Lab 1

Subject: A Gentle Introduction to Python (CCC634)

Topic: Introduction to Python

Time-Duration: 45 mins

1. Writing the first Python code and run it.

   Sample Problem 1:

   print(‘Hello’)

   Sample Problem 2:

   a=input()

   b=input()

   print(a,b)

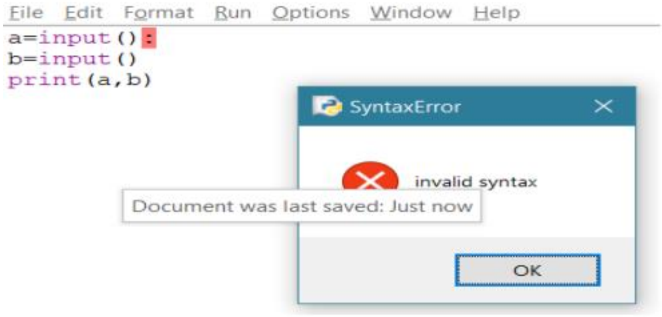
2. Make students aware about Compilation, Error (Compile time, Run time) with examples.

   Error is the flaw available in your code which may stop the compilation (it will not be able to run) or results in some wrong input. It is categorized in 3 parts:

   a. Compile time Error
   b. Run time Error
   c. Logical Error

   a. Compile time error:
   At the time of compilation, the system checks the source code. Now if there’s any fault or violation of programming convention or you can say violation of language’s rules then compilation stops and system gives us compilation error, it is further categorized in 2 parts.

   A. Syntax Error: Syntax refers to the formal rules those are used for writing valid statements in a programming language, if compiler finds any difference between the formal rule and the code written by coder, then it produces error.



```
a=input():
b=input()
print(a,b)
```

SyntaxError

invalid syntax

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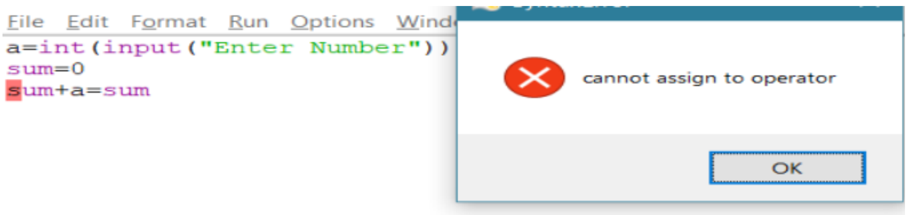
   B. Semantics refers to the meaning of a statement. So, when a statement doesn’t make any sense and is not meaningful then we can say it is a Semantic error.
   C. Also known as “Bugs” and are found during the process of debugging.



```
a=int(input("Enter Number"))
sum=0
sum+a=sum
```

cannot assign to operator

b. Run Time Error:

This type of errors occurs after the compilation of the code; in-between when execution is going on. Due to when program is “crashed” or “abnormally abrupted”.

- These Infinite loop
- Wrong value as Input
- Invalid function call
- Divide by Zero

c. Logical Error:

Sometimes programmer’s analysis of the problem is wrong, in those cases the errors are logical errors.

For example,

- Incorrect implementation of an algorithm
- Unmarked end of loop
- Wrong parameters passed

Program:

```
x = float(input('Enter a number: '))
y = float(input('Enter a number: '))
z = x+y/2
print ('The result is:',z)
```

Output:

```
Enter a number: 2
Enter a number: 6
The result is: 5.0
```

Program:

```
x = float(input('Enter a number: '))
y = float(input('Enter a number: '))
z = (x+y)/2
print ('The result is:',z)
```

Output:

```
Enter a number: 2
Enter a number: 6
The result is: 4.0
```

3. Write a program

(a) Read an integer from keyboard using input and display it using print.

Input

10

Output

```
 10
```

Solution:

```
Str1 = int(input())
print(str1)
```

(b) Read a float type number from a keyboard using input and display it using print. Truncate the number to two decimal places.

Input

```
 10.5
```

Output

```
 10.50
```

Solution:

```
N = float(input())
print("%.2f" % N)
```

(c) Any variable in Python has to have a name to identify its presence in the program. The name assigned to that variable will become a "identifier". The identifier's name can start with the alphabets A to Z or a to z or an underscore (_). Also, numerals (0 to 9) can be present in the variable name. And, the special symbols such as !,#,@,%,$ cannot be used in the identifiers.

Write a program to assign different combinations of identifiers to the variables and display the output of the values stored in identifiers and their type.

Input:

```
integer = 10
decimal = 10.11
number = -5
```

Sample Output :

```
10 <class 'int'>
10.11 <class 'float'>
-5 <class 'int'>
```

Solution:

```
a=eval(input())
print(a, type(a))
```

(d) Take input of a string “Shiv Nadar University” and print 1st, sixth and last character of the strings.

Sample Input:

```
Shiv Nadar University
```

Output:

```
S
N
y
```

Solution:

```
String= ‘Shiv Nadar University’
print(String[0])
print(String[5])
print(String[-1])
```