**LAB CYCLE -1**

**PROGRAM NO : 01**

**Aim:**

**Write a program that prompt the user to enter his first and last name and display the message “Greetings first name, last name”.**

**Pseudocode**

**1. Start**

**2. READ ( first\_name , last\_name)**

**3. PRINT (“Greetings”,first\_name,last\_name)**

**4. Stop**

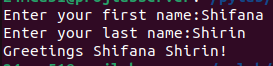
**Source Code:**

**first\_name=input("Enter your first name:")**

**last\_name=input("Enter your last name:")**

**print(f"Greetings {first\_name} {last\_name}!")**

**Output:**

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**PROGRAM NO : 02**

**Aim:**

**Write a program to demonstrate different numeric data type in python.**

**Pseudocode:**

**1. Start**

**2. SET int\_num=10**

**3. PRINT (“Integer:” , int\_num , ”Type:” , type(int\_num))**

**2. SET float=10**

**3. PRINT (“Float:” , float , ”Type:” , type(float))**

**2. SET complex\_num=10**

**3. PRINT (“Complex Number:” , complex\_num , ”Type:” , type(complex\_num))**

**4. Stop**

**Source Code:**

**int\_num=10**

**print(f"Integer : {int\_num} , Type : {type(int\_num)}")**

**float=2.5**

**print(f"Float : {float} , Type : {type(float)}")**

**complex\_num=2+3j**

**print(f"Complex Number : {complex\_num} , Type : {type(complex\_num)}")**

**Output:**

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**PROGRAM NO : 03**

**Aim:**

**Write a program to calculate the area of a circle by reading inputs from the user.**

**Pseudocode:**

**1. Start**

**2. READ radius**

**3. COMPUTE area=3.14\*radius\*radius**

**4. PRINT (“The area of circle with radius” , radius , “is” , area)**

**5. Stop**

**Source Code:**

**radius=float(input("Enter the radius:"))**

**area=3.14\*radius\*radius**

**print(f"The area of circle with radius {radius} is {area}")**

**Output:**

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**PROGRAM NO : 04**

**Aim:**

**Write a program to calculate the salary of an employee. Given his basic pay, HRA=10% of basic pay, TA=5% of the basic pay.**

**Pseudocode:**

**1. Start**

**2. READ basic\_pay**

**3. COMPUTE hra=0.10\*basic\_pay**

**4. COMPUTE ta=0.05\*basic\_pay**

**5. COMPUTE total=basic\_pay+hra+ta**

**6. PRINT (“Basic Pay:” , basic\_pay , “HRA:” , hra , “TA:” , ta , “Total:” , total)**

**7. Stop**

**Source Code:**

**basic\_pay=float(input("Enter the basic pay:"))**

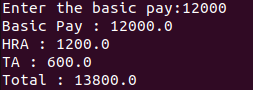
**hra=0.10\*basic\_pay**

**ta=0.05\*basic\_pay**

**total=basic\_pay+hra+ta**

**print(f"Basic Pay : {basic\_pay} \nHRA : {hra} \nTA : {ta} \nTotal : {total}")**

**Output:**

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**PROGRAM NO :05**

**Aim:**

**Write a program to perform arithmetic operations on two integer numbers.**

**Pseudocode:**

**1. Start**

**2. READ (num1 , num2)**

**3. COMPUTE sum=num1+num2**

**4. COMPUTE difference=num1-num2**

**5. COMPUTE product=num1\*num2**

**6. COMPUTE quotient=num1/num2**

**7. COMPUTE remainder=num1%num2**

**8. COMPUTE exponent=num1\*\*num2**

**9. PRINT (“Sum:” , sum)**

**10. PRINT (“Difference:” , difference)**

**11. PRINT (“Product:” , product)**

**12. PRINT (“Quotient:” , quotient)**

**13. PRINT (“Remainder:” , remainder)**

**14. PRINT (“Exponent:” , exponent)**

**15. Stop**

**Source Code:**

**num1=int(input("Enter first number:"))**

**num2=int(input("Enter second number:"))**

**sum=num1+num2**

**difference=num1-num2**

**product=num1\*num2**

**quotient=num1/num2**

**remainder=num1%num2**

**exponent=num1\*\*num2**

**print(f"Sum : {num1} + {num2} = {sum}")**

**print(f"Difference : {num1} - {num2} = {difference}")**

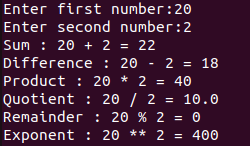
**print(f"Product : {num1} \* {num2} = {product}")**

