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ACTIVITY:-1

Write a python program to calculate the total number of even numbers and total number of odd numbers exist between any two given integers say number 1 and number 2.

Print the results properly.

ALGORITHM:

STEP 1. ***Start***

STEP 2. ***Read a as the starting range and the b as the ending range.***

STEP 3. ***Assign i=a, count_odd=0 and count_even=0 where count_odd and count_even will used to count the odd and 3even numbers.***

STEP 4. ***Till i<=b***

- ***Check if the reminder is zero when i is divided by 2(i%2==0) then update count_even = count_even+1***
- ***Else update count_odd=count_odd+1***

Then update i = i+1

STEP 5. ***Print count_odd as the number of odd numbers in the range.***

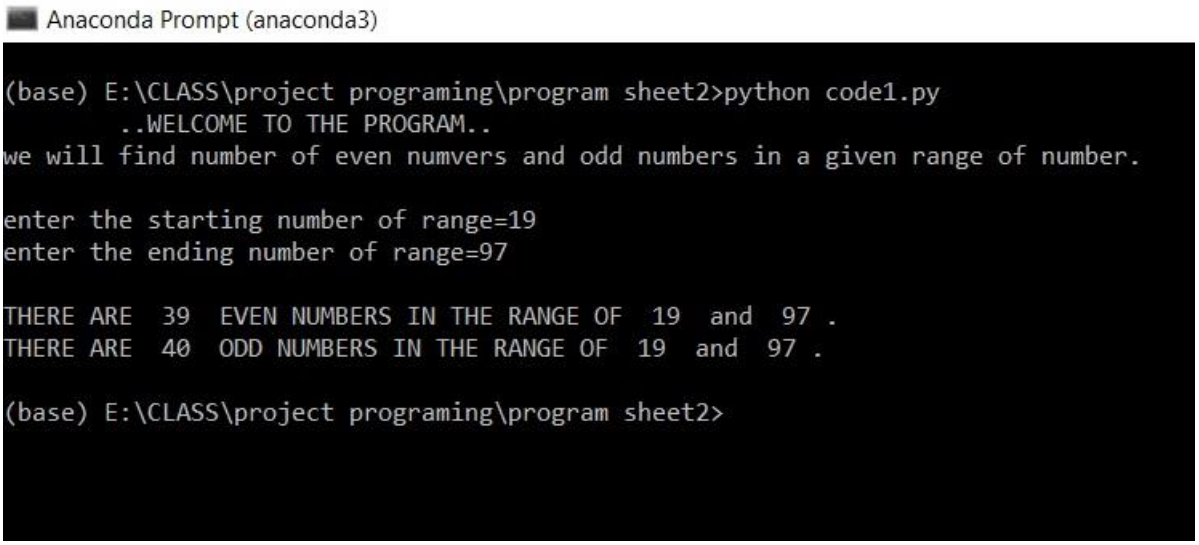
STEP 6. ***Print count_even as the number of even numbers in the given range.***

STEP 7. ***Stop***

PROGRAM:

```
#total number of even numbers and odd numbers
print("\t..WELCOME TO THE PROGRAM..")
print("we will find number of even numvers and odd numbers in a given range of number.\n")
a=int(input("enter the starting number of range="))
b=int(input("enter the ending number of range="))
i=a
count_odd=0
count_even=0
while i<=b:
        if i%2 == 0:
                count_even += 1
        else:
                count_odd += 1
        i+=1
print("\nTHERE ARE ",count_even ," EVEN NUMBERS IN THE RANGE OF ",a," and ",b,".")
print("THERE ARE ",count_odd ," ODD NUMBERS IN THE RANGE OF ",a," and ",b,".")
```

OUTPUT:



ACTIVITY:-2

Write a python program to find the sum of all digits of a given integer. Print the result.

