

Name Mumsad Khan

Email [mumshadkhan1988@gmail.com](mailto:mumshadkhan1988@gmail.com)

Mob-8130777518

Github link - [Code](#)

Assignment name -Basics of Data Analytics

**1. Define the role of a Data Analyst in your own words. What value do they bring to an organization?**

A Data Analyst turns raw data into clear insights. They clean, study, and visualize data to find trends and answers. Their value is helping companies make smart, evidence-based decisions to improve and grow.

**2. List three tools commonly used by Data Analysts and explain what each is mainly used for.**

Excel: For basic data cleaning, calculations, and simple charts.

SQL: To extract and manage data from large databases.

Power BI/Tableau: To create interactive dashboards and visual reports.

**3. Write the end-to-end analytics workflow in the correct order and briefly explain each step.**

Collect: Get data from various sources.

Clean: Fix errors and prepare data for analysis.

Analyze: Use tools to find patterns and insights

Visualize: Create charts and graphs for clarity.

Decide: Use the insights to make business decisions.

**4. What is Prompt Engineering, and explain any two types of prompts used in Generative AI?**

Prompt Engineering is the skill of designing effective questions for AI to get the best output.

Two prompt types:

Instruction Prompt: A direct command (e.g., Summarize this article).

Context Prompt: Provides background first (e.g., I am a learner. Explain Data analytics simply)

**5. What are the key differences between a Business Analyst and a Data Analyst in terms of roles, responsibilities, and focus?**

- **A Business Analyst** focuses on business needs and solutions, defining problems and requirements to determine what to do.
- **A Data Analyst** focuses on data itself, cleaning and analyzing it to find patterns and answer what does the data say. One defines the business problem, the other provides the data evidence.

**6. Explain any three AI-powered ETL (Extract, Transform, Load) tools and how they are used in analytics.**

*ETL means Extract, Transform, Load data. AI tools automate this.*

*Talend: Uses AI to automatically find and fix data errors.*

*Informatica: Uses AI (CLAIRE) to map data relationships faster.*

*Azure Data Factory: Has built-in AI to transform data, like detecting sentiment in text.*

**7Give three applications of Data Analytics across different industries and explain how it creates value.**

*E-commerce: Product recommendations. Increases sales.*

*Healthcare: Predicting disease risk. Enables early treatment.*

*Banking: Fraud detection. Protects customers and the bank.*

**8. Explain the evolution of analytics, highlighting the different stages from Descriptive to Generative AI.**

1. *Descriptive: What happened? (Reports on past sales).*
2. *Diagnostic: Why did it happen? (Found the cause for a sales drop).*
3. *Predictive: What will happen? (Forecasting next month's sales).*
4. *Prescriptive: What should we do? (Suggests actions to improve sales).*
5. *Generative AI: Create something new. (Generates new text, code, or designs).*