Low Level Design(LLD)

Analyzing Google Apps Store

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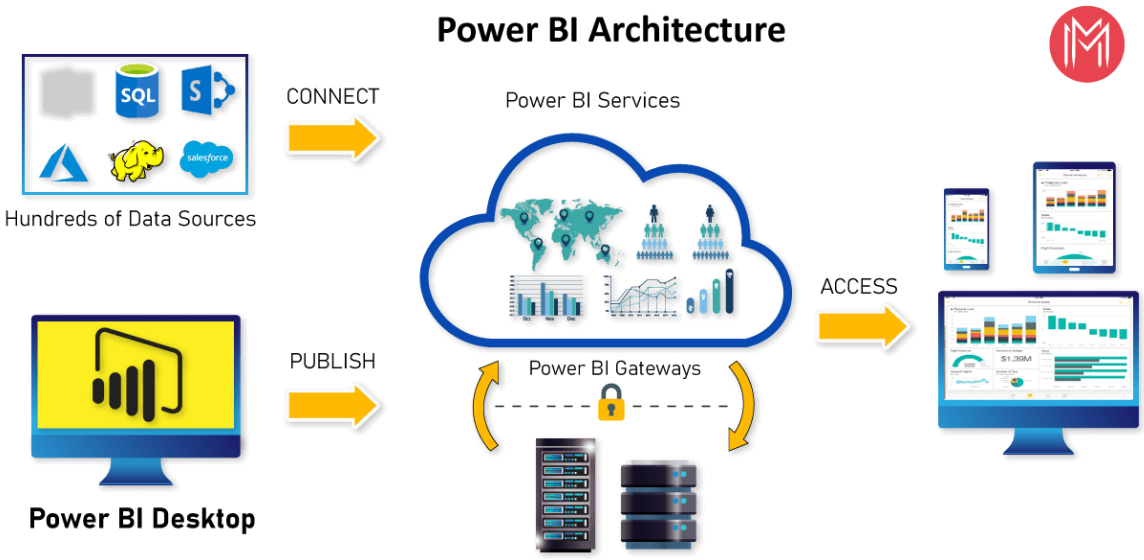
❖ Problem Statement

The problem addressed in this project is to identify the factors that influence user engagement with apps in the Google Play Store. Specifically, we seek to understand the relationship between app characteristics, such as category, price, size, and user ratings, reviews, and downloads. By analyzing these factors, we aim to provide insights into how app developers and marketers can optimize their apps to attract and retain users. Understanding the factors that influence user engagement can help app developers and marketers make informed decisions about app design, pricing, and marketing strategies.

❖ Scope

The purpose of this project is to conduct an analysis of Google Play Store apps to identify the factors that influence user ratings, reviews, and downloads. The analysis will be based on a sample of apps selected from various categories, including but not limited to but not limited to communication, social, tools, and productivity. Exploratory Data analysis(EDA) and Feature Engineering is performed on the given dataset using Python to get the insights about data and lastly information gathered is visualized using Power BI Reports.

❖ Architecture



Power BI architecture is a service built on top of Azure. There are multiple data sources that Power BI can connect to. Power BI Desktop allows you to create reports and data visualizations on the dataset. Power BI gateway is connected to on-premise data sources to get continuous data for reporting and analytics. Power BI services refer to the cloud services that are used to publish Power BI reports and data visualizations. Using Power BI mobile apps, you can stay connected to their data from anywhere. Power BI apps are available for Windows, iOS, and Android platforms.

Components of Power BI Architecture :-

1. Data Sources :- An important component of Power BI is its vast range of data sources. You can import data from files in your system, cloud-based online data sources or connect directly to live connections. If you import from data on-premise or online services there is a limit of 1 GB. Some commonly used data sources in Power BI are:

    - Excel
    - Text/CSV
    - XML

- JSON
- Oracle Database
- IBM DB2 Database
- MySQL Database
- PostgreSQL Database etc.

