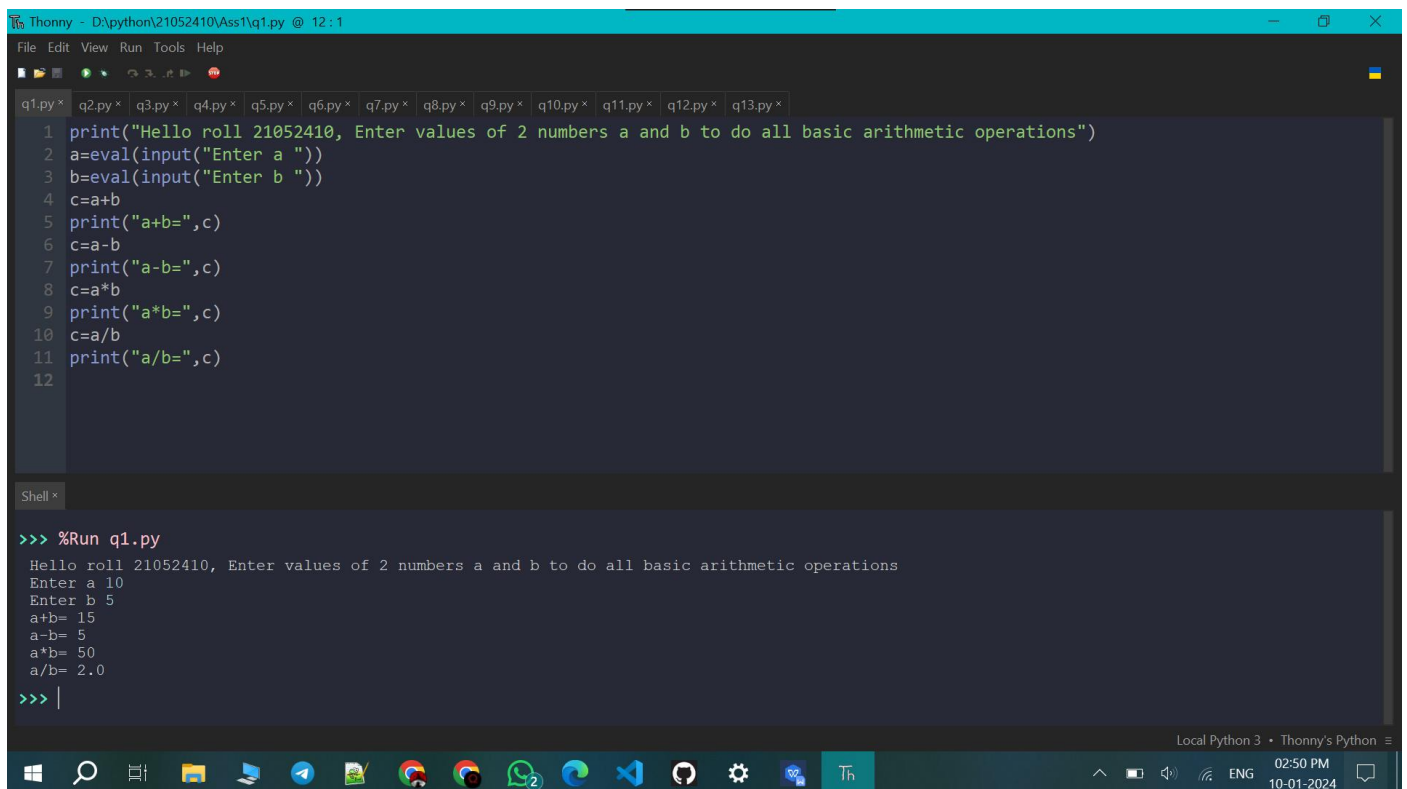


NAME : BRIJIT ADAK
ROLL NO : 21052410
SEC : CSE 31

Q1. Write a python program to input two numbers and do all basic arithmetic operations on them.

```
print("Hello roll 21052410, Enter values of 2 numbers a and b to do all  
basic arithmetic operations")  
a=eval(input("Enter a "))  
b=eval(input("Enter b "))  
c=a+b  
print("a+b=",c)  
c=a-b  
print("a-b=",c)  
c=a*b  
print("a*b=",c)  
c=a/b  
print("a/b=",c)
```



The screenshot shows the Thonny IDE interface. The top pane displays a Python script named q1.py with the following code:

```
1 print("Hello roll 21052410, Enter values of 2 numbers a and b to do all basic arithmetic operations")  
2 a=eval(input("Enter a "))  
3 b=eval(input("Enter b "))  
4 c=a+b  
5 print("a+b=",c)  
6 c=a-b  
7 print("a-b=",c)  
8 c=a*b  
9 print("a*b=",c)  
10 c=a/b  
11 print("a/b=",c)  
12
```

