High Level Design (HLD)

Analyze International Debt Statistics

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Contents :

Abstract

Debt values or debt prices are the indicator of the economical status of the country.The more the debt on the country the more the bad condition of economy.The debt is taken by country for its infrastructural,industrial and other developments.The debt is taken by country to fulfil their citizens needs and help them to live with at most

ease. The debt is recovered by the tax collected from the citizens. But sometimes countries can't manage to repay the amount taken as loan.

Introduction:

Why this High Level Design document ?

The purpose of this High Level Design Document (HLD) is to add the necessary detail to the current project description to represent a suitable model for analysis. This document is also intended to help detect contradictions prior to analysis and can be used as a reference manual for how the data interact at high level.

The HLD will :

- Present all of the design aspects and define them in detail.
- Describes the user interface being implemented.
- Describe the hardware and software components used.
- Describe the performance requirements.
- Include design features and the architecture of the project.
- List and describes the non functional attributes like:
    - Security
    - Reliability
    - Maintainability
    - Portability
    - Re-usability
    - Application Compatibility
    - Resource Utilization
    - Serviceability
    - Data integrity

Scope :

The HLD documentation presents the structure of the system, such as the database, data,application flow and technology architecture. The HLD uses non- technical to mid-level technical terms which should be understandable to the administrators of the system.

2 General Description :

2.1 Product Perspective and Problem Statement

The debt statistics is the major part of any economy. It shows the current financial situation of any country. The major aim of this project is to find the current financial situation of the country through the various data visualization techniques . In this project we are going to use the tools like power, tableau, excel etc.

The debt prices are helpful for understanding the major and minor consequences of finance of the country as they are the important reflection of the economy.

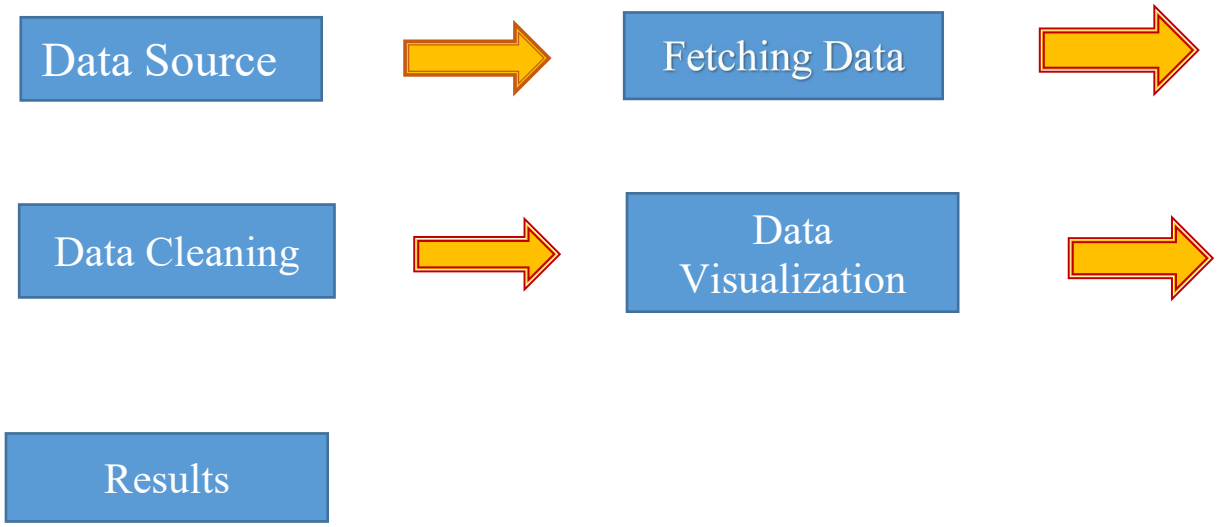
2.2 Tools Used :

