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IBM Cognos to Analyze and Visualize New York City Bike Ride Share Data

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ABSTRACT: The aim is to make use of IBM Cognos Analytics to analyse, visualize and create an operating report on New York City Bike Ride Share data for the year 2018 and in the end, we will be creating a dashboard which displays the result of analysis.

KEYWORDS: Data visualization, IBM Cognos.

I. INTRODUCTION

Data visualization is the graphical representation of information and data. By using visual elements like charts, graphs and maps data visualization tools provide an accessible way to see and understand trends, outliers and patterns in data. Data visualization helps us to tell stories by curating data into a form easier to understand, highlighting the trends and outliers.

IBM Cognos Analytics provides analytic insights that helps us to detect and validate important relationships and meaningful differences based on the data that is presented by the visualization. IBM Cognos Analytics provides a number of recommended visualizations based on the data that we are working with. IBM Cognos Analytics integrates reporting, modelling, analysis, exploration, dashboards, stories and event management so you can understand your organizations data and make effective business decisions.

II. RELATED WORK

Existing Problem:

- The oversimplification of data: One of the biggest draws of visualization is its ability to take big swaths of data and simplify them to more basic, understandable terms. However, it's easy to go too far with this; trying to take millions of data points and confine their conclusions to a handful of pictorial representations could lead to unfounded conclusions, or completely neglect certain significant modifiers that could completely change the assumptions you walk away with.
- The human limitations of algorithms: This is the biggest potential problem, and also the most complicated. Any algorithm used to reduce data to visual illustrations is based on human inputs, and human inputs can be fundamentally flawed.
- Overreliance on visuals: This is more of a problem with consumers than it is with developers, but it undermines the potential impact of visualization in general. When users start relying on visuals to interpret data, which they can use at-a-glance, they could easily start over-relying on this mode of input.
- The inevitability of visualization: Already, there are dozens of tools available to help us understand complex data sets with visual diagrams, charts, and illustrations, and data visualization is too popular to ever go away. We're on a fast course to visualization taking over in multiple areas, and there's no real going back at this point. To some, this may not seem like a problem, but consider some of the effects—companies racing to develop visualization products, and consumers only seeking products that offer visualization. These effects may feed into user overreliance on visuals, and compound the limitations of human errors in algorithm development.

Proposed Solution:

By using the IBM Cognos Analytics, we can overcome the existing problems and some of the benefits include:



- Use of varied data source.
- An intuitive and straightforward interface.
- Interactive content available online and offline.
- Personalized experience.
- Scheduling and alerts.
- Smart search works in context.

