# Call Center Analytics Dashboard

[Live Dashboard](https://callcenterkabel.streamlit.app/) - [Call Center Analytics Dashboard · Streamlit](https://callcenterkabel.streamlit.app/)

## Overview

The \*\*Call Center Analytics Dashboard\*\* is a modern, interactive web application built with Streamlit and Plotly for advanced analytics of call center data. It enables users to upload their call data (CSV or Excel), process it in real-time, and gain actionable insights through a visually appealing, highly interactive dashboard.

\*\*Key Features:\*\*

* Drag-and-drop file upload (CSV/XLSX) or use provided sample data
* Real-time data processing with animated loading and feedback
* Responsive, modern UI with custom CSS for a professional look
* Advanced analytics: Exploratory Data Analysis (EDA), agent benchmarking, anomaly detection, time-based patterns, and business intelligence
* Downloadable sample data for easy onboarding
* Export options (PDF, Excel, PowerPoint planned)
* Sidebar filters for date, agent, and call type
* Help and support section for user guidance

## How It Works

### 1. Data Ingestion

* Users can upload their own call center data in CSV or Excel format.
* Alternatively, a sample dataset is available for demo and testing.
* The app uses a strict, user-driven column mapping process to ensure compatibility with any data schema.

### 2. Data Preprocessing

* Uploaded data is cleaned and standardized (date/time parsing, agent name normalization, call outcome categorization, etc.).
* The preprocessing module ensures the data is ready for analysis regardless of the original format.

### 3. Analytics Modules

* \*\*EDA (Exploratory Data Analysis):\*\* Computes key statistics (total calls, average talk time, agent count, drop rates, busiest hours/days, etc.).
* \*\*Agent Analysis:\*\* Benchmarks agent performance (call counts, answer/drop rates, talk time stats, rankings).
* \*\*Time Patterns:\*\* Analyzes call volume and talk time by hour and day of week.
* \*\*Anomaly Detection:\*\* Identifies outlier calls based on duration using the IQR method.
* \*\*Visualizations:\*\* Generates interactive charts (heatmaps, animated bar charts, Sankey diagrams) for deep insights.
* \*\*Business Intelligence:\*\* Placeholder for future advanced BI features.

### 4. User Interface

* The dashboard is organized into tabs: Overview, Agent Analysis, Time Patterns, Anomalies, and Business Intelligence.
* Sidebar provides filters, quick stats, sample data download, and help/support.
* Custom CSS ensures a visually stunning, branded experience.

## Folder Structure

callcenter\_dashboard/  
 app.py # Main Streamlit app  
 modules/ # Analytics and data processing modules  
 data\_loader.py # File upload and loading logic  
 preprocessing.py # Data cleaning and standardization  
 eda.py # Exploratory data analysis  
 agent\_analysis.py # Agent-level analytics  
 time\_analysis.py # Time-based analytics  
 anomaly.py # Anomaly detection  
 visualizations.py # Plotly chart generation  
 business\_intel.py # (Placeholder) Business intelligence logic  
 assets/  
 custom.css # Custom styles for the dashboard  
 sample\_data.csv # Example call center data  
 requirements.txt # Python dependencies  
 README.md # Basic project info

## How to Use

### 1. Setup

* \*\*Clone the repository:\*\*

git clone <repo-url>  
 cd callcenter\_dashboard

* \*\*Install dependencies:\*\*

pip install -r requirements.txt

* \*\*Run the dashboard:\*\*

streamlit run app.py

### 2. Using the Dashboard

* \*\*Upload Data:\*\* Use the file uploader to drag-and-drop your call data (CSV or Excel). Or, click "Load Sample Data" to explore the dashboard with example data.
* \*\*Map Columns:\*\* If uploading your own data, follow the prompts to map your columns to required features (date, agent, outcome, talk time).
* \*\*Explore Analytics:\*\* Navigate through the tabs to view EDA, agent performance, time patterns, anomalies, and more.
* \*\*Filter Data:\*\* Use the sidebar to filter by date range, agent name, or call type.
* \*\*Download Sample Data:\*\* For testing, download the provided sample CSV from the sidebar.
* \*\*Get Help:\*\* Use the Help & Support section in the sidebar for guidance or contact information.

## Data Format

Your data should include, at minimum, columns for:

* Date/Time of call
* Agent name
* Call outcome/status (e.g., Answered, Dropped)
* Talk time (in seconds or minutes)

The dashboard will guide you through mapping your columns to these required fields.

## Customization

* \*\*Styling:\*\* The dashboard uses a custom CSS file (`assets/custom.css`) for a branded, modern look.
* \*\*Extensibility:\*\* Analytics modules are modular and can be extended for additional business logic or visualizations.

## Dependencies

Key Python packages:

* `streamlit`
* `plotly`
* `pandas`
* `numpy`
* `scikit-learn`
* `openpyxl`
* (see `requirements.txt` for full list)

## Support

For help or feature requests, use the Help & Support section in the dashboard or contact the provided support email.