba(0, 0, 0, 0.12) 0px 1px 6px, rgba(0, 0, 0, 0.12) 0px 1px 4px;
}

#scrollingChat {
  padding-left: 0.75rem;
  overflow-y: auto;
  overflow-x: hidden;
  height: calc(100% - 4rem);
  border-bottom: 1px solid #b2b2b2;
}

.message-inner {
  opacity: 0;
  margin-top: 0.9375rem;
  -webkit-transition-property: opacity, margin-top;
  -webkit-transition-duration: 0.75s;
  -webkit-transition-timing-function: ease-in;
  -moz-transition-property: opacity, margin-top;
  -moz-transition-duration: 0.75s;
  -moz-transition-timing-function: ease-in;
  -o-transition-property: opacity, margin-top;
  -o-transition-duration: 0.75s;
  -o-transition-timing-function: ease-in;
  -ms-transition-property: opacity, margin-top;
  -ms-transition-duration: 0.75s;
  -ms-transition-timing-function: ease-in;
  transition-property: opacity, margin-top;
  transition-duration: 0.75s;
  transition-timing-function: ease-in;
}

.load .message-inner {
  opacity: 1;
  margin-top: 0.3125rem;
}
```

```
.from-user {
  text-align: right;
}

.from-user .message-inner {
  position: relative;
  font-size: 1rem;
  color: black;
  letter-spacing: 0.015rem;
  line-height: 1.3125rem;
  background: #aed6f1;
  border-radius: 1.25rem;
  text-align: left;
  display: inline-block;
  margin-left: 2.5rem;
  margin-right: 27px;
  min-width: 2.5rem;
}

.from-user .message-inner p {
  margin: 0.3125rem;
  padding: 0 0.935rem;
}

.from-user .message-inner:before, .from-user .message-inner:after {
  content: "";
  position: absolute;
}

.from-user
{
  padding: 0 0.91rem 0 0;
}

.from-user .message-inner:before {
}

.from-user .message-inner:after {
  background-image: url("../img/customer.png");
  z-index: 2;
```

```
  background-size: 30px 30px;
  background-repeat: no-repeat;
  position: absolute;
  right: -4rem;
  width: 3.3125rem;
  height: 2.97rem;
  top:-3px;
  margin-left: 20px;
}

.from-watson .message-inner {
  position: relative;
  border-radius: 1.5625rem;
  font-size: 1rem;
  letter-spacing: 0.015rem;
  line-height: 1.3125rem;
}

.from-watson.latest .message-inner {
  color: #323232;
}

.from-watson p {
  margin: 0.3125rem;
  padding: 0 0 0 3.25rem;
}

.from-watson.top p:before {
  content: "";
  background-image: url("../img/call_center.png");
  background-size: 30px 30px;
  background-repeat: no-repeat;
  position: absolute;
  z-index: 2;
  left: 1.0rem;
  width: 3.3125rem;
  height: 2.97rem;
  line-height: 1.3125rem;
}
```

```
#textInput {
  border: none;
  outline: none;
  background: transparent;
  font-size: 1rem;
  color: #323232;
  letter-spacing: 0.015rem;
  line-height: 1.3125rem;
  height: 2.5rem;
  max-width: 100%;
  padding-left: 0.125rem;
  margin-bottom: -0.125rem;
  font-family: Helvetica Neue for IBM, Helvetica Neue, Helvetica, Arial, sans-serif;
  background-color:#FFFFFF;
}

#textInput.underline {
  border-bottom: 0.125rem solid #d6dbdf;
}

::-webkit-input-placeholder {
  color: #B5B5B5;
}

::-moz-placeholder {
  color: #B5B5B5;
  opacity:  1;
}

input:-moz-placeholder {
  color: #B5B5B5;
  opacity:  1;
}

:-ms-input-placeholder {
  color: #B5B5B5;
}

::-ms-clear {
  display: none;
```

```
}

.inputOutline {
  display: block;
  margin-left: 0.75rem;
  margin-right: 0.75rem;
  margin-bottom:0.1rem;
  border: 1px solid #f5f5dc;
  padding: 1px;
  background-color:#FFFFFF;
  margin-top: 0.75rem;
}

