**TASK NO 1**

**IDENTIFY 5 REAL-WORLD APPLICATIONS OF DATA SCIENCE AND FIND HOW DATA SCIENCE IS USED**

**1.HEALTHCARE (LUNG CANCER PREDICTION)**

**How Data Science is Used:**

* Uses machine learning models to analyze medical data like CT scans, X-rays, and patient history.
* Predictive analytics help in early detection based on patterns in large datasets.
* Deep learning models like CNNs (Convolutional Neural Networks) assist in image-based diagnosis.

**2.AUTONOMOUS VEHICLES –SELF DRIVING CARS(TESLA,WAYMO)**

**How Data Science is Used:**

* Computer vision processes real-time images to detect objects, traffic signals, and lanes.
* Sensor data from LiDAR, cameras, and GPS is analyzed using deep learning.
* Reinforcement learning helps the car make driving decisions based on past experiences.

**3.SUPPLY CHAIN OPTIMIZATION(AMAZON,WALMART)**

**How Data Science is Used:**

* Predictive analytics forecasts demand based on past sales data, weather, and economic trends.
* Route optimization models improve delivery efficiency, reducing costs.
* Inventory management algorithms ensure stock availability and prevent overstocking.

### 4.DISASTER MANAGEMENT (EARTHQUAKE AND FLOOD PREDIVTION)

**How Data Science is Used:**

* Satellite imagery and deep learning models predict natural disasters.
* Data from weather sensors is used to improve forecasting accuracy.
* AI-driven simulations help governments plan disaster responses efficiently.

**5.CYBERSECURITY-THREAT DETECTION(FIREWALL,ANTIVIRUS)**

**How Data Science is Used:**

* Anomaly detection models identify unusual network activity.
* AI-powered security systems detect and block cyberattacks in real time.
* NLP-based models analyze phishing emails and malware signatures.