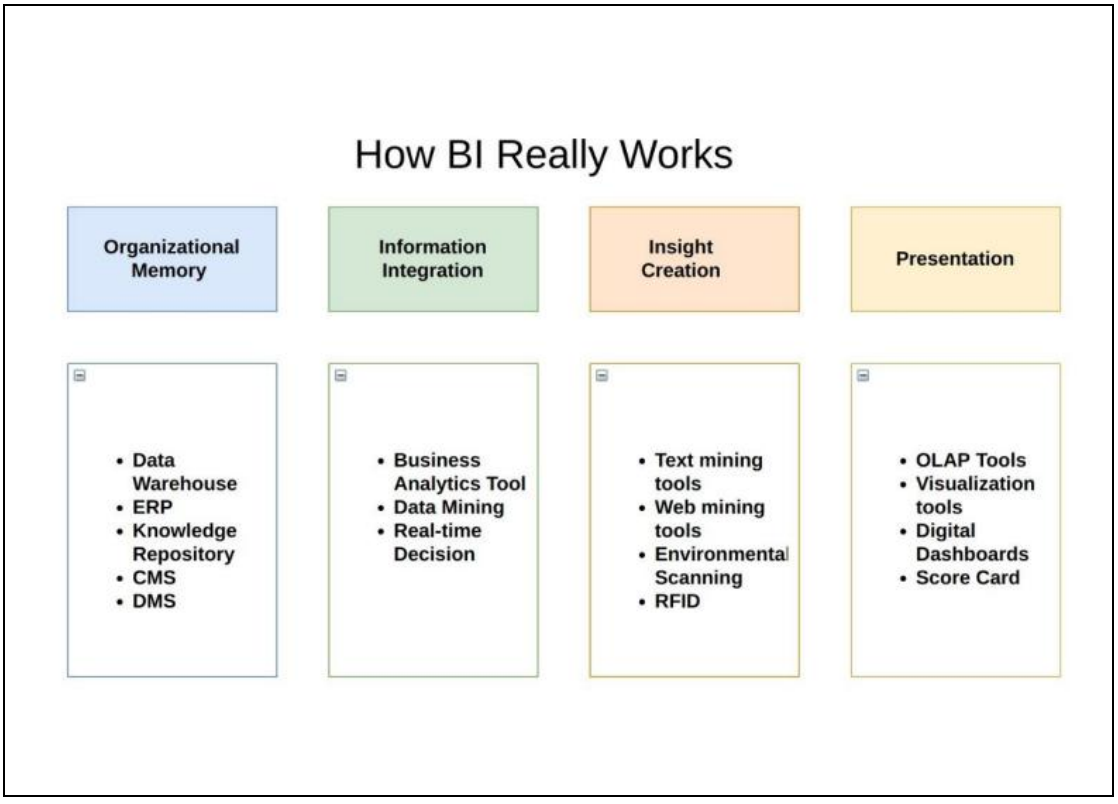
Data visualization tools such as power bi , tableau etc and various libraries of python such as pandas,numpy etc are used to build this project.

High Level Design

3 .Design Details :

3.1 Functional Architecture :





Optimization:

Your data strategy drives performance

- The number of data filed should be minimum.
- The number of records should be minimized.
- Optimize the extracts by removing unwanted and duplicate columns and rows .

Reduce the marks (data points) in your view.

- Practice guided analytics. Keep your view as simple as possible as well as interactive too.
- Use related views and connect them with action filters to travel from overview to highly-granular views at the speed of thought.
- Remove unnecessary kpis and dimensions from view.
- Try to add something innovative.

Limit your filters by number and type.

- Reduce the number of filters in use. Excessive filters on a view creates more complex queries which take longer than usual to return the results. Remove unwanted filters from view.
- Use an include filter, it does not load entire domain of dimension as like exclude filter hence they are faster.
- Use a continuous date filter. It can take advantage of indexing in your database and are faster than discrete date filters.
- Use boolean or numeric filters because computer computes integer and boolean much faster than strings.

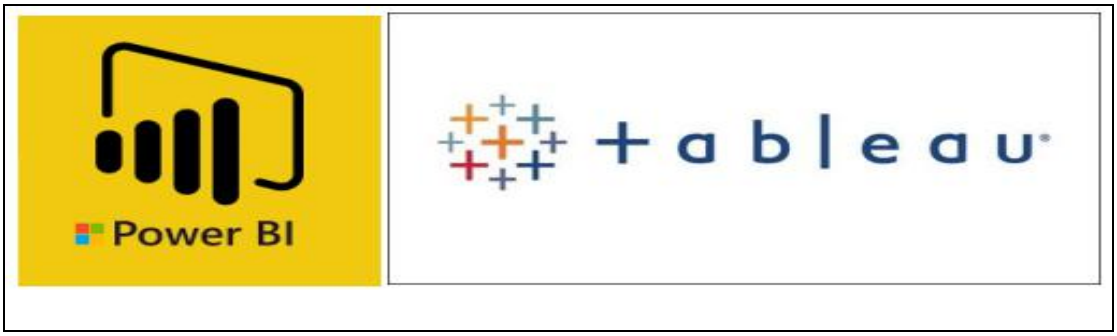
- Use parameters and action filters , it reduces the query load.
- Use calculated columns and measures to increase the readability of the data.

