



Customer Personality Analysis- Understanding Your Ideal Customers

Katta Sai Pranav Reddy

Introduction-

- Customer Personality Analysis is a detailed analysis of a company's ideal customers. It helps a business to better understand its customers and makes it easier for them to modify products according to the specific needs, behaviors, and concerns of different types of customers.



Content-

- Brief overview of Customer

Personality Analysis.

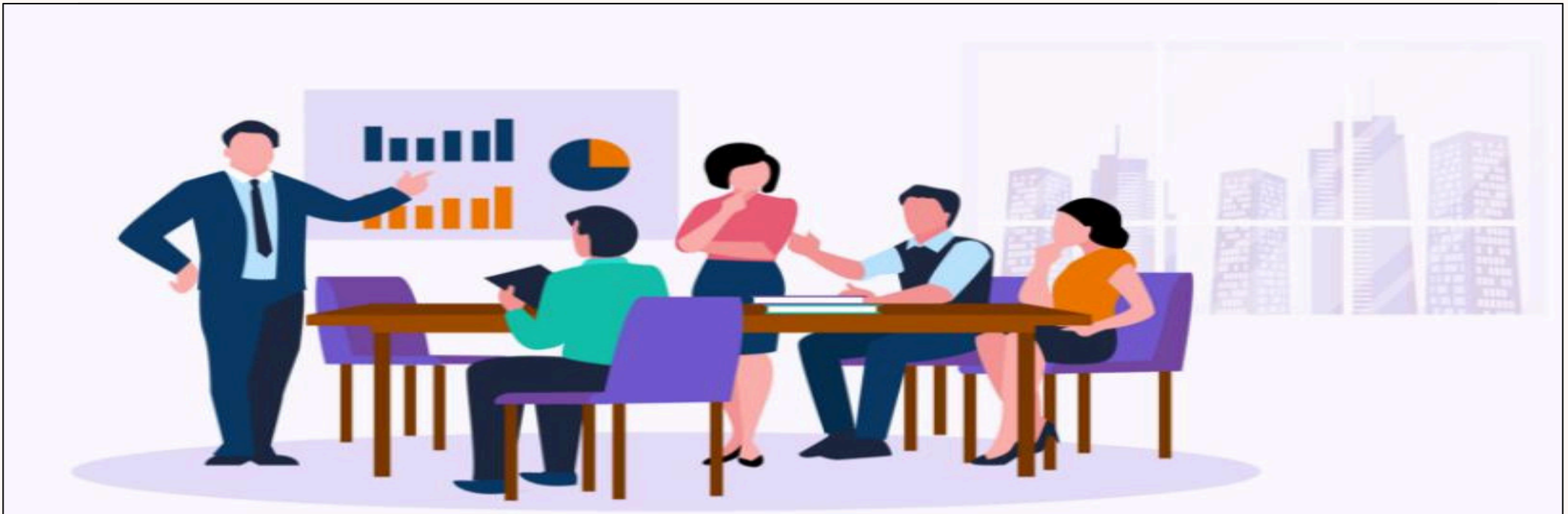
- Importance of understanding ideal customers.
- Mention the problem statement.