2. Power BI Desktop : -Power BI Desktop is a client-side tool known as a companion development and authoring tool.This desktop-based software is loaded with tools and functionalities to connect to data sources, transform data, data modeling and creating reports.You can download and install Power BI Desktop in your system for free. Using Power BI Desktop features, one can do data cleansing, create business metrics and data models, define the relationship between data, define hierarchies, create visuals and publish reports.

3. Power BI Service : - Power BI Service is a web-based platform from where you can share reports made on Power BI Desktop, collaborate with other users, and create dashboards.
   It is available in three versions: Free, Pro, Premium version.

4. Power BI Report Server : - The Power BI Report Server is similar to the Power BI Service. The only difference between these two is that Power BI Report Server is an on-premise platform. It is used by organizations who do not want to publish their reports on the cloud and are concerned about the security of their data.

5. Power BI Gateway :- This component is used to connect and access on-premise data in secured networks. Power BI Gateways are generally used in organizations where data is kept in security and watch. Gateways help to extract out such data through secure channels to Power BI platforms for analysis and reporting.

6. Power BI Mobile :- Power BI Mobile is a native Power BI application that runs on iOS, Android, and Windows mobile devices. For viewing reports and dashboards, these applications are used.

7. Power BI Embedded :- Power BI Embedded offers APIs which are used to embed visuals into custom applications.

❖ Data Description

1. Dataset consist of Apps, Categories, Ratings, Reviews, Installs, Price, Size , Content Rating, Genre, Last Updated Year. There are 33 Categories and 9658 Apps in Google Playstore dataset given after removing outlier and duplicates found. There are 118 Genres present.
2. For getting the insights and to visualize it in Power BI Desktop. First we analyzed the data using different features.
3. Exploratory Data Analysis and Feature Engineering was performed on data where information about data, removing outliers, removing duplicates was executed using python programming language in jupyter notebook.
4. In the Transformation Process, we will convert our original datasets with other necessary attributes format.
5. Following are the features/attributes descriptions that we found out of analysis and created reports in Power BI.

i) Category Wise Analysis– Consist of sum of ratings, reviews , installs and number of apps category wise.

ii) Information of Apps – After we drill through the category, apps which are part of that category gets displayed, with ratings, reviews, installs for each app based on paid and unpaid apps.

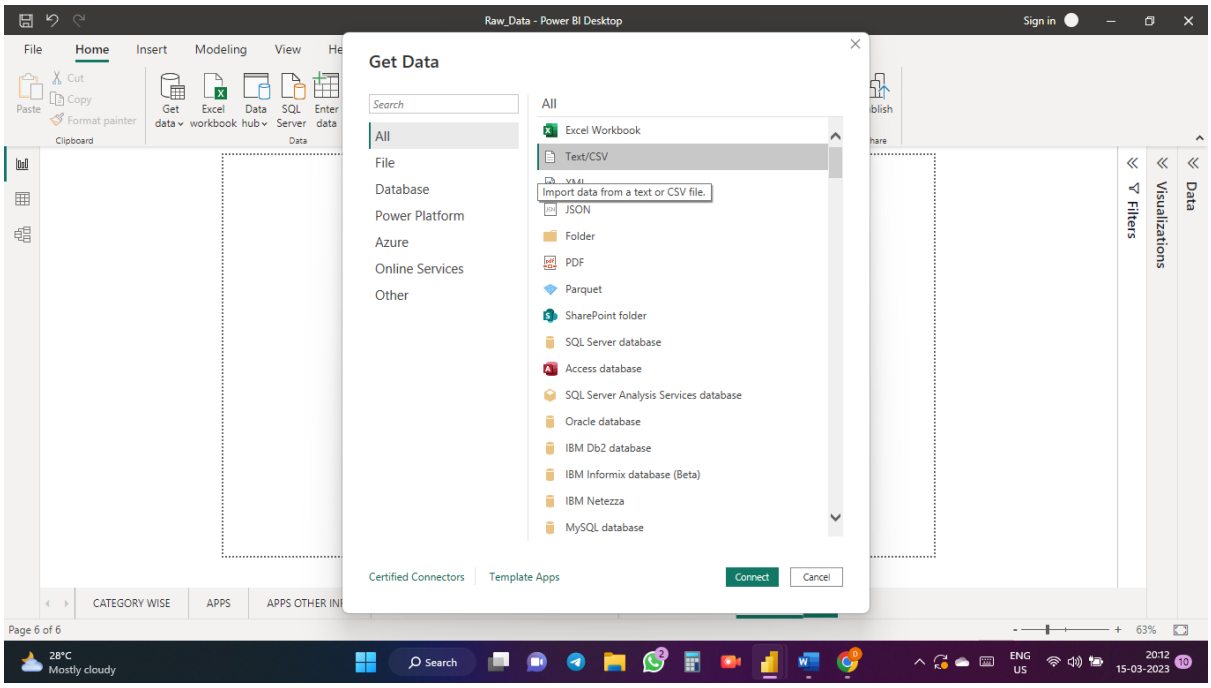
iii) Information of Apps – After we drill through the category, apps which are part of that category gets displayed, with size,
Genre, last updated year, based on paid and unpaid apps.