**print(f"Quotient : {num1} / {num2} = {quotient}")**

**print(f"Remainder : {num1} % {num2} = {remainder}")**

**print(f"Exponent : {num1} \*\* {num2} = {exponent}")**

**Output:**

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**PROGRAM NO : 06**

**Aim:**

**Write a program to get a string when in copies of given string.**

**Pseudocode:**

**1. Start**

**2. READ (string , n)**

**3. COMPUTE c=string\*n**

**4. PRINT ("The string after copying:" , c)**

**5. Stop**

**Source Code:**

**string=input("Enter a string:")**

**n=int(input("Enter the number of copies:"))**

**c=string\*n**

**print(f"The string after copying is:{c}")**

**Output:**

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**PROGRAM NO : 07**

**Aim:**

**Write a program to accept an integer n and compute n+nn+nnn**

**[Hint : If n=6, the compute 5+55+555]**

**Pseudocode:**

**1. Start**

**2. READ n**

**3. COMPUTE res=n + " " + n\*2 + " " + n\*3**

**4. PRINT ("The pattern is" , res)**

**5. COMPUTE sum=int(n) + int(n\*2) + int(n\*3)**

**6. PRINT sum**

**7. Stop**

**Source Code:**

**n=input("Enter a number :")**

**res=n+" "+(n\*2)+" "+(n\*3)**

**print("The pattern is",res)**

**sum=int(n)+int(n\*2)+int(n\*3)**

**print("The sum of the numbers in this pattern is",sum)**

**Ouput:**

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**PROGRAM NO : 08**

**Aim:**

**Write a program to find the biggest of three numbers.**

**Pseudocode:**

**1. Start**

**2. READ (num1 , num2 , num3)**

**3. IF num1>num2 AND num1>num3 THEN**

**PRINT (num1 , “is biggest”)**

**ELIF num2>num1 AND num2>num3 THEN**

**PRINT (num2 , “is biggest”)**

**ELSE**

**PRINT (num3 , “is biggest”)**

**4. Stop**

**Source Code:**

**num1=int(input("Enter first number:"))**

**num2=int(input("Enter second number:"))**

**num3=int(input("Enter third number:"))**

**if (num1>num2 and num1>num3):**

**print(num1,"is biggest")**

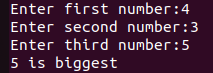
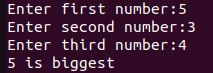
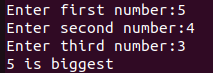
**elif (num2>num1 and num2>num3):**

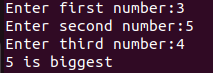
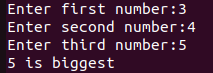
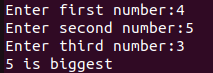
**print(num2,"is biggest")**

**else:**

**print(num3,"is biggest")**

**Output:**

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**PROGRAM NO : 09**

**Aim:**

**Write a program to check whether the year is leap year or not.**

**Pseudocode:**

**1. Start**

**2. READ year**

**3. IF year%4!=0 THEN**

**PRINT (year , “is not a leap year”)**

**ELIF year%100!=0 THEN**

**PRINT(year , “is a leap year”)**

**ELIF year%400==0 THEN**

**PRINT(year , “is a leap year”)**

**ELSE**

**PRINT (year , “is not a leap year”)**

**4. Stop**

**Source Code:**

**year=int(input("Enter a year:"))**

**if year%4!=0:**

**print(year,"is not a leap year")**

**elif year%100!=0:**

**print(year,"is a leap year")**

**elif year%400==0:**

**print(year,"is a leap year")**

**else:**

**print(year,"is not a leap year")**

**Output:**

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**PROGRAM NO : 10**

**Aim:**

**Write a program to determine the rate of entry trcket in a trade fair based on age as follows:**

|  |  |
| --- | --- |
| **AGE** | **RATE** |
| **<10** | **7** |
| **>=10 and <60** | **10** |
| **>=60** | **5** |

