CHAT BOT USING IBM WATSON
PHASE-1
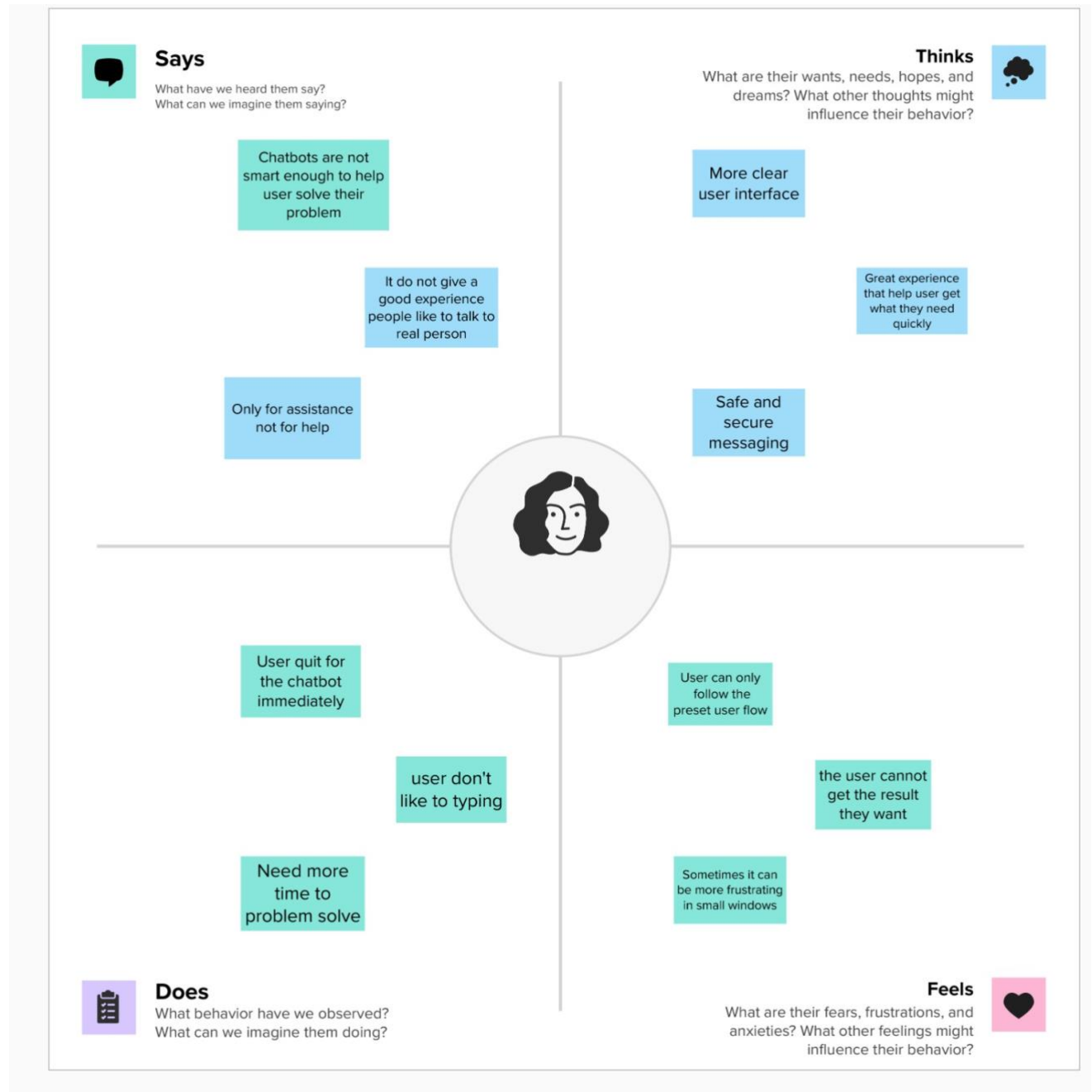
Problem Statement :

Problem Statement(PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	User	Recover my password	I can't find the recovery password	I cannot remember my password	upset
PS-2	student	Convey my thoughts to other language person	The language is barrier	I don't know many languages	frustrated
PS-3	User	Turn off my notifications	I cant find the notification option	I don't know whwre is the notification	sad