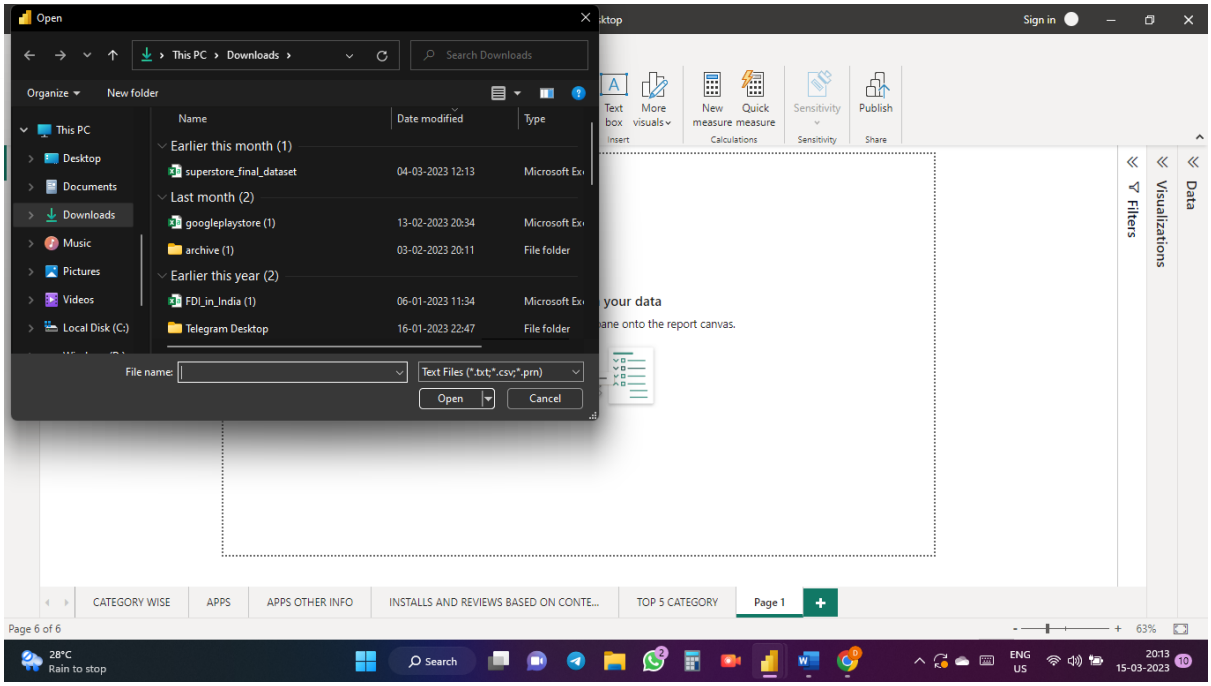
iv) Installs and Reviews Based on content ratings:- This visuals displays, apps which are reviewed and installed based on content rating of Everyone, everyone 10+, Teen.

v) Top 5 Category :- This visuals displays which are top 5 categories based on ratings, reviews and installs.

