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LOW LEVEL DESIGN

FIFA WORLD CUP ANALYSIS

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1. Abstract

The objective of this article is to explore the FIFA World Cup data and find the insights and trends. The **FIFA World Cup**, often simply called the **World Cup**, is an international association football competition contested by the senior men's national teams of the members of the *Fédération Internationale de Football Association* (FIFA, the International Federation of Association Football), the sport's global governing body. The championship has been awarded every four years since the inaugural tournament in 1930, except in 1942 and 1946 when it was not held because of the Second World War. The World Cups dataset show all information about all the World Cups in the history, while the World Cup Matches dataset shows all the results from the matches contested as part of the cups.

LOW LEVEL DESIGN

The low level design basically contains a detailed description of every module. In simpler words, the LLD describes every module in detail by including the actual logic of every component in the system. It goes deeply into every system specification and is thus known as detailed/ micro-level design.

The designers and developers basically create and implement the low level design. It is capable of converting a high level solution to a very detailed solution. Thus, the LLD comes into play only after the design and implementation of the HLD.

Components of LLD

Low-level design (**LLD**) is a component-level design process that follows a step-by-step refinement process. This process can be used for designing data structures, required software architecture, source code and ultimately, performance algorithms. Overall, the data organization may be defined during requirement analysis and then refined during data design work.

Purpose of LLD

The goal of LLD or a low-level design document (LLDD) is to give the internal logical design of the actual program code. Low-level design is created based on the high-level design. LLD describes the class diagrams with the methods and relations between classes and program specs. It describes the modules so that the programmer can directly code the program from the document.

A good low-level design document makes the program easy to develop when proper analysis is utilized to create a low-level design document. The code can then be developed directly from the low-level design document with minimal debugging and testing. Other advantages include lower cost and easier maintenance.

General Description

Project Perspective

The World Cup is the most prestigious association football tournament in the world, as well as the most widely viewed and followed single sporting event in the world.

The project perspective is to find the insights from the given datasets. The dataset has FIFA world cup data from 1930-2014. There are three different datasets are given we have to use this data to find the insights using visualisations, tables, charts and to made it dynamic so we can check it easily using filters and slicers.

Problem Statement

The World Cups dataset show all information about all the World Cups in the history, while the World Cup Matches dataset shows all the results from the matches contested as part of the cups. Also give World Cup Players in which the data given of players who participated for their team.

- From the given datasets we have to find stats of FIFA world cup from 1930-2014.
- To clean the dataset where the dataset had spelling mistakes and correct them.
- To check data type and correct where it is required.
- Dropping unused columns an rows
- To create new columns and new measures required for finding the in-depth facts from the given datasets.
- To create different dashboard so, we can check the data for particular point and focus on it like team, player, stadium etc.

DATASET INFORMATION

Dataset file name :- WorldCupMatches

File Size – 234 kb

File Format - .csv (Comma separated value)

(Rows, Columns) – (4572,20)

Column	Column Description
Year	Year in which FIFA world cup played
Datetime	Date and time of match played
Stage	Different stages(level) of match
City	City name in which match played
Home Team Name	Name of team hosting match
Home Team Goals	Number of goals scored in home ground
Away Team Gaols	Number goals scored by away(visiting) team
Away Team Name	Team visiting for playing match
Win condition	Win type for knock out matches
Attendance	Number of audiences in stadium per match
Half-time Home Goals	Number of goals scored in half time by home teams
Half-time Away Goals	Number of goals scored in half time by away teams
Referee	discretion to take appropriate action within the framework of the Laws of the Game.
Assistant 1	Referee outside field
Assistant 2	Referee outside field
RoundID	Stage match ID
MatchID	Every match ID
Home Team Initials	Abbreviation of country
Away Team Initials	Abbreviation of country

Dataset file name :- WorldCupPlayers

File Size – 2.05 mb

File Format - .csv (Comma separated value)

(Rows, Columns) – (37784, 9)

Column	Column Description
RoundID	Stage match ID
MatchID	Every match ID
Team Initials	Abbreviation of country
Coach Name	Coach of Team
Line-Up	Player position(role) in match
Shirt-Number	Number on Team jersey
Player Name	Name of player

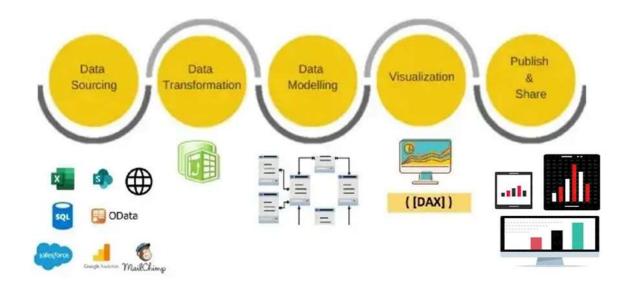Dataset file name :- WorldCups

File Size – 2 kb

File Format - .csv (Comma separated value)

(Rows, Columns) – (20, 10)

Column	Column Description
Year	FIFA World Cup Played year
Winner	FIFA World Cup winner
Runners-Up	2nd position team
Third	3rd position team
Fourth	4th position team
GoalScored	Total goals scored in FIFA World Cup by Year
Qualified Team	Number of team qualified for FIFA world cup
MatchesPlayed	Number of matches played in FIFA world Cup
Attendance	Total attendance in FIFA World Cup by year

Architecture

DATA SOURCE

A *data source* is simply the source of the data. It can be a file, a particular database on a DBMS, or even a live data feed. The data might be located on the same computer as the program, or on another computer somewhere on a network. The purpose of a data source is to gather all of the technical information needed to access the data. The source can be a database, a flat file, an XML file, or any other format that a system can read. The input is recorded as a collection of records that contain information used in the business process.

