Data Analysis

Assignment-1

SECTION-1 (Core Concepts)

Q1)

1.Data

Data is the raw facts or values that are collected without any meaning . It can be numbers, text, or records that have not yet been analyzed.

Example: A store recording daily sales numbers like 1200, 1500, 1700 — these are just data.

2. Data Analytics

Data analytics is the process of examining data to find patterns, trends, or useful insights that help in decision making. It turns raw data into meaningful understanding.

Example: Analyzing sales data to identify which product sells more during weekends.

3. Difference between Data and Information

Data refers to raw, unprocessed facts, while information is the result of processing that data to make it meaningful.

Example:

Data: Scores of students — 45, 50, 60

Information: The average score is improving.

Q2) Why companies invest in data analytics ?

Companies invest in data analytics because it helps them make smarter decisions and stay competitive.

Benefits:

- Better decision making — Businesses use data insights instead of guessing.

  Example: Choosing products to restock based on demand.

- Understanding customers — Helps identify customer preferences.

  Example: Suggesting movies based on viewing history.

- Increasing revenue — Finds opportunities to sell more.

Example: Targeted marketing campaigns.

- Reducing costs — Detects waste or inefficiencies.

  Example: Optimizing delivery routes.

- Predicting trends — Helps plan for the future.

  Example: Forecasting seasonal demand.

SECTION-2 (Types Of Data)

Q3)

a) Customer age

Type: Structured

Nature: Quantitative

b) Netflix movie review text

Type: Unstructured

Nature: Qualitative

c) Bank transaction table

Type: Structured

Nature: Quantitative

d) Uber GPS coordinates

Type: Structured

Nature: Quantitative

e) Amazon product ratings (1–5)

Type: Structured

Nature: Quantitative

Q4) Convert unstructured data into structured form

Given: "The delivery was late and customer support was poor."

Create a structured table with at least:

1. feedback_text

2. Sentiment (Positive, Negative, neutral)

3. issue_type

Answer-Structured table

feedback_text	sentiment	issue_type
The delivery was late and customer support was poor	Negative	Delivery delay & Support issue

SECTION-3 (Analytics Types Mapping)

Q5)

Business Question	**Analytics Type**
Why are users uninstalling our app?	Diagnostic Analytics
How many users logged in yesterday?	Descriptive Analytics
What will next month's revenue be?	Predictive Analytics
Which action should reduce churn?	Prescriptive Analytics

SECTION-4 (Amazon Use-Case Deep Dive)

Q6)

a) Types of data Amazon collects

- Customer profile data -Name, address, contact details, account preferences
- Purchase history data - Products bought, order value, frequency
- Browsing behaviour data - Products viewed, search queries, clicks
- Product feedback data - Ratings, reviews, complaints
- Payment & transaction data - Payment method, billing details, refunds

b) Business objectives behind collecting this data

- Personalized recommendations - Suggest relevant products based on user behaviour

- Improving customer experience - Understand customer needs and preferences
- Increasing sales and revenue - Target promotions and marketing
- Inventory management - Stock products based on demand patterns
- Fraud detection and security - Monitor unusual transaction activity

Q7)Analytics Use Cases (Amazon)

- Descriptive Analytics

Business problem: Understand current sales performance

Data used: Order and transaction data

Expected output: Sales summary reports and dashboards

Business value: Helps monitor performance and identify trends

- Diagnostic Analytics

Business problem: Find why sales dropped for a product

Data used: Customer reviews, traffic data

Expected output: Root cause analysis (price, ratings, etc.)

Business value: Supports corrective actions

- Predictive Analytics

Business problem: Forecast future product demand

Data used: Historical sales data

Expected output: Demand predictions

Business value: Better inventory planning

- Prescriptive Analytics

Business problem: Decide how to increase conversions

Data used: Customer behaviour and prediction results

Expected output: Recommended actions (discounts, ads)

Business value: Improves revenue and engagement

SECTION 5) Analyst Thinking

If company revenue is falling:

Questions to ask

- Which product/service revenue dropped?
- When did the decline start?
- Are customers decreasing?
- Any pricing or competition changes?

Data to request

- Sales history
- Customer purchase data
- Marketing data
- Market trends

Metrics to analyze

- Revenue trends
- Customer retention
- Conversion rates
- Average order value

SECTION-6)Executive Summary

Data analytics helps businesses understand what is happening and why it is happening. By studying patterns in data, companies can make informed decisions instead of relying on assumptions. It supports improving customer satisfaction, increasing efficiency, and identifying growth opportunities. Overall, using data analytics allows organizations to stay competitive and achieve better long-term results.