ALGORITHM:

STEP 1. *Start*

STEP 2. *Read num as the number.*

STEP 3. *Assign copy=num, sum=0, copy1 = string of num and lastd as the reminder when num is divided by 10 (num%10).*

STEP 4. *While copy is not equal to 0*

Evaluate a=copy%10(reminder when copy is divided by 10)

Update copy=integer value of copy/10

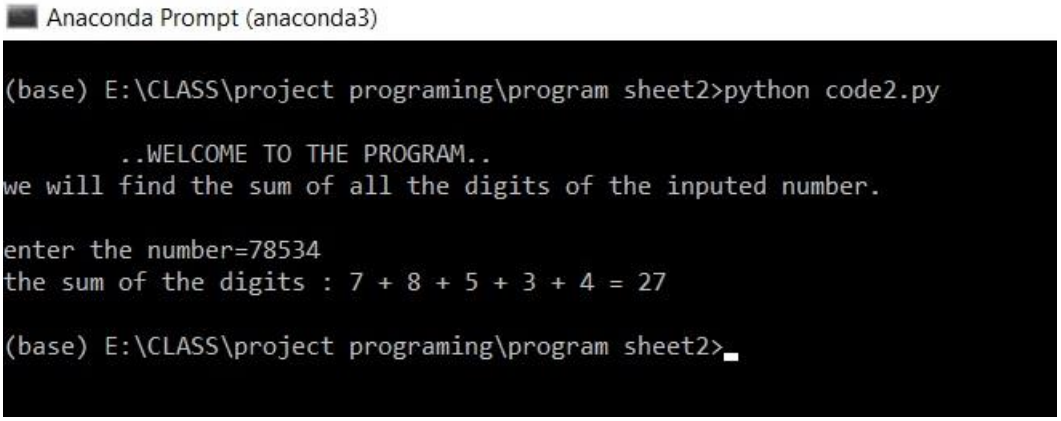
Update sum = sum +a

STEP 5. *Print sum as the sum of all the digits.*

PROGRAM:

```
#the sum of all trhe digits of a given number
print("\n\t..WELCOME TO THE PROGRAM..")
print("we will find the sum of all the digits of the inputed number.\n")
num=int(input("enter the number="))
copy=num
lastd=copy%10
copy1=str(int(num/10))
sum=0
while copy!=0:
        a=copy%10
        copy=int(copy/10)
        sum=sum+a
print("the sum of the digits ",end=': ')
for i in copy1:
        print(i,end=' + ')
print(lastd,sum,sep=' = ')
```

OUTPUT:



ACTIVITY:-3

Write a python program to add any 5 random numbers using random () between the giver range (number1 to number2). Print the sum.

ALGORITHM:

STEP 1. *Start*

STEP 2. *Read a and b as the starting and ending range for finding the random numbers between.*

STEP 3. *Assign i=1 and sum=0*

STEP 4. *Import random module*

STEP 5. *While i <= 5*

Evaluate number=random.randrange(a,b) where computer produce a random number in the range of a and b.

Update sum=sum+number

If i not equal to 5 then print number and "+"

Else print number and "=".

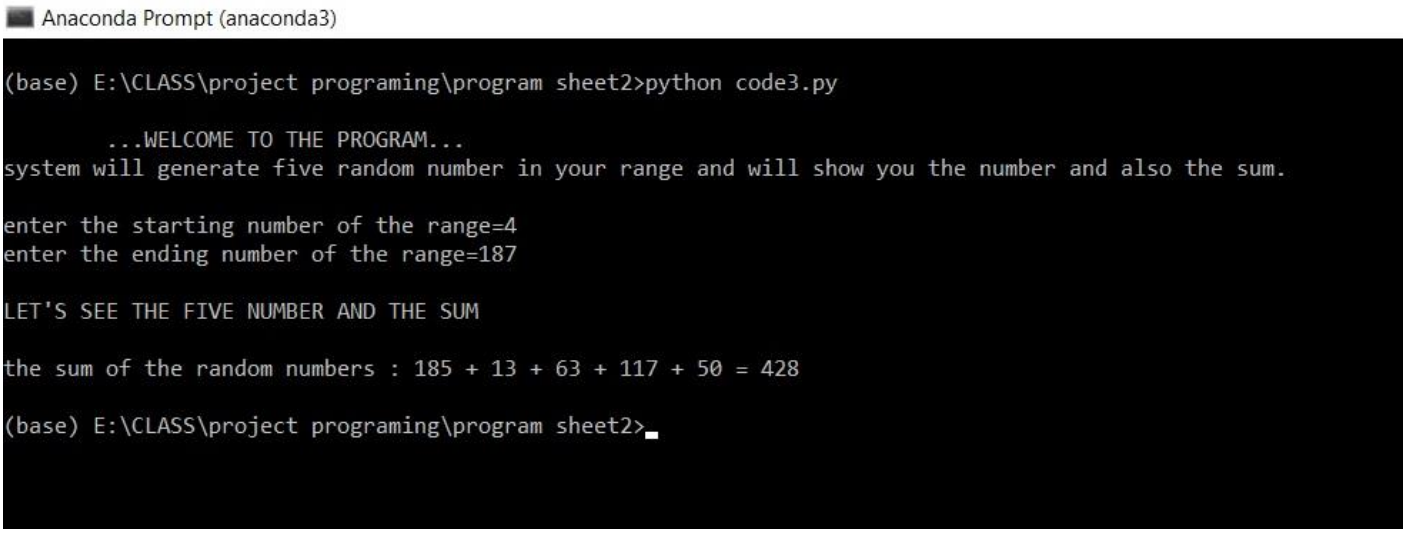
STEP 6. *Print the sum as the sum of random numbers.*

STEP 7. *Stop*

PROGRAM:

```
#print the sum of any 5 random number using random function
print("\n\t...WELCOME TO THE PROGRAM...")
print("system will generate five random number in your range and will show you the number and also the sum.\n")
a=int(input("enter the starting number of the range="))
b=int(input("enter the ending number of the range="))
sum=0
i=1
print("\nLET'S SEE THE FIVE NUMBER AND THE SUM\n")
import random
print("the sum of the random numbers",end=" : ")
while i<=5:
        number=random.randrange(a,b)
        sum=sum+number
        if i!=5:
                print(number,end=' + ')
        else:
                print(number,end=' = ')
        i += 1
print(sum)
```

OUTPUT:



ACTIVITY:-4

Write a python code to print the data type of a variable. Test your program with integer, float, string data types with examples.

ALGORITHM:

STEP 1. ***Start***

STEP 2. ***Assign x=5***

y=5.8

z="HELLO"

STEP 3. ***Read a***

STEP 4. ***Evaluate the data type by***

xtype=type(x)

ytype=type(y)

ztype=type(z)

atype=type(a)

STEP 5. ***Print x ,y,z value***

STEP 6. ***Print xtype as the data type of x and ytype as the data type of y and ztype as the data type of z and atype as the data type of the entered value.***