❖ Data Insertion into Power BI Desktop –

1) After performing EDA and FE data was exported in csv format from jupyter notebook.
2) This data was then loaded into Power BI desktop for creating visuals.
3) Here are the steps of how to load data into Power BI desktop
4) Open Power BI desktop, click on Get Data option. And select your file format, since our data was in .csv format we will select text/csv option and connect, select your file and then click on load or transform to make any changes to data.

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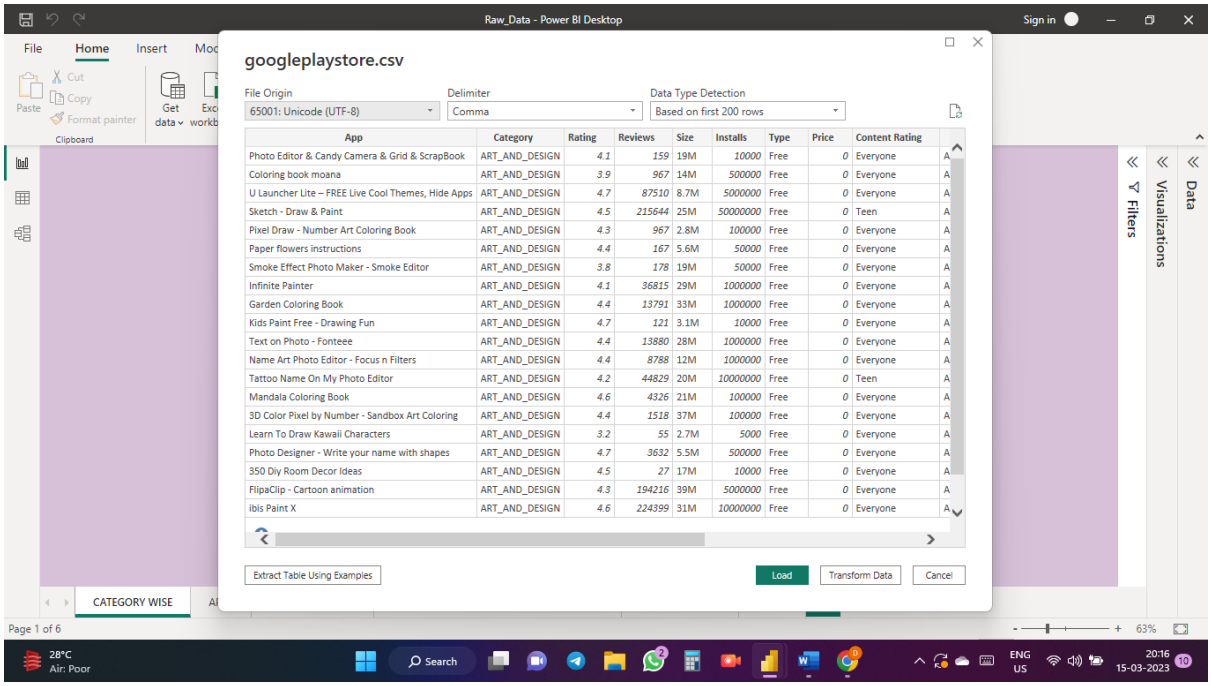
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Based on first 200 rows
App | Category | Rating | Reviews | Size | Installs | Type | Price | Content Rating
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Coloring book moana | ART_AND_DESIGN | 3.9 | 967 | 14M | 500000 | Free | 0 | Everyone
U Launcher Lite – FREE Live Cool Themes, Hide Apps | ART_AND_DESIGN | 4.7 | 87510 | 8.7M | 5000000 | Free | 0 | Everyone
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❖ Deployment

1)After the charts are created, align them to create a report.
2) After saving report , you can also publish it on Power BI Service, so that others can also access that reports.