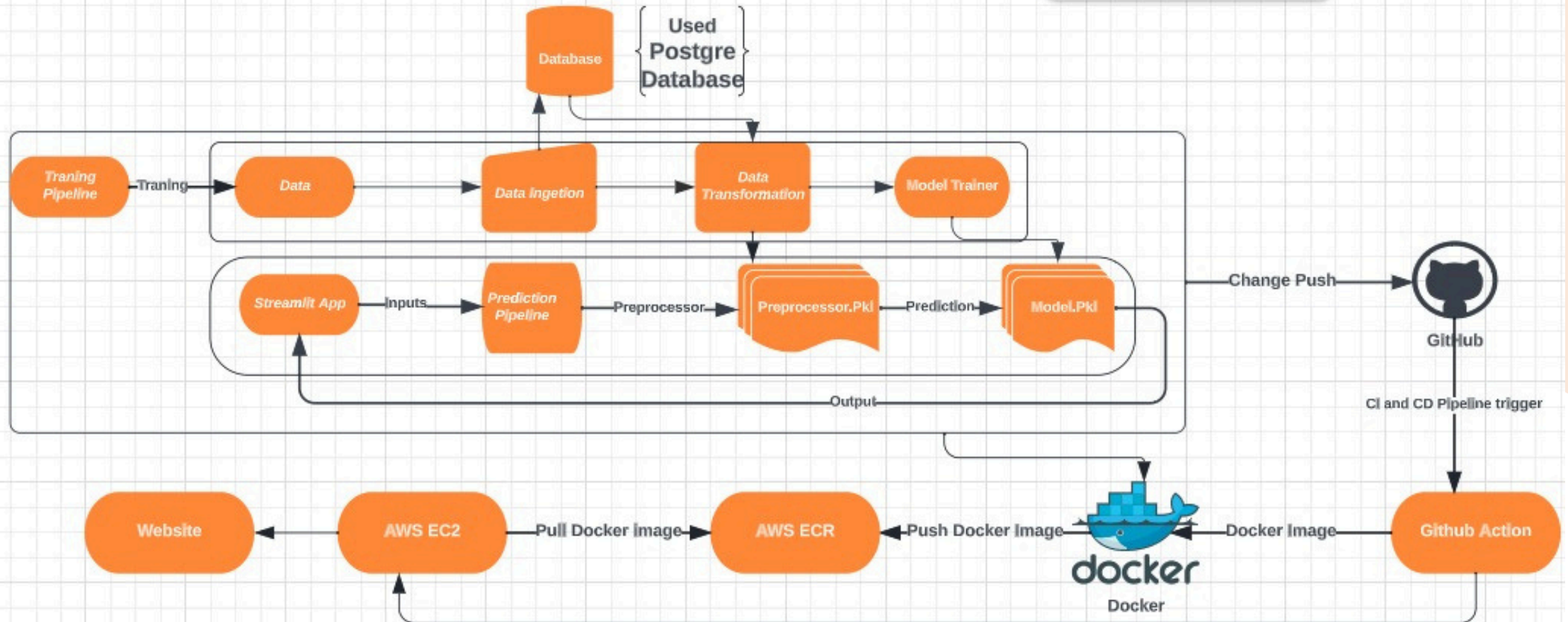
Agenda --

Customer Sentiment Analysis- Understand customers' attitudes towards the product.

Behavior Analysis- Analyze what customers do rather than what they say about the product.



Architecture -



Data Ingestion=

DataFrame to Database: Load data into a DataFrame and use SQLAlchemy to seamlessly transfer it into a database.

Custom Ingestion Function: Create a tailored function using SQLAlchemy to handle data ingestion, schema definition, and table creation.