Problem definition :

- The primary objective of this project is to develop an AI-powered FAQ chatbot using IBM Watson Assistant for messaging platforms.
- The chatbot should streamline the support process by providing quick, accurate, and consistent responses to user inquiries.
- It aims to enhance user satisfaction by improving the accessibility of frequently asked information.
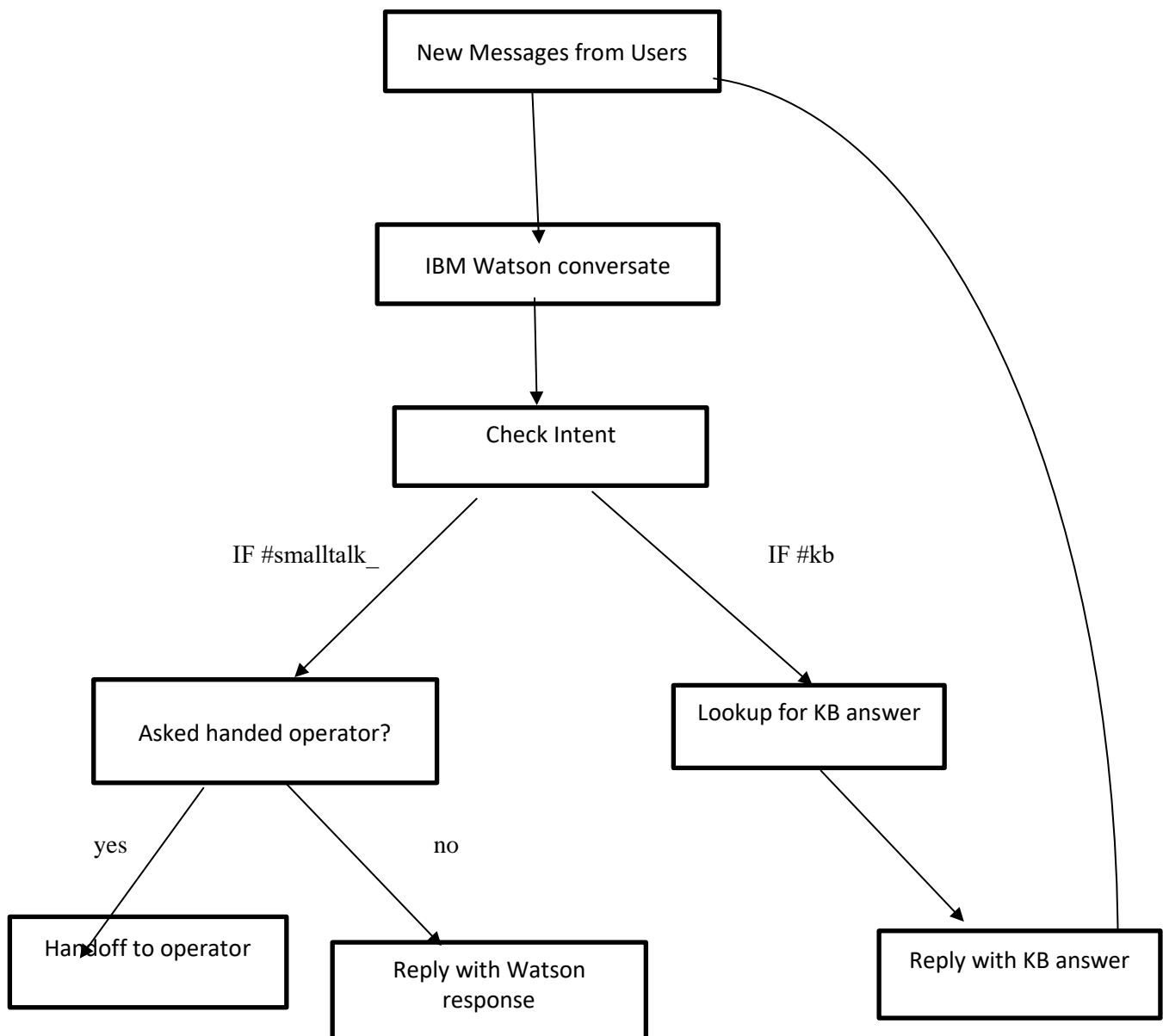
Empathy Map:

Says
What have we heard them say?
What can we imagine them saying?

