Public Transport Efficiency Analysis

Objective:

Our goal is to incorporate Machine Learning algorithms to improve the accuracy of the predictive model by continuously monitoring and training the ML Model for Public Transport Efficiency Analysis

Project Definition:

The project involves analyzing public transportation data to assess service efficiency, on time performance, and passenger feedback. The objective is to provide insights that support transportation improvement initiatives and enhance the overall public transportation experience. This project includes defining analysis objectives, collecting transportation data, designing relevant visualizations in IBM Cognos, and using code for data analysis.

Creating a dashboard in IBM Cognos involves several steps, including designing the layout, adding data visualizations, and configuring interactivity. Here's a step-by-step process to create a dashboard in IBM Cognos:

Access IBM Cognos:

- Log in to your IBM Cognos environment using your credentials.

Launch Dashboard Application:

- Once logged in, launch the IBM Cognos Dashboard application.

Create a New Dashboard:

- Start by creating a new dashboard by selecting the "Create Dashboard" option or similar, depending on your version of Cognos.

Choose a Layout:

- Select a layout for your dashboard. Layout options typically include templates with different grid configurations.

Add Data Sources:

- To populate your dashboard with data, you need to add data sources. Common data sources include databases, spreadsheets, or web services.
- Click on the "Add Data" or "Data Source" option.
- Connect to your data source and configure the connection settings.

Design the Layout:

- Customize the layout of your dashboard by dragging and dropping containers, text, and images onto the canvas.
- Arrange components to create the desired structure and style.

Add Widgets:

- To display data, add widgets to your dashboard. Widgets can be charts, tables, text boxes, or other data visualizations.
- Select a container or section, and then add a widget.
- Configure the widget to use the data source you added earlier.

Configure Widgets:

- Customize each widget's settings, including data source, display options, and interactions. This may involve setting filters, sorting, and aggregation.

Apply Filters and Interactivity:

- Enable interactive features like drill-throughs, filtering, and parameterized queries to allow users to explore the data dynamically.
- Configure filter controls and actions to refine data based on user interactions.

Add Prompts (Optional):

- If your dashboard requires user input, you can add prompts. Prompts allow users to select parameters for data filtering.
- Configure prompts to be dynamic and responsive to user input.

Test the Dashboard:

- Before publishing the dashboard, thoroughly test its functionality. Ensure that all widgets display data correctly and that interactivity functions as expected.

Apply Styling:

- Customize the visual style of your dashboard to match your organization's branding and design guidelines.

Save and Publish:

- Save your dashboard project and, when ready, publish it to a location accessible by your target audience. This can be within the Cognos portal or other web applications.

Share and Distribute:

- Share the dashboard with the intended audience by providing them with the necessary access rights or links to the published dashboard.

Maintain and Update:

- Regularly maintain and update the dashboard to ensure that it reflects the most current data and meets the evolving needs of your users.

IBM Cognos offers a range of data visualization tools to help users create compelling and insightful visualizations in their reports and dashboards. These visualization tools allow users to present data in various graphical formats, making it easier to understand and analyze. Here are some of the visualization tools available in IBM Cognos:

1. Charts:

IBM Cognos provides a wide variety of chart types, including bar charts, line charts, pie charts, scatter plots, and more. You can choose the most suitable chart type for your data to convey your message effectively.

2. Tables:

Tabular data is a fundamental visualization tool in Cognos. You can create tables to display data in rows and columns. Tables are highly customizable, allowing you to show data in various ways, such as cross-tabs, lists, and pivot tables.

3. Crosstabs:

Crosstabs are used to display data in a tabular format with rows and columns. They are particularly useful for summarizing data and showing relationships between two or more data dimensions.

4. Maps:

IBM Cognos provides mapping capabilities for geospatial data visualization. You can create maps to display geographic data, including regions, countries, and custom geographic areas. Maps can be interactive and used for drilling down into location-based data.

5. Pivot Tables and Grids:

Pivot tables and grids are tools for multidimensional analysis. Users can interact with data by dragging and dropping dimensions and measures to explore data from different angles.