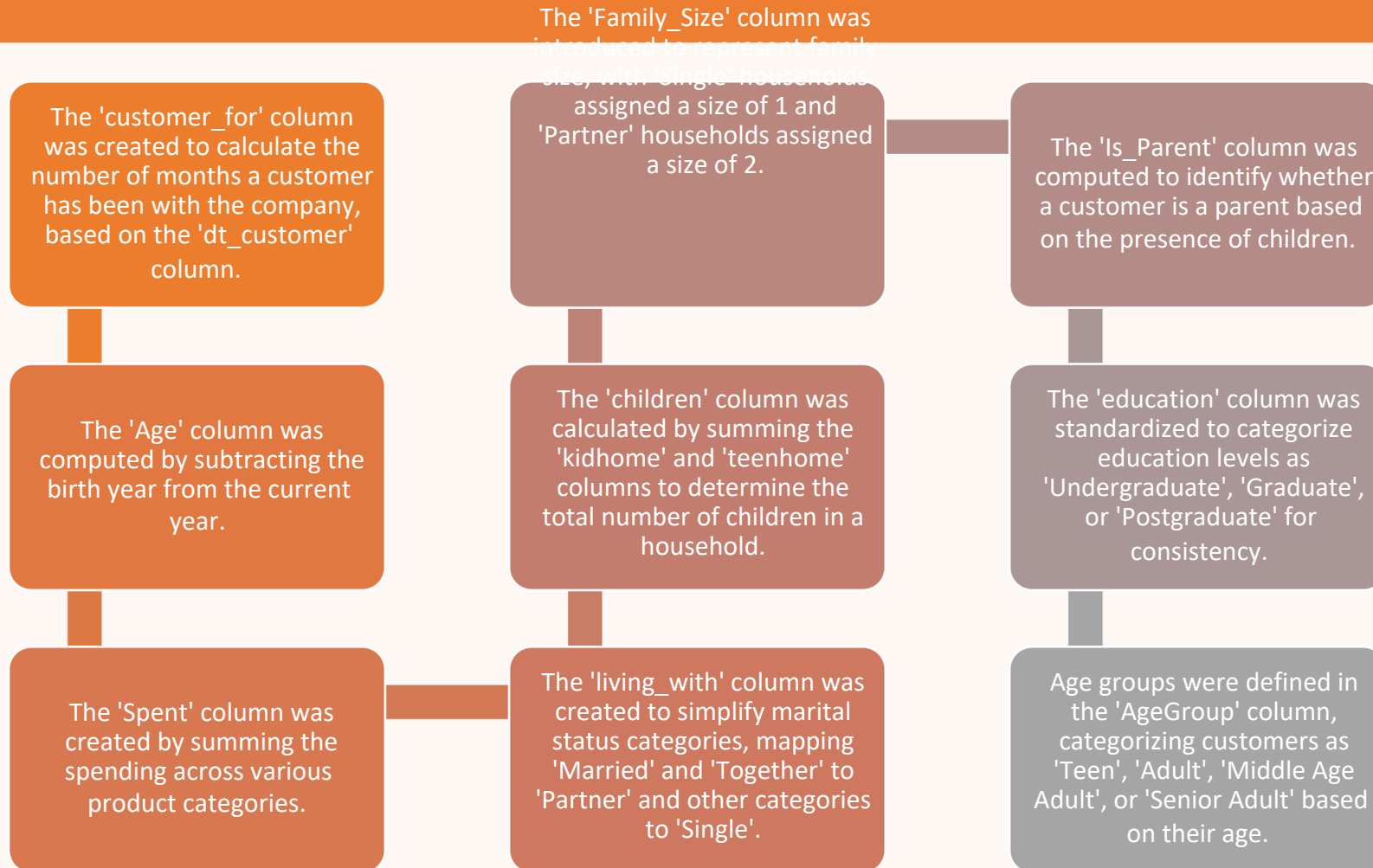
Scalability and Efficiency: Optimize data ingestion for scalability and performance with techniques like bulk inserts and connection pooling.

Data Transformation-

The data transformation phase is a critical step in preparing the dataset for analysis and modeling. It involves several key operations to ensure data quality, enhance features, and make it suitable for machine learning. The transformations applied include data type conversion, feature engineering, data cleaning, and encoding.

- Date Conversion-
- The 'dt_customer' column, which represents the date when a customer became a client, was converted from a string format ('%d-%m-%Y') to a datetime format for date-based calculations.

