**Assignment(1)**

**Class:MCA-II(Sem-III)**

**Subject: Artificial Intelligence**

**Topics:**Difference between supervised,unsupervised and Difference between artificial intelligence and machine learning

**Submitted To:**

Preetima Garg

Prof.of Comp.Sci.Department

**Ques1:Difference Between Supervised and Unsupervised Learning?**

**Ans.**

|  |  |
| --- | --- |
| **Supervised Learning** | **Unsupervised Learning** |
| Supervised learning algorithms are trained using labeled data. | Unsupervised learning algorithms are trained using unlabeled data. |
| Supervised learning model takes direct feedback to check if it is predicting correct output or not. | Unsupervised learning model does not take any feedback. |
| Supervised learning model predicts the output. | Unsupervised learning model finds the hidden patterns in data. |
| In supervised learning, input data is provided to the model along with the output. | In unsupervised learning, only input data is provided to the model. |
| The goal of supervised learning is to train the model so that it can predict the output when it is given new data. | The goal of unsupervised learning is to find the hidden patterns and useful insights from the unknown dataset. |
| Supervised learning needs supervision to train the model. | Unsupervised learning does not need any supervision to train the model. |
| Supervised learning can be categorized in **Classification** and **Regression** problems. | Unsupervised Learning can be classified in **Clustering** and **Associations** problems. |
| Supervised learning can be used for those cases where we know the input as well as corresponding outputs. | Unsupervised learning can be used for those cases where we have only input data and no corresponding output data. |
| Supervised learning model produces an accurate result. | Unsupervised learning model may give less accurate result as compared to supervised learning. |
| Supervised learning is not close to true Artificial intelligence as in this, we first train the model for each data, and then only it can predict the correct output. | Unsupervised learning is more close to the true Artificial Intelligence as it learns similarly as a child learns daily routine things by his experiences. |
| It includes various algorithms such as Linear Regression, Logistic Regression, Support Vector Machine, Multi-class Classification, Decision tree, Bayesian Logic, etc. | It includes various algorithms such as Clustering, KNN, and Apriori algorithm. |

**Ques2:Difference between Artificial Intelligence and Machine Learning?**

**Ans.**

|  |  |
| --- | --- |
| **Artificial Intelligence** | **Machine learning** |
| Artificial intelligence is a technology which enables a machine to simulate human behavior. | Machine learning is a subset of AI which allows a machine to automatically learn from past data without programming explicitly. |
| The goal of AI is to make a smart computer system like humans to solve complex problems. | The goal of ML is to allow machines to learn from data so that they can give accurate output. |
| In AI, we make intelligent systems to perform any task like a human. | In ML, we teach machines with data to perform a particular task and give an accurate result. |
| Machine learning and deep learning are the two main subsets of AI. | Deep learning is a main subset of machine learning. |
| AI has a very wide range of scope. | Machine learning has a limited scope. |
| AI is working to create an intelligent system which can perform various complex tasks. | Machine learning is working to create machines that can perform only those specific tasks for which they are trained. |
| AI system is concerned about maximizing the chances of success. | Machine learning is mainly concerned about accuracy and patterns. |
| The main applications of AI are **Siri, customer support using catboats**, Expert System, Online game playing, intelligent humanoid robot, etc. | The main applications of machine learning are **Online recommender system**, **Google search algorithms**, **Facebook auto friend tagging suggestions**, etc. |
| On the basis of capabilities, AI can be divided into three types, which are, **Weak AI**, **General AI**, and **Strong AI**. | Machine learning can also be divided into mainly three types that are **Supervised learning**, **Unsupervised learning**, and **Reinforcement learning**. |
| It includes learning, reasoning, and self-correction. | It includes learning and self-correction when introduced with new data. |
| AI completely deals with Structured, semi-structured, and unstructured data. | Machine learning deals with Structured and semi-structured data. |