Assignment 1

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

Artificial Intelligence (AI)

Artificial Intelligence is concerned with the design of intelligence in an artificial device.Intelligence is the ability to acquire, understand and apply the knowledge to achieve goals in the world.

AI program will demonstrate a high level of intelligence to a degree that equals or exceeds the intelligence required of a human in performing some task. AI is unique, sharing borders with Mathematics, Computer Science, Philosophy, Psychology, Biology, Cognitive Science and many others.

Although there is no clear definition of AI or even Intelligence, it can be described as an attempt to build machines that like humans can think and act, able to learn and use knowledge to solve problems on their own.

APPLICATIONS:

1) Business; financial strategies

2) Engineering: check design, offer suggestions to create new product, expert systems for all engineering problems

3) Manufacturing: assembly, inspection and maintenance

4) Medicine: monitoring, diagnosing

5) Education: in teaching

6) Fraud detection

7) Object identification

8) Information retrieval

9) Space shuttle scheduling

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

Supervised learning	Unsupervised learning
Supervised machine learning relies on labelled input and output training data	Unsupervised learning processes unlabelled or raw data
Used for prediction	Used for analysis
Data is classified based on training	Uses properties of given data to classify it

dataset	
Divided into two types Regression & Classification	Divided into two types Clustering & Association

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

Python is a programming language

It is a object-oriented programming , High level & Scripting language and it is user friendly language it means that easy to understand the language and easy to write a code comparing to other languages

The python language is popular language because it consist large communities and large standards--libraries / frameworks/packages/modules

Python uses with .py extension

Portable Language. It is a cross-platform language.

Dynamic Language

Extensible Language

Interpreted Language

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

AI and machine learning projects vary significantly. The significant difference is because of the stack technology. There is a demand for deep research in every step. Python AI projects are taking over the world because of their flexibility.

AI companies use technical information to boost productivity. Therefore, there is no doubt that AI can help ease a wide range of tasks, and it helps to meet the strategic goals that play an important role in improving efficiency.

Python has proven to be one of the most efficient programming languages for AI and ML solutions. The technology transformation of AI can help in providing better outputs.

5. Discuss the importance of indentation in Python code.

Python uses indentations refers to the spaces or tabs at the beginning of the code
Where in other programming languages the indentation in code is for readability only, the indentation in Python is very important. Python uses indentation to indicate block of code such as functions, loops, conditionals, classes etc.
Indentation helps structure your code, making it easier to understand.

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

x is equal to 10

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

Variable:

It is used to strore data values
we should not use keywords
we should not use special characters

College_name=’vaagdevi engineering college’

Variable Assigning:

X=10

Print(x)

Output: 10

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

Keywords

Keywords are the special words that have specific meaning and purpose and you can't use this keywords in variables and functions

```
print(keyword.kwlist)
```

['False', 'None', 'True', 'and', 'as', 'assert', 'async', 'await', 'break', 'class', 'continue', 'def', 'del', 'elif', 'else', 'except', 'finally', 'for', 'from', 'global', 'if', 'import', 'in', 'is', 'lambda', ' nonlocal', 'not', 'or', 'pass', 'raise', 'return', 'try', 'while', 'with', 'yield']

Identifiers

Identifiers in python are names you give to things like variables, functions & classes
It should not start with numbers but it can include numbers, letters & underscores

```
name1=5
```

8. List the basic data types available in Python.

Text -- string

Numeric -- integer, Floating, complex

Sequence -- list, tuple

Mapping -- dictionary

Set -- set

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

Executes a block of code only if a specified condition is true

```
x=10
if x > 5:
print("x is greath than 5")
```

Output:

x is greath than 5

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

Allows you to check multiple conditions and execute different blocks of code accordingly.

```
x=22
 if x > 50:
 print("x is greathan than 50")
 elif x==22: print("x is equal to 22")
else: print("x is not greater than 50")
```

Output:

x is equal to 22