Feature Engineering-



DataCleaning and Encoding

Data Cleaning-

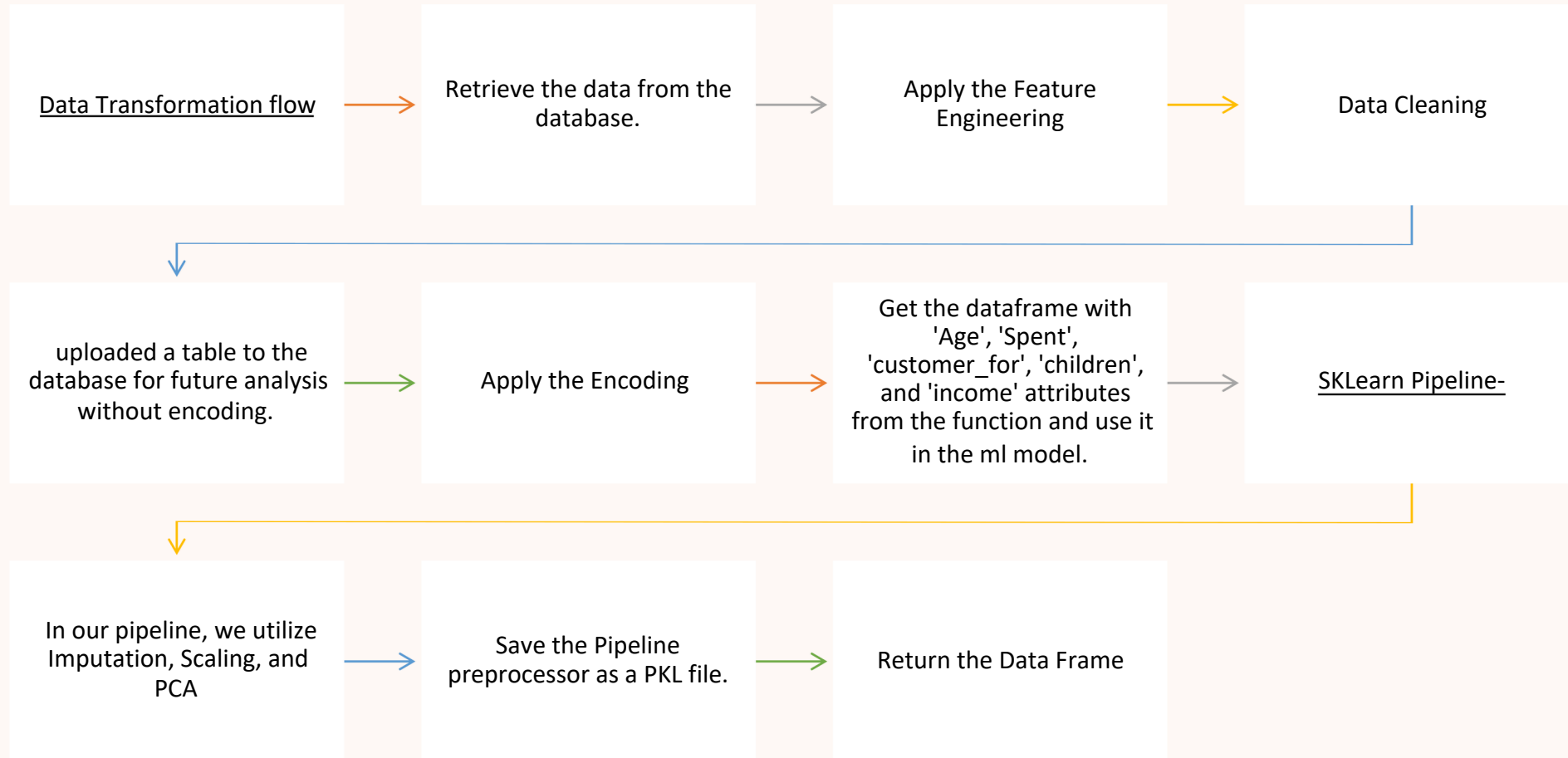
Outliers were removed from the dataset by filtering out customers with an age exceeding 100 years or an income above \$120,000.