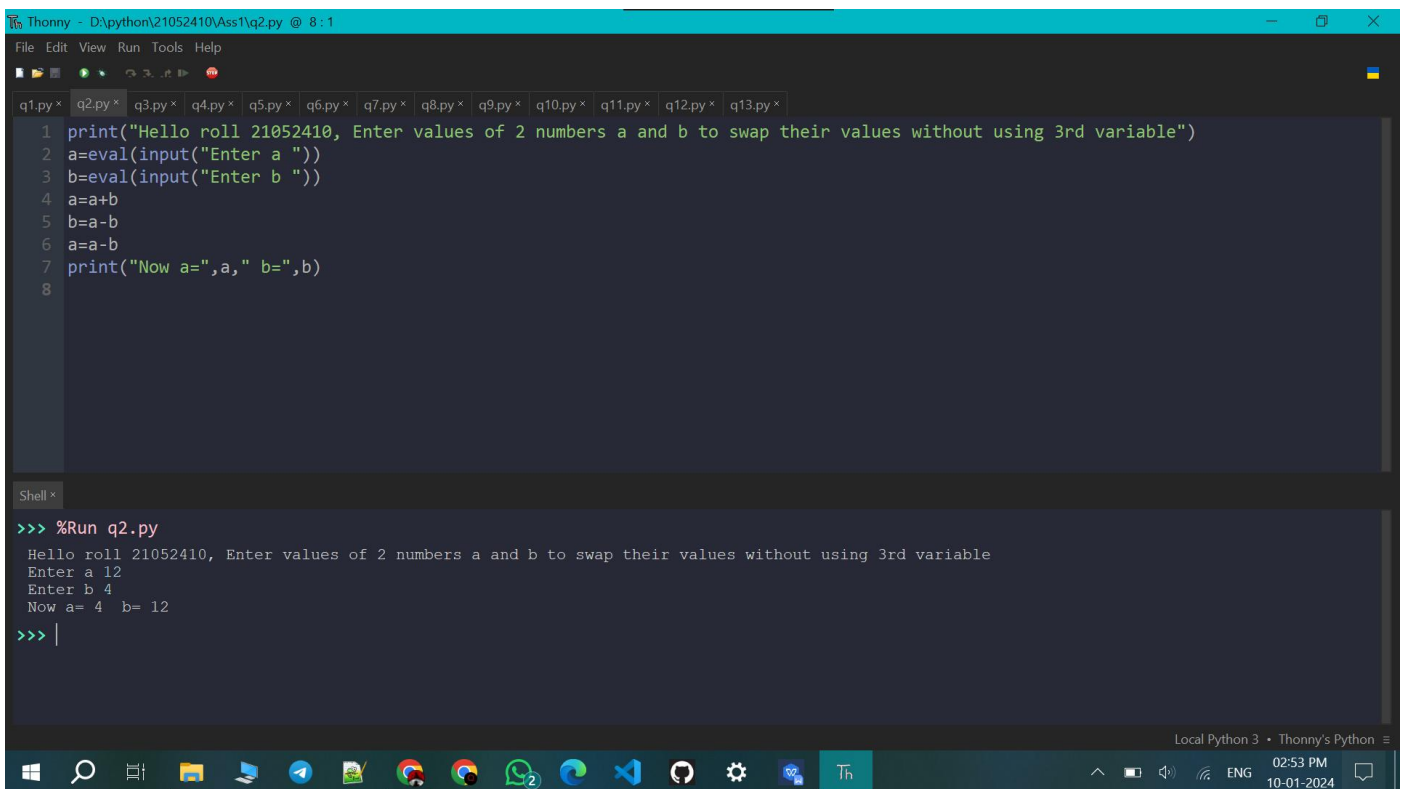
The bottom pane shows the Shell output after running the program:

```
>>> %Run q1.py  
Hello roll 21052410, Enter values of 2 numbers a and b to do all basic arithmetic operations  
Enter a 10  
Enter b 5  
a+b= 15  
a-b= 5  
a*b= 50  
a/b= 2.0  
>>> |
```

The taskbar at the bottom indicates the system time is 02:50 PM on 10-01-2024.

Q2. Write a python program to input two number and swap their values without using any third variable.

```
print("Hello roll 21052410, Enter values of 2 numbers a and b to swap their  
values without using 3rd variable")  
a=eval(input("Enter a "))  
b=eval(input("Enter b "))  
a=a+b  
b=a-b  
a=a-b  
print("Now a=",a," b=",b)
```



The screenshot shows the Thonny Python IDE interface. The main editor window displays a Python script with the following code:

```
1 print("Hello roll 21052410, Enter values of 2 numbers a and b to swap their values without using 3rd variable")  
2 a=eval(input("Enter a "))  
3 b=eval(input("Enter b "))  
4 a=a+b  
5 b=a-b  
6 a=a-b  
7 print("Now a=",a," b=",b)  
8
```

Below the editor, the Shell window shows the execution output:

```
>>> %Run q2.py  
Hello roll 21052410, Enter values of 2 numbers a and b to swap their values without using 3rd variable  
Enter a 12  
Enter b 4  
Now a= 4 b= 12  
>>> |
```

The taskbar at the bottom indicates the system time is 02:53 PM on 10-01-2024.

Q3. Write a python program to input the temperature in Fahrenheit and change it to Celsius.

```
print("Hello roll 21052410, Enter the temperature in Fahrenheit to change it to  
Celsius")  
a=eval(input())  
a=(a-32)*5/9  
print(a)
```

The screenshot shows the Thonny IDE interface. The top menu bar includes File, Edit, View, Run, Tools, and Help. Below the menu is a toolbar with icons for file operations and running code. The main editor window displays a Python script in a dark theme. The script has four lines: a print statement for a prompt, an input statement, a calculation, and a print statement for the result. The file explorer at the top shows several .py files, with q3.py selected. Below the editor is a Shell window showing the execution of q3.py. It displays the prompt, the input '120', and the output '48.888888888888886'. The Windows taskbar is visible at the bottom with various application icons and system status indicators.

```
Thonny - D:\python\21052410\Ass1\q3.py @ 4:9
File Edit View Run Tools Help

q1.py x q2.py x q3.py x q4.py x q5.py x q6.py x q7.py x q8.py x q9.py x q10.py x q11.py x q12.py x q13.py x

1 print("Hello roll 21052410, Enter the temperature in Fahrenheit to change it to Celsius")
2 a=eval(input())
3 a=(a-32)*5/9
4 print(a)

Shell x

>>> %Run q3.py
Hello roll 21052410, Enter the temperature in Fahrenheit to change it to Celsius
120
48.888888888888886
>>> |

Local Python 3 • Thonny's Python
02:54 PM
10-01-2024
```

