**Step 1: Setting Up AWS Services**

1. **Create an AWS Account**: If you don't already have one, sign up for an AWS account. You'll need this to access and manage AWS services.
2. **Set Up Amazon S3**:
   * **Create an S3 Bucket**: Log in to the AWS Management Console, navigate to the S3 service, and create a bucket to store your data files. Choose a unique name for your bucket and configure its settings as needed.
   * **Configure Bucket Policies**: Ensure that the bucket policies allow your application to read from and write to the bucket. This involves setting up permissions to allow access to specific IAM users or roles.
3. **Set Up AWS Comprehend**:
   * AWS Comprehend is a managed natural language processing (NLP) service that you can use to extract insights and sentiment from text data.
   * No additional setup is required for Comprehend itself.
4. **Set Up AWS Bedrock and Claude**:
   * **Access AWS Bedrock and Claude Model**: Ensure that you have access to AWS Bedrock, which is a machine learning platform, and the Claude model, which is a specific model within Bedrock.

**Step 2: Setting Up the Environment**

1. **Set Up an EC2 Instance**:
   * **Launch an EC2 Instance**: Log in to the AWS Management Console, navigate to the EC2 service, and launch an EC2 instance to host your Streamlit application. Choose an appropriate instance type, configure networking settings.
   * **Ensure Internet Access**: Ensure that the EC2 instance has internet access, as your Streamlit application may need to fetch data from external sources or access AWS services.
2. **Install Dependencies on EC2**:
   * **Update Package List and Install Python 3**: Connect to your EC2 instance via SSH, update the package list using the package manager, and install Python 3 if it's not already installed.
   * **Install Required Python Packages**: Use **pip**, the Python package manager, to install the required Python packages for your Streamlit application. This includes packages for data processing, AWS SDK (boto3) for interacting with AWS services, and Streamlit itself.

By following these steps, we can set up the necessary AWS services and environment to host our Streamlit application, including data storage, natural language processing capabilities, and a hosting infrastructure using EC2 instances.

**Working and features**

**Our application is designed to provide a user-friendly interface for visualizing and analyzing data. Built using Streamlit, this application integrates with AWS services for natural language processing (AWS Comprehend) and machine learning (AWS Bedrock and Claude). It allows users to upload data files in various formats, process queries using natural language, and generate interactive charts based on the data and queries.**

**Features of our Application:**

1. **Data Upload**: Users can upload data files in CSV, Excel, JSON, or text formats.
2. **Data Preview**: Provides a preview of the uploaded data including a summary of columns and values.
3. **Data Analysis**: Generates overall and descriptive summaries of the data, including statistics for numerical columns and value counts for categorical columns.
4. **Natural Language Processing**: Processes user queries using AWS Comprehend and Claude-3 Sonnet for intent detection and chart type determination.
5. **Interactive Visualization**: Generates interactive charts (bar, line, scatter, histogram, pie, area, box, heatmap, violin, map) based on user queries and data attributes using Plotly Express.