



ANSWERS: Smart Home

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Exercise: Case Study

- Smart Home Case Study
- Next page has the case study exemplar
- Students can compare answers / responses to questions within the saved Word document named: 12 Case Study



Exemplar: Smart Home

Q1. Hardware

Exemplar Answer: The **GPU (Graphics Processing Unit)**.

Reasoning: Because identifying faces in a video requires **parallel processing** (doing many calculations at once). A CPU handles tasks one by one, which would be too slow for real-time video analysis.

Q2. Connectivity

Exemplar Answer: There would be a noticeable **delay** or "**lag**".

Reasoning: High latency means the data takes longer to travel to the server and back. The family would ask to turn off the lights, but nothing would happen for several seconds.

Q3. Big Data

Exemplar Answer: The AI needed **Big Data** (thousands/millions of labelled images).

Reasoning: It needed to see many different examples of dogs and humans from different angles to learn the patterns. Without this "fuel" or training data, the algorithm wouldn't know what it was looking at.

Q4. The Cloud

Exemplar Answer: It uses **Cloud Computing** (Remote Servers).

Reasoning: The speaker records the voice, sends the data over the internet to a powerful server (the Cloud) which does the "thinking," and then sends the answer back.

Q5. IoT (Internet of Things)

Exemplar Answer: A **Motion Sensor** or **Temperature Sensor**.

Reasoning: A motion sensor collects data on movement in a room. If no movement is detected for an hour, the AI decides to turn off the heating to save energy.