Tool & Technique Laboratory (T&T Lab.)

[CS-3096]

Individual Work

Lab. No:1 , Date: 17-01-2023 , Day:TUESDAY

Topic:

Roll Number:	20051939	Branch/Section:	cse/17
Name in Capital:	SHASHIKANT SHAH		

(Instruction: Rename this file as r-LAB-x where r is your roll number & x is your lab. number & Suppose your roll number is 1905123 & you want to submit lab-2 programs, then file name should be 1905123-LAB-2. Finally delete all texts inside parentheses, also parenthesis)

Program No: (1.1)

Program Title:
(Write here your program title in detail)

1.) WAP to subtract a number from another number and display the result.

Input/Output Screenshots:
RUN-1:
(Paste here the screenshots of first run)

```
Enter your number1
Enter your 2nd number2
-1
```

RUN-2
(Paste here the screenshots of second run)

```
Enter your number3
Enter your 2nd number1
2
```

Source code
(Paste here the source code)

```
#WAP to subtract a number from another number and display the result.
a=int(input('Enter your number'))
b=int (input('Enter your 2nd number'))
result =a-b ;
print(result)
```

Conclusion/Observation

Successfully subtract a number from another number

Program No: (1.2)

Program Title:
(Write here your program title in detail)

2 WAP to convert temperature from centigrade to Fahrenheit scale.

Input/Output Screenshots:
RUN-1:

```
Enter temperature in celsius: 50
50.0 degree Celsius is equal to 122.0 degree Fahrenheit.
```

Input/Output Screenshots:
RUN-2

```
Enter temperature in celsius: 98
98.0 degree Celsius is equal to 208.4 degree Fahrenheit.
```

Source code
(Paste here the source code)

```
celsius = float(input("Enter temperature in celsius: "))
fahrenheit = (celsius * 1.8) + 32
print(str(celsius )+ " degree Celsius is equal to " + str(fahrenheit )+ " degree Fahrenheit.")
```

Conclusion/Observation

Successfully convert temperature from centigrade to Fahrenheit scale

---

Program No: (1.3)
3.)WAP to calculate perimeter of a circle.

Run 1 :

```
Enter Radius of Circle:
4

perimeter of a circle =  25.12
```

Run 2 :

```
Enter Radius of Circle:
2.2

perimeter of a circle =  13.816000000000003
```

Source code :

```
print("Enter Radius of Circle: ")
r = float(input())
pie = 3.14
c = 2 * pie * r
print("\nperimeter of a circle = ", c)
```

Conclusion/Observation

Successfully calculate perimeter of a circle

Program No: (1.4)
Program Title:
(Write here your program title in detail)

4. WAP to calculate area of a triangle whose three sides are given.

Input/Output Screenshots:
RUN 1

```
Enter first side: 3
Enter second side: 4
Enter third side: 5
The area of the triangle is 6.00
```

-

RUN 2

```
Enter first side: 5
Enter second side: 4
Enter third side: 3
The area of the triangle is 6.00
```

Source code :

```
# Three sides of the triangle is a, b and c:
a = float(input('Enter first side: '))
b = float(input('Enter second side: '))
c = float(input('Enter third side: '))

# calculate the semi-perimeter
s = (a + b + c) / 2
# calculate the area
```

```
area = (s*(s-a)*(s-b)*(s-c)) ** 0.5
print('The area of the triangle is %0.2f' %area)
```

Conclusion/Observation

Successfully calculate area of a triangle whose three sides are given

---

Program No: (1.5)

5.)WAP to swap two integer numbers without using third variable.

