PRACTICAL :- 2

<u>**Task-1:**</u>
Explore the various trending Data analytics tools available in the market and their functionalities and prepare a summary report.

<u>**Google Data Studio :**</u>

Introduction:
- Google Data Studio is a powerful, free tool that allows users to create interactive and shareable dashboards and reports. It is designed to help businesses visualize their data and make informed decisions based on insights derived from various data sources.

Key Features:
- Data Connectivity: Connects to multiple data sources including Google Analytics, Google Ads, Google Sheets, and third-party databases.
- Customizable Dashboards: Users can create tailored dashboards that suit their specific reporting needs.
- Interactive Reports: Offers features like filters, date range controls, and clickable elements to enhance user interaction.
- Collaboration: Enables real-time collaboration, allowing multiple users to work on reports simultaneously.
- Sharing Options: Reports can be easily shared via links or embedded in websites, with customizable access permissions.

Benefits:
- Cost-Effective: Being a free tool, it provides significant value without the need for expensive software.
- User-Friendly Interface: Intuitive drag-and-drop functionality makes it accessible for users with varying levels of technical expertise.
- Real-Time Data Updates: Automatically refreshes data, ensuring that reports reflect the most current information.
- Visual Appeal: Offers a variety of visualization options, including charts, graphs, and tables, to present data effectively.

Use Cases:
- Marketing Analytics: Track and visualize marketing campaign performance across different channels.
- Sales Reporting: Monitor sales metrics and KPIs to drive business growth.
- Financial Reporting: Create financial dashboards to analyze revenue, expenses, and profitability.
- Website Performance: Analyze website traffic and user behavior through Google Analytics integration.

<u>**Task-2:**</u>

Explore any "TWO" real-world cases and understand the approach of problem solving in the Analytics World. (As per the Explanation) and summarize your understanding.

Case 1: Retail Inventory Management

Problem: A large retail chain faced issues with overstock and stockouts, leading to lost sales and increased holding costs.

Approach:

1. Data Collection: The company collected data from various sources, including sales transactions, inventory levels, and seasonal trends.
2. Data Analysis: Using predictive analytics, the team analyzed historical sales data to forecast demand for different products.
3. Optimization: Implemented an inventory optimization model that adjusted stock levels based on predicted demand, seasonality, and promotional events.
4. Implementation: The new model was integrated into the supply chain management system, allowing for real-time inventory tracking and automated reordering.

Outcome: The retail chain reduced stockouts by 30% and decreased excess inventory by 25%, leading to improved sales and reduced costs.

Case 2: Healthcare Patient Readmission

Problem: A hospital aimed to reduce patient readmission rates, which were affecting patient care quality and increasing costs.
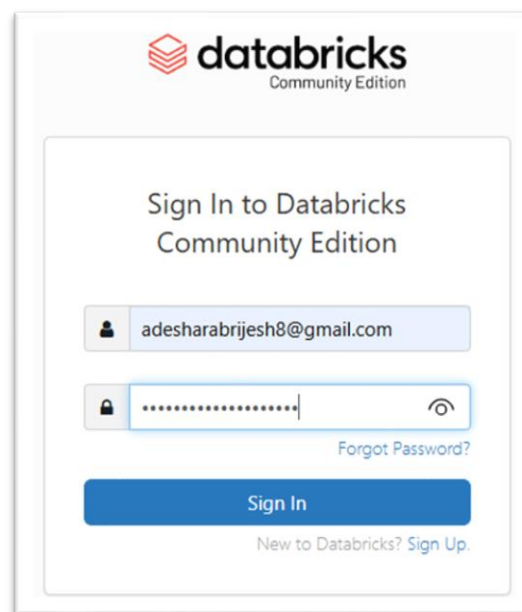
Approach:

1. Data Gathering: The hospital collected data on patient demographics, treatment plans, discharge summaries, and follow-up care.
2. Predictive Modeling: Data scientists developed a predictive model using machine learning algorithms to identify patients at high risk of readmission.
3. Intervention Strategies: Based on the model's insights, the hospital implemented targeted intervention strategies, such as enhanced follow-up care and patient education programs.
4. Monitoring and Adjustment: The effectiveness of the interventions was continuously monitored, and the model was refined based on new data.

Outcome: The hospital achieved a 20% reduction in readmission rates, improving patient outcomes and reducing costs associated with unnecessary readmissions.

Task-3:

A cloud-based platform called Databricks uses the open-source big data processing engine Apache Spark to manage and analyse massive datasets. It provides a centralised workspace where business analysts, developers, and data scientists may work together to create and implement data driven applications. Databricks offers tools and services for real-time analysis, machine learning, and data preparation, with the goal of simplifying and streamlining the process of working with large amounts of data. Support for numerous data types, interaction with well-known data science frameworks and libraries, and flexibility in scaling up and down when necessary are some of Databricks' salient features.