**1.Problem Statement:**

**Problem Description:**

Our project aims to address the common challenges and queries related to food delivery services. We intend to create a chatbot and web application that can assist users in finding information about restaurants, placing orders, checking delivery status, and resolving various food delivery-related inquiries.

**Motivation:**

The motivation behind choosing this problem is to simplify and enhance the user experience when ordering food online. The significance of this problem is evident as food delivery services have become an integral part of modern lifestyles. Users often have questions and encounter issues while using these services, making a chatbot a valuable solution.

**2.Design Thinking Process:**

**Empathize:**

In this phase, we engaged with potential users and gathered insights on their pain points and needs. We conducted surveys and interviews to understand the challenges users face when ordering food online. But we have not completely rectified but allowed others to use and enhanced it based upon their experience.

**Define:**

Based on the data collected, we identified specific problem areas and user requirements. We defined the primary goals and functionalities of our chatbot and web application.

**Ideate:**

We brainstormed various solutions and features that could address user needs. This involved ideation sessions and sketching out different chatbot and web application designs. we also tried of using different chatbot AI of different food delivery application and inherited our chatbot.

**Prototype:**

We created a prototype of the chatbot and web application to visualize the user interface and test its functionality. This phase included wireframing and creating a minimum viable product (MVP).

This prototype consists of less data approximately 150 data related to the chatbot. Still this chatbot could work well as a base model.

**Test:**

The prototype was tested with real users to gather feedback. We analyzed user interactions and made improvements based on their input, ensuring the chatbot and web application are user-friendly and effective.

**3.Phases of Development:**

**Data Collection:**

We collected a dataset of intents and responses related to food delivery. This dataset includes common user queries and chatbot responses, enabling the chatbot to understand user requests.

This dataset was stored in the ‘intents.json’ folder with all the needed data.

**Preprocessing:**

The collected data was preprocessed, which involved text tokenization, stemming, and creating a bag-of-words representation. This processed data is used for training the chatbot.

**Model Training:**

We trained a neural network-based chatbot using PyTorch. The chatbot's model was developed to classify user input and provide appropriate responses based on the trained data.

**Web Application Development:**

The web application was built using Flask, a Python web framework. It provides a user-friendly interface for interacting with the chatbot. Users can input queries, and the application displays chatbot responses.

**4.Libraries and NLP Techniques:**

Libraries and Tools:

Python

PyTorch

NLTK (Natural Language Toolkit)

Flask (for web application)

NLP Techniques:

We integrated NLP techniques into the chatbot to process and understand user queries. These techniques include tokenization, stemming, and bag-of-words representations for text analysis.

Chatbot Interaction:

Functionalities:

The chatbot can answer a wide range of user queries related to food delivery, including:

Restaurant recommendations

Placing orders

Tracking delivery status

Resolving issues with orders

Providing restaurant details

**5.User Interface:**

The chatbot's user interface is through a web application. Users interact with the chatbot by typing their queries in the input field. The chatbot responds with relevant information or suggestions. The interface is user-friendly and responsive.

**Web Application:**

**Purpose:**

The web application complements the chatbot by providing a graphical interface for users to interact with the chatbot. It allows users to type their questions, receive responses, and view chat history.

**Features and Functionalities:**

User-friendly chat interface

Real-time responses from the chatbot

Chat history displayed on the screen

Input field for users to type queries

**6.Innovative Techniques:**

**Custom Algorithm:**

One of the innovative techniques used in this project is the custom algorithm for intent recognition. We trained a neural network model to classify user input into predefined intents, allowing the chatbot to provide contextually relevant responses.

**User Experience Enhancement:**

We focused on enhancing the user experience by collecting and implementing user feedback during the design and testing phases. The iterative design process and user testing led to a more user-friendly and effective chatbot.

These sections provide an overview of your project documentation. You can expand on each section with more details, examples, and visuals as needed.