Techno India College of Technology

Name: Syed Saif
Roll: 31401221035
Registration: 213141001210038

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1. Program to display comment lines.

```
# Program to display comment lines.
print("This line will execute.")
# This line will not execute
''' This is a paragraph.
This will also not execute.'''
```

Output:
This line will execute.

2. Program to display different print statements.

```
# Program to display different print statements.
age = int(input("Enter your age: "))

if age >= 18:
    print("You are eligible to do a job.")
else:
    print("You are not eligible to do a job.")
```

Output:
Enter your age: 25
You are eligible to do a job.
Enter your age: 17
You are not eligible to do a job.

3. Program to find and display the sum and average of 5 numbers.

```
# Program to find and display the sum and average of 5 numbers.
print("Enter five integers: ")
total = 0
for i in range(5):
    total += int(input("> "))

print("Sum of the 5 ints is: " + str(total))
print("Average of the 5 ints is: " + str(total/5))
```

Output:
Enter five integers:
> 1
> 2
> 3
> 4
> 5
Sum of the 5 ints is: 15
Average of the 5 ints is: 3.0

4. Program to find and display the area and perimeter of a rectangle.

```
# Program to find and display the area and perimeter of a rectangle.
print("Calculate area and perimeter of rectangle")
l = int(input("Enter the length of the rectangle: "))
b = int(input("Enter the breath of the rectangle: "))

print("Area of of the rectangle is: " + str(l * b))
print("Perimeter of of the rectangle is: " + str(2*(l + b)))
```

Output:
Calculate area and perimeter of rectangle
Enter the length of the rectangle: 10
Enter the breath of the rectangle: 20
Area of of the rectangle is: 200
Perimeter of of the rectangle is: 60

5. Program to find and display the area and circumference of circle.

```
# Program to find and display the area and circumference of a circle.
from math import pi
r = int(input("Enter the radius of the circle: "))

print("The area of the circle is: " + str(pi * r * r))
print("The circumference of the circle is: " + str(2 * pi * r))
```

Output:
Enter the radius of the circle: 5
The area of the circle is: 78.53981633974483
The circumference of the circle is: 31.41592653589793

6. Program to demonstrate the built in data types.

```
# Program to demonstrate the built in data types.
arr = [618, 6.18, 6+18j, True, 'Hi', [], {}, ()]

for x in arr:
    print("The type of {} is {}".format(x, type(x)))
```

Output:
The type of 618 is <class 'int'>
The type of 6.18 is <class 'float'>
The type of (6+18j) is <class 'complex'>
The type of True is <class 'bool'>
The type of Hi is <class 'str'>
The type of [] is <class 'list'>
The type of {} is <class 'dict'>
The type of () is <class 'tuple'>

7. Program to print a marksheet of a student.

```
# Program to print a marksheet of a student.
print("Marksheet:")
arr = []
for i in range(2):
    sd = {}
    sd["roll"] = int(input("Enter student roll: "))
    sd["name"] = input("Enter student name: ")

    suba = []
    print("Input subject marks: ")
    for s in range(2):
        suba.append(int(input("> ")))

    sd["marks"] = suba
    arr.append(sd)

print("Student full Result:")
print("Roll\tName\tTotal\tPercentage")
for x in arr:
    total  = 0
    for y in x["marks"]:
        total+=y
    per = (total/500)*100
    print("{}\t{}\t{}\t{}%".format(x["roll"], x["name"], total, per))
```

Output:

Marksheet:
Enter student roll: 1
Enter student name: far
Input subject marks:
> 56
> 58
> 46
> 78
> 98
Enter student roll: 2
Enter student name: avi
Input subject marks:
> 45
> 87
> 65
> 85
> 25
Enter student roll: 3
Enter student name: sre
Input subject marks:
> 87

> 56
> 45
> 15
> 85
Enter student roll: 4
Enter student name: raj
Input subject marks:
> 48
> 87
> 54
> 54
> 15
Enter student roll: 5
Enter student name: sif
Input subject marks:
> 47
> 84
> 58
> 36
> 85
Student full Result:

Roll	Name	Total	Percentage
1	far	336	67.2%
2	avi	307	61.4%
3	sre	288	57.599999999999994%
4	raj	258	51.6%
5	sif	310	62.0%

8. Program to print the scope of local and global variables.

```
# Program to print the scope of local and global variable.
global_var = 0 # global for everyone
def func():
    local_var = 1 # local for func()
    print("Inside func(): global_var = {} is present here.".format(global_var))
    print("Inside func(): local_var = {} is present here.".format(local_var))
func()

print("Outside func(): global_var = {} is also present
here.".format(global_var))
print("Outside func(): local_var is not present here.")
```

Output:

Inside func(): global_var = 0 is present here.
Inside func(): local_var = 1 is present here.
Outside func(): global_var = 0 is also present here.
Outside func(): local_var is not present here.

