Assignment

1. Define Artifical intelligance (AI) & provide example of its applications.

→ Artifical intelligance or AI is field of computer science that focuses on creating intelligent machines.

→ These machines are designed to perform takes that would typically required human intelligence, such as problem-solving learning and decision making.

Examples of its applications

1. Virtual Assistants

AI powers voice-activated assistants like siri, Alexa & Google Assistant help us with taks answer questions & provide information.

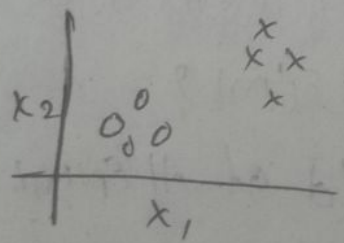
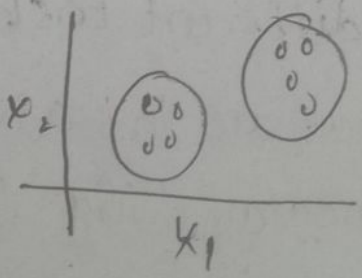
2. Automomous vehicles:

AI enables self-driving cars to perceive their surroundings make decision & navigate safe on the road.

3. Health care:

AI is used in medical imaging to assist in the diagnosis of diseases, drug discovery and personalized medicine.

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

supervised learning	unsupervised learning.
1) supervised learning uses labeled training data	1) unsupervised learning does not.
2) Data is classified based on training dataset	2. use input dataset only.
3. Data is classified based	3. uses properties of given data to classify it.
3. used for prediction.	4. used for Analysis.
4. Divided into two types. 1) Regression 2) classification.	5. Divided into two types 1) clustering 2) Association
5) known number of classes. 	6. Unknown number of data. 
6. use offline analysis of data	7. use real time analysis of data.

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

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

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. & m

3. large standard library:

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

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 eco system of libraries such as tensorflow, pytorch & scikit-learn,

2. easy to Read & write:
Python's clean & readable syntax allows developers to express AI & ML concepts in a straight forward manner.

3. large community & support:
Python has a viblant community of developers who actively contribute to AI & ML projects.

4. Integration capabilities:
Python seamlessly integrates with other languages like C & C++, allowing you to combine the efficiency of low-level languag.

5. Data Handling & Visualization.
Python provides excellent libraries like pandas & matplotlib data manipulation, analysis and visualization.

5] Discuss the importance of indentation in python code.

Indentation plays a crucial role in python code. in python, indentation is used to define the structure & hierarchy of code blocks, such as loops, conditionals, & functions.

```
x = 10
if x == 10:
    print('x is equal to 10')
```

op :- x is equal to 10.

1. Readability: indentation enhances the readability of python code. By visually representing the code's structure, indentation makes it easier for developers to understand flow & logic of the program.

2. code blocks: in python, code block are defined their indentation level. indentation determine which lines of code belong to a specific block.

3. consistency: python enforces consistent indentation as part of its syntax.

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 early, making the debugging process smoother.

6. Define variable in python. provide exple of valid variable names.

Variable used to store data values we should not use keywords we should not use special character.

city_name = 'warangal'

Variable Assigning.

x = 5

y = "Hey vec"

z = 3.14

```
Print(z)
Print(x)
Print(y)
```

O/P : 3.14
Hey -vec

7) Explain the difference between a keyword & an identifier in python.

Keywords	Identifiers
keywords are reserved words with special meaning.	identifiers is a unique name given to the class function array & so on.
keywords do not have symbols specify the type / kind of entity.	identifiers can have symbols identify the name of a Praticular entity.
keywords are not further classified.	identifiers are classified into 'external name' and 'internal name.

8) list the basic datatypes available in python.

Datatypes :-

Integer (int) ;

Represents whole numbers, both positive & negative

Ex :- 3, -10, 0.

Float:

Represents decimal numbers.

ex:- 3.14, -2.5, 0.0

String (str):

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

ex: "Hello, world!", 'Python! 123'

Boolean (bool):

Represents either true or false. This data type is useful for logical operations & conditional statements.

- list:- Represents an ordered collection of elements enclosed in square brackets ([])

ex:- [1,2,3], ['apple', banana', 'orange']

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

executes one block of code if a condition is true and another block if it is false.

if condition:

1. The keyword 'if' is followed by a condition, which is an expression that evaluate 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.

3. The code block is indented & contains one or more statements that will be executed if the condition is true.

ex:- x=22

```
if x>50
    Print ("x is greaterthan 50")
else:
    Print ("x is not greaterthan 50")
```

o/p:- x is not greater than 50

10) 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 condition1:
    # code block to be executed if condition is true
    statement1
    statement2
```

```
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 conditions
      are false
      statement 5
      statement 6
      - - -
```

→ The 'elif' statement allows you to check additional condition after the initial 'if' statement.

→ if the first condition is false, it moves on to the next 'elif' statement & checks its condition.

→ if the condition is true, the corresponding code block is executed.

→ This process continues until either a condition is true or ~~false~~ there are no more 'elif' statements. if none of the conditions are true, the code block with in the 'else' # statement is executed.

→ using 'elif' allows you to handle multiple scenarios & perform different actions based on the specific condition that evaluates to true.