Module 13: Week 15: Required Assignment

For each of the following applications, determine whether it uses Artificial Intelligence. If yes, explain to what extent AI or Machine Learning is used. If ML is used, specify if it is Supervised, Unsupervised, or Reinforcement Learning. If there is no AI, justify your answer.

1. Self-driving cars like Tesla Autopilot (2 Marks) (Hint: Consider perception, decision-making, and control aspects.)

   AI Usage: Yes. AI handles perception (recognizing lanes, obstacles), decision-making (when to brake or turn), and control (steering, acceleration). Deep learning models process real-time sensor data to drive autonomously.

   ML Types:

   a. Supervised Learning (e.g., identifying objects like cars and pedestrians using labelled data).
   b. Reinforcement Learning (e.g., improving driving decisions through trial and error.

2. Mobile banking app displaying your current account balance (2 Marks) (Hint: Is the app making intelligent decisions or just showing stored data?)

   AI Usage: No.

   Explanation: The banking app just fetches and displays pre-stored data. No learning or decision-making is involved—it follows fixed rules to show your balance.

3. Netflix recommending movies and TV shows based on your viewing history (2 Marks) (Hint: Think about how user preferences are analysed and predictions are made.)

   AI Usage: Yes. Netflix analyses one's viewing habits and similar users habits to suggest content one might enjoy.

   ML Types:

   a. Supervised Learning (predicting what one will like based on past watches).
   b. Unsupervised Learning (grouping similar users or content for recommendations).

4. Barcode scanner at a supermarket checkout (2 Marks) (Hint: Consider whether it uses learning or just performs fixed functions.)

- AI Usage: No.
- Explanation: It simply scans a fixed barcode pattern and retrieves product info from a database. No learning or intelligence is involved.

5. YouTube's content moderation system that flags potentially harmful videos (2 Marks) (Hint: Consider if the system is trained using examples or rules.)

- AI Usage: Yes. AI flags potentially harmful videos by learning from past violations. Human reviewers may check flagged content, but initial detection is AI-powered.
- ML Type: Supervised Learning (trained on labelled examples of harmful content).