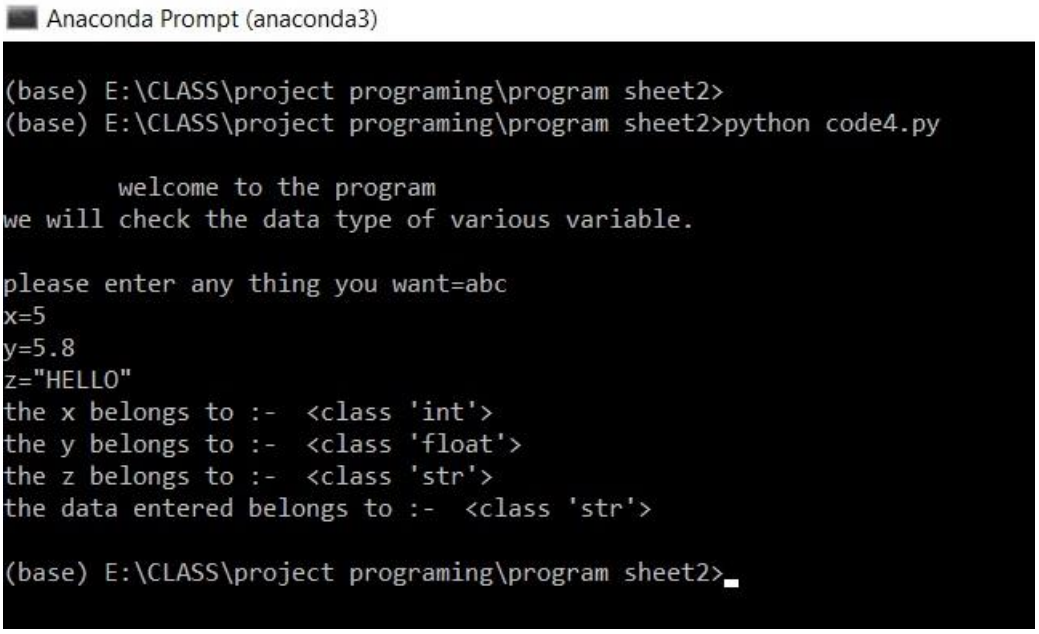
STEP 7. ***Stop***

PROGRAM:

```
#to check the data types of variable

print("\n\twelcome to the program")
print("we will check the data type of various variable.\n")
x=5
y=5.8
z="HELLO"
a=input("please enter any thing you want=")
xtype=type(x)
ytype=type(y)
ztype=type(z)
atype=type(a)
print('x=5\ny=5.8\nz="HELLO"')
print("the x belongs to :- ",xtype)
print("the y belongs to :- ",ytype)
print("the z belongs to :- ",ztype)
print("the data entered belongs to :- ",atype)
```

OUTPUT:



ACTIVITY:-5

Write a python program to print the following patters.

```
5 4 3 2 1
4 3 2 1
3 2 1
2 1
1
```

ALGORITHM:

