Data Analysis Framework

As you have seen, there is a way, and by following it step by step, you can convert your data into insights based on which you can make decisions. Those decisions help companies to grow and to make more profit.

There are broadly **7 steps** to perform **Data Analysis:**

Step 1: Business Problem Understanding
Step 2: Converting Problem in Data Analysis Terms
Step 3: Business Problems Assumptions
Step 4: Data Acquisition
Step 5: Data Processing
Step 6: Data Analysis
Step 7: Storytelling / Presentation

Step 1: Business Problem Understanding

- Discussion with the Subject Matter Expert, Stakeholders or Domain expert to understand the problem
- Understanding of all the deliverables
- Getting the idea of the kind of task

Step 2: The Problem in Data Analysis Terms

- Once a business problem is finalized and understood, then the problem needs to be converted into a data analysis problem.
- Asking the right question about the data
- Converting the problem in terms of what kind of data is required.
- Getting a snapshot of the data so that the data acquisition can take place.

Step 3: Business Problems Assumptions

- The assumption is created to decide any threshold to get the correct result in terms of business problems.
- Assumptions are decided after the discussion with domain experts and SMEs.

Step 4: Data Acquisition

- Once the problem is fully understood in data analysis terms and all the assumptions checked and validated, now comes the data acquisition phase.
- Now, analysts need to decide which data sets are necessary to solve the problem, where these data sets would be residing and which format. Often, analysts might need help from the Database Administrator (DBA's) and other Data Engineering teams to understand the availability of data.

Step 5: Data Processing

- Once the data is finalized, now data needs to be prepared in the format on which analysis can be performed. This particular step is the combination of multiple steps.
  - **Data Merging**
  - **Data Type Validation**
  - **Handling the Missing Values**
  - **Handling Outliers**.
  - **Feature Engineering**

Step 6: Data Analysis

- There are various methods through which analysis can be done on the processed data.
- Statistical methods, regression or machine learning algorithms can be used.

- In this step, all four types of analysis occur, and at the end of the analysis, DA comes up with the solution for the business problem.

Step 7: Storytelling / Presentation

- It is the last step of the framework.
- After completing the analysis, the results need to be presented to the stakeholders.
- These results should be in such a way they should be understandable to the stakeholder, so it is always good to have them in pictorial form or less technical content.

Read More

- https://www.sciencedirect.com/science/article/pii/S2351978920322034

- https://about.gitlab.com/blog/2019/11/04/three-levels-data-analysis/