Assignment - 1

1. 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.

Healthcare: AI applications in healthcare include disease diagnosis, medical imaging analysis, drug discovery, personalized medicine and patient monitoring.

Social media: there are various use of Artificial intelligence in the field of social media. some social media platform such as facebook, instagram etc.

Agriculture: Agriculture optimizes farming operations by collecting and analyzing data from various sources.

2. Difference between superwised and unsuperwised learning in ML.

superwised	unsuperwised
1. input data is labelled	input data is unlabelled
2. uses training dataset	uses just input dataset
3. data is classified based on training dataset	data it uses properties of given data to classify it

4.	used for prediction	used for Analysis
5.	known number of classes	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:

- Strong community support
- Wide Ranges of libraries and frameworks.
- interpreted language
- free and open source
- Rapid development.

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

1. A great library ecosystem.
2. A low entry barrier
3. flexibility
4. platform independence.
5. Readability
6. Good visualization options
7. Community support
8. Growing popularity.

5. Discuss the importance of identation in python code:

- python uses indentation to indicate the scope of code blocks such as functions, loops, conditionals, classes, 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 refers to adding white space before a statement to a particular block of code.

6) 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 the computer for processing. every value in python are numbers, list, tuple, 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)
```
x=5
y="Ruchitha"
print(x)
print(y)
```

2)
```
x = 4
x = "hunny"
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	identifier 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 underscores no symbols 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, bytearray, memory view.
5. Mapping data type : dict
6. Boolean type : bool
7. set data types : set, frozenset

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 = 10 ;
  if num>0:
  print("the number is positive.")
```

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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 if the first condition is false. The code block under the elif statement will be executed only if its condition is true.
