**Question #1**

**a)** Machine learning is a branch of artificial learning that involves the creation of computer programs that can learn from data, identify patterns, and make decisions with minimal human intervention. Programs in Python can utilize libraries for machine learning and can learn from data as well as certain rules you can start it off with. Machine learning can also be used in conjunction with user input to learn what to or what not to do.

**b)** Supervised learning algorithms involve training machines by giving it input where the desired output is known, such as feeding a machine a series of data points with the corresponding correct outputs, where it can learn to modify its model depending on whether it gets the correct output or not. Such examples of these algorithms can be seen in neural networks, decision trees, or discriminant analysis.

Unsupervised learning algorithms involve training machines by giving it data without telling the machine the “right answer”. This way, the machine must figure out what it is being shown, exploring data and finding some structure within it. Examples of this can be seen in K-means, K-Medoids, or Fuzzy C-means.

Reinforcement learning involves machines learning through trial and error; the machine does a series of actions and sees which ones yield the greatest rewards. This kind of learning is often used in robotics, gaming, and navigation.