Q4. Write a python program to input the basic salary of a person and compute its TA (20% of basic), DA (120% of basic), HRA (30% of basic), Gross (basic + ta + da + hra).

```
print("Hello roll 21052410, Enter the the basic salary of a person to compute its
TA (20% of basic), DA (120% of basic), HRA (30% of basic), Gross (basic + ta + da
+ hra)")
b=eval(input("Enter the basic salary "))
ta=.2*b
da=1.2*b
hra=.3*b
gross=b+ta+da+hra
print("TA=",ta," DA=",da," HRA=",hra," Gross=",gross)
```

```
Thonny - D:\python\21052410\Ass1\q4.py @ 6:18
File Edit View Run Tools Help

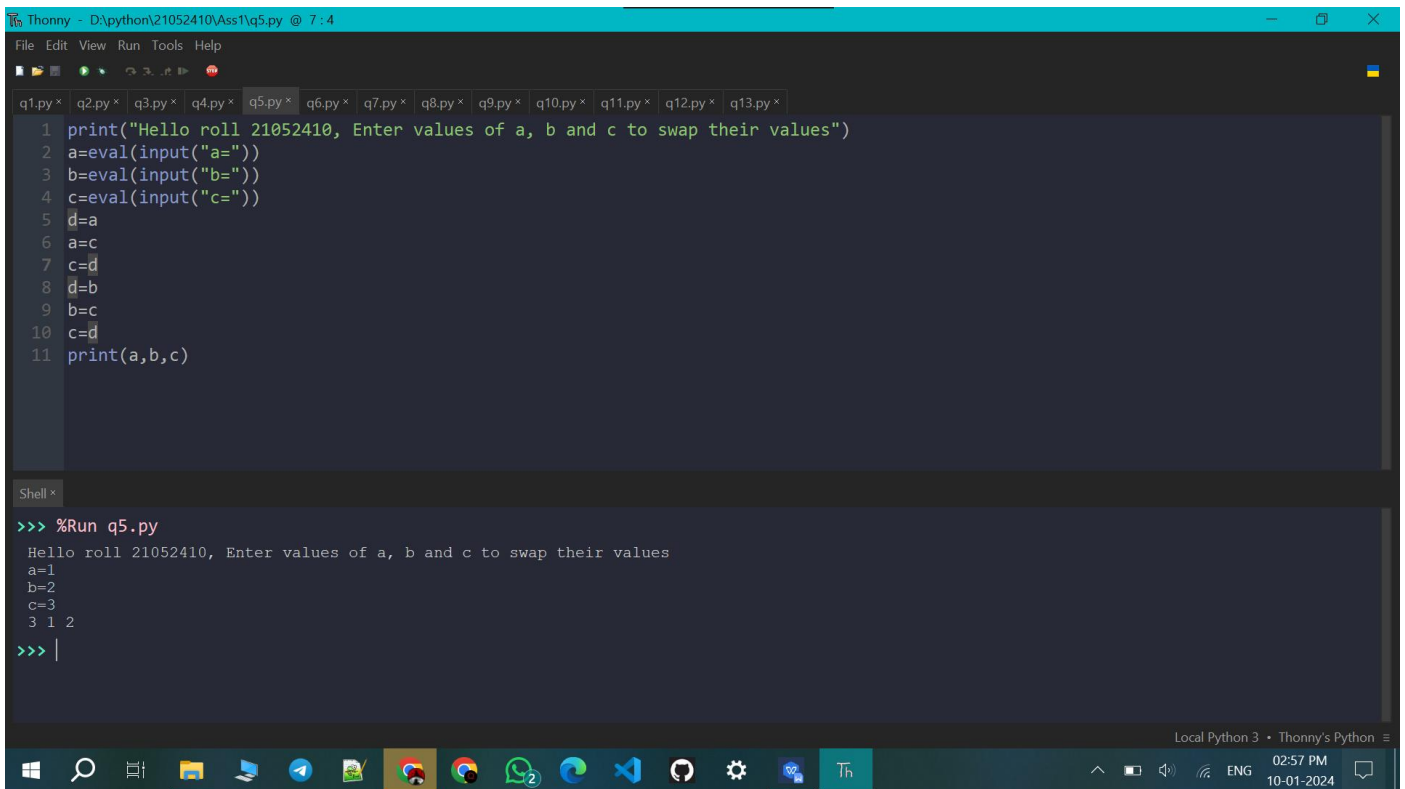
q1.py x q2.py x q3.py x q4.py x q5.py x q6.py x q7.py x q8.py x q9.py x q10.py x q11.py x q12.py x q13.py x
1 print("Hello roll 21052410, Enter the the basic salary of a person to compute its TA (20% of basic), DA (120% of basic), HRA (30%
2 b=eval(input("Enter the basic salary "))
3 ta=.2*b
4 da=1.2*b
5 hra=.3*b
6 gross=b+ta+da+hra
7 print("TA=",ta," DA=",da," HRA=",hra," Gross=",gross)
8
9

Shell x
>>> %Run q4.py
Hello roll 21052410, Enter the the basic salary of a person to compute its TA (20% of basic), DA (120% of basic), HRA (30% of basic), Gross (
basic + ta + da + hra)
Enter the basic salary 100000
TA= 20000.0 DA= 120000.0 HRA= 30000.0 Gross= 270000.0
>>> |

Local Python 3 • Thonny's Python
Windows taskbar icons: File Explorer, Mail, Telegram, WhatsApp, Chrome, Edge, VS Code, Thonny, Settings, Task View, Thonny icon.
System tray: Network, Volume, ENG, 02:56 PM, 10-01-2024.
```

Q5. Write a python program to swap three variables.

```
print("Hello roll 21052410, Enter values of a, b and c to swap their values")
a=eval(input("a="))
b=eval(input("b="))
c=eval(input("c="))
d=a
a=c
c=d
d=b
b=c
c=d
print(a,b,c)
```



The screenshot shows the Thonny Python IDE interface. The top menu bar includes File, Edit, View, Run, Tools, and Help. Below the menu is a toolbar with icons for file operations and running code. The main editor window displays a Python script with the following code:

```
1 print("Hello roll 21052410, Enter values of a, b and c to swap their values")
2 a=eval(input("a="))
3 b=eval(input("b="))
4 c=eval(input("c="))
5 d=a
6 a=c
7 c=d
8 d=b
9 b=c
10 c=d
11 print(a,b,c)
```

Below the editor is a Shell window showing the execution of the script:

```
>>> %Run q5.py
Hello roll 21052410, Enter values of a, b and c to swap their values
a=1
b=2
c=3
3 1 2
>>> |
```

The bottom status bar indicates the Python version (Local Python 3) and the current time (02:57 PM, 10-01-2024).

