Assignment -01

Ques-1: Describe about python and its history.

Answer: Python is an interpreter, high-level and general-purpose programming language. It supports multiple programming paradigms, including structured (particularly, procedural), object-oriented and functional programming.

Python was conceived in the late 1980s by Guido van Rossum at Centrum Wiskunde & Informatics (CWI) in the Netherlands as a successor to ABC programming language, which was inspired by SETL, capable of exception handling and interfacing with the Amoeba operating system. Its implementation began in December 1989. Van Rossum shouldered sole responsibility for the project, as the lead developer, until 12 July 2018, when he announced his "permanent vacation" from his responsibilities as Python's *Benevolent Dictator for Life*, a title the Python community bestowed upon him to reflect his long-term commitment as the project's chief decision-maker.

- In February 1991, **Guido Van Rossum** published the code (labeled version 0.9.0) to alt.sources.

- In 1994, Python 1.0 was released with new features like lambda, map, filter, and reduce.

- Python 2.0 added new features such as list comprehensions, garbage collection systems.

- On December 3, 2008, Python 3.0 (also called "Py3K") was released. It was designed to rectify the fundamental flaw of the language.

Python 3.9.2 and 3.8.8 were expedited as all versions of Python (including 2.7) had security issues, leading to possible remote code execution and web cache poisoning.

Ques-2: **Why is python called a high level, dynamic and interpreted language?**

Answer: According to the basic principle of coding, the factor that makes a language high level is its distance from machine binary code. Hence, being an interpreted language, which is not subject to processor, makes Python a high-level language

Python don't have any problem even if we don't declare the type of variable. It states the kind of variable in the runtime of the program. Python also take cares of the memory management which is crucial in programming. So, Python is a dynamically typed language

Python is an "interpreted" language. This means it uses an interpreter. An interpreter is very different from the compiler. An interpreter executes the statements of code "one-by-one" whereas the compiler executes the code entirely and lists all possible errors at a time. That's why python shows only one error message even though your code has multiple errors. This will help you to clear errors easily and it definitely will increase the execution speed. That's why python is called a high level, dynamic and interpreted language.

Ques-3: **Write a python program to display "IEEE HSTU BRANCH".**

Answer: The program is given bellow:

```
In [1]: print("IEEE HSTU STUDENT BRANCH")

        IEEE HSTU STUDENT BRANCH

In [3]: text_to_print = "IEEE HSTU STUDENT BRANCH"
        print(text_to_print)

        IEEE HSTU STUDENT BRANCH

In [4]: text = input("Write the text:")
        print(text)

        Write the text:IEEE HSTU STUDENT BRANCH
        IEEE HSTU STUDENT BRANCH

In [ ]:
```

Ques-4: Which python version you installed?

Answer: I have installed Python 3.9.2 version.

Ques-5: Describe how to install a package (Ex: Jupiter Notebook) in python via Pip.

Answer: To install Python packages such as Jupiter notebook via Pip, First we need to install Python software. After successful installation, we will go to our browser and search pypi Jupyter Notebook. Then we go to the link pypi.org and to copy the "pip install notebook". Then go to our command windows and simply written" python - m notebook". Then it will start installing. After installation open the Jupyter Notebook and create a new file. Then it is suitable for working.

Ques-6: Describe why use comments in python code with an example?

Answer: In computer programming, a comment is a programmer-readable explanation or *annotation* in the source code of a computer program. They are added with the purpose of making the source code easier for humans to understand, and are generally ignored by compilers and interpreters. For single line comments we just have to # sign in front of the line. And for multiple comment lines, after giving three apostrophe signs at the beginning we have to write the lines and then close it three apostrophe signs.

```
In [12]: y = "LIMA TASNIM"   #My name (comment for single line)
         print(y)

         LIMA TASNIM
```

For multiple line comments,

```
In [27]: '''x = "LIMA"
         y = "TASNIM" #(comment for multiple line)
         print(x)
         print(y)
         '''
         z = "EEE_18"
         print(z)

         EEE_18
```

Ques-7: List all python reserved words (keywords) and describe the function of any 15 keywords.

Answer: The list of all python reserved (keywords) are given bellow:

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

The functions of the keywords are given bellow:

Name	Function
False	Logical operator.
assert	For debugging.
break	Break out of python loop.
class	Used for defining classes in python.
continue	Used to continue with the python loop by skipping the existing.
def	Used for defining a function.
del	Used for deleting objects in python
elif	Part of the if-elif-else conditional statement in python.
global	Specify a variable scope as global.
yield	Ends a function and returns a generator object.
while	Used for defining a python while loop.
return	Exists a running function and return the value specified.
try	Part of the try…except statement.
lambda	Create anonymous function
nonlocal	Declare a variable with non local scope.

Ques-8: Write 3 identifier rules.

Answer: Rules for naming identifiers are given bellow:

   1. Identifiers can be a combination of letter (both uppercase and lowercase letters), digits and underscores. We cannot use special symbols like! @, #, $, % etc.

   2. The first letter of an identifier should be either a letter or an underscore.

   3. Keywords cannot be used as identifiers.

Ques-9: **What is variable? How to assign a value in a variable with example?**

Answer: 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.

 Creating variables in Python is simple, you just have write the variable name on the left side of = and the value on the right side. (As like num = 100)
 We do not have to explicitly mention the type of the variable; python infer the type based on the value we are assigning.

```
var.py ×
1    number1 = 10
2    number2 = 5
3    result = number1 + number2
4    print(result)
```

Ques-10: From the list bellow indicates whether the variable declaration from the identifier rules.

Answer: The following variables are identified with appropriate reasons given bellow:-

Variable	Valid	Remarks
var1 = 10	YES	
varvar1 == 10	NO	== is a comparison operator not a variable assign sign.
varvar2 = 10 , 10	NO	Multiple values cannot contain in one variable.
2var = 10	NO	Cannot start with a digit
2var = 10,10	NO	Cannot start with a digit
Var_ = 10	YES	
_var = 10.5	YES	
Var_ = "IEEE"	YES	
Var__ = HSTU	NO	Single quotation or double should be used in the string.
var@number = 10.5	NO	We Cannot use special symbol.
As = 10	YES	
as = 10	NO	We cannot use keywords.
.hgfjhjhgkjdfhsfkldjfglksdfjgk = 10000000	NO	Must begin with letter or underscore.