#textInputDummy {
  position:absolute;
  white-space:pre;
  top: 0;
  left: -1000%;
  opacity: 0;
}

#payload-column {
  font-family: Monaco, monospace;
  font-size: 0.75rem;
  letter-spacing: 0;
  line-height: 1.125rem;
  background-color: #23292A;
  color: #fff;
  overflow-x: auto;
  width: 45%;
  max-width: 32.0625rem;
  min-width: 29.6875rem;
}

#payload-column.full {
  width: 100%;
  max-width: none;
  min-width: initial;
}
```

```
#payload-column .header-text, #payload-column #payload-initial-message {
  font-family: Helvetica Neue for IBM, Helvetica Neue, Helvetica, Arial, sans-serif;
  font-size: 1.125rem;
  color: #9E9E9E;
  letter-spacing: 0.01875rem;
  padding: 0.5rem;
  padding-left: 2.5rem;
  background: #383D3E;
}

.hide {
  display: none;
}

.payload .line-numbers, .payload .payload-text {
  padding: 0.5rem;
}

.line-numbers {
  width: 2rem;
  color: #898989;
  text-align: right;
}

pre {
  margin: 0;
  word-wrap: normal;
}

.string {
  color: #54EED0;
}

.boolean, .null, .number {
  color: #CE8EFF;
}

.key {
  color: #66B7FF;
}
```

```
html{
  font-size: 16px;
}

@media only screen and (max-width: 1000px) {
  html {
    font-size: 15px;
  }
}

@media only screen and (max-width: 600px) {
  html {
    font-size: 14px;
  }

  .chat-column {
    padding-top: 60rem;
  }

  #payload-column {
    width: 0;
    max-width: none;
    min-width: initial;
  }
}

/* IBM Design fonts https://github.ibm.com/Design/fonts */
@font-face {
  font-family: 'Helvetica Neue for IBM';
  src: url('../fonts/light/h-n-light.eot?') format('eot'),
  url('../fonts/light/h-n-light.woff2') format('woff2'),
  url('../fonts/light/h-n-light.woff') format('woff'),
  url('../fonts/light/h-n-light.ttf') format('truetype');
  font-weight: 300;
  font-style: normal;
}
@font-face {
  font-family: 'Helvetica Neue for IBM';
  src: url('../fonts/light-italic/h-n-light-italic.eot?') format('eot'),
```

```
  url('../fonts/light-italic/h-n-light-italic.woff2') format('woff2'),
  url('../fonts/light-italic/h-n-light-italic.woff') format('woff'),
  url('../fonts/light-italic/h-n-light-italic.ttf') format('truetype');
  font-weight: 300;
  font-style: italic;
}
@font-face {
  font-family: 'Helvetica Neue for IBM';
  src: url('../fonts/roman/h-n-roman.eot?') format('eot'),
  url('../fonts/roman/h-n-roman.woff2') format('woff2'),
  url('../fonts/roman/h-n-roman.woff') format('woff'),
  url('../fonts/roman/h-n-roman.ttf') format('truetype');
  font-weight: 400;
  font-style: normal;
}
@font-face {
  font-family: 'Helvetica Neue for IBM';
  src: url('../fonts/roman-italic/h-n-roman-italic.eot?') format('eot'),
  url('../fonts/roman-italic/h-n-roman-italic.woff2') format('woff2'),
  url('../fonts/roman-italic/h-n-roman-italic.woff') format('woff'),
  url('../fonts/roman-italic/h-n-roman-italic.ttf') format('truetype');
  font-weight: 400;
  font-style: italic;
}
@font-face {
  font-family: 'Helvetica Neue for IBM';
  src: url('../fonts/medium/h-n-medium.eot?') format('eot'),
  url('../fonts/medium/h-n-medium.woff2') format('woff2'),
  url('../fonts/medium/h-n-medium.woff') format('woff'),
  url('../fonts/medium/h-n-medium.ttf') format('truetype');
  font-weight: 500;
  font-style: normal;
}
@font-face {
  font-family: 'Helvetica Neue for IBM';
  src: url('../fonts/medium-italic/h-n-medium-italic.eot?') format('eot'),
  url('../fonts/medium-italic/h-n-medium-italic.woff2') format('woff2'),
  url('../fonts/medium-italic/h-n-medium-italic.woff') format('woff'),
  url('../fonts/medium-italic/h-n-medium-italic.ttf') format('truetype');
  font-weight: 500;
```