Q6. Write a python program to evaluate the expression
 $4x^4 + 3y^3 - 9z + 6$

```
from math import *
print("Hello roll 21052410, Enter values of x, y, z to evaluate the expression  
4x^4 + 3y^3 - 9z + 6")
x=eval(input("x="))
y=eval(input("y="))
z=eval(input("z="))
ans=4*pow(x,4)+3*pow(y,3)-9*z+6
print("Ans = ",ans)
```

The screenshot shows the Thonny Python IDE interface. The top menu bar includes File, Edit, View, Run, Tools, and Help. Below the menu is a toolbar with icons for file operations and running code. The main editor window displays a Python script with the following code:

```
1 from math import *
2 print("Hello roll 21052410, Enter values of x, y, z to evaluate the expression 4x^4 + 3y^3 - 9z + 6")
3 x=eval(input("x="))
4 y=eval(input("y="))
5 z=eval(input("z="))
6 ans=4*pow(x,4)+3*pow(y,3)-9*z+6
7 print("Ans = ",ans)
```

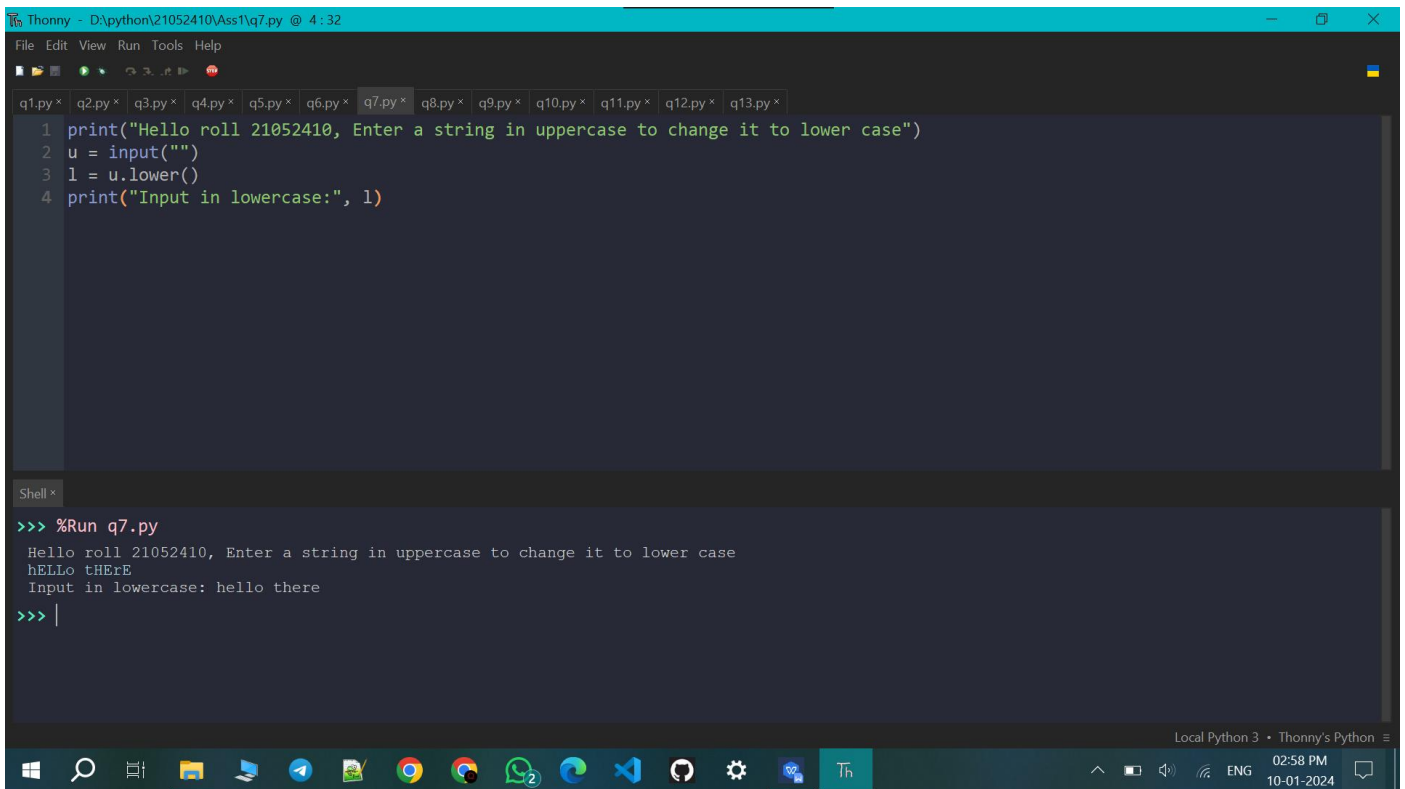
Below the editor is a Shell window showing the output of running the program:

```
>>> %Run q6.py
Hello roll 21052410, Enter values of x, y, z to evaluate the expression 4x^4 + 3y^3 - 9z + 6
x=2
y=3
z=7
Ans = 88.0
>>> |
```

The bottom status bar indicates the Python version (Local Python 3) and the user's name (Thonny's Python). The system tray at the bottom right shows the time (02:58 PM) and date (10-01-2024).

Q7. Write a python program to take a input in upppercase and change it to lower case

```
print("Hello roll 21052410, Enter a string in upppercase to change it to lower case")
u = input("")
l = u.lower()
print("Input in lowercase:", l)
```



The screenshot shows the Thonny Python IDE interface. The top menu bar includes File, Edit, View, Run, Tools, and Help. Below the menu is a toolbar with icons for file operations and running code. The main editor window displays a Python script in a dark theme. The script has four lines: a print statement, an input statement, a lower() method call, and another print statement. The file explorer at the top shows a list of files named q1.py through q13.py. The bottom panel, labeled 'Shell', shows the execution output of the script, including the prompt, the input string, and the resulting lowercase string.

```
Thonny - D:\python\21052410\Ass1\q7.py @ 4:32
File Edit View Run Tools Help

q1.py x q2.py x q3.py x q4.py x q5.py x q6.py x q7.py x q8.py x q9.py x q10.py x q11.py x q12.py x q13.py x

1 print("Hello roll 21052410, Enter a string in uppercase to change it to lower case")
2 u = input("")
3 l = u.lower()
4 print("Input in lowercase:", l)

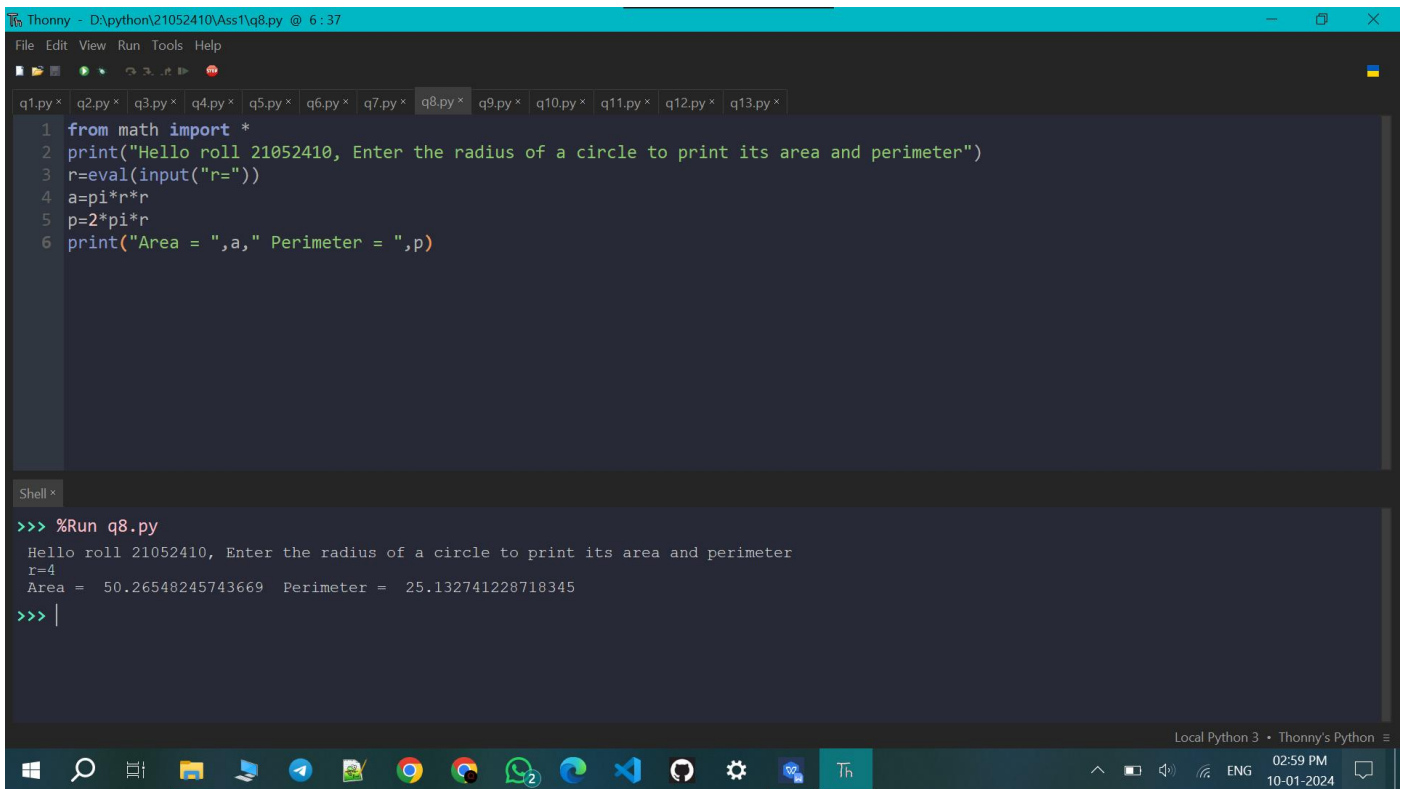
Shell x

>>> %Run q7.py
Hello roll 21052410, Enter a string in uppercase to change it to lower case
hELLO tHErE
Input in lowercase: hello there
>>> |

Local Python 3 • Thonny's Python
02:58 PM
10-01-2024
```

Q8. Write a python program to input the radius of a circle and print its area and perimeter.

```
from math import *
print("Hello roll 21052410, Enter the radius of a circle to print its area and
perimeter")
r=eval(input("r="))
a=pi*r*r
p=2*pi*r
print("Area = ",a," Perimeter = ",p)
```



```
Thonny - D:\python\21052410\Ass1\q8.py @ 6:37
File Edit View Run Tools Help

q1.py x q2.py x q3.py x q4.py x q5.py x q6.py x q7.py x q8.py x q9.py x q10.py x q11.py x q12.py x q13.py x

1 from math import *
2 print("Hello roll 21052410, Enter the radius of a circle to print its area and perimeter")
3 r=eval(input("r="))
4 a=pi*r*r
5 p=2*pi*r
6 print("Area = ",a," Perimeter = ",p)

Shell x

>>> %Run q8.py
Hello roll 21052410, Enter the radius of a circle to print its area and perimeter
r=4
Area = 50.26548245743669 Perimeter = 25.132741228718345
>>> |

Local Python 3 • Thonny's Python
02:59 PM
10-01-2024
```

Q9. Write a python program to input marks in 5 subjects of a student and print its average mark.

```
print("Hello roll 21052410, input marks in 5 subjects of a student to print its
average mark")
a=eval(input("Math="))
b=eval(input("Physics="))
c=eval(input("Biology="))
d=eval(input("Chemistry="))
e=eval(input("Computer Science="))
avg=(a+b+c+d+e)/5
print("Avg = ",avg)
```


