Assiginment-1

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

->It is a technology that allows machines to simulate human intelligence and problem-solving capabilities

->AI encompasses various subfield,including machine learining,natural language processing,computer vision,robotics etc.

Examples:-

1- customer service

2- Energy management

3- supply chain management

4- Agriculture

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

supervised learning:-

->supervised is a labelled training data to train algorithms to predict outcomes and recognize patterns.

->classification and regression are common tasks in supervised learning.

Unsupervised learning:-

->Unsupervised is not a labelled training data.Its algorithms work independently to learn the data.

->clustering and dimensionsality reduction are common tasks in unsupervised learning.

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

->Python is object-oriented language, high level programming language and easy to learn.

->Python supports the use of objects and classess.

Main features and advantages:-

1- Dynamic language

2- powerfull

3- standard library

4-interpreted language

5-open source

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

Advantages:-

1- Extensive libraries

2- Simplicity and Readability

3- Flexibility

4- Growing Ecosystem

5- scalability

6- Easy to prototying

5.Discuss the importance of identation in python code?

->Readability: Python emphasizes readability, and indentation plays a significant role in making code easier to read.

->Enforcement of Code Blocks: Unlike many other programming languages that use braces or keywords to denote code blocks, Python uses indentation.

->Maintaining Consistency: Consistent indentation promotes maintainability and collaboration.

->Debugging: Indentation can also aid in debugging. Incorrect indentation can immediately signal a problem with the code structure, helping developers quickly identify and fix errors.

->Pythonic Code: Following Python's indentation conventions is considered "Pythonic," meaning it adheres to the idiomatic style and best practices of the Python community.

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

->A variable is a named reference to a value stored in memory.

->variables are used to store data that can be manipulated,accessed and referenced throughout a program.

->when defining a variable in python,you assign a value to a name using the assignment operator(=).

Examples of valid variables:-

SYNTAX:-

->variable_name=value

#example

x=5

name="jhon"

age=30

is_student=true

my_list=[1,2,3]

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

Keywords:-

->Keywords also known as reserved words, are predefined and reserved by the Python language for specific purposes.

->These words have special meanings and cannot be used as identifiers (variable names, function names, etc.) in the code.

->Examples of keywords in Python include if, else, for, while, def, class, return, import, True, False, None, etc.

Identifiers:-

->Identifiers are names given to entities like variables, functions, classes, modules, etc., in Python.

->Unlike keywords, identifiers are user-defined and can vary based on the developer's choice.

->Examples of identifiers: variable_name, function_name, ClassName, module_name, etc.

8.List the basic data types available in python?

->Integer (int): Represents whole numbers, both positive and negative, without any decimal point.

-> Example: 5, -10, 1000.

->Float (float): Represents numbers with a decimal point or numbers in exponential form.

->ex:- 3.14, 2.0, 1.5e-3

->Boolean (bool): Represents the two truth values True and False, used for logical operations and conditions.

->String (str): Represents a sequence of characters enclosed within single quotes (') or double quotes (").

->Example: 'hello', "Python", "123".

->List (list): Represents an ordered collection of items, which can be of different data types. Lists are mutable, meaning their elements can be modified.

->Example: [1, 2, 3], ['apple', 'banana', 'orange'].

->Tuple (tuple): Similar to lists, tuples are ordered collections of items. However, tuples are immutable, meaning their elements cannot be changed after creation.

->Example: (1, 2, 3), ('a', 'b', 'c').

->Dictionary (dict): Represents a collection of key-value pairs, where each key is associated with a value. Dictionaries are unordered and mutable.

->Example: {'name': 'John', 'age': 30, 'city': 'New York'}.

->Set (set): Represents an unordered collection of unique items. Sets do not allow duplicate elements.

->Example: {1, 2, 3}, {'apple', 'banana', 'orange'}.

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

->In python,an if statement is used to conditionally execute a block of code based on whether a certain condition is true.

SYNTAX:-

if condition:

#code block to execute if condition is true

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

->The elif statement in python stands for "else if".Its used to check additional condition after an initial if statement.

SYNTAX:-

```
if condition 1:

#code block to execute if condition 1 is true

if condition 2:

#code block to execute if condition 2 is true

else:

#code block of execute if all condition all false
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