**Pseudocode:**

**1. Start**

**2. READ age**

**3. IF age<10 THEN**

**PRINT ("Your rate for entry ticket in this fair is 7 ")**

**ELIF 10<=age<60 THEN**

**PRINT ("Your rate for entry ticket in this fair is 10 ")**

**ELIF age>=60 THEN**

**PRINT ("Your rate for entry ticket in this fair is 5 ")**

**ELSE**

**PRINT ("Enter a valid age")**

**4. Stop**

**Source Code:**

**age=int(input("Enter your age:"))**

**if age<10:**

**print("Your rate for entry ticket in this fair is 7 ")**

**elif 10<=age<60:**

**print("Your rate for entry ticket in this fair is 10 ")**

**elif age>=60:**

**print("Your rate for entry ticket in this fair is 5 ")**

**else:**

**print("Enter a valid age")**

**Output:**

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**PROGRAM NO : 11**

**Aim:**

**Write a program to solve a quadratic equation.**

**Pseudocode:**

**1. Start**

**2. IMPORT math**

**3. READ ( a , b , c)**

**4. PRINT (f"Quadratic Equation: {a}x^2+{b}x+{c}=0")**

**5. COMPUTE d=b\*\*2-4\*a\*c**

**6. IF d==0 THEN**

**COMPUTE root=b/(2\*a)**

**PRINT ("The roots are real and equal")**

**PRINT ("The root is :" , root)**

**ELIF d>0 THEN**

**COMPUTE root1=b+(math.sqrt(d))/(2\*a)**

**COMPUTE root2=b-(math.sqrt(d))/(2\*a)**

**PRINT ("The roots are real and different")**

**PRINT (f"The roots are {root1:.2f} and {root2:.2f}")**

**ELIF d<0 THEN**

**COMPUTE real\_part=b/(2\*a)**

**COMPUTE img\_part=math.sqrt(-d)/(2\*a)**

**PRINT ("The roots are complex")**

**PRINT (f"The roots are {real\_part:.2f}+{img\_part:.2f} and {real\_part:.2f}-{img\_part:.2f}")**

**ELSE**

**PRINT ("The equation has no real roots!")**

**7. Stop**

**Source Code:**

**import math**

**a=float(input("Enter coefficient of x^2:"))**

**b=float(input("Enter coefficient of x:"))**

**c=float(input("Enter the constant:"))**

**print(f"Quadratic Equation: {a}x^2+{b}x+{c}=0\n")**

**d=b\*\*2-4\*a\*c**

**if d==0:**

**root=b/(2\*a)**

**print("The roots are real and equal")**

**print(f"The root is {root:.2f}\n")**

**elif d>0:**

**root1=b+(math.sqrt(d))/(2\*a)**

**root2=b-(math.sqrt(d))/(2\*a)**

**print("The roots are real and different")**

**print(f"The roots are {root1:.2f} and {root2:.2f}\n")**

**elif d<0:**

**real\_part=b/(2\*a)**

**img\_part=math.sqrt(-d)/(2\*a)**

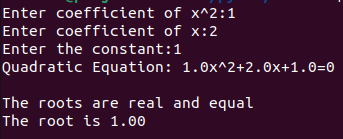
**print("The roots are complex")**

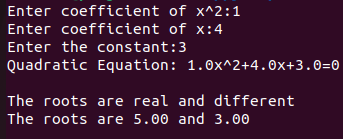
**print(f"The roots are {real\_part:.2f}+{img\_part:.2f} and {real\_part:.2f}-{img\_part:.2f}\n")**

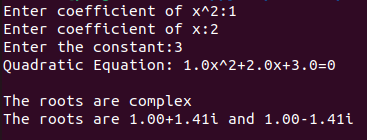
**else:**

**print("The equation has no real roots!\n")**

**Output:**



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