

Assignment -1

1a) Define Artificial intelligence (AI) and provide examples of its applications?

Artificial intelligence is the ability of machines to think, analyse, learn and decide in a rational way that is analogous to how human beings do.

Chatbots: AI in chatbots is revolutionizing customer service by introducing chatbots.

these automated programs, powered by machine.

Marketing: Artificial intelligence is very dominating in the field of marketing as it is used to make an engagement with consumers using AI.

Military: Artificial intelligence is also about

to help defense and the military in the coming days. The government is planning to use artificial intelligence for various military operational support. Also, it will help in some automatic artilleries and weapons.

Surveillance:

Artificial Intelligence is also used in the field of surveillance by recognizing faces and objects. Then the event recognition capabilities are used to enhance these faces and objects.

Q. Difference between supervised and unsupervised learning in ML.

Supervised	Unsupervised
1) Input Data is labelled.	1) Input Data is unlabelled.
2) Uses training dataset.	2) Uses just input dataset.
3) Used for Prediction.	3) Used for Analysis.
4) Has a feedback mechanism.	4) Has no feedback mechanism.
5) A known number of classes.	5) An unknown number of classes.

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

Python: - Python is an interpreted, interactive, object oriented programming language. It incorporates modules exceptions, dynamic typing, very high level dynamic data types, and classes. It supports multiple programming paradigms beyond object oriented programming such as procedural and functional programming.

Features :-

- Portable language it is a cross-platform language.
- Standard library.
- High-level language.
- Easy to learn and use.
- Dynamic language.

Advantages:

- Free and open source
- Interpreted language

- Rapid development
- Strong community support
- Wide ranges of libraries and frameworks.

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

- Ans:
- 1) A low entry barrier
 - 2) Flexibility
 - 3) A great library ecosystem
 - 4) Growing popularity
 - 5) Community support
 - 6) Readability.
 - 7) Platform independence
 - 8) Good visualization options.

5a) Discuss the importance of indentation in Python code?

- Python uses indentation to indicate the scope of code blocks such as functions, classes, loops, conditionals, etc.

- indentation is significant in Python, a programming language known for its readability and simplicity. Indentation groups statements that belong together, such as a loop or a conditional statement.
- Python uses indentation instead of brackets to indicate blocks of code. Incorrect indentation could result in an error.
- Python takes after the lines of code within the program.
- Python indentation ~~tar~~ refers to adding white space before a statement to a particular block of code.

- Q) Define a variable in Python provide examples of valid variable names?
- A Python variable is a reserved memory location to store values. In other words, a variable in a Python program gives data to

computer for processing, every value in Python are numbers, list, tuples, strings, dictionary etc..

We can define it within the constructor method `__init__`.

Creating a variable in Python:

- Python has no command for declaring a variable.
- A variable is created the moment you first assign a value to it.

Example:

1) `y = 7`

`x = "yashaswi"`

`Print(y)`

`Print(x)`

2) `x = 3`

`x = "bunny"`

`str`

`Print(x)`

7) Explain the difference between a keyword and an identifier in Python?

Keywords	Identifiers
1) Keywords are reserved words with special meaning.	Identifiers is a unique name given to the class function array and so on.
2) Keywords do not have symbols.	Identifiers can have symbols.
3) Specify the type.	Identify the name of a particular entity.
4) No symbols or Punctuations are used.	Except underscore no symbol or punctuations are used.

8) List the basic data types available in Python.

- 1) Numeric data types : int, float, complex
- 2) String data types : str
- 3) Sequence types : List, tuple, range.
- 4) Binary types : bytes, byte array, Memory view.
- 5) Mapping data type : dict
- 6) Boolean type : bool

7) Set data types: set, frozenset

8) Describe the syntax for an if statement in python.

If the condition is true, the code block indented below the if statement will be executed. If the condition is false, the code block will be skipped.

Ex:

```
num = 20
```

```
if num > 0:
```

```
    Print("the number is positive")
```

9) Explain the purpose of elif statement in python.

Elif stands for 'else if' and is used in Python programming to test multiple conditions. It is written following an if statement in python to check an alternative condition of the first condition. If the first condition is false, the code block under the elif statement will be executed only if its

condition is true.