Round 2: Supervised vs Unsupervised

Introduction: In supervised learning, the machine learns like a student with a teacher. It learns with examples that are already marked with labeled data as correct answers. In unsupervised learning, the machine works more like an explorer. It looks at data without any labels and tries to find patterns on its own without being told what groups to make.

Question	Options	Type	Information	Hint
Question 1: Which type of machine learning would be most appropriate for automatically identifying dogs and cats in photos?	**1. Supervised learning** 2. Unsupervised learning 3. Reinforcement learning 4. Semi-supervised learning	**UC**	- This type of learning helps computers recognize things in images	“Think about which type of machine learning for recognizing objects in pictures.”
		PC	- UC Information - Requires labeled data during training - Data needs to be marked with correct answers	"Think about which type of machine learning needs already labeled images for training to recognize objects in pictures."
		NC	- UC + PC Information - Mention “supervise” - System learns from photos marked as "dog" or "cat"	"Consider which learning type specifically requires labeled training data to supervise the learning procedure. The computer needs to learn from photos that humans have already marked as 'dog' or 'cat' to learn the difference between them.”

Question	Options	Type	Information	Hint
Question 2: Which of these situations involves supervised learning?	1. Grouping customers based on their purchase history without knowing customer types in advance 2. **Training a model to recognize handwritten numbers by providing examples of each number** 3. Allowing a robot to learn the fastest way through a maze by trial and error 4. Clustering data points without providing any labels	**UC**	- A computer learns	“Think about how a computer learns.”
		PC	- UC Information - Teaching requires right/wrong answers - Mention labeled data	“Consider which situation is like having a teacher who can check if answers are right or wrong. Which option mentions having data that's already labeled with correct answers?”
		NC	- UC + PC Information - Mention labeled examples - Full explanation with parallel example	"When you show a computer labeled examples—like the letter a with the label alpha—you’re essentially supervising it by providing the correct answers to learn from. The other options either work without any labels or through trial and error, which is different from supervised learning."

Question	Options	Type	Information	Hint
Question 3: Which of these situations uses unsupervised learning?	1. **Grouping online shoppers into different customer types based on their browsing history without predefined categories** 2. Teaching a computer to detect spam emails using examples of spam and non-spam messages 3. Training an AI to classify medical images using a database of diagnosed patient scans 4. Predicting house prices using data from past sales with known prices	**UC**	- Patterns	“Think about patterns.”
		PC	- UC Information - Must discover groups on its own	“Which situation involves the computer grouping things without being told beforehand what the groups should be? Like organizing a closet your own way, without someone telling you how to categorize the items.”
		NC	- UC + PC Information - No predefined categories given - Full explanation with parallel example	"Imagine a store looking at how customers shop. Some might buy only during sales, others prefer premium items, some shop weekly, others monthly. These shopping patterns emerge naturally, we don't tell the computer what types of shoppers to look for. The groups form based on similar behaviors, without any predefined categories."