

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

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.

Applications:

1. speech recognition
2. computer vision
3. Facial detection and recognition
4. Chatbots
5. Self driving cars.

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

SUPERVISED LEARNING	UNSUPERVISED LEARNING
<ul style="list-style-type: none">Supervised learning algorithms are trained using labeled data.	<ul style="list-style-type: none">Unsupervised learning algorithms are trained using unlabeled data.
<ul style="list-style-type: none">Supervised learning model predicts the output.	<ul style="list-style-type: none">Unsupervised learning model finds the hidden patterns in data.
<ul style="list-style-type: none">Supervised learning can be categorized in Classification and Regression problems.	<ul style="list-style-type: none">Unsupervised Learning can be classified in Clustering and Associations problems.
<ul style="list-style-type: none">Supervised learning can be used for those cases where we know the input as well as corresponding outputs.	<ul style="list-style-type: none">Unsupervised learning can be used for those cases where we have only input data and no corresponding output data.
<ul style="list-style-type: none">It includes various algorithms such as Linear Regression, Logistic Regression, Support Vector Machine, Multi-class Classification, Decision tree, Bayesian Logic, etc.	<ul style="list-style-type: none">It includes various algorithms such as Clustering, KNN.

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

Python is an open-source, object-oriented, high-level, general purpose programming language.

Features:

- Easy to read and
- Interpreted language
- Free and open source
- Flexible

Advantages:

- Easy to learn
- Open-source
- Interpreted language

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

There are many reasons why Python is the preferred language in artificial intelligence and machine learning as underlined below:

- Huge number of libraries and frameworks
- Easy syntax and resembles the English language
- No need to recompile source code
- Platform-independent
- Great community support
- Readability.

5.Discuss the importance of indentation in python code?

The purpose of indentation in python is to define the scope of statements such as those within loops, conditionals, functions, and classes. indentation is crucial for the interpreter to understand the logical structure of the code.

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

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:

```
a=10
```

```
First_Name="thiru"
```

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

Python Keywords

Keywords are predefined, reserved words used in Python programming that have special meanings to the compiler. We cannot use a keyword as a variable name, function name, or any other identifier. They are used to define the syntax and structure of the Python language.

Python Identifiers

Identifiers are the name given to variables, classes, methods, etc.

For example: Lang="python"

We cannot use keywords as variable names as they are reserved names that are built-in to Python.

8.list the basic datatypes available in python?

The basic data types in Python store a single value, like a number or a piece of text. The basic data types in Python are:

- Integers
- Floating point numbers
- Complex numbers
- Booleans
- Strings

9.Describe the syntax for an if statement in python

if (condition):

 statement

example:

a=6

if (a>0):

 print("positive number")

10. Explain the purpose of elif statement in python?

The elif keyword is python's way of saying "if the previous conditions were not true, then try this condition".

Example:

a = 33

b = 33

if b > a:

 print("b is greater than a")

elif a == b:

 print("a and b are equal")

else:

 print("a is greater than b")