

PHASE – 1

Problem Definition and Design Thinking

Date	28 September 2023
Team Id	Group 4
Project Name	AI-Chatbot
Maximum Marks	

Abstract:

Chatbots are artificial intelligence (AI) software that can simulate conversation with humans using natural language processing (NLP) techniques. Chatbots are used in a wide variety of applications, including customer service, education, healthcare, and entertainment.

One of the main benefits of chatbots is that they can provide 24/7 support to users. Chatbots can also be used to automate tasks, such as answering frequently asked questions, booking appointments, and placing orders. This can free up human employees to focus on more complex tasks.

Chatbots are becoming increasingly sophisticated and are able to understand and respond to human language in a more natural way. This is due to advances in NLP techniques, such as machine learning and deep learning.

Chatbots are still under development, but they have the potential to revolutionize the way we interact with computers. Chatbots can make it easier and more efficient for people to access information and services. They can also be used to create more engaging and interactive experiences for users.

Here are some specific examples of how chatbots are being used today:

- Customer service: Chatbots are used by many companies to provide customer service support. Chatbots can answer questions about products and services, help users troubleshoot problems, and even process returns and exchanges.
- Education: Chatbots are used in some schools and universities to provide students with personalized instruction and support. Chatbots can answer students' questions, help them with homework, and provide feedback on their work.
- Healthcare: Chatbots are used by some healthcare providers to answer patients' questions about their health, provide information about treatments and medications, and schedule appointments.

- Entertainment: Chatbots are used in some video games and other entertainment applications to create more engaging and interactive experiences for users.

Chatbots are a rapidly developing technology with the potential to impact many different industries. As chatbots become more sophisticated and capable, they are likely to play an even greater role in our lives.

Problem Definition:

Chatbots are a powerful tool that can be used to automate tasks and provide support to users. However, there are a number of challenges that need to be addressed in order to make chatbots more effective and widely adopted.

One of the main challenges is that chatbots are often unable to understand and respond to human language in a natural way. This can lead to frustration and confusion for users. Additionally, chatbots are often limited in the tasks they can perform. For example, they may not be able to handle complex or unexpected requests.

Another challenge is that chatbots can be expensive to develop and maintain. Additionally, they may require specialized training data in order to be effective. This can make it difficult for small businesses and organizations to adopt chatbots.

Finally, there are some concerns about the potential for chatbots to be used for malicious purposes, such as spreading misinformation or scamming users. It is important to develop safeguards to prevent chatbots from being misused.

Here are some specific problems that chatbots can face:

- Natural language understanding: Chatbots need to be able to understand the nuances of human language, including slang, idioms, and different dialects. This can be a difficult challenge, especially for chatbots that are used in a wide variety of domains.
- Limited task capabilities: Chatbots are often limited in the tasks they can perform. This is because they are typically trained on a specific set of data. As a result, chatbots may not be able to handle complex or unexpected requests.
- Cost and complexity: Chatbots can be expensive to develop and maintain. Additionally, they may require specialized training data in order to be effective. This can make it difficult for small businesses and organizations to adopt chatbots.
- Potential for misuse: Chatbots can be used for malicious purposes, such as spreading misinformation or scamming users. It is important to develop safeguards to prevent chatbots from being misused.

Despite these challenges, chatbots have the potential to revolutionize the way we interact with computers. As chatbots become more sophisticated and capable, they are likely to play an even greater role in our lives.

Solutions to chatbot problems

Researchers and developers are working on a number of ways to address the challenges facing chatbots. For example, they are developing new machine learning and deep learning algorithms to improve chatbots' natural language understanding capabilities. Additionally, they are working to develop chatbots that can learn from their interactions with users, which will make them more adaptable and capable.

Finally, researchers are also working to develop safeguards to prevent chatbots from being misused. For example, they are developing methods to detect and block malicious chatbots.

Overall, the future of chatbots looks bright. As chatbots become more sophisticated and capable, they are likely to play an even greater role in our lives.

