**Project Design Phase-II**
**Data Flow Diagram & User Stories**

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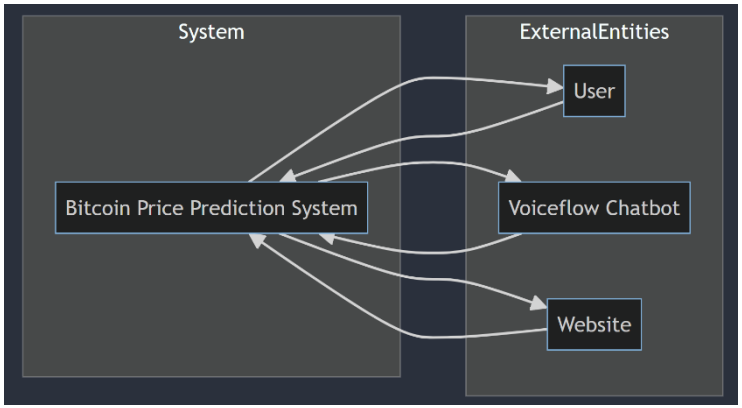
| Date | 03 October 2022 |
| Team ID | PNT2022TMIDxxxxxx |
| Project Name | Project - xxx |
| Maximum Marks | 4 Marks |

**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.

## Level 0 DFD:




**Website Interface:**

Inputs: User interactions, historical Bitcoin price data.

Processes: Collect and preprocess data, send data to Prophet and Chatbot, display results.

Outputs: Predicted Bitcoin prices, chatbot responses, and visualizations.

**Prophet Time Series Analysis:**

Inputs: Historical Bitcoin price data, user settings.

Processes: Apply Prophet algorithm for time series analysis and prediction.

Outputs: Predicted Bitcoin prices.

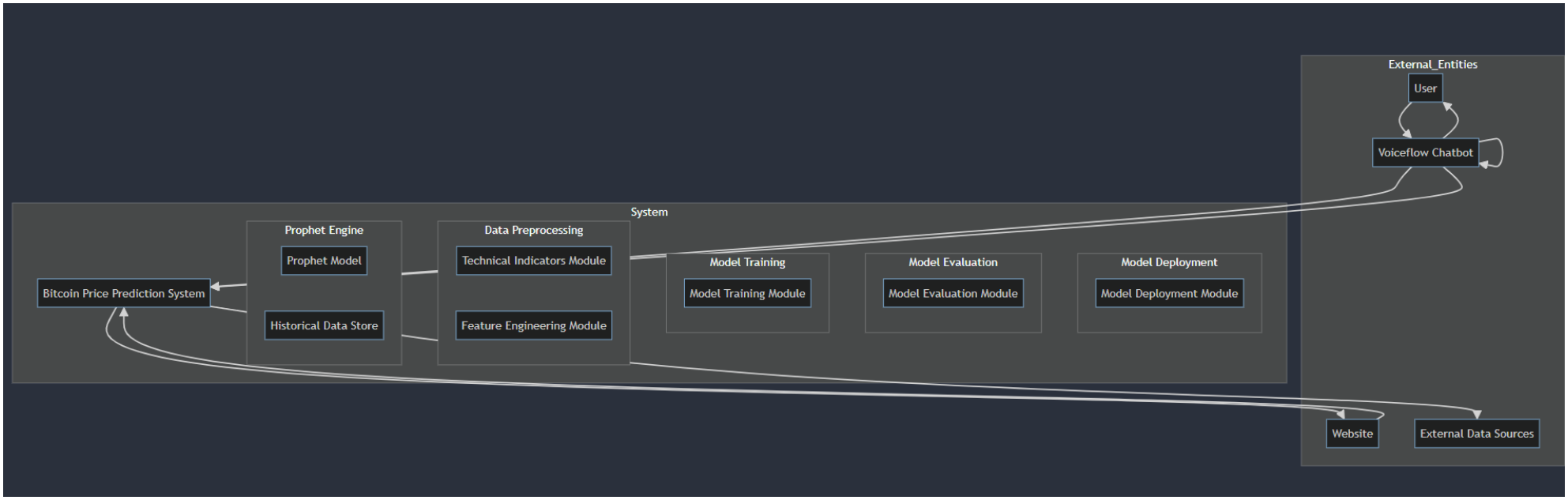
**Chatbot Interface:**

Inputs: User queries, predictions from Prophet.

Processes: Understand user queries, provide responses using Natural Language Processing (NLP).

Outputs: Chatbot responses.

## Level 1 DFD (Industry Standard):




## Level 2 DFD for Bitcoin Price Prediction System

- **User Interaction Process:**
- Collect user preferences and queries.
- Send user inputs to the Website Interface.

- **Website Interface:**
- Receive user inputs from the User Interaction Process.
- Validate and preprocess user inputs.
- Forward user preferences to the Prophet Engine for analysis.
- Display results to the user.

- **Prophet Engine:**
- Receive user preferences from the Website Interface.
- Retrieve historical data from the Historical Data Store.
- Apply time series analysis using the Prophet Model.
- Generate predictions and insights.

- **Chatbot Interface:**
- Handle user queries and responses.
- Communicate with the Prophet Engine for predictions.
- Facilitate real-time chatbot interactions.

- **External Data Sources:** Provide external data for analysis, including market data, news, and social sentiment.

- **Historical Data Store:** Store and manage historical Bitcoin price data.

- **Prophet Model:** The machine learning model used for time series analysis.

- **Technical Indicators Module:** Process and compute technical indicators for data analysis.

- **Feature Engineering Module:** Create and extract relevant features for model training.

- **Model Training Module:** Train machine learning models using historical data and features.

- **Model Evaluation Module:** Evaluate model performance through metrics and validation.

- **Model Deployment Module:** Deploy trained models for real-time predictions.

**User Stories**

| User Type | Functional Requirement (Epic) | User Story Number | User Story / Task | Acceptance criteria | Priority | Release |
|---|---|---|---|---|---|---|
| Customer (Web user) | Registration | USN-1 | As a user, I can register for the application by entering my username and a new Password. | I can access my account/ dashboard. | High | Sprint-1 |
| | Login | USN-2 | As a user, once I have registered, I am able to login to my account using my | I can perform further tasks in the application after logging | High | Sprint-1 |
| | Dashboard | USN-3 | As a user, I can view my details and check the current prices and the forecasted price of | I can see the prices on different dates and make a | High | Sprint-1 |
| | | USN-4 | As a user, I can view my details and modify them according to my needs | I can login to the application using my new credentials | Low | Sprint-1 |

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| | Chatbot | USN-5 | As a user, I can use the chatbot to answer my queries if I face any difficulties in navigating the | I can use the information provided by the chatbot to | Low | Sprint-2 |
| Administrator | Machine Learning | USN-6 | As administrator, I have developed the machine | I can use the trained model | High | Sprint-1 |
| | | USN-7 | As administrator, I need to deploy the trained | Customers can access the | High | Sprint-1 |
| | Frontend UI | USN-8 | As administrator, I have developed the website | Customers can access the | High | Sprint-1 |
| | | USN-9 | As administrator, I have developed the chatbot | Customers can use the | Low | Sprint-1 |
| | Backend | USN-10 | As backend administrator, I have developed the workflow and routes using Flask and configured APIs to integrate the ML model into the website. | The website is tested, and the ML model is accessible. | High | Sprint-1 |
| | Hosting | USN-11 | As administrator, I have hosted the website on AWS. The frontend will be hosted in S3 bucket, and the backend server will be hosted on AWS Lambda. | The website is accessible to all users through the internet. | Low | Sprint-2 |