**1. What is python and explain with real time examples?**

Python is a high-level, easy-to-read programming language used for web development, data science, automation, AI, and more. It is popular because of its simplicity, large community, and powerful libraries.

### ****Real-Time Examples of Python****

1. **Web Development**: Instagram and YouTube use Python for backend development.
2. **Data Science & Analytics**: Companies like Netflix analyse user data with Python to recommend movies.
3. **Artificial Intelligence & Machine Learning**: Tesla’s self-driving cars use Python for AI models.
4. **Cyber security**: Ethical hackers use Python for penetration testing.
5. **Finance & Trading**: Banks use Python for risk analysis and algorithmic trading.
6. **Game Development**: Games like Battlefield 2 use Python for logic scripting.

**2. What is data science and how we can use in real life or business logics?**

A variety of methods, algorithms, procedures, and systems are used in the diverse subject of data science to gain insights and knowledge from both structured and unstructured data. To analyse data and guide decision-making, it integrates elements of computer science, machine learning, statistics, data analysis, and domain experience.

**1. Real-Life Applications**

**Healthcare**: Predicting diseases

**Finance**: Fraud detection

**2. Business Logic Applications**

**Predictive Analytics**: Businesses use historical data to predict future trends and customer behaviour.

**Risk Management**: Analysing past data to detect risks in finance.

**3. What is data analytics and explain with examples?**

Data Analytics is the process of examining data to find patterns, trends, and useful insights. It helps businesses and individuals make better decisions by analyzing past and present data.

### ****Examples:****

* **E-commerce**: Amazon suggests products based on your shopping history.
* **Healthcare**: Doctors predict diseases using patient records.
* **Finance**: Banks detect fraud by analyzing transaction pattern

**4. Types of data analytics and explain every single type of data analytics with real time examples?**

There are **four main types** of data analytics:

1. **Descriptive Analytics** – *What happened?*
   * **Definition**: Summarizes past data to understand trends and patterns.
   * **Example**: A retail store analyzes last month's sales to see which products sold the most.
2. **Diagnostic Analytics** – *Why did it happen?*
   * **Definition**: Examines data to understand the cause of past events.
   * **Example**: A company notices a drop in website traffic and finds that a recent ad campaign was ineffective.
3. **Predictive Analytics** – *What is likely to happen?*
   * **Definition**: Uses past data and machine learning to forecast future trends.
   * **Example**: A bank predicts which customers might default on their loans based on their transaction history.
4. **Prescriptive Analytics** – *What should be done?*
   * **Definition**: Provides recommendations or solutions based on predictive insights.
   * **Example**: A navigation app like Google Maps suggests the fastest route based on real-time traffic conditions.

**5. What is machine learning and explain with real life examples?**

Machine Learning (ML) is a type of artificial intelligence (AI) that enables computers to learn from data and make decisions without being explicitly programmed. It uses algorithms to identify patterns and improve performance over time.

### ****Real-Life Examples of Machine Learning****

1. **Recommendation Systems**: Netflix suggests movies based on your watch history.
2. **Fraud Detection**: Banks detect unusual transactions to prevent credit card fraud.
3. **Speech Recognition**: Siri and Google Assistant understand and respond to voice commands.
4. **Self-Driving Cars**: Tesla uses ML to detect obstacles and drive safely.
5. **Spam Filtering**: Gmail automatically moves spam emails to the junk folder.
6. **Dynamic Pricing**: Uber adjusts ride prices based on demand and traffic conditions.