LAB # 03

CONSOLE INPUT AND OUTPUT

OBJECTIVE

Taking input from user and controlling output position.

THEORY

Console I/O Functions

- The keyboard and visual display unit (VDU) together are called a console.
- Python programming language provides many built-in functions to read any given input and to display data on screen.
- Console (also called Shell) is basically a command line interpreter that takes input from the user i.e one command at a time and interprets it.
- If it is error free then it runs the command and gives required output otherwise shows the error message.

Accepting Input from Console

To take input from the user we make use of **a built-in function *input()*.**

Syntax : input(*prompt*)

Displaying Input from Console

- The **print( ) function** prints the specified message to the screen, or other standard output device.
- The message can be a string, or any other object, the object will be converted into a string before written to the screen.

Syntax: print(*object(s)*, separator=*separator*, end=*end*, file=*file*, flush=*flush*)

Example:

```
# Program to take input

name = input("Write your student no.? ")
print("My Student No. is", name)
```

Output:

```
>>> %Run Lab_03.py

Write your student no.? 17SW22
```

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- Whatever you enter as input, input function convert it into a string.
- If you enter an integer value still input() function convert it into a string.
- You need to explicitly convert it into an integer in your code using typecasting.

Example:

```
# Program to check input

num = input ("Enter Number :")
print(num)

name1 = input("Enter Name : ")
print(name1)

# Printing type of input value

print ("type of number", type(num))
print ("type of name", type(name1))
```

Output

```
>>> %Run Lab_03.py

Enter Number: 09
09
Enter Name: Kabeer
Kabeer

Type of number <class 'str'>
Type of name1 <class 'str'>
```

Take Multiple Input in Python

- Taking multiple input from the user in a single line.
- Splitting the values entered by the user into separate variables for each value using the split() method.
- It prints the values with corresponding labels, either two or three, based on the number of inputs provided by the user.

Example

```
# taking two inputs at a time

a, b = input("Enter two values: ").split()
print("Number of Pens: ", a)
print("Number of Pencils: ", b)
```

Output

```
>>> %Run Lab_03.py

Enter two values: 5 7
Number of Pens:  5
Number of Pencils:  7
```

We can also type cast this input to integer, float or string by specifying the input() function inside the type.

Typecasting the input to Integer/Float:

There might be conditions when you might require integer input from user/console, the following code takes two input(integer/float) from console and typecasts them to integer then prints the sum.

Example

```
# input

num1 = int(input("Place first integer number: "))
num2 = int(input("Place second integer number: "))

# printing the sum in integer

print("Sum of both integer numbers: ", num1 +num2)
```

Output

```
>>> %Run Lab_03.py

Place first integer number: 7
Place second integer number: 8
Sum of both integer numbers:  15
```

Escape Sequence

- In Python strings, the backslash "\" is a special character, also called the "**escape**" character.
- An escape sequence is a sequence of characters that does not represent itself when used inside a character or string literal.
- But is translated into another character or a sequence of characters that may be difficult or impossible to represent directly.

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Escape Sequence	Description	Example	Output
\\	Prints Backslash	print ("\\")	\
\`	Prints single-quote	print ("\'")	'
\"	Pirnts double quote	print ("\"")	"
\n	ASCII linefeed (LF)	print ("hello\nworld")	hello world
\b	ASCII backspace (BS) removes previous character	print ("az" + "\b" + "c")	ac
\t	ASCII horizontal tab (TAB). Prints TAB	print ("\t*hello")	*hello

EXERCISE

A. Point out the errors or undefined/missing syntax, if any, in the following python programs.

1. print("Hello \b World!")

2. first_number = str (input ("Enter first number"))
   second_number = str (input ("Enter second number"))

   sum = (first_number + second_number)
   print("Addition of two number is: ", sum)

3. age = 23
   message = "Happy " + age + "rd Birthday!"
   print(message)

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B. What would be the output of the following programs:

1. a=5
   print("a =", a, sep='0', end=',')

2. name = input("Enter Employee Name")
   salary = input("Enter salary")
   company = input ("Enter Company name")
   print("Printing Employee Details")
   print ("Name", "Salary", "Company")
   print (name, salary, company)

3. n1=int(input('"enter n1 value'))
   n2=int(input('enter n2 value'))

C. Write Python programs for the following:

1. Write a program to print a student's bio data having his/her Date of birth, Roll no, Section, Percentage and grade of matriculation and Intermediate. All the fields should be entered from the console at run time.

2. Write a program that asks the user what kind of food they would like. Print a message about that food, such as "Let me see if I can find you a Chowmein". Food name must be in uppercase. (hint: use upper( ) for food name)

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3. Take the marks of 5 courses from the user and calculate the average and percentage, display the result:

   Eachcourse=50 marks
   Total_marks= course1+course2+course3+course4+course5
   average=Total_marks/5
   percentage=(Total_marks x 100)/250