

Name of student: Abhay Omprakash Prajapati		
Roll no: 41	Tutorial No: 1	
Title of LAB Assignment: To write, test, and debug Basic Python programs.		
DOP: 25-09-2023	DOS:02-10-2023	
CO Mapped: Co1,Co2	PO Mapped: PO3 ,PO6	Signature:

1. Add Three Numbers:

```
num1 = 5
num2 = 8
num3 = 10
sum_of_numbers = num1 + num2 + num3
print("The sum of", num1, "+", num2, "+", num3, "is:", sum_of_numbers)
```

Output:

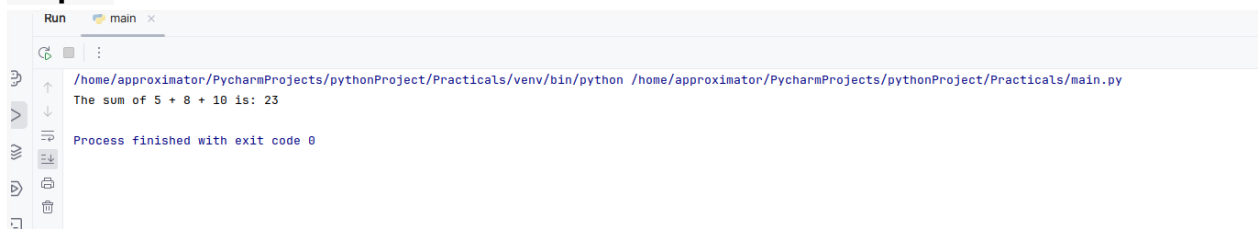


```
Run main x
/home/approximator/PycharmProjects/pythonProject/Practicals/venv/bin/python /home/approximator/PycharmProjects/pythonProject/Practicals/main.py
The sum of 5 + 8 + 10 is: 23
Process finished with exit code 0
```

2. Swap two Numbers with and without a Third Variable:

```
num1 = 5
num2 = 8
num3 = 10
sum_of_numbers = num1 + num2 + num3
print("The sum of", num1, "+", num2, "+", num3, "is:", sum_of_numbers)
```

Output:

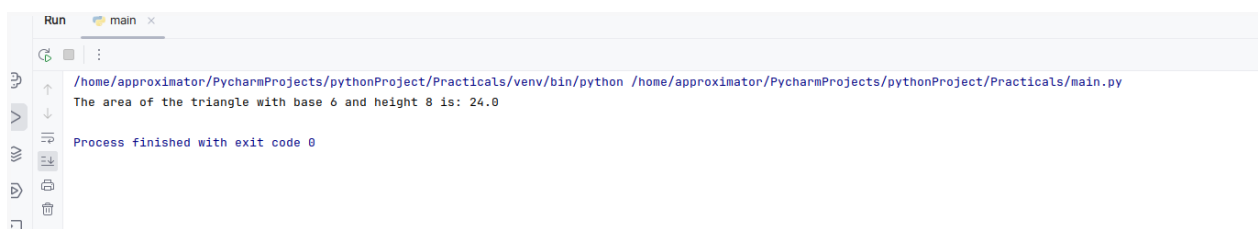


```
Run main x
/home/approximator/PycharmProjects/pythonProject/Practicals/venv/bin/python /home/approximator/PycharmProjects/pythonProject/Practicals/main.py
The sum of 5 + 8 + 10 is: 23
Process finished with exit code 0
```

3. Calculate the Area of a Triangle:

```
base = 6
height = 8
area = 0.5 * base * height
print("The area of the triangle with base", base, "and height", height, "is:", area)
```

Output:



```
Run main x
/home/approximator/PycharmProjects/pythonProject/Practicals/venv/bin/python /home/approximator/PycharmProjects/pythonProject/Practicals/main.py
The area of the triangle with base 6 and height 8 is: 24.0
Process finished with exit code 0
```

4. Solve Quadratic Equation:

```
import math
```

```

a = 1
b = 5
c = 6

discriminant = b**2 - 4*a*c

if discriminant > 0:
    root1 = (-b + math.sqrt(discriminant)) / (2*a)
    root2 = (-b - math.sqrt(discriminant)) / (2*a)
    print("Two real roots: Root 1 =", root1, "Root 2 =", root2)
elif discriminant == 0:
    root = -b / (2*a)
    print("One real root:", root)
else:
    real_part = -b / (2*a)
    imaginary_part = math.sqrt(-discriminant) / (2*a)
    print("Complex roots: Root 1 =", real_part, "+", imaginary_part, "i and
Root 2 =", real_part, "-", imaginary_part, "i")

```

Output:



The screenshot shows a PyCharm Run window with a tab labeled 'main'. The console output displays the result of the program: 'Two real roots: Root 1 = -2.0 Root 2 = -3.0'. Below the output, it states 'Process finished with exit code 0'. The left sidebar shows the project structure with a file named 'main.py'.

5. Use Bitwise Operators:

```

x = 5
y = 3
result_and = x & y
print("Bitwise AND:", result_and)

result_or = x | y
print("Bitwise OR:", result_or)

result_xor = x ^ y
print("Bitwise XOR:", result_xor)

```

Output:



6. Compute Compound Interest:

```
# Task 6: Compute Compound Interest
```

```
principal = 1000
```

```
rate = 5
```

```
time = 3
```

```
n = 12 # Compounded annually
```

```
amount = principal * (1 + (rate / (100 * n))) ** (n * time)
```

```
interest = amount - principal
```

```
print("Principal Amount:", principal)
```

```
print("Rate of Interest:", rate)
```

```
print("Time (in years):", time)
```

```
print("Number of times interest is compounded per year:", n)
```

```
print("Amount after compound interest:", amount)
```

```
print("Interest earned:", interest)
```



7. Generate a Random Number between 0 and 100:

```
import random
```

```
random_number = random.randint(0, 100)
```

```
print("Random Number between 0 and 100:", random_number)
```

Output:

```
Run main x
/home/approximator/PycharmProjects/pythonProject/Practicals/venv/bin/python /home/approximator/PycharmProjects/pythonProject/Practicals/main.py
Random Number between 0 and 100: 84
Process finished with exit code 0
```

8. Display Calendar for January 2024:

```
import calendar

year = 2024
month = 1
print("Calendar for January 2024:")
print(calendar.month(year, month))
```

Output:

```
Run main x
Calendar for January 2024:
January 2024
Mo Tu We Th Fr Sa Su
 1  2  3  4  5  6  7
 8  9 10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
29 30 31
Process finished with exit code 0
Practicals > main.py
```

9. Add Two Binary Numbers:

```
binary1 = "1010"
binary2 = "1101"

decimal1 = int(binary1, 2)
decimal2 = int(binary2, 2)
result_decimal = decimal1 + decimal2
result_binary = bin(result_decimal).replace("0b", "")

print("Binary 1:", binary1)
```

```
print("Binary 2:", binary2)
print("Sum in Binary:", result_binary)
```

Output:

