

ASSIGNMENT -1

1. Define Artificial Intelligence and provide examples of its applications?

Artificial Intelligence (AI) is the simulation of human intelligence processes by machines, especially computer systems.

Examples of its applications:

Expert system, natural language processing ,
Speech recognition and machine vision.

2. Differentiate between supervised learning and unsupervised techniques in ML?

Supervised learning:

- It uses labeled training data as a input.
- It predict output based on input.
- Examples: classification, regression.

Unsupervised learning:

- It does not uses labeled training data as a input.
- It aims to learn the underlying structure or distribution of the data.

- Examples: clustering, dimensionality reduction.

3. What is Python? Discuss its main features and advantages?

Python is an interpreted, object-oriented high level programming language with dynamic semantics developed by Guido van Rossum.

Features of python:

- Interpreted language
- Object - oriented language
- High level language

Advantages of python:

- Easy to learn
- Reduces maintenance cost
- It needs less coding

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

Python's advantages for AI and ML include its simplicity, readability, and extensive libraries such as TensorFlow and scikit-learn, which

provide tools for various AI and ML tasks. Its flexibility and compatibility with other languages and platforms also make it suitable for prototyping and production.

5. Discuss the importance of indentation in python code?

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

Python indentation refers to adding white space before a statement to a particular block of code.

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

In Python, a variable is a symbolic name that represents a value stored in memory. Valid variable names can consist of letters, numbers, and underscores but must start with a letter or underscore. Examples: `x = 5`, `my_variable = "Hello"`.

7.Explain the difference between a keyword and an identifier in python?

Keyword:

- Set of predefined words, called keywords, that have special meanings.
- Python keywords cannot be used as the names of variables, functions, and classes.
- Keywords are used to define syntax of the coding.

Identifier:

- Identifier is a used-defined name given to a variable, function, class, module, etc.
- The identifier is a combination of character digits and an underscore.
- They are case-sensitive i.e., 'num' and 'Num' and 'NUM' are three different identifiers in python.

8. List the basic data types available in python.

Python data types are the classification or categorization of data items?

Basic data types in Python include integers, floating-point numbers, strings, booleans, lists, tuples, dictionaries, and sets.

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

The syntax for an if statement in Python is

if condition:

code block to execute if condition is true

if:

This keyword starts the if statement.

condition: This is an expression that evaluates to either True or False. If the condition is True, the code block following the if statement is executed. A colon (:) marks the end of the if statement's condition and the beginning of the indented code block.

Indented code block: This block contains the code that is executed if the condition is true. It can consist of one or more statements. The indentation level determines which statements are part of this block.

10. Explain the purpose of the elif statement in python?

'elif' stands for 'else if' and is used in python programming to test multiple conditions.

The elif 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 elif statement.