The screenshot shows the Thonny Python IDE interface. The top menu bar includes File, Edit, View, Run, Tools, and Help. Below the menu is a toolbar with icons for file operations and running the program. The main editor window displays a Python script with the following code:

```
1 print("Hello roll 21052410, input marks in 5 subjects of a student to print its average mark")
2 a=eval(input("Math="))
3 b=eval(input("Physics="))
4 c=eval(input("Biology="))
5 d=eval(input("Chemistry="))
6 e=eval(input("Computer Science="))
7 avg=(a+b+c+d+e)/5
8 print("Avg = ",avg)
```

Below the editor is a Shell window showing the output of running the program:

```
>>> %Run q9.py
Hello roll 21052410, input marks in 5 subjects of a student to print its average mark
Math=100
Physics=100
Biology=100
Chemistry=95
Computer Science=100
Avg = 99.0
>>> |
```

The bottom status bar indicates the Python version (Local Python 3) and the user's name (Thonny's Python). The system tray at the bottom right shows the time (03:00 PM) and date (10-01-2024).

Q10. Write a python program to input a number and print its square, cube and fourth power.

```
print("Hello roll 21052410, enter a number to calculate its square, cube and fourth power")
```

```
n = eval(input("Enter a number: "))
```

```
square = n ** 2
```

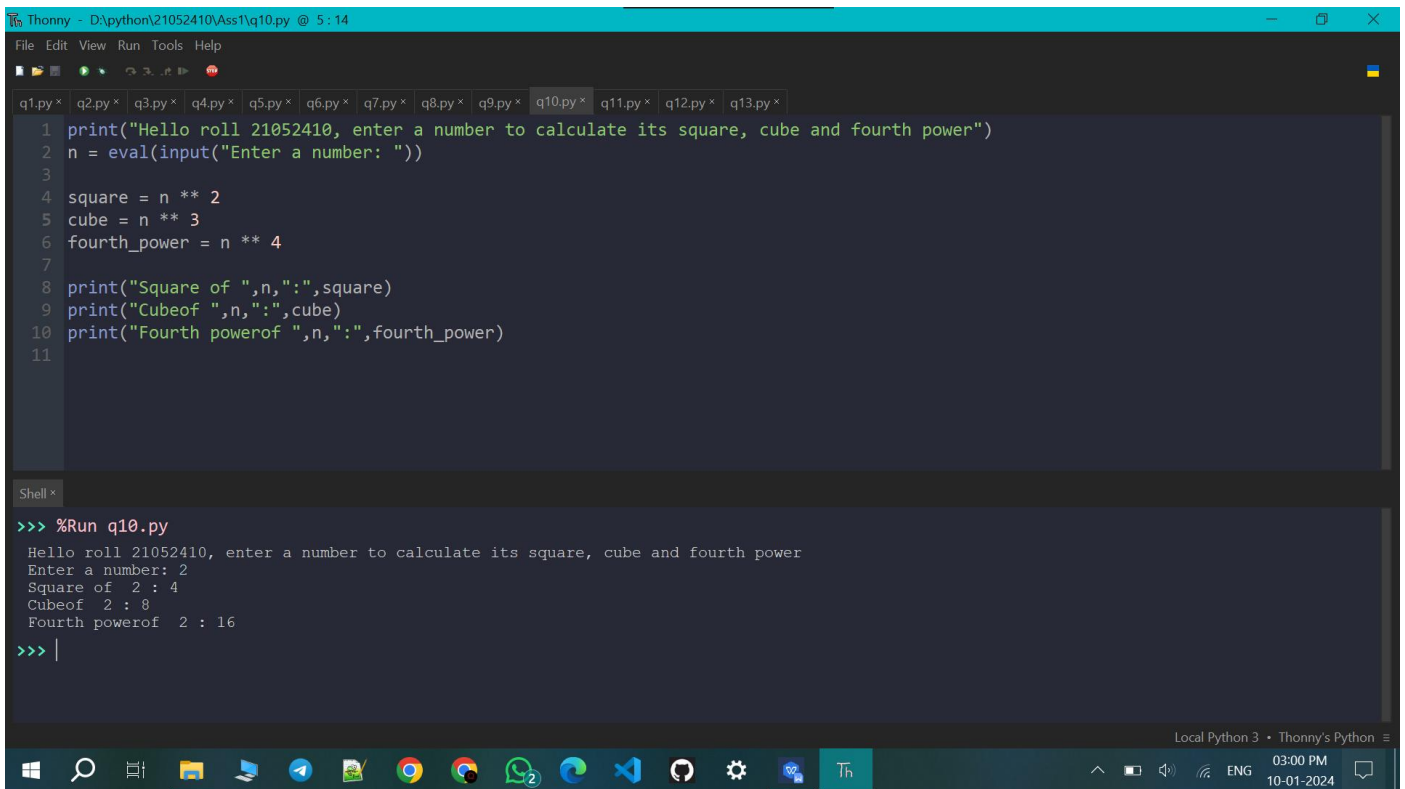
```
cube = n ** 3
```

```
fourth_power = n ** 4
```

```
print("Square of ",n,":",square)
```

```
print("Cubeof ",n,":",cube)
```

```
print("Fourth powerof ",n,":",fourth_power)
```



The screenshot shows the Thonny Python IDE interface. The top menu bar includes File, Edit, View, Run, Tools, and Help. Below the menu is a toolbar with icons for file operations and running code. The main editor window displays a Python script with the following code:

```
1 print("Hello roll 21052410, enter a number to calculate its square, cube and fourth power")
2 n = eval(input("Enter a number: "))
3
4 square = n ** 2
5 cube = n ** 3
6 fourth_power = n ** 4
7
8 print("Square of ",n,":",square)
9 print("Cubeof ",n,":",cube)
10 print("Fourth powerof ",n,":",fourth_power)
11
```

Below the editor is a Shell window showing the execution output:

```
>>> %Run q10.py
Hello roll 21052410, enter a number to calculate its square, cube and fourth power
Enter a number: 2
Square of 2 : 4
Cubeof 2 : 8
Fourth powerof 2 : 16
>>> |
```

The bottom status bar indicates 'Local Python 3' and 'Thonny's Python'.