6. Scorecard:

Scorecards allow you to visualize key performance indicators (KPIs) and metrics using various graphical indicators such as gauges, traffic lights, and progress bars. They provide at-a-glance insights into performance.

7. Advanced Visualizations:

IBM Cognos also supports more advanced visualizations like waterfall charts, heat maps, tree maps, and box plots. These visualizations are suitable for in-depth data analysis and storytelling.

8. Custom Visualizations:

Users can create custom visualizations using JavaScript and D3.js in IBM Cognos. This allows for the creation of unique and specialized visualizations tailored to specific needs.

9. Interactive Dashboards:

Dashboards in IBM Cognos enable you to combine multiple visualizations into a single canvas. You can create interactive dashboards with charts, tables, maps, and other components, and add interactivity like filtering and drill-through actions.

10. Annotations:

Annotations let you add text and graphical elements to your visualizations to provide context and explanations to the viewers.

11. Data Exploration Tools:

IBM Cognos offers data exploration tools like the IBM Cognos Exploration with Smart Data modules, which allow you to explore and visualize data in an intuitive and self-service manner.

12. Active Reports:

Active Reports allow you to create interactive, offline reports that can be used without an internet connection. Users can explore the data and make selections even when disconnected from the Cognos environment.

13. Storytelling:

IBM Cognos Analytics provides storytelling features that allow you to create narratives with visualizations, annotations, and text to guide users through the data and communicate insights effectively.

These visualization tools in IBM Cognos help users design and present data in ways that are informative and actionable, enabling better decision-making and data-driven insights. The choice of visualization depends on the nature of the data and the audience's needs.

Line Graph:

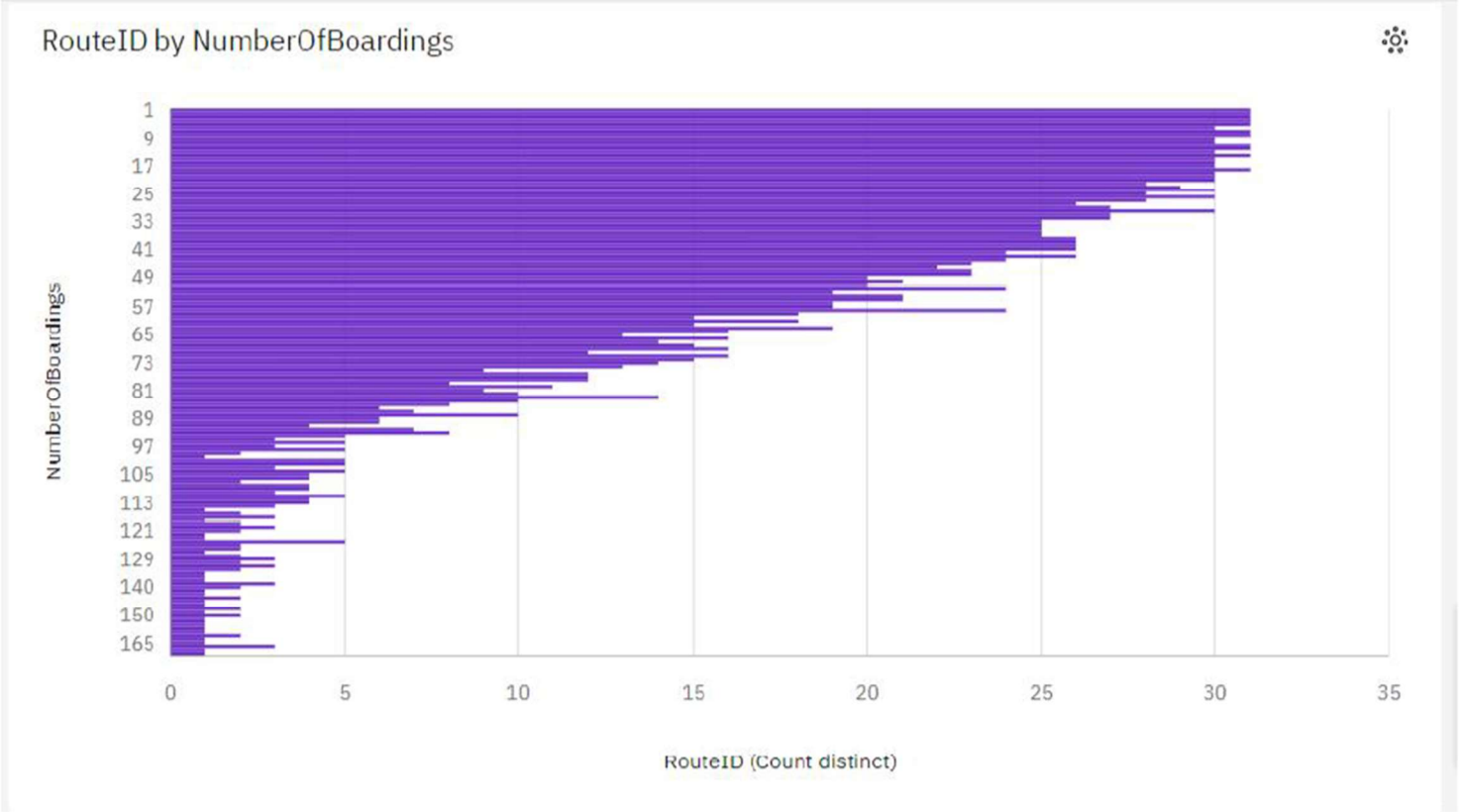
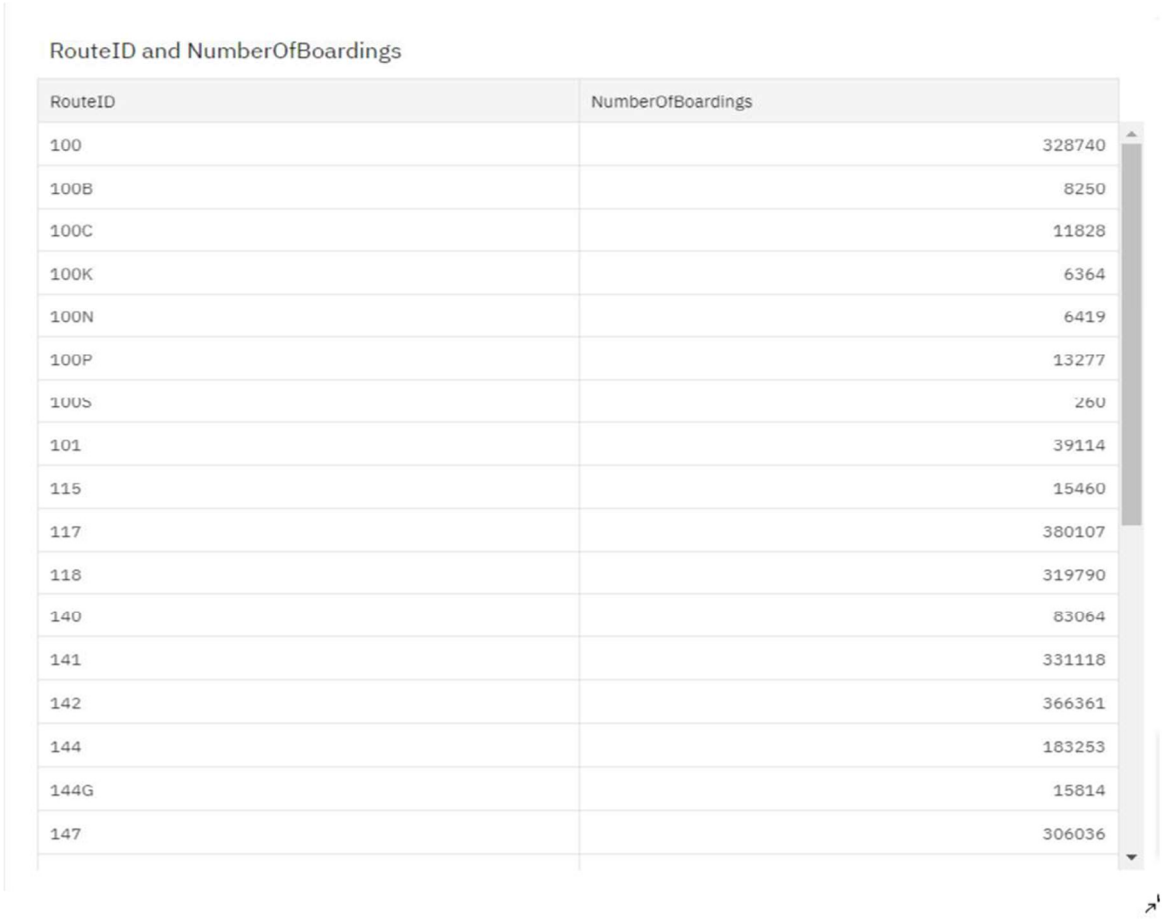


