**1.Define Artificial intelligence (AI) and provide examples of its applications.**

# Ans: *Artificial* intelligence (AI) refers to computer systems capable of performing complex tasks that historically only a human could do such as reasoning, making decisions or solving problems.

Examples of its applications:

\*Healthcare

\*Education

\*Finance

\*Social media

\*Travel and navigation

\*Smart home devices

**2.Differentiate between the supervised and unsupervised learning.**

Ans:

|  |  |
| --- | --- |
| **Supervised learning** | **Unsupervised learning** |
| 1.In this algorithm is trained by using labelled data | 1.In this algorithm is not  trained |
| 2.Supervised learning model predicts the output | 2.unsupervised learning model finds the hidden patterns in data |
| 3.It must be needs supervision to train the model | 3.It does not need any supervision to train the model |
| 4.Supervised learning model produces an accurate result | 4.Unsupervised learning model may give less results as compared to supervised learning |
| 5: Algorithm includes:  ->Decision trees  ->logistic regressions  ->support vector machine | 5: Algorithm includes:  ->k-means clustering  ->hierarchical clustering  ->apriori algorithm |
| 6:It is not closed to Artificial Inteligence | 6:It is not closed to Artificial Intelligence |
| 7:It is divided into two types  ->Regression  ->Classification | 7:It is divided into two types  ->Clustering  ->Association |

**3.what is python? discuss its main features and advantages?**

Ans: python is a popular programming language.it was created by Guido van Rossum, and released in 1991

It is used for:

Web development, software development

**Features:**

1-> free and open source

2-> easy to code

3-> easy to read

4-> object Oriented language

5-> GUI programming support

6-> High level language

7-> large community support

8-> easy to debug

9-> python is a portable language

**Advantages:**

1->presence of third Party modules

2->extensive support libraries

3->open source and large active community base

4->versatile, easy to read, learn and write

5->user friendly data structures

**4. what are the advantages of using python as a programming language for AI and ML ?**

Ans: **Advantages:**

->Simple and consistent

->Better library ecosystem

->Flexibility

->Popularity

->Better visualization option

->Readability

->Platform Independence

->Rapid development

->Less coding

**5.Discuss the importance of indentation in python code?**

Ans: Indentation is a very important concept of python because without properly indenting the python code, you will end up seeing indentation error and the code will not get compiled.

**6.Define a variable in python. provide examples of valid variable names**

**Ans: Variable:**

Variable are containers for storing data values

**Creating a variable:**

Python has no command for declaring a variable

A variable is created the moment you first assign a value to e

**Examples:**

X=3

Y=”john”

**7.Explain the differences between keyword and identifier in python?**

**Ans:**

|  |  |
| --- | --- |
| **KEYWORD** | **IDENTIFIER** |
| 1.Specify the type /kind of entity | 1.identify the name of a particular entity |
| 2.it always starts with a  lowercase letter | 2.first character can be uppercase, lowercase or underscore |
| 3.keyword contains only alphabetical characters | 3.an identifier can consist of alphabetical characters, digits and underscore |
| 4.no special symbol, punctuations is used | 4.no punctuations are special symbol except underscore is used |
| 5.they help to identify a specific property | 5.they help to locate the name of the entity |
| 6.examples: int, char, if, while etc. | 6.examples:test, count1, highspeed etc. |

**8.List the basic data types available in python.**

Ans: basic data types in python include:

->integers

->floating-point

->numbers

->strings

->list, tuple, dictionaries

**9.Describe the syntax for an if statement in python.**

Ans: The syntax for an if statement in python.

If condition:

# code block to execute if condition is true

**10.Explain the purpose of the elseif statement in python.**

Ans: the elseif statement in python is used to check additional conditions after the initial if statement. It allows for the evaluation of multiple conditions sequentially. If the condition in the if statement is false, python evaluates the condition in the elseif statement.