III. METHODOLOGY

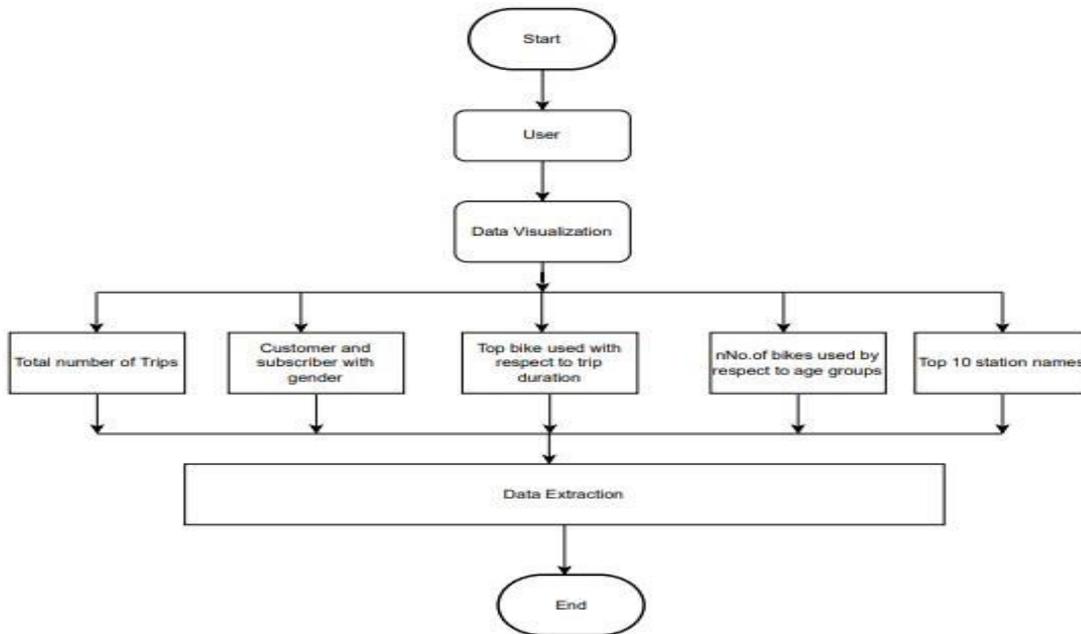


Fig. 1: Diagram showing the control flow of the solution.



IV. EXPERIMENTAL RESULTS

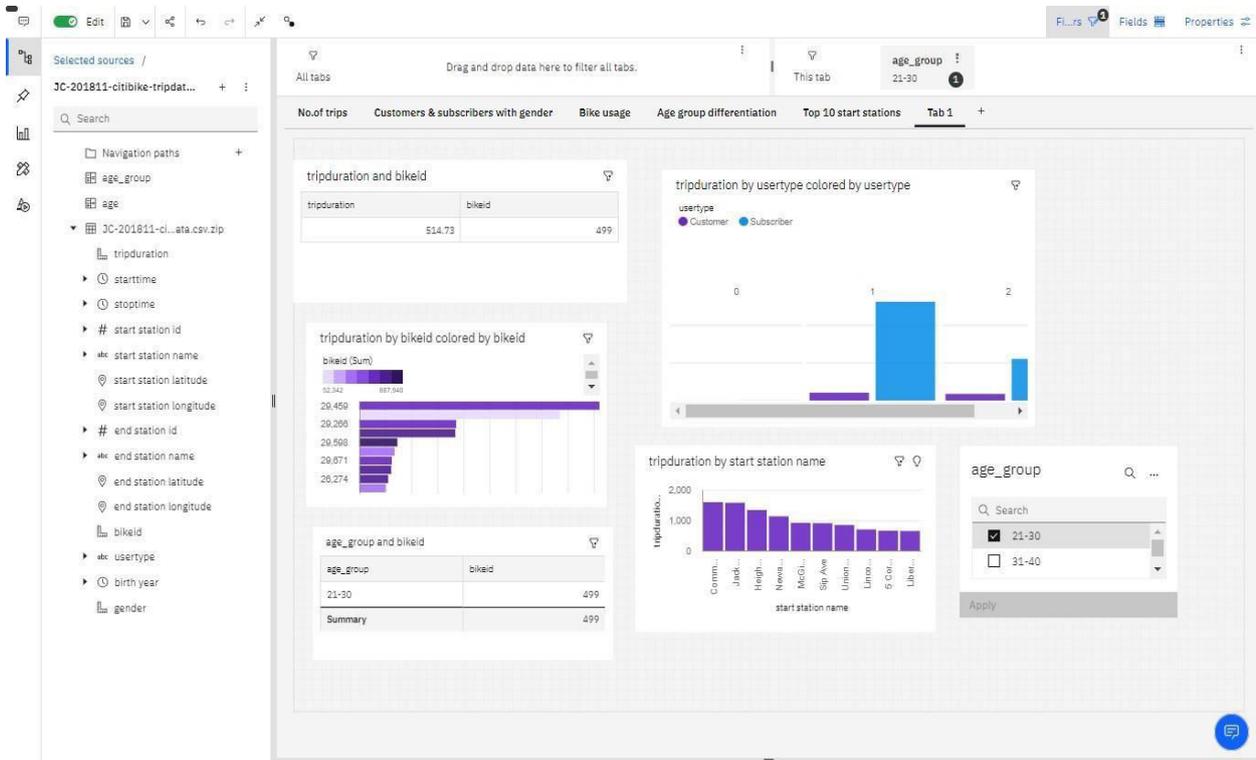


Fig.2 : Snapshot of data visualization on Dashboard

V. CONCLUSION

Using the Citi-Bike dataset, we have performed data visualization, created multiple charts and a dashboard using IBM Cognos Analytics.

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