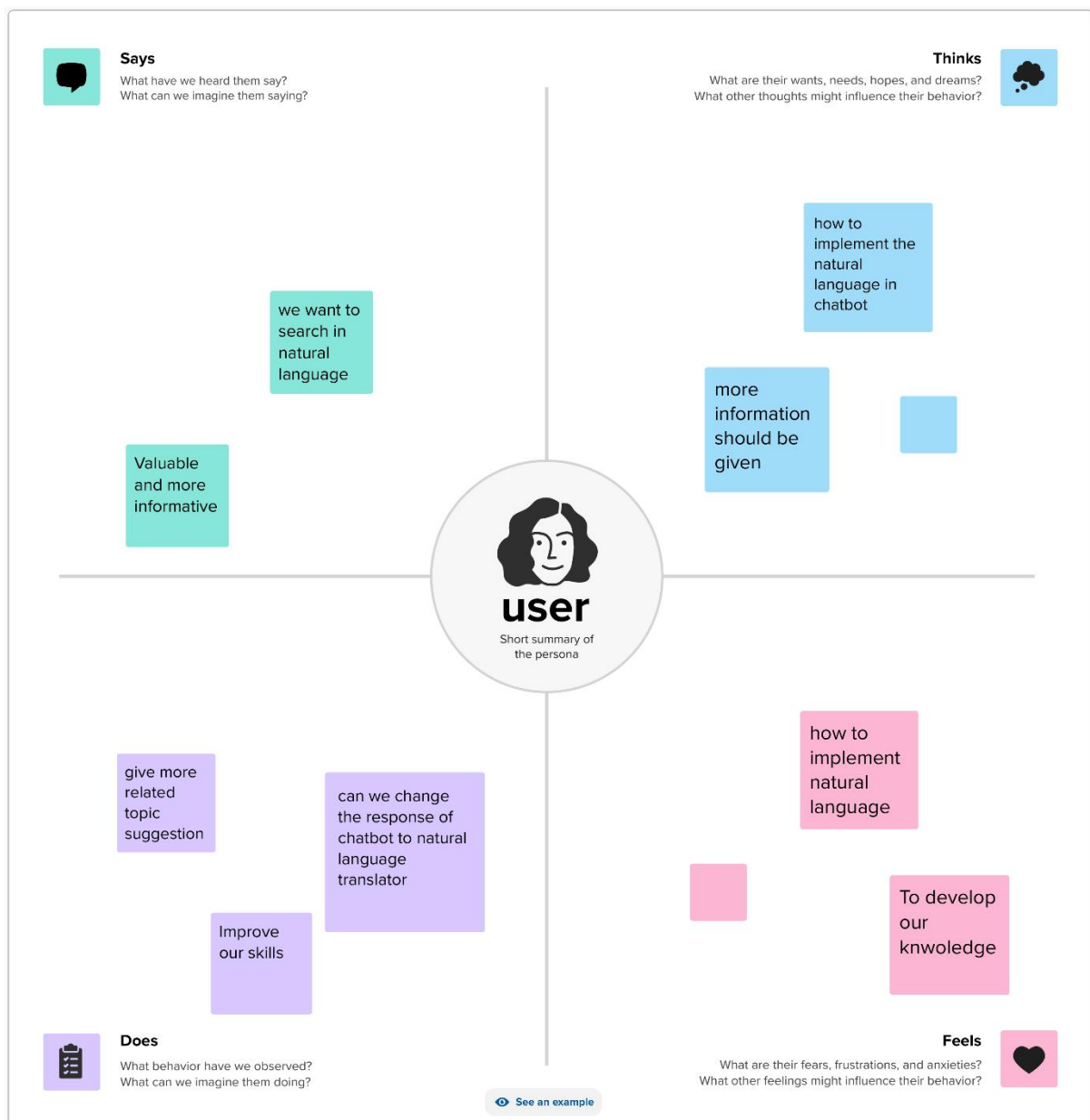
Problem statement(ps)	I am	I'm trying to	But	Because	Which makes me feel
Ps-1	user	Search in my own language	I can't search in my language	It can't understand my language	Frustrated

Design Thinking:

Empathy:

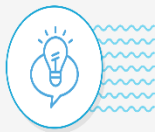
Empathetic chatbots are already being used in a variety of applications, including customer service, healthcare, and education. For example, chatbots are used in some customer service applications to provide support to customers who are feeling frustrated or angry. Chatbots are also used in some healthcare applications to provide support to patients who are feeling anxious or depressed.

Customer service: Empathetic chatbots are used by some companies to provide customer service support to customers who are feeling frustrated or angry. For example, the chatbot may use language that is sensitive to the customer's emotions and may offer to help the customer resolve their issue



BrainStroming:

- **Idea generation:** Chatbots can be used to generate new ideas by combining and recombining existing ideas, or by generating new ideas from scratch. Chatbots can be trained on a dataset of ideas, or they can use their knowledge of the world to generate new ideas.
- **Expanding on ideas:** Chatbots can be used to expand on existing ideas by generating new information or insights related to those ideas. For example, a chatbot could be used to generate a list of potential features for a new product, or to generate a list of potential marketing messages for a new product launch.