Input/Output Screenshots:

RUN 1

```
Before swapping:
Value of x :  5  and y :  7
After swapping:
Value of x :  7  and y :  5
```

RUN 2

```
Before swapping:
Value of x :  4  and y :  9
After swapping:
Value of x :  9  and y :  4
```

Source code :

#5 #WAP to swap two integer numbers without using third variablee

```
x = 4
y = 9

print ("Before swapping: ")
print("Value of x : ", x, " and y : ", y)

# code to swap 'x' and 'y'
x, y = y, x

print ("After swapping: ")
print("Value of x : ", x, " and y : ", y)
```

Conclusion/Observation

Successfully swap two integer numbers without using third variablee

---

Program No: (1.6)

6.)WAP to convert a quantity in meter entered through keyboard into its equivalent kilometer andmeteras per the following format. Example. 2430 meter = 2 Km and 430 meter

Input/Output Screenshots:

RUN 1

```
Enter distance in kilometer: 234
234.000 Kilometer = 234000.000 Meter
```

RUN 2

```
Enter distance in kilometer: 300
300.000 Kilometer = 300000.000 Meter
```

Souce code

```
# 6 python program to convert km to m

# Reading input
km = input("Enter distance in kilometer: ")

# Converting to float data type
km = float(km)

# Converting to meter
m = km * 1000;
print("%0.3f Kilometer = %0.3f Meter" %(km,m))
```

Conclusion/Observation

Successfully WAP to convert a quantity in meter entered through keyboard into its equivalent kilometer and meteras

---

Program No: (1.7)

Program Title:

WAP to find the average mark of 5 subjects of a student and find the percentage. Assumefull markofeach subject is 100.

Input/Output Screenshots:

RUN 1

```
ENter the math marks99
ENter the science marks77
ENter the chemistry marks88
Enter the physics marks66
Enter the computer marks55
your average marks is  341.0
Your percentage is  33011.0
```

Run 2

```
ENter the math marks99
ENter the science marks33
ENter the chemistry marks44
Enter the physics marks55
Enter the computer marks22
your average marks is  235.4
Your percentage is  23104.4
```

Souce code

```
m= float(input("ENter the math marks"))
```

```
s= float(input("ENter the science marks"))
c= float(input("ENter the chemistry marks"))
p = float(input("Enter the physics marks"))
com= float(input("Enter the computer marks"))

Average = float(m+s+c+p+com/5 )

percentage = float((m+s+c+p+com/500)*100)

print("your average marks is ",Average)
print("Your percentage is ",percentage)
```

Conclusion/Observation

Successfully average mark of 5 subjects of a student and find the percentage. Assumefull markofeach subject is 100.

Program No: (1.8)

Program Title:
WAP swap the contents of two variables by using a single statement for swap in C.

Input/Output Screenshots:
RUN 1

```
After Swapping values of x and y are 10 5
```

RUN 2

```
After Swapping values of x and y are 555 22
```

Source code

```
x = 22
y = 555
x, y = y, x
print("After Swapping values of x and y are", x, y)
```

Conclusion/Observation

Successfully swap the contents of two variables by using a single statement

---

Program No: (1.9)

Program Title:
9.) WAP to add two times in hour, minitue & second format entered through the keyboardintheformathh:mm:ss

Input/Output Screenshots:

RUN 1

```
Enter Time 1 :
Hour 1: 2
Minute 1 : 34
Second 1: 23
Enter Time 2 :
Hour 2 : 12
Minute 2 : 3
Second 2 : 4
Time 1 is :  2  Hours, 34  Minutes and  23  Seconds
Time 2 is :  12  Hours, 3  Minutes and  4  Seconds
Total Time : 14  Hours,  37  Minutes and  27 Seconds
```

RUN 2

```
Enter Time 1 :
Hour 1: 3
Minute 1 : 56
Second 1: 12
Enter Time 2 :
Hour 2 : 2
Minute 2 : 33
Second 2 : 45
Time 1 is :  3  Hours, 56  Minutes and  12  Seconds
Time 2 is :  2  Hours, 33  Minutes and  45  Seconds
Total Time : 6  Hours,  29  Minutes and  57 Seconds
```

