ASSIGNMENT-1

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

A: Artificial Intelligence is the study of how to make computers do things which at the moment, people do better.

APPLICATIONS:

- Google translate: Uses deep learning algorithms to translate text from one language to another.
- Netflix: uses machine learning algorithms to create personalized recommendation engines for users based on their previous viewing history.
- Tesla: uses computer vision to power self-driving features on their cars.
- ChatGPT: uses large language models to generate text in response to question or comments posted to it.

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

A:

Supervised Learning	Unsupervised Learning
• Uses known and labeled data as input. • Less computational complexity. • Uses off-line analysis • Number of classes is known • Desired output is given • We can test our data • It is also called as classification.	• Uses known data as input • More computational complexity. • Uses real-time analysis of data • Number of classes is unknown. • Desired output is not given • We cannot test our data • It is also called as clustering.

3.What is Python? Discuss its main features and

advantages.

A: Python is a high level, object- oriented, interpreted programming language.

Features:

- It is free and open source.
- It is easy to learn and use because of its simple syntaxes.
- It provides huge number of libraries.
- Python is a portable language.

Advantages:

- It is easy to read, learn, and write.
- It is an interpreted language which is useful for code debugging.
- It is highly compatible.
- It is flexible.

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

A: Python is used as a programming language for AI and ML because of its features.

- Python provides huge libraries and has large community.
- It is a platform independent language which supports on any OS.
- It is flexible.
- Python has many frameworks which can be helpful for building ml models.

5.Discuss the importance of indentation in Python code.

A: Indentation specifies a block of code. It helps to understand the code more easier. Indentation is important while writing the code for loops, functions.

It helps to structure the code easily.

6.Define a variable in Python. Provide examples of valid variable names.

A: Variable: A variable is storage unit for data. We can store and manipulate the data in the variables. Variables stores the data permanently until we delete it.

Examples:

- _x = 10
- a_ = 10.2
- name = “Shivani”
- list1 = [10,20,20]
- My_tuple = (10,20,30)

5. Explain the difference between a keyword and an identifier in Python.

A: Keyword:

Keywords in python are predefined words that have a special meaning. Keywords are used to define the syntax of the coding. The keywords cannot be used as a identifier , function or variable name.

Identifier:

Identifier is a user-defined name to a variable, function, class, module. The identifier is a combination of character, digits and an underscore.

8. List the basic data types available in Python.

A: The basic data types available in python are

1. Numeric data types – int, float, complex.
2. Boolean data type – True, False
3. String data type

9. Describe the syntax for an if statement in Python.

A:

```
if ( condition ):
    Statement
```

The syntax for if statement in python is written using “if” keyword. An if statement is used to check a condition, if the given condition is true then the statement given will get executed.

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

A: The elif statement is used to check multiple conditions.

The elif stands for else if, it is written following an if statement in python to check an alternative condition if the first condition is false. The code block under the elif statement will be executed only if its condition is true.