Chatbots are not smart enough to help user solve their problem

It do not give a good experience people like to talk to real person

Only for assistance not for help

Thinks
What are their wants, needs, hopes, and dreams? What other thoughts might influence their behavior?

More clear user interface

Great experience that help user get what they need quickly

Safe and secure messaging

Does
What behavior have we observed?
What can we imagine them doing?

User quit for the chatbot immediately

user don't like to typing

Need more time to problem solve

Feels
What are their fears, frustrations, and anxieties? What other feelings might influence their behavior?

User can only follow the preset user flow

the user cannot get the result they want

Sometimes it can be more frustrating in small windows

Brainstorming:

List of ideas from team members

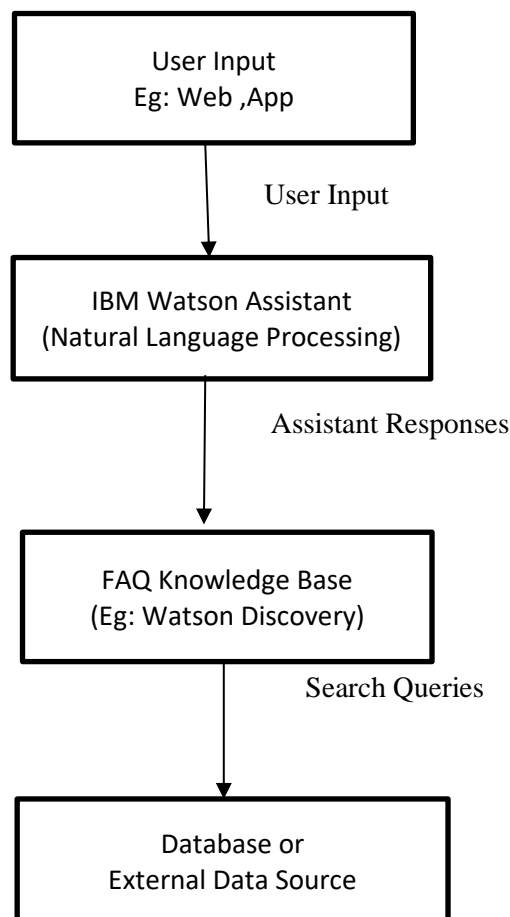|	
voice recognition system	Voice and text input
personalisation	Multilingual support
User Friendly	Easily assessible
Open source	Training
FAQ Documentation	NLP Enhancements
Scalability	Quick Response

Voice recognition and Voice input	**Easily assesible and Open Source**
Multilingual Support	**Training and FAQ Documentation**

Flow Diagram:

```
                              ┌─────────────────────────┐
                              │  New Messages from Users │──────┐
                              └─────────────────────────┘      │
                                          │                    │
                                          ▼                    │
                              ┌─────────────────────────┐      │
                              │   IBM Watson conversate  │      │
                              └─────────────────────────┘      │
                                          │                    │
                                          ▼                    │
                              ┌─────────────────────────┐      │
                              │      Check Intent        │      │
                              └─────────────────────────┘      │
                               │                       │       │
                    IF #smalltalk_              IF #kb         │
                               │                       │       │
                               ▼                       ▼       │
                   ┌─────────────────────┐   ┌─────────────────────┐
                   │ Asked handed operator?│  │  Lookup for KB answer │
                   └─────────────────────┘   └─────────────────────┘
                      │              │                  │        │
                    yes             no                  │        │
                      │              │                  ▼        ▼
          ┌─────────────────┐  ┌─────────────────┐  ┌─────────────────────┐
          │ Handoff to operator│ │ Reply with Watson│ │  Reply with KB answer │
          └─────────────────┘  │    response      │ └─────────────────────┘
                               └─────────────────┘
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Architecture Diagram:

Architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions.

```
┌─────────────────────────────┐
│         User Input          │
│       Eg: Web ,App          │
└─────────────────────────────┘
             │
             │  User Input
             ▼
┌─────────────────────────────┐
│     IBM Watson Assistant     │
│ (Natural Language Processing)│
└─────────────────────────────┘
             │
             │  Assistant Responses
             ▼
┌─────────────────────────────┐
│      FAQ Knowledge Base      │
│    (Eg: Watson Discovery)    │
└─────────────────────────────┘
             │
             │  Search Queries
             ▼
┌─────────────────────────────┐
│        Database or           │
│     External Data Source     │
└─────────────────────────────┘
```

1.User Interface: This is where users interact with the chatbot. It could be a web User interface, a mobile app, or any other platform where users can input their questions or requests.

2.User Input: Users enter their questions or requests into the chatbot interface. This input is then sent to the IBM Watson Assistant for processing.

3.IBM Watson Assistant: This is the core of the chatbot's natural language processing capabilities. It uses machine learning and natural language understanding to interpret user queries and generate appropriate responses. It can also maintain conversation context for more meaningful interactions.

4.FAQ Knowledge Base: In this architecture, the FAQ knowledge base is hosted in a service like IBM Watson Discovery. It contains structured data or documents that the chatbot can search for answers to user questions. The FAQ knowledge base should be pre-populated with frequently asked questions and their answer.

5.Search Queries: When a user asks a question, Watson Assistant may need to query the FAQ

knowledge base to find the most relevant answer. It sends search queries to the knowledge base to retrieve information.

6.Database or External Data Source: In some cases, the chatbot may need to access additional data or information from external databases or data sources. This could include user-specific data or dynamic content that is not stored in the FAQ knowledge base.

LITERATURE SURVEY :

TOPIC	YEAR	AUTHOR	SOURCE	FINDINGS
FAQ (Frequently Asked Questions) ChatBot for Conversation	2020	Farhana Sethi	International Journal of Computer Sciences and Engineering	An FAQ (Frequently Asked Questions) chatBot is a type of internet bot or software application that is beneficial for answering some of the most frequently asked questions your customers may have. FAQ bots help direct customers to the right website pages and provide answers easily any time of the day.
FAQ CHATBOT in open online courses	2022	Songheehan	ELSEVIER	Recognizing the research gap involving the lack of equity considerations in new technology implementation, this study compares students' learning experiences when using an FAQ chatbot with using an FAQ webpage.
Chatbot for university related FAQ	2017	B. R. Ranoliya, N. Raghuwanshi and S. Singh	IEEE	—Chatbots are programs that mimic human conversation using Articial Intelligence (AI). It is designed to be the ultimate virtual assistant, entertainment purpose, helping one to complete tasks ranging from

				answering questions, getting driving directions, turning up the thermostat in smart home, to playing one's favorite tunes etc.
Chatbots in education	2019	S Cunningham-Nelson, W Boles	RESEARCH PAPER	FAQ chatbots can be seen across many businesses as an interactive way for customers or users to gain knowledge
Using a Chatbot as a FAQ Assistant in a Course about Computers Architecture	2018	Fernando A. Mikic-Fonte ;Manuel Caeiro-Rodríguez	IEEE	This Research to Practice Work in Progress presents a chatterbot used as a frequently asked questions assistant for students that follow a Computers Architecture course in the degree of Telecommunication Engineering Technology

DESIGN THINKING :

1.Persona design :
Creating personas is a valuable step in the design process for your FAQ chatbot project. Personas help you better understand your target users, their needs, and their behaviors, which can guide the design and functionality of the chatbot.

2.User Scenarios :
user scenarios are narratives that describe how different types of users will interact with your FAQ chatbot in various situations. They help you envision the chatbot's functionality and user experience.

3.Conversation Flow :
Creating a conversation flow for your FAQ chatbot is essential to ensure a smooth and efficient user experience.

4.Response Configuration :
Configuring responses for your FAQ chatbot is a crucial step to ensure that it provides accurate, informative, and user-friendly answers

5.Platform Integration :
Integrating your FAQ chatbot with messaging platforms is a critical step to ensure it reaches your target audience where they already communicate.