Q11. Write a python program to input a the sides of a triangle and print its area.

```
print("Hello roll 21052410, input the sides of a triangle to print its area")
```

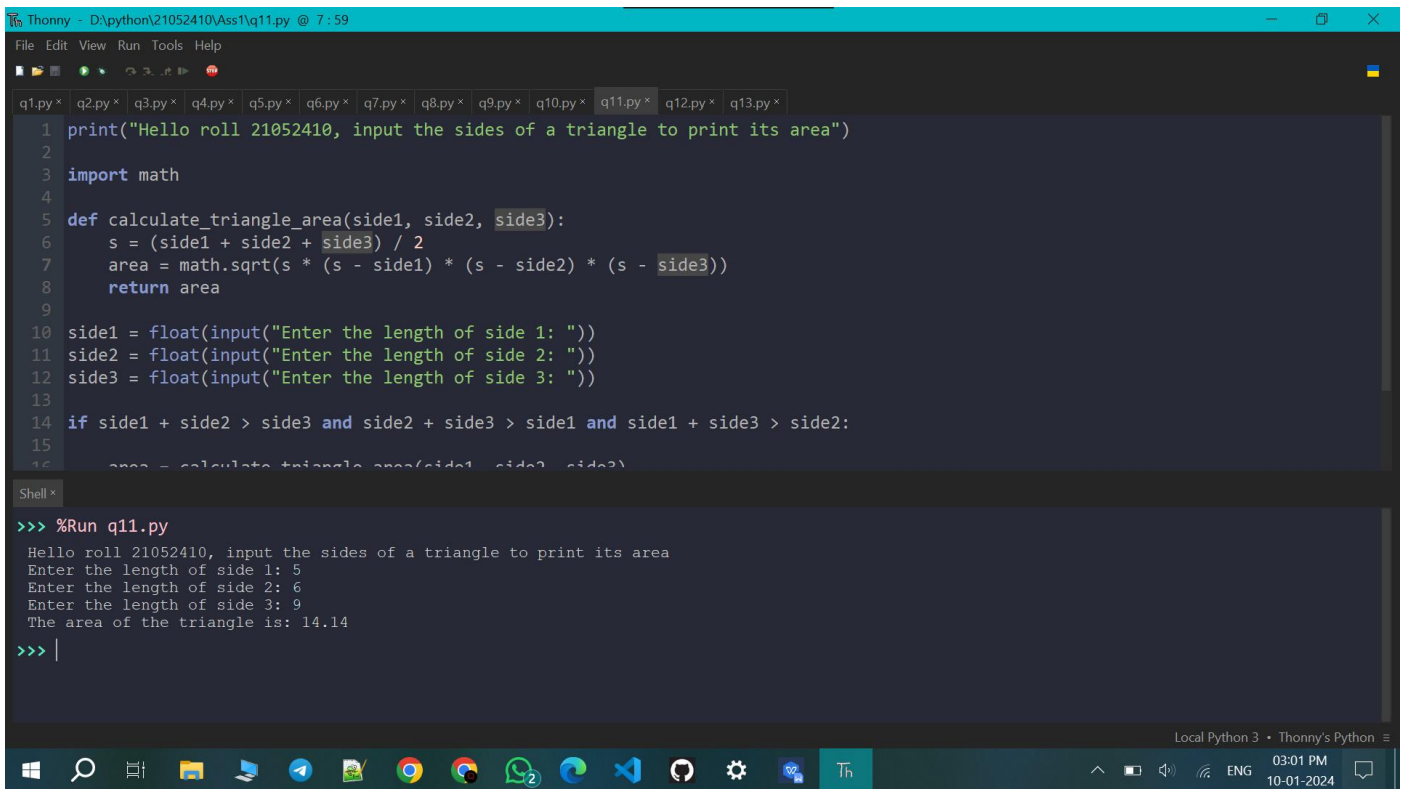
```
import math
```

```
def calculate_triangle_area(side1, side2, side3):
    s = (side1 + side2 + side3) / 2
    area = math.sqrt(s * (s - side1) * (s - side2) * (s - side3))
    return area
```

```
side1 = float(input("Enter the length of side 1: "))
side2 = float(input("Enter the length of side 2: "))
side3 = float(input("Enter the length of side 3: "))
```

```
if side1 + side2 > side3 and side2 + side3 > side1 and side1 + side3 > side2:
```

```
    area = calculate_triangle_area(side1, side2, side3)
    print(f"The area of the triangle is: {area:.2f}")
else:
    print("The entered side lengths do not form a valid triangle.")
```



```
Thonny - D:\python\21052410\Ass1\q11.py @ 7:59
File Edit View Run Tools Help

q1.py x q2.py x q3.py x q4.py x q5.py x q6.py x q7.py x q8.py x q9.py x q10.py x q11.py x q12.py x q13.py x
1 print("Hello roll 21052410, input the sides of a triangle to print its area")
2
3 import math
4
5 def calculate_triangle_area(side1, side2, side3):
6     s = (side1 + side2 + side3) / 2
7     area = math.sqrt(s * (s - side1) * (s - side2) * (s - side3))
8     return area
9
10 side1 = float(input("Enter the length of side 1: "))
11 side2 = float(input("Enter the length of side 2: "))
12 side3 = float(input("Enter the length of side 3: "))
13
14 if side1 + side2 > side3 and side2 + side3 > side1 and side1 + side3 > side2:
15
16     area = calculate_triangle_area(side1, side2, side3)
17
Shell x
>>> %Run q11.py
Hello roll 21052410, input the sides of a triangle to print its area
Enter the length of side 1: 5
Enter the length of side 2: 6
Enter the length of side 3: 9
The area of the triangle is: 14.14
>>> |

Local Python 3 • Thonny's Python
03:01 PM
10-01-2024
```

Q12. Write a python program to compute SI and CI.

```
print("Hello roll 21052410, input the p, r, t to calculate SI and CI")
```

```
def calculate_simple_interest(principal, rate, time):
    simple_interest = (principal * rate * time) / 100
    return simple_interest
```

```
def calculate_compound_interest(principal, rate, time):
    compound_interest = principal * (pow((1 + rate / 100), time)) - principal
    return compound_interest
```

input

```
principal_amount = float(input("Enter the principal amount: "))
interest_rate = float(input("Enter the annual interest rate (in percentage): "))
time_period = float(input("Enter the time period (in years): "))
```

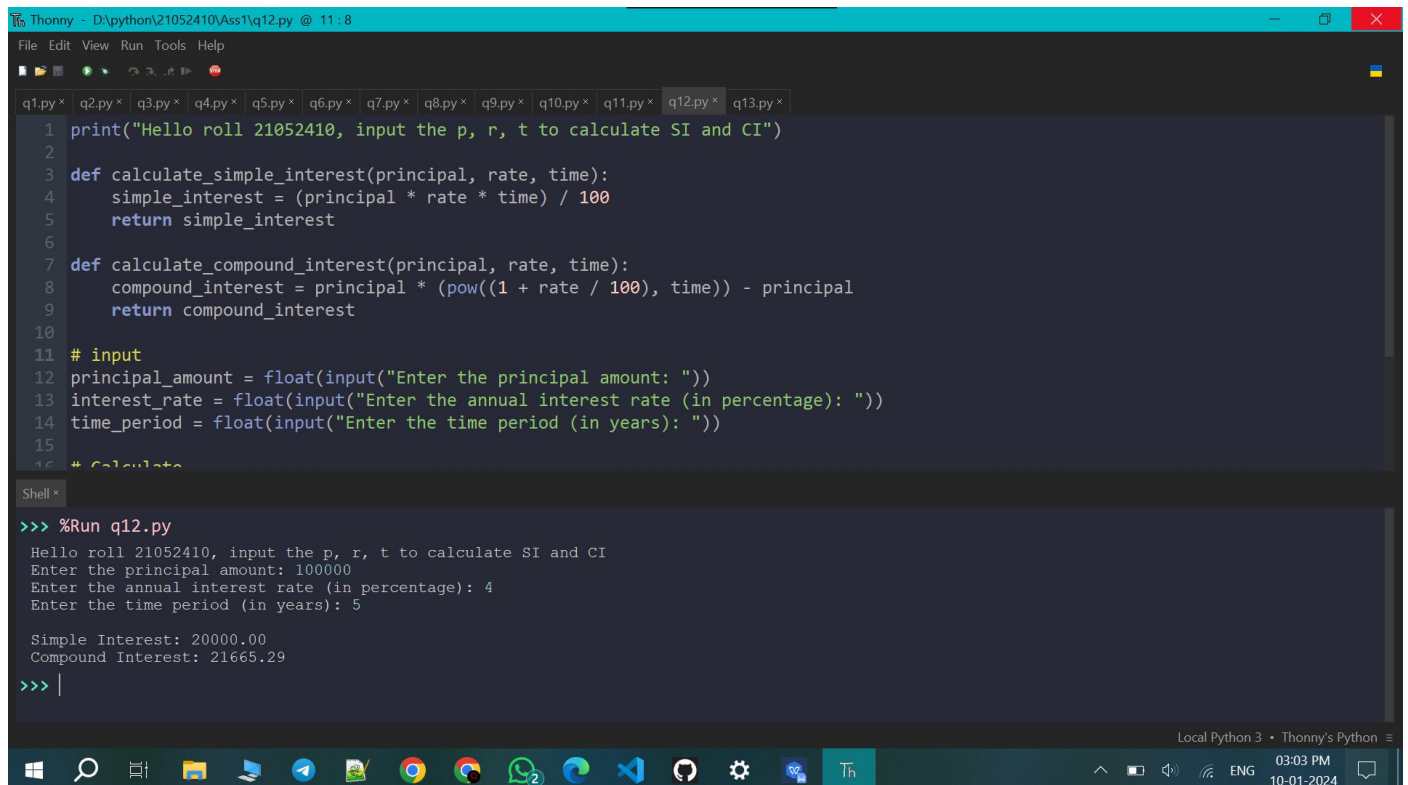
Calculate

```
simple_interest = calculate_simple_interest(principal_amount, interest_rate,
time_period)
compound_interest = calculate_compound_interest(principal_amount,
interest_rate, time_period)
```

Print

```
print(f"\nSimple Interest: {simple_interest:.2f}")
```

```
print(f"Compound Interest: {compound_interest:.2f}")
```



The screenshot shows the Thonny Python IDE interface. The top pane displays a Python script with the following code:

```
1 print("Hello roll 21052410, input the p, r, t to calculate SI and CI")
2
3 def calculate_simple_interest(principal, rate, time):
4     simple_interest = (principal * rate * time) / 100
5     return simple_interest
6
7 def calculate_compound_interest(principal, rate, time):
8     compound_interest = principal * (pow((1 + rate / 100), time)) - principal
9     return compound_interest
10
11 # input
12 principal_amount = float(input("Enter the principal amount: "))
13 interest_rate = float(input("Enter the annual interest rate (in percentage): "))
14 time_period = float(input("Enter the time period (in years): "))
15
16 # Calculate
```

The bottom pane shows the output of running the script:

```
>>> %Run q12.py
Hello roll 21052410, input the p, r, t to calculate SI and CI
Enter the principal amount: 100000
Enter the annual interest rate (in percentage): 4
Enter the time period (in years): 5

Simple Interest: 20000.00
Compound Interest: 21665.29
>>> |
```

Q13. Ask the user to enter a number x. Use the sep optional argument to print out x, 2x, 3x, 4x, and 5x, each separated by three dashes, like below.

Enter a number: 7

7---14---21---28---35

```
print("Hello roll 21052410, enter a number for Using the sep optional argument to print out x, 2x, 3x, 4x, and 5x, each separated by three dashes")
```

```
x = int(input("Enter a number: "))
```

```
print(x, 2*x, 3*x, 4*x, 5*x, sep='---')
```