Several unnecessary columns, including 'marital_status', 'dt_customer', 'z_costcontact', 'z_revenue', 'year_birth', 'id', 'AgeGroup', and 'living_with', were dropped from the dataset as they were no longer needed for analysis or modeling.

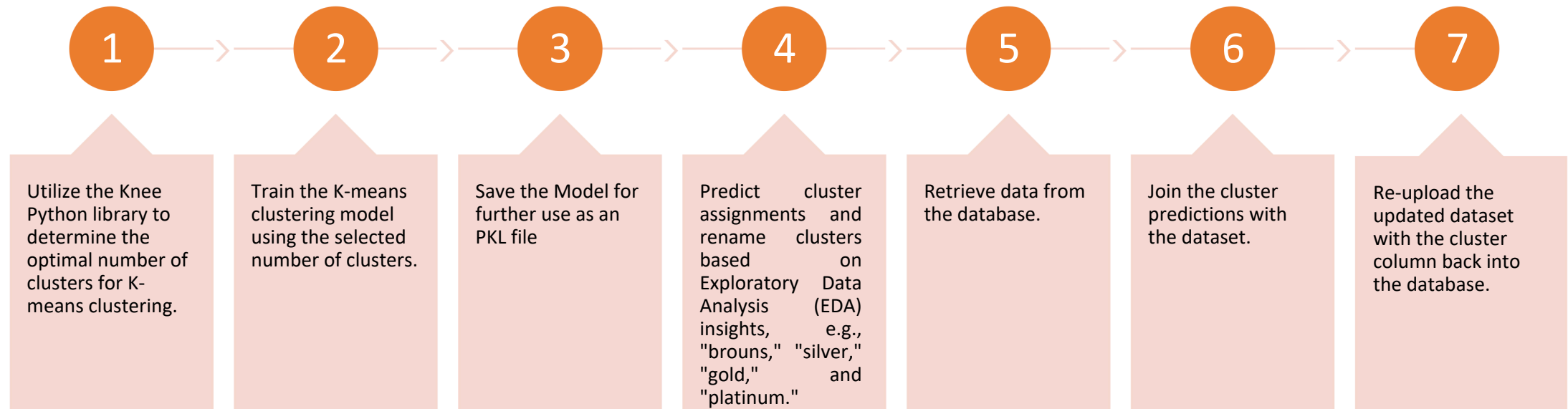
Encoding-

Label encoding was applied to categorical columns using the LabelEncoder from the scikit-learn library. This encoding converts categorical values into numerical values for machine learning algorithms..

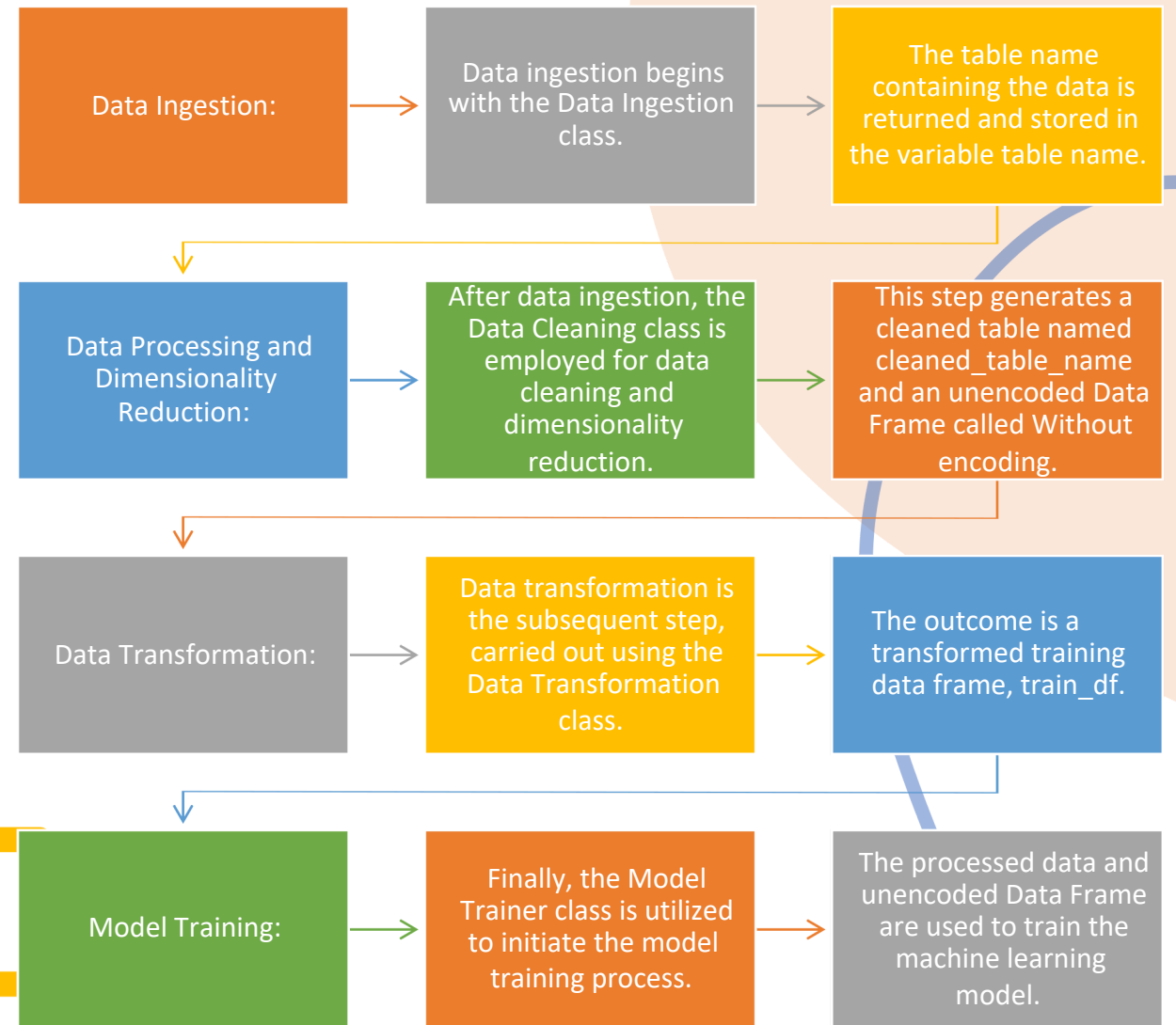
Data Transformation Flow



Model Training-



Training Pipeline-



Prediction Pipeline-

Prediction Function:

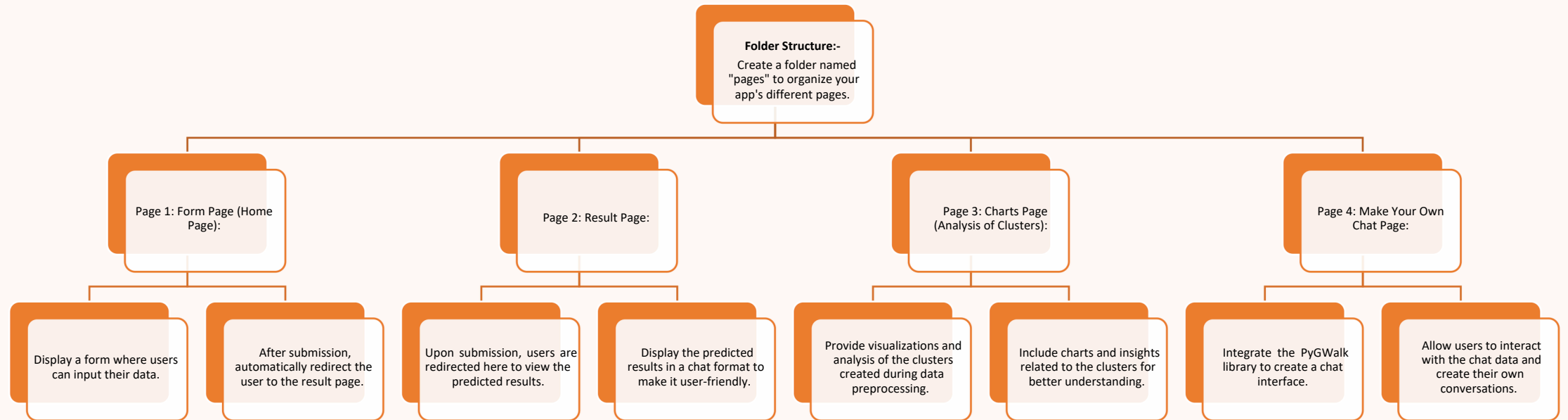
The Prediction Function is responsible for making predictions using a trained machine learning model.