Table Graph:



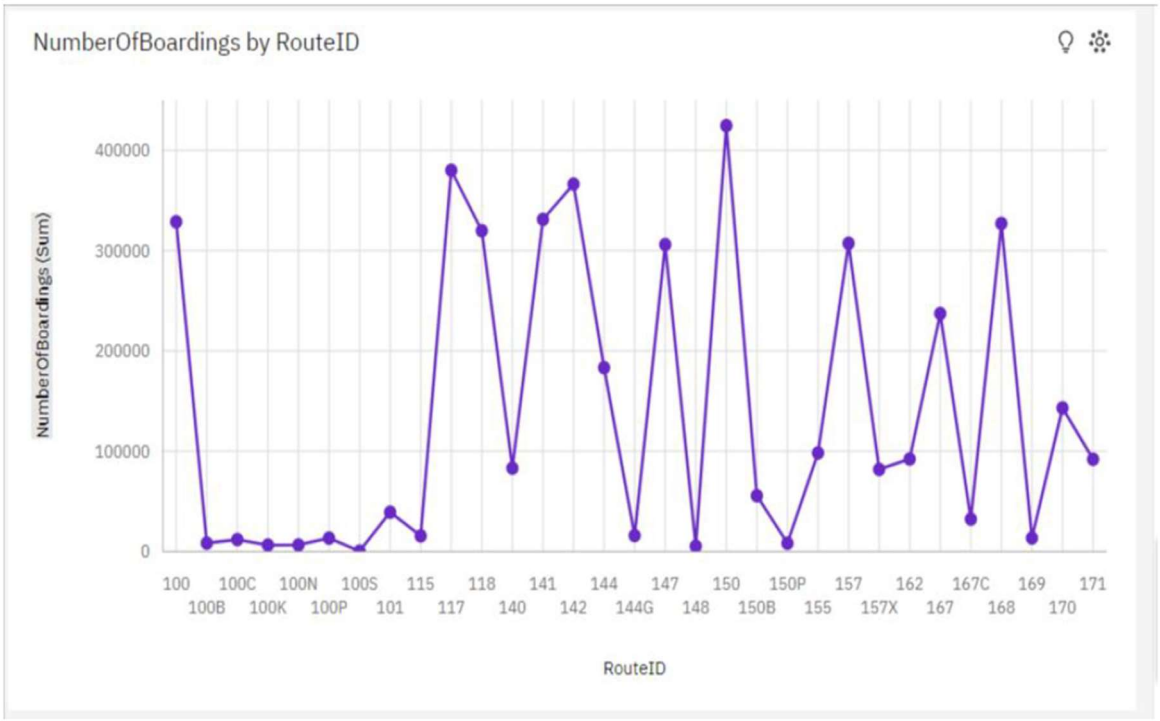
RouteID and NumberOfBoardings

RouteID	NumberOfBoardings
100	328740
100B	8250
100C	11828
100K	6364
100N	6419
100P	13277
100S	260
101	39114
115	15460
117	380107
118	319790
140	83064
141	331118
142	366361
144	183253
144G	15814
147	306036

RouteID and NumberOfBoardings

RouteID	NumberOfBoardings
144G	15814
147	306036
148	5190
150	424625
150B	55517
150P	8147
155	98191
157	307301
157X	81745
162	92171
167	237238
167C	32195
168	327057
169	13397
170	143076
171	91911
Summary	4333016

Line Graph:



Scatter Plot: