**1. Supervised Learning**

In supervised learning, the algorithm learns from a labeled dataset. Each training example is paired with an output label. The goal is to learn a mapping from inputs to outputs.

**Examples:**

1. **Spam Detection**: Classify emails as "spam" or "not spam" based on labeled examples.
2. **Image Classification**: Label images as "cat", "dog", etc., based on a dataset of labeled images.
3. **Sentiment Analysis**: Determine if a piece of text is "positive", "negative", or "neutral" based on labeled text data.
4. **House Price Prediction**: Predict house prices based on features like size, location, and number of rooms using historical data with known prices.
5. **Medical Diagnosis**: Classify medical images or patient data into disease categories based on labeled examples.

**2. Unsupervised Learning**

In unsupervised learning, the algorithm works with unlabeled data and tries to identify patterns or structures within the data.

**Examples:**

1. **Clustering**: Group similar documents into clusters (e.g., grouping news articles by topic without prior labels).
2. **Dimensionality Reduction**: Reduce the number of features in a dataset (e.g., using Principal Component Analysis (PCA) to simplify data while retaining important features).
3. **Anomaly Detection**: Identify unusual data points (e.g., fraud detection in financial transactions without predefined fraud labels).
4. **Market Basket Analysis**: Discover patterns in consumer purchasing behavior (e.g., items frequently bought together).
5. **Customer Segmentation**: Group customers into segments based on purchasing behavior for targeted marketing.

**3. Reinforcement Learning**

In reinforcement learning, an agent learns to make decisions by performing actions in an environment to maximize a cumulative reward. The learning is based on feedback received from the environment in the form of rewards or penalties.

**Examples:**

1. **Game Playing**: Train an agent to play games like Chess or Go by rewarding good moves and penalizing bad ones (e.g., AlphaGo).
2. **Robotic Control**: Teach a robot to navigate a maze or perform tasks like picking up objects using trial-and-error with rewards.
3. **Self-Driving Cars**: Develop autonomous driving systems where the car learns to drive safely by receiving rewards for staying in lanes and penalties for collisions.
4. **Recommendation Systems**: Improve recommendations over time based on user interactions and feedback (e.g., recommending movies based on user ratings).
5. **Dynamic Pricing**: Optimize pricing strategies in e-commerce by adjusting prices based on market response and sales performance.

**4. Semi-Supervised Learning**

In semi-supervised learning, the algorithm uses a combination of a small amount of labeled data and a large amount of unlabeled data to improve learning accuracy.

**Examples:**

1. **Web Page Classification**: Use a small set of labeled web pages and a large set of unlabeled pages to improve classification accuracy.
2. **Text Classification**: Improve document classification by combining a small labeled set with a larger corpus of unlabeled documents.
3. **Image Labeling**: Annotate a few images and use many more unlabeled images to enhance model performance in image recognition tasks.
4. **Speech Recognition**: Use a small labeled dataset of transcribed audio and a large amount of unlabeled speech data to build better speech recognition systems.
5. **Medical Image Analysis**: Combine a limited number of labeled medical images with a vast number of unlabeled images to enhance disease detection and diagnosis.