1.Artifical Intelligence: The technology as the ability of machines to think ,analyze ,learn and decide things in a way how human do.

AI Applications:

AI in Health care: AI can help doctors with diagnosis and can inform when patients are worsening so that medical help can reach to the patient before hospitalization.

AI in Data security : The security in data is crucial for every company and cyber attacks are growing rapidly in digital world.AI can make your data more safe and secure .

AI in social media: Social media sites are such as Facebook , twitter and snapchat contain billions of users, we need to be stored and managed in a very efficient way.AI can manage and store very large amount of data.

Difference between Supervised and unsupervised learning.

SUPERVISED LEARNING:

Supervised learning is a machine learning method in which models are trained using labeled data. In supervised learning, models need to find the mapping function to map the input variable (X) with the output variable (Y).

UNSUPERVISED LEARNING :

Unsupervised learning is another machine learning method in which patterns inferred from the unlabeled input data. The goal of unsupervised learning is to find the structure and patterns from the input data. Unsupervised learning does not need any supervision. Instead, it finds patterns from the data by its own.

PYTHON

Python is a programming language that is interpreted, object-oriented, and considered to be high-level too. Python is one of the easiest yet most useful programming languages which is widely used in the software industry. People use Python for Competitive Programming, Web Development, and creating software. Due to its easiest syntax, it is recommended for beginners who are new to the software engineering field. Its demand is growing at a very rapid pace due to its vast use cases in Modern Technological fields like Data Science, Machine learning, and Automation Tasks. For many years now, it has been ranked among the top Programming languages.

FEATURES OF PYTHON

Open source:

Python language is freely available at the official website and you can download it Since it is open-source, this means that source code is also available to the public. So you can download it, use it as well as share it.

Interpreted language:

Python is an interpreted language; it means the Python program is executed one line at a time. The advantage of being interpreted language, it makes debugging easy and portable.

Cross platform language:

Python can run equally on different platforms such as Windows, Linux, UNIX, and Macintosh, etc. So, we can say that Python is a portable language. It enables

programmers to develop the software for several competing platforms by writing a program only once.

Object oriented language:

Python supports object-oriented language and concepts of classes and objects come into existence. It supports inheritance, polymorphism, and encapsulation, etc. The object-oriented procedure helps to programmer to write reusable code and develop applications in less code.

ADVANTAGES OF PYTHON

1. **Presence of third-party modules:** Python has a rich ecosystem of third-party modules and libraries that extend its functionality for various tasks.

2.Open source and large active community base: Python is open source, and it has a large and active community that contributes to its development and provides support.

3.Dynamically typed language: Python is dynamically typed, meaning you don't need to declare data types explicitly, making it flexible but still reliable.

4QUS.WHAT ARE THE ADAVANTAGES USING PYTHON IN AI AND ML

- A choice of libraries is one of the main reasons Python is the most popular programming language used for AI. A library is a module or a group of modules published by different sources like pypi which include a pre-written piece of code that allows users to reach some functionality or perform different actions. Python libraries provide base level items so developers don't have to code them from the very beginning every time.

Python for machine learning is a great choice, as this language is very flexible:

- It offers an option to choose either to use OOPs or scripting.

- There’s also no need to recompile the source code, python developers can implement any changes and quickly see the results.
- ProThe next advantage of python for AI and ML development is platform independence. Python is not only comfortable to use and easy to learn but also very versatile. What we mean is that Python for machine learning development can run on any platform including Windows, MacOS, Linux, Unix, and twenty-one others. To transfer the process from one platform to another, developers need to implement several small-scale changes and modify some lines of code to create an executable form of code for the chosen platform. Developers can use packages like pyinstaller to prepare their code for running on different platforms.
- Grammers can combine Python and other languages to reach their goals.

IMPORTANCE OF INDENTATION ON PYTHON

Python indentation refers to adding white space before a statement to a particular block of code. In another word, all the statements with the same space to the right, belong to the same code block.

Python indentation is a way of telling a Python interpreter that the group of statements belongs to a particular block of code. A block is a combination of all these statements. Block can be regarded as the grouping of statements for a specific purpose. Most programming languages like C ,C++ and Java cause braces { } to define a block of code. Python uses indentation to highlight the blocks of code. Whitespace is used for indentation in Python. All statements with the same distance to the right belong to the same block of code. If a block has to be more deeply nested, it is simply indented further to the right. You can understand it better by looking at the following lines of code.

DEFINE VARIABLES IN PYTHON

variable is the name given to a memory location. A value-holding Python variable is also known as an identifier.

Since Python is an infer language that is smart enough to determine the type of a variable, we do not need to specify its type in Python.

Variable names must begin with a letter or an underscore, but they can be a group of both letters and digits.

The name of the variable should be written in lowercase. Both Rahul and rahul are distinct variables.

EXAMPLES OF PYTHON VARIABLES

Var = "VAAGDEVI"

- integer, or int: a number without decimal part. bmi with the value 25 is an example of an integer. height with the value of 40 (in rectangle example) is also an integer.
- float, or floating point: a number that has both integer and decimal parts. weight with the value of 72.25 is an example of a float.

1. The name of the variable must always start with either a letter or an underscore (_). For example: _str, str, num, _num are all valid name for the variables.

DIFFRENCE BETWEEN KEYWORD AND IDENTIFIER

1. The name of the variable must always start with either a letter or an underscore (_). For example: _str, str, num, _num are all valid name for the variables.

auto break case char const continue

default do double else enum extern

float for goto if int long

register return short signed sizeof static

struct switch typedef union unsigned void

volatile while

Identifiers: Identifiers are used as the general terminology for naming of variables, functions and arrays. These are user defined names consisting of arbitrarily long sequence of letters and digits with either a letter or the underscore(_) as a first character. Identifier names must differ in spelling and case from any keywords. You cannot use keywords as identifiers; they are reserved for special use. Once declared, you can use the identifier in later program statements to refer to the associated value. A special kind of identifier, called a statement label, can be used in goto statements. **Difference between Keyword and Identifier:**

BASIC DATA TYPES IN PYTHON

- Numeric
- Sequence Type
- Boolean
- Set
- Dictionary
- Binary Types(memoryview, bytearray, bytes)

- **Integers** – This value is represented by int class. It contains positive or negative whole numbers (without fractions or decimals). In Python, there is no limit to how long an integer value can be.
- **Float** – This value is represented by the float class. It is a real number with a floating-point representation. It is specified by a decimal point. Optionally, the character e or E followed by a positive or negative integer may be appended to specify scientific notation.
- **Complex Numbers** – A complex number is represented by a complex class. It is specified as *(real part) + (imaginary part)j*. For example – 2+3j

collection of similar or different Python data types. Sequences allow storing of multiple values in an organized and efficient fashion. There are several sequence data types of Python.

Strings in Python are arrays of bytes representing Unicode characters. A string is a collection of one or more characters put in a single quote, double-quote, or triple-quote. In Python, there is no character data type Python, a character is a string of length one. It is represented by str class.

Creating String

Strings in Python can be created using single quotes, double quotes, or even triple quotes.

IF STATEMENT IN PYTHON

if condition:

    # body of if statement

- **True** - the body of the if statement executes.
- **False** - the body of the if statement is skipped from execution.

ELIF PURPOSE

In Python, elif is short for "else if" and is used when the first if statement isn't true, but you want to check for another condition. Meaning, if statements pair up with elif and else statements to perform a series of checks.