9. Program to demonstrate unpacking of a collection".

```
# Program to demonstrate "unpacking of a collection".
fruits = ['Apple', 'Mango', 'Grapes']
[red, yellow, green] = fruits

print(red)
print(yellow)
print(green)
```

Output:
Apple
Mango
Grapes

10. Program to swap two numbers without using a third variable.

```
# Program to Swap two numbers without using a third variable.
num1 = int(input("Enter the first number: "))
num2 = int(input("Enter the second number: "))
print ("Before swapping: ")
print("Value of num1 is {} and num2 is {}".format(num1, num2))
num1, num2 = num2, num1
print ("After swapping: ")
print("Value of num1 is {} and num2 is {}".format(num1, num2))
```

Output:
Enter the first number: 6
Enter the second number: 18
Before swapping:
Value of num1 is 6 and num2 is 18
After swapping:
Value of num1 is 18 and num2 is 6

11. Program to convert from int to float, float to int, complex to int to show type casting.

```
# Program to convert from int to float,
# float to int, complex to str to show type casting.

a = 123 # integer
b = 12.3 # float
c = 12+3j # complex
d = '123' # string

print("Before type casting: ")
print("{} is of type {}".format(a, type(a)))
```

```
print("{} is of type {}".format(b, type(b)))
print("{} is of type {}".format(c, type(c)))
print("{} is of type {}".format(d, type(d)))

print("After type casting: ")
print("Int to float")
print("{} is now type {}".format(float(a), type(float(a))))
print("Float to int")
print("{} is now type {}".format(int(b), type(int(b))))
print("Complex to str")
print("{} is now type {}".format(str(c), type(str(c))))
print("Str to int")
print("{} is now type {}".format(int(d), type(int(d))))
print("Str to float")
print("{} is now type {}".format(float(d), type(float(d))))
```

Output:

Before type casting:
123 is of type <class 'int'>
12.3 is of type <class 'float'>
(12+3j) is of type <class 'complex'>
123 is of type <class 'str'>
After type casting:
Int to float
123.0 is now type <class 'float'>
Float to int
12 is now type <class 'int'>
Complex to str
(12+3j) is now type <class 'str'>
Str to int
123 is now type <class 'int'>
Str to float
123.0 is now type <class 'float'>

12. Program to generate random numbers in a given range.

```
# Program to generate random numbers in given range
import random

start = int(input("Enter the start point: "))
end = int(input("Enter the end point: "))

print("A random number between " + str(start) + " and " + str(end) + " is: ")
print(random.randrange(start, end))
```

Output:

Enter the start point: 10
Enter the end point: 50
A random number between 10 and 50 is:
21

13. Program to show python casting and also print the data types.

```
# Program to show python casting and also print the data types.
a = int(8)
b = int(3.5)
c = int("123")
d = str(8)
e = str(3.5)
f = float(123)

print(a)
print(b)
print(c)
print(d)
print(e)
print(f)

print(type(a))
print(type(b))
print(type(c))
print(type(d))
print(type(e))
print(type(f))
```

Output:

8
3
123
8
3.5
123.0
<class 'int'>
<class 'int'>
<class 'int'>
<class 'str'>
<class 'str'>
<class 'float'>

14. Program to accept a string and print it in the following manner :

H
E
L
L
O

```
# Program to accept a string & print and print each character of the string in
a new line:

str1 = input("Enter a string: ")
print("The string after dividing: ")
```

```
for s in str1:
    print(s)
```

Output:

Enter a string: HELLO
The string after dividing:
H
E
L
L
O

15. Program in python to show Slicing of arrays.

```
# Program to show slicing of an array

print("Array slicing program:")
arr = []
leng = int(input("Enter the length of the array: "))

for i in range(leng):
    val = input("Enter value of index " + str(i) + " : ")
    arr.append(val)

print("1 - Get elements from specific index till end")
print("2 - Get elements from start till specific index")
print("3 - Get elements from start till end")

print("")
print("Original array:")
print(arr)
print("Sliced array:")

while True:
    choice = int(input("Enter your choice: "))
    if choice == 1:
        s = int(input("Enter start index: "))
        print(arr[s:leng])
    elif choice == 2:
        e = int(input("Enter end index: "))
        print(arr[0:e])
    else:
        s = int(input("Enter start index: "))
        e = int(input("Enter end index: "))
        print(arr[s:e])
```

Output:

Array slicing program:
Enter the length of the array: 5
Enter value of index 0 : a
Enter value of index 1 : b

Enter value of index 2 : c
Enter value of index 3 : d
Enter value of index 4 : e
1 - Get elements from specific index till end
2 - Get elements from start till specific index
3 - Get elements from start till end

Original array:
['a', 'b', 'c', 'd', 'e']
Sliced array:
Enter your choice: 1
Enter start index: 2
['c', 'd', 'e']
Enter your choice: 2
Enter end index: 3
['a', 'b', 'c']
Enter your choice: 3
Enter start index: 1
Enter end index: 4
['b', 'c', 'd']

16. Program to calculate simple interest.

```
# Program to calculate simple interest
print("Program to get simple interest: ")
p = float(input("Enter the principal value: "))
t = float(input("Enter the no of years: "))
r = float(input("Enter the rate of interest: "))

print("Simple interest of value {} for {} years on {}% rate of interest is:
".format(p, t, r))
print((p*t*r)/100)
```

Output:
Program to get simple interest:
Enter the principal value: 1000
Enter the no of years: 2
Enter the rate of interest: 5
Simple interest of value 1000.0 for 2.0 years on 5.0% rate of interest is:
100.0

Thank You