

p Define Artificial Intelligence (AI) & provide example.

* Artificial Intelligence or AI is the field of computer science that focuses on creating intelligent machine

These machines are designed to perform task that would typically require human intelligence such problem-solving learning & decisions making.

* AI technology has applications in various areas like voice assistants, self-driving cars & even social media algorithms.

Examples of its Applications:

1. Virtual Assistants:

All powers voice activated assistants like Siri, Alexa, Google Assistance help us with tasks, answer questions & provide information.

2. Autonomous vehicles:

All enables self-driving cars to perceive their surroundings make decisions & navigate safely on the roads.

3. Health care:

AI is used in medical imaging to assist in the diagnosis of diseases drug discovery & personalize medicine.

+ Gaming:

AI is used to create intelligent virtual opponent in games to improve game graphics & physics simulations

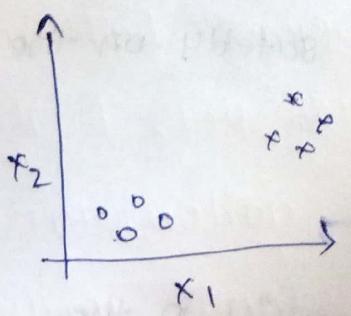
2. Difference between supervised learning and unsupervised learning techniques in ML

supervised

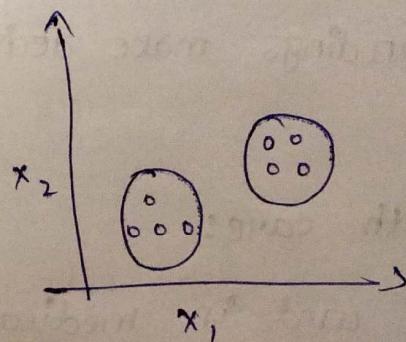
- * input data is labelled
- * uses training dataset
- * Data is classified based on training dataset
- * used for prediction
- * divided into two types Regression & classification
- * known number of classes

unsupervised

- * Input data is unlabelled
- * uses just input dataset
- * uses properties of given data to classify it
- * used for Analysis
- * divided into two types clustering & association
- * unknown number of classes



- * use offline analysis of data



- * use real-time analysis of data

3. what is Python? Discuss its main features & advantages.

Python is a programming language that is super popular for its simplicity & versatility. It is used for web development, data analysis, AI,

1. easy to Read & write:

Python has a clean & simple syntax, making it easy to understand & write code.

2. versatile & powerful:

Python can be used for various purpose like web development, data analysis, scientific computing, machine learning & more.

3. large standard library:

Python comes with a vast standard library that provides ready-to-use modules for different tasks saving you time & efforts.

4. cross-platform compatibility:

Python programs can run on different operating systems like windows, macOS, Linux without any modification.

5. Integration capabilities:

Python can easily integrate with other languages like C, C++, Java allowing you to leverage existing code libraries.

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

Python is widely used in the field of AI & ML for several reasons.

1. Extensive libraries:

Python offers a rich ecosystem of libraries such as tensorflow, pytorch & scikit learn which provide powerful tools & pre-built functions for AI & ML tasks.

2. Easy to Read & write:

Python clean & readable syntax allows developers to express AI & ML concepts in a straight forward manner. This makes it easier to prototype, experiment & collaborate on projects.

3. Large community & support:

Python has a vibrant community of developers who actively contribute to AI & ML projects. This means you can find sample resources, tutorials & forums to seek help & stay updated with the latest advancement.

4. Integration capabilities:

Python seamlessly integrates with other languages like C & C++ allowing you to combine the efficiency of low-level languages with the simplicity & flexibility of Python.

5. Data Handling & visualization:
Python provides excellent libraries like Pandas & Matplotlib for data manipulation, analysis, and visualisation. These tools enable efficient data preprocessing and exploration, essential steps in AI & ML workflows.

6. Discuss the importance of indentation in Python code:

Indentation code plays a crucial role in Python code. By visually representing the code's structure, indentation makes it easier for developers to understand the flow and logic of the programs.

1. Readability: Indentation enhances the readability of Python code. By visually representing the code's structure, indentation makes it easier to understand the program.

2. Code blocks: In Python, code blocks are defined by their indentation level. Indentation determines which lines of code belong to a specific block.

3. Consistency: Python enforces consistent indentation as part of its syntax. By requiring a consistency in indentation style, Python promotes code readability across different projects and teams.

4. Debugging:

Indentation errors can lead to syntax errors or logical bugs in python code. By paying attention to proper indentation, you can catch & resolve these errors easily making the debugging process smoother.

5. Define variable in Python. Provide an example of valid variable names.

variables used to store data values we should not use keywords we should not use special characters.

city name = 'warangal'

variable Assigning

x = 5

y = "Hey vce"

z = 3.14

print(z)

print(x)

print(y)

3.14

5

Hey vce.



7. Explain the difference between a keyword as identifier in python.

key words

key words are reserved

words with special meaning

Identifiers is a

unique name given to
the class function array
& so on

keywords don't have
syntax

Identifiers can have
syntax

specifies the type/kind
of entity

Identify the name of a
particular entity.

Keywords are not
further classified

Identifiers are classified
into external name as
internal name

8. List the basic datatypes available in Python.

Datatypes:

Integer (int):

Represents whole numbers both +ve & -ve for

Ex: 5, -10

float:

Represents decimal numbers.

Ex: 3.14, -2.5, 0.0



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String (str):

Represents a sequence of characters enclosed in single quotes ('') or double quotes ("")

Boolean (bool):

Represents either True (True) or False (False). This data type is useful for logical operations & conditional statements.

Lists:

Represents an ordered collection of elements enclosed in square brackets ([]).

Ex: [1, 2, 3], ['apple', 'banana', 'cherry']

q. Describe the syntax for an if statement in Python

Executes one block of code if a condition is true & another block if false.

If condition:

1) The keyword 'if' is followed by a condition which is an expression that evaluates to either true or false

2) After the condition there is a colon (:) to indicate the start of the code block that will be executed if the condition is true.

Ex: $x = 22$

```
if block: if x = 50  
    print("x is greater than 50")  
else:  
    print("x is not greater than 50")  
O/P: x is not greater than 50.
```

Q10. Explain the purpose of the elif statement in Python.

The 'elif' statement in Python stands for 'else if'. It is used when you want to check multiple conditions in a sequence.

Syntax:

```
if condition 1:  
    # code block to be executed if condition
```

```
    is true.  
elif condition 2:  
    # code block to be executed if condition is
```

```
    false & condition 2 is true.  
Statement 3  
Statement 4
```

else

* code block to be executed if all condition
are false

Statement 5

Statement 6

- * The 'elif' statement allows you to check additional conditions after the initial 'if' statement.
- * if the first condition is false it moves on to the next 'elif' statement & checks its conditions
- * If that condition is true the corresponding code block is executed
- * This process continues until either in a condition is true or there are no more 'elif' statements. If all names of the conditions are true, the code block within the 'else' statement is executed.
- * Using 'elif' allows you to handle multiple scenarios & perform different actions based on the specific conditions that evaluate to true.