STEP 1. ***Start***

STEP 2. ***Read n as the number of rows.***

STEP 3. ***Assign i=n***

STEP 4. ***While i>=1***

Assign j=i

While j>=1 print j and space at the end insted of new line and

update j=j-1

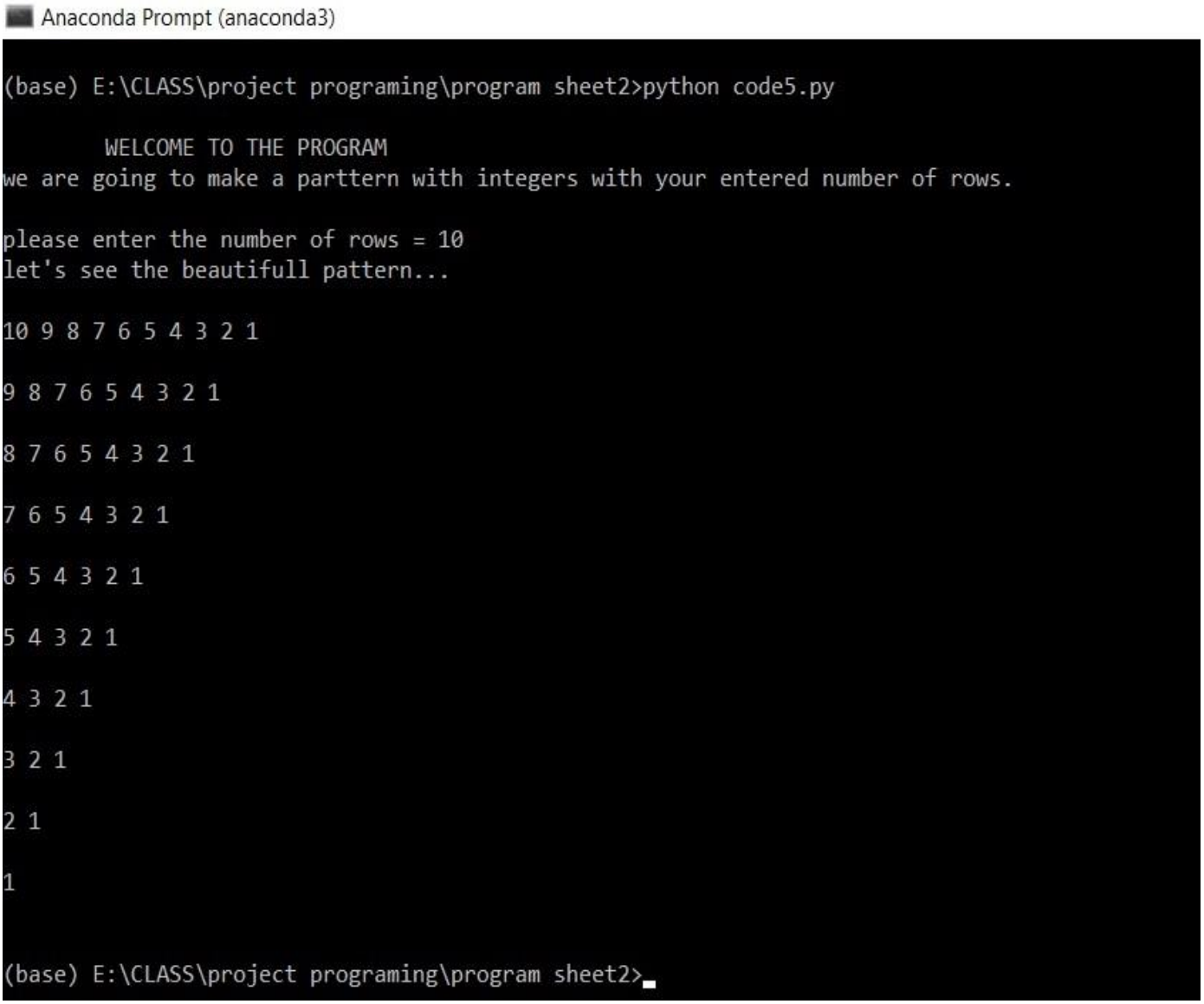
Update i=i-1

STEP 5. ***Stop***

PROGRAM:

```
#printing pattern with integers
print("\n\tWELCOME TO THE PROGRAM")
print("we are going to make a parttern with integers with your entered number of rows.\n")
n=int(input("please enter the number of rows = "))
i=n
print("let's see the beautifull pattern...\n")
while i>=1:
        j=i
        while j>=1:
                print(j,end=" ")
                j -= 1
        print("\n")
        i -= 1
```

OUTPUT:


Anaconda Prompt (anaconda3)
(base) E:\CLASS\project programing\program sheet2>python code5.py
WELCOME TO THE PROGRAM
we are going to make a parttern with integers with your entered number of rows.
please enter the number of rows = 10
let's see the beautifull pattern...
10 9 8 7 6 5 4 3 2 1
9 8 7 6 5 4 3 2 1
8 7 6 5 4 3 2 1
7 6 5 4 3 2 1
6 5 4 3 2 1
5 4 3 2 1
4 3 2 1
3 2 1
2 1
1
(base) E:\CLASS\project programing\program sheet2>

ACTIVITY:-6

Write an interactive python program to read the +2 marks (say for 5 subjects) from a student and print the total marks, average marks and result (PASS/FAIL).

Note: If a student scores less than 50 marks for any one subject, then that student fails in +2.

ALGORITHM:

STEP 1. ***Start***

STEP 2. ***Read sub_eng, sub_maths, sub_phy, sub_chem, sub_comp as the marks of English ,math, physics, chemistry, computer. And assert all the marks between 0 and 100.***

STEP 3. ***Evaluate***

total_marks= sub_eng+sub_math+sub_phy+sub_chem+sub_comp as the total marks

STEP 4. ***Evaluate avg_marks=total_marks/5 as the average marks.***

STEP 5. ***if sub_eng>=50 and sub_math>=50 and sub_phy>=50 and sub_chem>=50 and sub_comp>=50 print you have passed your examination.***

Else YOU HAVE FAILED THE EXAMINATION.

