Assigment-1

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

Artificial intelligence (AI) is technology that enables computers and machines to stimulate human intelligence and problem-solving capabilities.

In simple perspective, the Ai is a technology as the ability of machine to think ,analyse , learn and decide in a way of human do .

- Today Generative Ai has the ability to Synthesize not just human Language but other data types images ,video ,software code and even molecular structures. Generative AI is becoming widely use by us and making our life easy . Such AI tools are chat GPT ,Alexa Google Gemini and much more tools are available.
- Artificial Intelligence is an umbrella encompasses with machine learning and deep learning .These are Involved in development of AL algorithms , modelling decision making and make increasing more accurate classifications or predictions over time

Applications:

There are numerous real-world applications for AI systems such as:

1. **Speech recognition**
2. **GPS and Navigation**
3. **Healthcare**
4. **Automobiles**
5. **Robotics**
6. **Computer vision**
7. **Weather Forecasting**

2.Defferentiate between supervised and unsupervised learning techniques in ML

Supervised Learning	Unsupervised Learning
1.Supervised learning algorithms are trained using labeled data.	1.Unsupervised learning algorithms are trained using unlabeled data.
2.Supervised learning model takes direct feedback to check if it is predicting correct output or not.	2.Unsupervised learning model does not take any feedback.
3.Supervised learning can be categorized in **Classification** and **Regression** problems.	3.Unsupervised Learning can be classified in **Clustering** and **Associations** problems.
4.Supervised learning model produces an accurate result.	4. Unsupervised learning model may give less accurate result as compared to supervised learning

3.what is Python? Discuss its main Features and Advantages.

Python is an interpreted, object-oriented, high level programming language with dynamic semantics. Commonly used for developing websites and software , data analysis etc…..

Main features:

1.portable language

2.High level language

3.Easy to learn and use

4.Dynamic Language

5.Object-oriented Programming Language

Advantages:

1.Free and open Source

2.Interpreted Language

3.Portability

4.Dynamically Typed

5.Strong Community Support.

4.What are the advantages of using python as programming language for AI and ML

Al and ML are technology that enables computers and machines to stimulate human intelligence and solve the complex problem. And its detailing with using huge volume of data.

python is a the best programming language with Is easy to learn and use . best compatible for Al and Ml

so advantage of python using in AL and ML are:

- A Great library ecosystem
- Low entry barrier
- Flexibile
- Its offer an option to choose either oops or scripting
- Platform Independence
- Readability
- Growing popularity

5.Discuss the Importance of indentation in python code

1. Indentation refers to the spaces at the beginning of a code line.
2. Where in other programming languages the indentation in code is for readability only ,the indentation in python is very important.
3. Python uses indentation to indicate a block of code.
4. By using incorrect indentation in code leads to mismatch in code it leads to errors

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

Variables are simply containers for storing data values.

In python variable may be assigned a value of one type and then later re-assigned a value of a different type

Like x=10 later x= "smart bridge"

Examples: k = 20

Str = "Artificial inteligence"

7.Explain the difference between a key word and an identifier in python.

Keywords are the predefined and specific reserved words which holds

Special meaning. On the other hand, An identifier is a different term or name

Given to a variable , label of class in the program or function.

8.List the Basic data types available in python

1. Numeric
    - Integer
    - Float
    - complex
2. Dictionary
3. Boolean
4. Set
5. Sequence type
    - Strings
    - Tuple
    - List

9.Desribe the Syntax for an if statement in python

“If statement” is written by using if keyword

Syntax:

```
if condition:
    # execute the code if it is true
```

Example:

```
a =  10
b=20
if b>a:
    print("you are learning internship")
```

Using "if statement" is true then the block code run . if it false then the block of code in it terminate it.

10.Explain the purpose of the elif statement in python

"elif" statement is used to check the multiple conditions.

"elif" keyword in python,stands for "else if".

For example, if the first condition is false, it moves on to the next "elif" statement to check if that condition is true.

Syntax:

```
if condition1
    # execute code if condition1 is true
elif condition2:
    # execute code if condition2 is true
else:
    #execute code if all are false
```

Example:

```
x= 10
if  x> 10:
```

```
        print("x is greater than 10")
    elif x<10:
        print("x is less than 10")
    else:
        print("x is equal to 10")
```

using elif it check condition then if true it execute the code .if false send to other statement.in above x=10,its checked multiple statement to meets it condition and then executed by the help of elif condition.