Source code

```
print("Enter Time 1 :")
h1=int(input("Hour 1: "))
m1=int(input("Minute 1 : "))
s1=int(input("Second 1: "))

print("Enter Time 2 :")
h2=int(input("Hour 2 : "))
m2=int(input("Minute 2 : "))
s2=int(input("Second 2 : "))

h3=h1+h2+(m1+m2+(s1+s2)//60)//60
m3=(m1+m2+(s1+s2)//60)%60
s3=(s1+s2)%60

print("Time 1 is : ",h1," Hours,",m1," Minutes and ",s1," Seconds")
print("Time 2 is : ",h2," Hours,",m2," Minutes and ",s2," Seconds")
print("Total Time :",h3," Hours, ",m3," Minutes and ",s3,"Seconds")
```

Conclusion/Observation

Successfully add two times in hour, minitue & second format entered through the keyboardintheformathh:mm:ss

Program No: (1.10)

Program Title: WAP to input any two integers distinct and display the greater of two integers

Input/Output Screenshots:
RUN 1

```
4
```

RUN 2

```
6
```

Source code

```
def maximum(a, b):

    if a >= b:
     return a
    else:
     return b

# Driver code
a = 2
b = 6
print(maximum(a, b))
```

Conclusion/Observation

Successfully input any two integers distinct and display the greater of two integers

---

Program No: (1.11)

Program Title: WAP to input any three integers distinct and display the greater of three integers

Input/Output Screenshots:
RUN 1

```
Enter first number  : 3
Enter second number : 2
Enter third number  : 7
7 is the largest of three numbers.
```

RUN 2

```
Enter first number  : 2
Enter second number : 9
Enter third number  : 0
9 is the largest of three numbers.
```

Source code

```
a = int(input('Enter first number  : '))
b = int(input('Enter second number : '))
c = int(input('Enter third number  : '))

largest = 0
```

```
if a > b and a > c :
   largest = a
elif b > c :
   largest = b
else :
   largest = c

print(largest, "is the largest of three numbers.")
```

Conclusion/Observation

Successfully compile any three integers distinct and display the greater of three integers

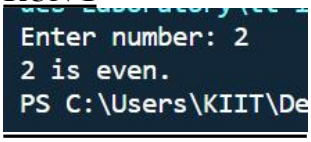
---

Program No: (1.12)

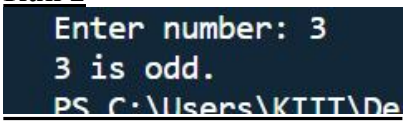
Program Title: WAP to test whether a number entered through keyboard is ODD or EVEN

Input/Output Screenshots:

RUN 1



Run 2



Source code

```
# Test whether number is odd or even
a = int(input("Enter number: "))
if a & 1:
   print(f"{a} is odd.")
else:
   print(f"{a} is even.")
```

Conclusion/Observation

Successfully compile to test whether a number entered through keyboard is ODD or EVEN

Program No: (1.13)

Program Title: WAP to read an alphabet from from the user and convert it into lowercase if the enteredalphabetisin uppercase, otherwise display an appropriate message.

Input/Output Screenshots:

RUN 1

Run 2

Source code

```
# Input a alphabet, convert to it lowercase and return
ch = input("Enter alphabet: ")
ch = ord(ch)
if ch >= 65 and ch <= 90:
   print(chr(ch + 32))
elif ch >= 97 and ch <= 122:
   print(chr(ch))
else:
   print("Not a letter.")
```

Conclusion/Observation

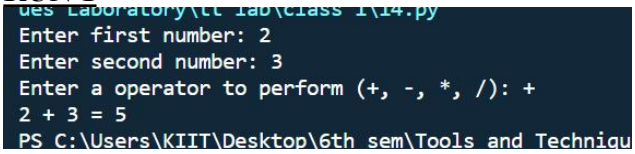
Successfully compile to read an alphabet from from the user and convert it into lowercase if the enteredalphabetisin uppercase, otherwise display an appropriate message.

Program No: (1.14)

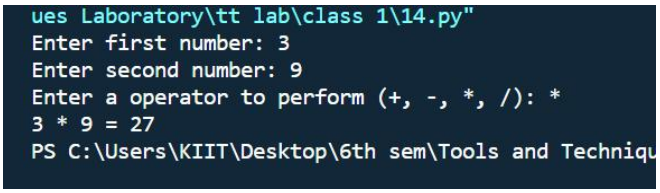
Program Title: WAP to input any two integers, and provide a menu to the user to select any of the optionsasadd,subtract, multiply, divide and display the result accordingly.

Input/Output Screenshots:

RUN 1



RUN 2



Source code

```
# Input 2 numbers and make a calculator menu to add subtract divide multiply
a = int(input("Enter first number: "))
b = int(input("Enter second number: "))
op = input("Enter a operator to perform (+, -, *, /): ")
if op == '+':
   print(f"{a} + {b} = {a + b}")
elif op == '-':
   print(f"{a} - {b} = {a - b}")
elif op == '*':
   print(f"{a} * {b} = {a * b}")
elif op == '/':
   if b == 0:
      print("Divide by 0 error.")
   else:
      print(f"{a} / {b} = {a / b}")
else:
   print("Incorrect operator.")
```

Conclusion/Observation

Successfully compile to input any two integers, and provide a menu to the user to select any of the optionsasadd,subtract, multiply, divide and display the result accordingly.

Program No: (1.15)

Program Title: WAP to display the grade system of KIIT University based on total marks secured bya student inasemester. Use else..if ladder statement.

Input/Output Screenshots:
RUN 1

```
Enter total marks: 80
E grade
PS C:\Users\KIIT\Deskton
```

RUN 2

```
ues Laboratory\tt lab\class
Enter total marks: 70
A grade
PS C:\Users\KIIT\Desktop\6t
```

SOURCE CODE

```
if mark >= 90:
   print("O grade")
elif mark >= 80:
   print("E grade")
elif mark >= 70:
   print("A grade")
elif mark >= 60:
```

```
    print("B grade")
elif mark >= 50:
    print("C grade")
elif mark >= 40:
    print("D grade")
else:
    print("F grade")
```

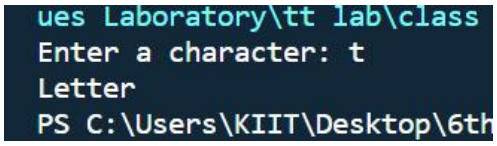
Conclusion/Observation

Successfully compile to display the grade system of KIIT University based on total marks secured bya student inasemester. Use else..if ladder statement.

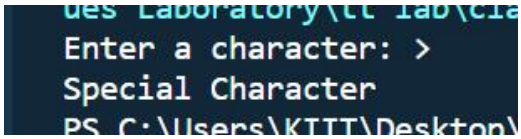
Program No: (1.16)

Program Title: WAP to check whether a character entered through keyboard is a digit, letter, special characteretcornot.

Input/Output Screenshots:
RUN 1



RUN 2



Source code

```
# Check if character enter through keyboard is a letter digit or special character
ch = input("Enter a character: ")
if ch >= '1' and ch <= '9':
    print("Digit")
elif (ch >= 'A' and ch <= 'Z') or (ch >= 'a' and ch <= 'z'):
    print("Letter")
else:
    print("Special Character")
```

Conclusion/Observation
Successfully compile to check whether a character entered through keyboard is a digit, letter, special characteretcornot

---

Program No: (1.17)

Program Title: WAP which takes two integer operands and one operator form the user, performs the operationandthen prints the result. (Consider the operators +,-,*, /, % etc). Use switch cse.

Input/Output Screenshots:

RUN 1

```
Enter Time 1 :
Hour 1: 2
Minute 1 : 34
Second 1: 23
Enter Time 2 :
Hour 2 : 12
Minute 2 : 3
Second 2 : 4
Time 1 is :  2  Hours, 34  Minutes and  23  Seconds
Time 2 is :  12  Hours, 3  Minutes and  4  Seconds
Total Time : 14  Hours,  37  Minutes and  27 Seconds
```

RUN 2

```
Enter Time 1 :
Hour 1: 2
Minute 1 : 34
Second 1: 23
Enter Time 2 :
Hour 2 : 12
Minute 2 : 3
Second 2 : 4
Time 1 is :  2  Hours, 34  Minutes and  23  Seconds
Time 2 is :  12  Hours, 3  Minutes and  4  Seconds
Total Time : 14  Hours,  37  Minutes and  27 Seconds
```