STEP 6. ***Print total_marks as total marks and avg_marks as average marks.***

STEP 7. ***Stop***

PROGRAM:

```
#calculation of total marks and average marks and result as pass or fail

print("\n\t..........WELCOME.........\n")
print("please enter all the marks of class 12th out of 100 properly to find the proper result.\nALL THE BEST......\n")
sub_eng=float(input("ENTER THE MARKS OF ENGLISH = "))
assert sub_eng >=0 and sub_eng<=100
sub_math=float(input("ENTER THE MARKS OF MATH = "))
assert sub_math >=0 and sub_math<=100
sub_phy=float(input("ENTER THE MARKS OF PHYSICS = "))
assert sub_phy >=0 and sub_phy<=100
sub_chem=float(input("ENTER THE MARKS OF CHEMISTRY = "))
assert sub_chem >=0 and sub_chem<=100
sub_comp=float(input("ENTER THE MARKS OF COMPUTER SCIENCE = "))
assert sub_comp >=0 and sub_comp<=100
total_marks=sub_eng+sub_math+sub_phy+sub_chem+sub_comp
avg_marks=total_marks/5
if sub_eng>=50 and sub_math>=50 and sub_phy>=50 and sub_chem>=50 and sub_comp>=50:
        print("\n....CONGRATS...\nyou have passed your examination.")
else:
        print("\n!!!!!!YOU HAVE FAILED THE EXAMINATION.")
        print("BETTER LUCK NEXT TIME FOR YOUR EXAM.")
print("YOUR TOTAL MARKS = ",total_marks)
print("YOUR AVERAGE MARKS = ",avg_marks)
```

OUTPUT:

Anaconda Prompt (anaconda3)

```
ENTER THE MARKS OF ENGLISH = 94
ENTER THE MARKS OF MATH = 95
ENTER THE MARKS OF PHYSICS = 95
ENTER THE MARKS OF CHEMISTRY = 95
ENTER THE MARKS OF COMPUTER SCIENCE = 100

....CONGRATS...
you have passed your examination.
YOUR TOTAL MARKS =  479.0
YOUR AVERAGE MARKS =  95.8

(base) E:\CLASS\project programing\program sheet2>python code6.py

        ..........WELCOME.........

please enter all the marks of class 12th out of 100 properly to find the proper result.
ALL THE BEST......

ENTER THE MARKS OF ENGLISH = 10
ENTER THE MARKS OF MATH = 100
ENTER THE MARKS OF PHYSICS = 100
ENTER THE MARKS OF CHEMISTRY = 100
ENTER THE MARKS OF COMPUTER SCIENCE = 100

!!!!!!YOU HAVE FAILED THE EXAMINATION.
BETTER LUCK NEXT TIME FOR YOUR EXAM.
YOUR TOTAL MARKS =  410.0
YOUR AVERAGE MARKS =  82.0

(base) E:\CLASS\project programing\program sheet2>
```

ACTIVITY:-7

An university is setting up a new lab at their premises. Design an algorithm and write Python code to determine the approximate cost to be spent for setting up the lab. Cost for setting the lab is sum of cost of computers, cost of furniture and labour cost. Use the following formulae for solving the problem:

Cost of computer = cost of one computer * number of computers

Cost of furniture = Number of tables * cost of one table + number of chairs * cost of one chair

Labour cost = number of hours worked * wages per hour

ALGORITHM:

STEP 1. ***Start***

STEP 2. ***Read comp, table, chair, worker as the cost of each computer, table, chair and wages per hour of worker respectively.***

STEP 3. ***Read qty_comp, qty_table, qty_chair, hr_worker as the number of computers, number of tables, number of chairs and hours workers worked.***

STEP 4. ***Evaluate***

cost_comp=comp*qty_comp as the total cost of computers.

cost_furniture=(table*qty_table)+(chair*qty_chair) as the total cost of furnitures.

cost_worker=worker*hr_worker as the total cost of labour.

budget=cost_comp+cost_furniture+cost_worker as the total budget for lab.

STEP 5. ***Print***

cost_comp as the total cost of computers, cost_furnitureas the total cost of furnitures, cost_worker as the total cost of labour, budget=cost_comp+cost_furniture+cost_worker as the total budget for lab.