Optimize and materialize your calculations

- Perform calculations in the databases.
- Reduce the number of nested calculations.
- Create data models such that it will be easy to calculate the required dimension.
- Reduce the granularity of LOD or table calculations in the view. The more the complex the calculation the longer it takes.
    - ✓ LOD - Looks at the number of unique dimensions members in the calculations.
    - ✓ Table Calculations - the more marks in the view , the longer it will take to calculate.
- Where possible, use MIN or MAX instead of AVG. AVG requires more processing than MIN and MAX. Often rows will be duplicate and display the same results with all of three above.
- Remove duplicates.
- Make groups with calculations. Like include filters, calculated groups load only named members of the domain, whereas Power-bi or Tableau's group function loads the entire domain.
- Use Boolean or numeric calculations instead of string calculations.
- Boolean>int>Float>Date>Date-time>string

4 KPIs

Dashboard will be implemented to display and indicate certain KPIs and relevant indicators for the required phenomenon.



As and when , the system starts to capture the new additions of data for a country, the dashboard will we included to display chart over time with progress on various indicators or factors.

4.1 KPIs (Key Performance Indicators)

These are the key indicators displaying the summery of the debt of countries.

1. Impact of Environmental conditions on debt repayment.
2. Impact of change in Government bodies in countries.
3. Total Debt amount given by world bank.
4. The country with the highest debt amount
5. The country with longer time of debt.

5 Deployment

Prioritizing data and analytics couldn't come at better time. Your company no matter what size , is already collecting data and most likely analyzing just a portion of it to solve the business problems, gain competitive advantage, and drive enterprise transformation. With the explosive growth of enterprise data , database technologies, and the high demand for the analytical skills, today's most effective IT organizations have shifted their focus to enabling self service by deploying and operating various tools at scale, as well as organizing and unifying disparate sources of data for business users and experts a like to author and consume content.

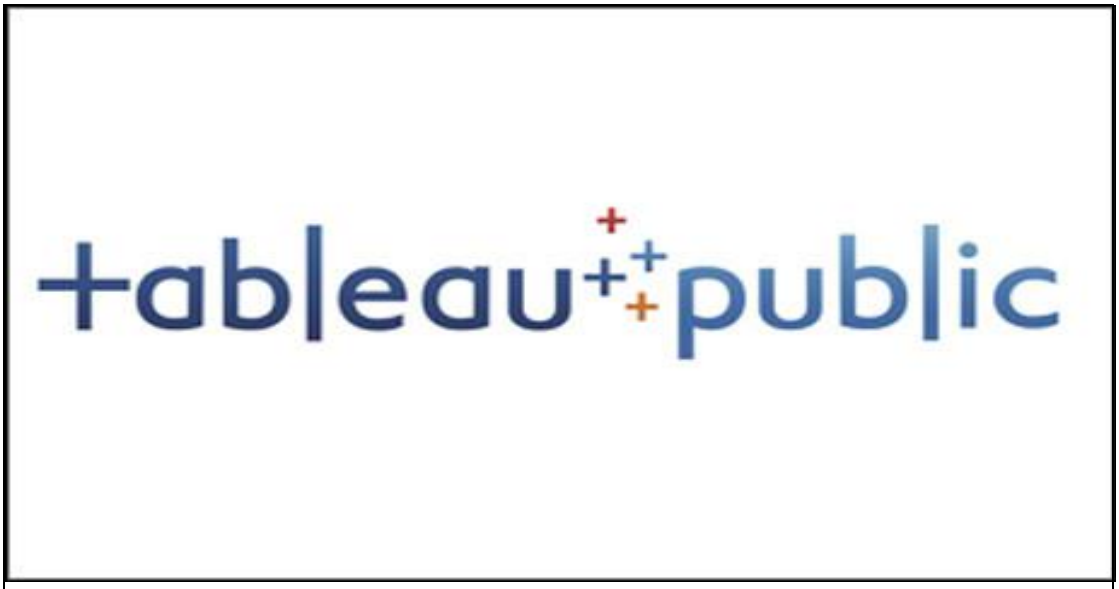


Tableau Public :

Tableau prioritizes choice in flexibility to fit, rather than dictate, your enterprise architecture.
Tableau Server and Tableau Online leverage your existing technology investments and
integrate into your IT infrastructure to provide a self-service, modern analytics platform for your
users. With on-premises, cloud, and hosted options, there is a version of Tableau to match . Here we are using tableau public which will help in publicating the report.

Depending on your organizational roles and responsibilities, power bi service should be installed by a system administrator and the designated power bi service administrator in coordination with the appropriate IT roles. For Power BI service , you will integrate with your existing technology and configure the site settings. The data and analytics survey, completed by business teams, identifies and prioritizes data use cases, audience size, and users. You will use the information collected in both surveys to plan your deployment strategy, including sizing, installations, and configurations of your power bi service. In addition to installing power bi service administrators will also need to plan for the client software installations of power bi desktop or mobile applications.