Source code

```
a = int(input("Enter first number: "))
b = int(input("Enter second number: "))
op = input("Enter a operator to perform (+, -, *, /): ")
match op:
    case '+':
        print(f"{a} + {b} = {a + b}")
    case '-':
        print(f"{a} - {b} = {a - b}")
    case '*':
        print(f"{a} * {b} = {a * b}")
    case '/':
        if b == 0:
            print("Divide by 0 error.")
        else:
            print(f"{a} / {b} = {a / b}")
    case default:
        print("Incorrect operator.")
```

Conclusion/Observation

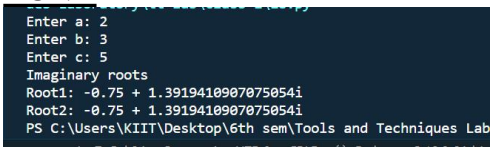
Successfully compile taking two integer operands and one operator form the user, performs the operationandthen prints the result. (Consider the operators +,-,*, /, % etc). Use switch cse.

Program No: (1.18)

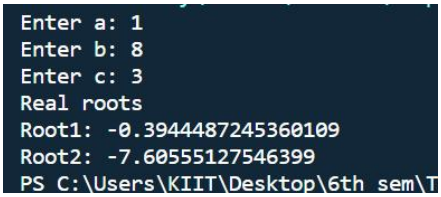
Program Title: WAP to find the roots of a quadratic equation ax2+bx+c=0 using switch-case statement.

Input/Output Screenshots:

RUN 1



RUN 2



SOURCE CODE

```
# Find roots of quadratic equation ax^2 + bx + c = 0
from math import sqrt

a = int(input("Enter a: "))
b = int(input("Enter b: "))
c = int(input("Enter c: "))
D = (b * b - 4 * a * c)
if D < 0:
    print("Imaginary roots")
    print(f"Root1: {(-b) / (2 * a)} + {sqrt(-D) / (2 * a)}i")
    print(f"Root2: {(-b) / (2 * a)} + {sqrt(-D) / (2 * a)}i")
else:
    print("Real roots")
    print(f"Root1: {(-b + sqrt(D)) / (2 * a)}")
    print(f"Root2: {(-b - sqrt(D)) / (2 * a)}")
```

Conclusion/Observation

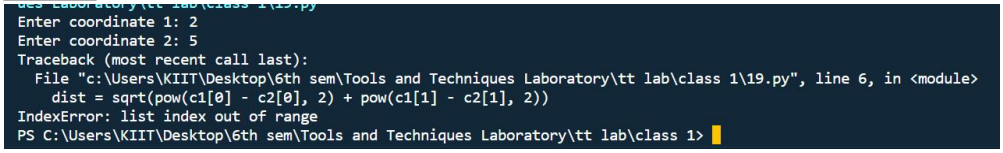
Successfully compile to find the roots of a quadratic equation ax2+bx+c=0 using switch-case statement.

Program No: (1.19)

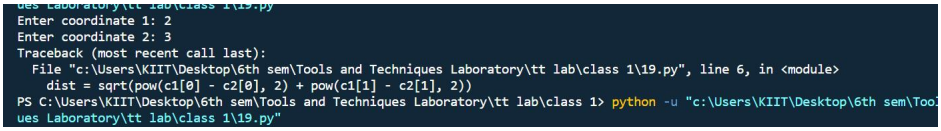
Program Title: WAP to findout the distance between two coordinates (x1, y1) & (x2, y2).

Input/Output Screenshots:

RUN 1



RUN 2



Source code

```
from math import sqrt, pow

c1 = list(map(int, input("Enter coordinate 1: ").split()))
c2 = list(map(int, input("Enter coordinate 2: ").split()))
dist = sqrt(pow(c1[0] - c2[0], 2) + pow(c1[1] - c2[1], 2))
print(f"Distance = {dist}")
```

Conclusion/Observation

Successfully compile to findout the distance between two coordinates (x1, y1) & (x2, y2).