• Basics Of Data Analytics

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

Answer =>. A **Data Analyst** collects, cleans, and examines data to find useful patterns and insights. They translate complex information into simple, actionable recommendations. Their value lies in helping organizations make smarter decisions, improve efficiency, understand customers better, and identify opportunities or problems early—all through the power of data.

Q(2). List three tools commonly used by Data Analysts and explain what each is mainly used for?

Answer => Here are three commonly used tools and their main purpose:

1. Excel – Used for data cleaning, quick analysis, formulas, and creating basic charts or reports.

2. SQL – Used to extract and manage data from databases by writing queries.

3. Tableau/Power BI – Used to visualize data and create interactive dashboards for decision-making.

Q(3). Write the end-to-end analytics workflow in the correct order and briefly explain each step?

Answer =>. Here's the end-to-end analytics workflow in order, explained briefly:
1. Define Problem – Understand the business goal and what question needs to be answered.
2. Collect Data – Gather data from databases, APIs, files, or other sources.
3. Clean & Prepare Data – Fix errors, remove duplicates, format data, and create usable datasets.
4. Analyze Data – Explore patterns, run calculations, and apply statistical or analytical methods.
5. Visualize & Interpret – Create charts/dashboards and translate findings into insights.
6. Communicate Results – Present insights clearly to stakeholders for decision-making.
7. Take Action & Monitor – Implement solutions and track performance to ensure improvements.

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

Answer => Prompt Engineering is the skill of crafting clear and effective instructions to help generative AI produce accurate and useful results.
Two types of prompts:
1. Direct Prompt – A simple command telling the AI exactly what to do.
Example: "Write a short summary."
2. Role-Based Prompt – Assigning the AI a role to get more accurate, context-specific output.
Example: "Act as a teacher and explain this topic simply."

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

Answer => Business Analysts focus on what the business needs, while Data Analysts focus on what the data reveals.

Business Analyst
Focus: Business needs, processes, and strategy.

Role: Understand requirements, improve workflows, and align solutions with business goals.

Responsibilities: Gather requirements, create documentation, communicate with stakeholders, and recommend process improvements.

Data Analyst

Focus: Data, trends, and insights.

Role: Collect, clean, analyze, and interpret data to support decision-making.

Responsibilities: Run analyses, create dashboards, find patterns, and present data-driven insights.

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

Answer => These tools use AI to automate cleaning, transforming, and preparing data, making analytics faster and more accurate.
Here are three AI-powered ETL tools:
1. Informatica CLAIRE
– Uses AI to automate data mapping, data quality checks, and metadata management.
– Helps analysts quickly prepare clean, organized data for reporting.

2. Talend Data Fabric (with Machine Learning)
– Uses ML to detect anomalies, improve data quality, and automate transformations.
– Makes the ETL process faster and reduces manual effort.

3. AWS Glue (with AI/ML features)
– Automatically discovers, catalogs, and prepares data for analytics.
– Useful for building scalable ETL pipelines with minimal coding.

Q(7). Give three applications of Data Analytics across different industries and explain how it creates value?

Answer => Here are three applications of Data Analytics across industries, explained briefly:

1. Retail – Customer Insights
– Analyzes buying behavior to personalize offers and improve sales.
– Creates value by boosting conversions and customer satisfaction.

2. Healthcare – Predictive Diagnosis
– Uses patient data to identify disease risks early.
– Creates value by improving treatment outcomes and reducing costs.

3. Finance – Fraud Detection
– Detects unusual transactions using pattern analysis.
– Creates value by preventing financial loss and increasing security.

Q(8). Here are three applications of Data Analytics across industries, explained briefly?

Answer => Here are three short applications of Data Analytics across industries:

1. Retail: Personalizes product recommendations to increase sales.

2. Healthcare: Predicts diseases early to improve patient outcomes.

3. Finance: Detects fraudulent transactions to reduce financial risks.