It loads both the preprocessor (.pkl) file and the trained model (.pkl) file.

Input data is processed through the preprocessor to prepare it for prediction.

The model is applied to generate predictions.

Stream Lit App-





Integration of Prediction Pipeline with

- ❖ In the Form Page, connect the input data to the prediction pipeline.
- ❖ Upon submission, pass the input data through the prediction pipeline to generate predictions.
- ❖ Display the predicted results on the Result Page.

Streamlit App Workflow

The user visits the Home Page (Form Page) and fills in the required data.

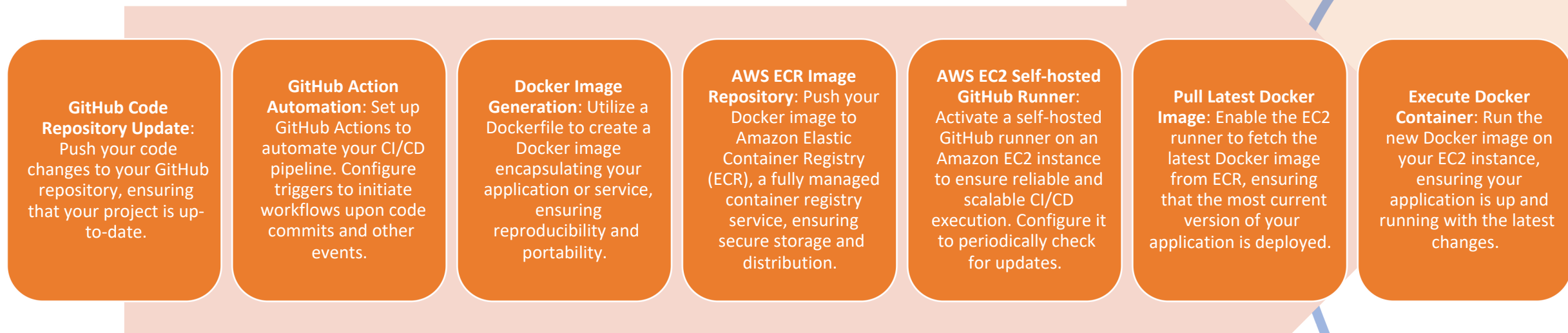
Upon hitting the submit button, the app triggers the prediction process.

The user is redirected to the Result Page, where the predicted results are displayed in a chat format.

The user can navigate to the Charts Page to see cluster analysis and insights.

The Make Your Own Chat Page allows users to interact with existing chat data and create their own conversations.

CI/CD Pipeline-



App Deployment-

In the deployment phase, we have established our website's hosting infrastructure using an Amazon Elastic Compute Cloud (EC2) instance. This EC2 instance functions as the platform where our website is hosted, enabling accessibility to users via the internet. This configuration provides us with the capability to deploy and operate our web application in a highly scalable and dependable manner, leveraging the robust AWS infrastructure.

thank you

Katta Sai Pranav

kattapranavreddy@gmail.com

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