```
  font-style: italic;
}
@font-face {
  font-family: 'Helvetica Neue for IBM';
  src: url('../fonts/bold/h-n-bold.eot?') format('eot'),
  url('../fonts/bold/h-n-bold.woff2') format('woff2'),
  url('../fonts/bold/h-n-bold.woff') format('woff'),
  url('../fonts/bold/h-n-bold.ttf') format('truetype');
  font-weight: 700;
  font-style: normal;
}
@font-face {
  font-family: 'Helvetica Neue for IBM';
  src: url('../fonts/bold-italic/h-n-bold-italic.eot?') format('eot'),
  url('../fonts/bold-italic/h-n-bold-italic.woff2') format('woff2'),
  url('../fonts/bold-italic/h-n-bold-italic.woff') format('woff'),
  url('../fonts/bold-italic/h-n-bold-italic.ttf') format('truetype');
  font-weight: 700;
  font-style: italic;
}

/* IBM Icons */
@font-face {
  font-family: 'ibm-icons';
  src:url('../fonts/ibm-icons.eot?ytcz1z') format('eot'),
  url('../fonts/ibm-icons.eot?ytcz1z#iefix') format('embedded-opentype'),
  url('../fonts/ibm-icons.ttf?ytcz1z') format('truetype'),
  url('../fonts/ibm-icons.woff?ytcz1z') format('woff'),
  url('../fonts/ibm-icons.svg?ytcz1z#ibm-icons') format('svg');
  font-weight: normal;
  font-style: normal;
}

/* IBM glyphs */
@font-face {
  font-family: 'ibm-glyph';
  src:url('../fonts/ibm-glyphs.eot?1b8643') format('eot'),
  url('../fonts/ibm-glyphs.eot?1b8643#iefix') format('embedded-opentype'),
  url('../fonts/ibm-glyphs.ttf?1b8643') format('truetype'),
  url('../fonts/ibm-glyphs.woff?1b8643') format('woff'),
```

```
  url('../fonts/ibm-glyphs.svg?1b8643#ibm-glyph') format('svg');
  font-weight: normal;
  font-style: normal;
}




.btn-primary {
    color: #fff;
    background-color: #337ab7;
    border-color: #2e6da4;

  padding: 5px 10px;
    font-size: 12px;
    line-height: 1.5;
    border-radius: 3px;
  cursor:pointer;
}


.image img
 { width: 67px;
    height: 102px;
  }
  .title {
      font-size: 12px;
      font-family: 'Roboto-regular';
  }

  .text-left {
      text-align: left;
  }


.block .product{
display: inline-block;
margin-right: 20px;
  }
```

```
 .p1{
background-image: url("../img/watch.png");
}


.p2{
background-image: url("../img/phone1.jpg");
}

 .html
{background:url("../img/OFNpage.png") no-repeat center fixed;
background-size:cover;
}
```

IBM WATSON EMBEDED

```
   <script>
      window.watsonAssistantChatOptions = {
         integrationID: "04b5ca2a-9903-4410-b6a2-91aeffe95822", // The ID of this integration.
         region: "us-south", // The region your integration is hosted in.
         serviceInstanceID: "a6e52938-6422-421c-bb44-02b6c7fa7d7c", // 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>
```

PYTHON FLASK

```
from flask import Flask, render_template
app = Flask(__name__)


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


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

13.2 GITHUB & PROJECT DEMO LINK

Link: https://github.com/IBM-EPBL/IBM-Project-24615-1659945759