PROGRAM:

```
#calculating a budget for a computer lab
print("\n\t\t........WELCOME........")
print("\t...calculate the budget of your lab...\n")
print("please enter proper quantity and price for the acurrate calculation.")
print("\nNow input all the cost.\n")
comp=float(input("please enter the cost of each computer :- "))
table=float(input("please enter the cost of each computer table :- "))
chair=float(input("please enter the cost of each chair :- "))
worker=float(input("please enter the wages of labour for working an hour :- "))
print("\nNow input the quantity and working hour.\n")
qty_comp=int(input("please enter the number of computer systems :- "))
qty_table=int(input("please enter the number of tables :- "))
qty_chair=int(input("please enter the number of chairs :- "))
hr_worker=int(input("please enter the number of hours worked :- "))
cost_comp=comp*qty_comp
cost_furniture=(table*qty_table)+(chair*qty_chair)
cost_worker=worker*hr_worker
budget=cost_comp+cost_furniture+cost_worker
print("\n\t.........BUDGET CALCULATION.........")
print("THE TOTAL COST FOR COMPUTER SYSTEM :- Rs.",cost_comp,"\-")
print("THE TOTAL COST FOR TABLE :- Rs.",cost_furniture,"\-")
print("THE TOTAL COST FOR WORKER :- Rs.",cost_worker,"\-\n")
print("\tTHE TOTAL COST FOR THE LAB :- Rs.",budget,"\-\n")
```

OUTPUT:

Anaconda Prompt (anaconda3)

```
(base) E:\CLASS\project programing\program sheet2>python code7.py

                ........WELCOME........
        ...calculate the budget of your lab...

please enter proper quantity and price for the acurrate calculation.

Now input all the cost.

please enter the cost of each computer :- 50000
please enter the cost of each computer table :- 2500
please enter the cost of each chair :- 450
please enter the wages of labour for working an hour :- 100

Now input the quantity and working hour.

please enter the number of computer systems :- 100
please enter the number of tables :- 100
please enter the number of chairs :- 100
please enter the number of hours worked :- 6

        .........BUDGET CALCULATION.........
THE TOTAL COST FOR COMPUTER SYSTEM :- Rs. 5000000.0 \-
THE TOTAL COST FOR TABLE :- Rs. 295000.0 \-
THE TOTAL COST FOR WORKER :- Rs. 600.0 \-

        THE TOTAL COST FOR THE LAB :- Rs. 5295600.0 \-


(base) E:\CLASS\project programing\program sheet2>
```

ACTIVITY:-8

Write a python program to check whether a given number is palindrome number or not.

ALGORITHM:

STEP 1. ***Start***

STEP 2. ***Read num as the number which is to be checked***

STEP 3. ***Assign copy1=num and new_num=0***

STEP 4. ***While copy1 not equals to zero***

Evaluate rem = copy1%10

Update new_num=new_num*10 + rem

Update copy1=integer value of copy1/10(int(copy1/10))

STEP 5. ***Print new_num as the reversed number of original entered number.***

STEP 6. ***Check if num == new_num then print the number is palindrome***

Else print that the number is not a palindrome.

STEP 7. ***Stop***

PROGRAM:

```
#check wether a number is palindrome or not
print("\n\t...WELCOME...")
print("we will check weather your inputed number is a palindrome or not.\n")
num=int(input("enter the number = "))
print("Let's check the number wether palindrome or not.")
copy1=num
new_num=0
while copy1!=0:
        rem=copy1%10
        new_num=new_num*10 + rem
        copy1=int(copy1/10)
print("THE REVERSE NUMBER IS = ",new_num)
if num == new_num:
        print("THE ENTERED NUMBER IS A PLINDROME")
else:
        print("THE ENTERED NUMBER IS NOT A PALINDROME.")
```

OUTPUT:

Anaconda Prompt (anaconda3)

```
(base) E:\CLASS\project programing\program sheet2>python code8.py

        ...WELCOME...
we will check weather your inputed number is a palindrome or not.

enter the number = 1342431
Let's check the number wether palindrome or not.
THE REVERSE NUMBER IS =  1342431
THE ENTERED NUMBER IS A PLINDROME

(base) E:\CLASS\project programing\program sheet2>python code8.py

        ...WELCOME...
we will check weather your inputed number is a palindrome or not.

enter the number = 56789
Let's check the number wether palindrome or not.
THE REVERSE NUMBER IS =  98765
THE ENTERED NUMBER IS NOT A PALINDROME.

(base) E:\CLASS\project programing\program sheet2>
```