DATA TRANSFORMATION

Data transformation is the process of converting data from one format, such as a database file, XML document or Excel spreadsheet, into another.

Transformations typically involve converting a raw data source into a cleansed, validated and ready-to-use format. Data transformation is crucial to data management processes that include data integration, data migration, data warehousing and data preparation.

The process of data transformation can also be referred to as extract/transform/load (ETL). The extraction phase involves identifying and pulling data from the various source systems that create data and then moving the data to a single repository. Next, the raw data is cleansed, if needed. It's then transformed into a target format that can be fed into operational systems or into a data warehouse, a date lake or another repository for use in business intelligence and analytics applications. The transformation may involve converting data types, removing duplicate data and enriching the source data.

Data transformation is crucial to processes that include data integration, data management, data migration, data warehousing and data wrangling.

It is also a critical component for any organization seeking to leverage its data to generate timely business insights. As the volume of data has proliferated, organizations must have an efficient way to harness data to effectively put it to business use. Data transformation is one element of harnessing this data, because -- when done properly -- it ensures data is easy to access, consistent, secure and ultimately trusted by the intended business users.

The key steps in data transformation

The process of data transformation, as noted, involves identifying data sources and types; determining the structure of transformations that need to occur; and defining how fields will be changed or aggregated. It includes extracting data from its original source, transforming it and sending it to the target destination, such as a database or data warehouse. Extractions can come from many locations, including structured sources, streaming sources or log files from web applications.

DATA MODELING

Data Modeling is used to connect multiple data sources in BI tool using a relationship. A relationship defines how data sources are connected with each other and you can create interesting data visualizations on multiple data sources.

With the modeling feature, you can build custom calculations on the existing tables and these columns can be directly presented into Power BI visualizations. This allows businesses to define new metrics and to perform custom calculations for those metrics.

DATA VISUALIZTION

Data visualization helps you turn all that granular data into easily understood, visually compelling—and useful—business information. By tapping into external data sources, today's data visualization tools don't simply let you see your KPIs more clearly, they unify data and apply AI-driven analytics to reveal relationships between your KPIs, the market, and the world.

Hidden within your data lie important insights that can help drive business forward. But the challenge is that you can't always connect the dots by looking at raw numbers alone. When you look at your data presented in a visual format, patterns, connections, and other "a-ha" insights emerge that would otherwise remain out of sight.

Data visualization brings data to life, making you the master storyteller of the insights hidden within your numbers. Through live data dashboards, interactive reports, charts, graphs, and other visual representations, data visualization helps users develop powerful business insight quickly and effectively.

Data visualization can be used for demonstrating performance, communicating trends, understanding the impact of new strategies, showing relationships, and beyond. These representations can be powerful tools for communication and collaboration, bringing greater value to reports, journalism, apps, or any context where sharing information is required.

DEPLOYMENT (Publishing report)

A **Deployment Pipeline** is the process of removing code from version control and making it automatically available to users of your application. When a team of developers is working on a project or feature, they need a reliable and efficient way to build, test, and deploy their work.

Power BI Deployment Pipelines allow creators to create and test content in the Power BI service before it is consumed by users. In simple terms, these Power BI Deployment Pipelines are in charge of managing the lifecycle of organizational content. Reports, paginated reports, dashboards, datasets, and dataflows are among the content types.

STEPS FOR PUBLISHING REPORT

1. In Power BI Desktop, choose **File** > **Publish** > **Publish to Power BI** or select **Publish** on the **Home** ribbon.
2. Sign in to Power BI, if you aren't already signed in.
3. Select the destination. You can search your list of available workspaces to find the workspace into which you want to publish. The search box lets you filter your workspaces. Select the workspace, and then click the **Select** button to publish.

When publishing is complete, you receive a link to your report. Select the link to open the report in your Power BI site.

Published Link-
https://app.powerbi.com/view?r=eyJrIjoiNjQyZTJjOWQtMmFlNy00ZWZmLWIzZTktMDJhYjQwZGU4ZGU2IiwidCI6ImVkMjk2ZTI0LWEyNDUtNGJiNS04NWRlLTRiNDRiZWVlZTA3NiJ9&pageName=ReportSection

REFERENCES

https://en.wikipedia.org/wiki/Low-level_design#:~:text=Purpose,between%20classes%20and%20program%20specs.

https://powerbi.microsoft.com/en-us/data-visualization/

https://learn.microsoft.com/en-us/power-bi/create-reports/desktop-upload-desktop-files