Brainstorm & idea prioritization

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

🕒 10 minutes to prepare

🕒 1 hour to collaborate

👤 2-8 people recommended



Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

🕒 10 minutes



Team gathering

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



Set the goal

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



Learn how to use the facilitation tools

Use the Facilitation Superpowers to run a happy and productive session.

[Open article](#) →

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 [your problem statement]?



Key rules of brainstorming

To run a smooth and productive session



Stay in topic.



Encourage wild ideas.



Defer judgment.



Listen to others.



Go for volume.



If possible, be visual.



Need some
inspiration?

See a Facilitation Superpower

2

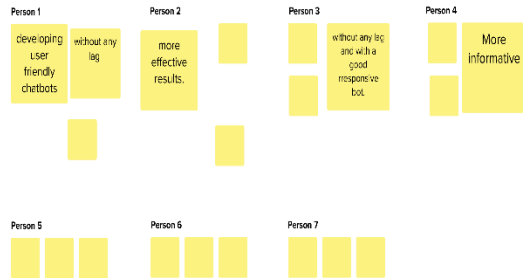
Brainstorm

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

🕒 10 minutes

TIP

You can select a sticky note and hit the pencil icon to sketch. (Don't start drawing!)



3

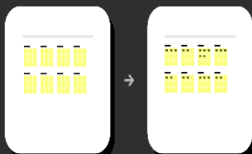
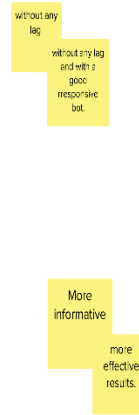
Group ideas

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 can break it up into smaller sub-groups.

🕒 20 minutes

TIP

Also customize tags to sticky notes to make it easier to find, organize or partition and categorize important ideas as themes within your board.



4

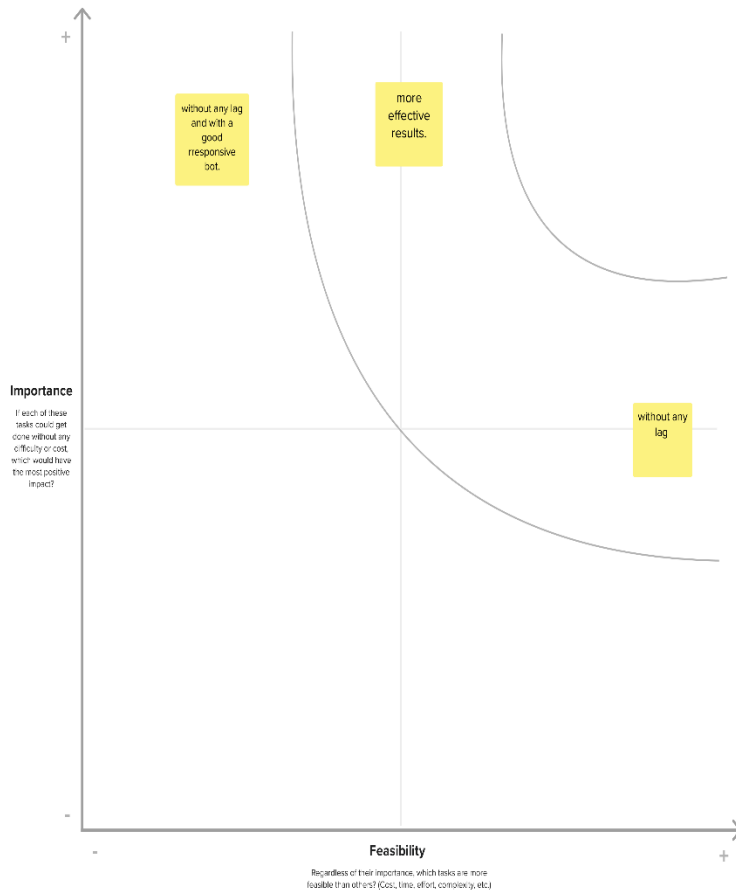
Prioritize

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

TIP

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



After you collaborate

You can export the mural as an image or pdf to share with members of your company who might find it helpful.

Quick add-ons

- A Share the mural**
Share a view link to the mural with stakeholders to keep them in the loop about the outcomes of the session.
- B Export the mural**
Export a copy of the mural as a PNG or PDF to attach to emails, include in slides, or save in your drive.

Keep moving forward

- Strategy blueprint**
Define the components of a new idea or strategy.
[Open the template →](#)
- Customer experience journey map**
Understand customer needs, motivations, and obstacles for an experience.
[Open the template →](#)
- Strengths, weaknesses, opportunities & threats**
Identify strengths, weaknesses, opportunities, and threats (SWOT) to develop a plan.
[Open the template →](#)

[Share template feedback](#)

