

Submitted By:

21MCA0132

MOHIT PAL

# PYTHON PROGRAMMING

## ASSESSMENT – 2

### Lab Challenging Exercise – 2

**Q.1** Students in a class are appreciated based on the following factors

Number of 'S' grade  $\geq 3$

Attendance  $\geq 90$

Participation in sports activity in a semester  $\geq 2$

Appreciation is given as follows:

(i) 'Excellent' if all three conditions are met

(ii) 'Very Good' if conditions (i) and (ii) are met

(iii) 'Good' if conditions (i) and (iii) are met

Given the Number of 'S' grades, Attendance and Participation in sports activity in a semester, write the python code to output the appreciation for the student. Check boundary conditions and print 'Invalid input' for wrong input.

**Boundary Condition:**

All values of input  $\geq 0$

#### CODE:

```
sGrades = int( input( "\n Enter the number of 'S'
grades: " ) )
attendance = int( input( "\n Enter the attendance
(%): " ) )
sportsParticipation = int( input( "\n Enter the
sports Participation value: " ) )

if(sGrades >= 0 and sGrades <= 8 and attendance >=
0 and attendance <= 100 and sportsParticipation >=
0 and sportsParticipation <= 10):
    if( sGrades >= 3 and attendance >= 90 and
sportsParticipation >= 2 ):
```

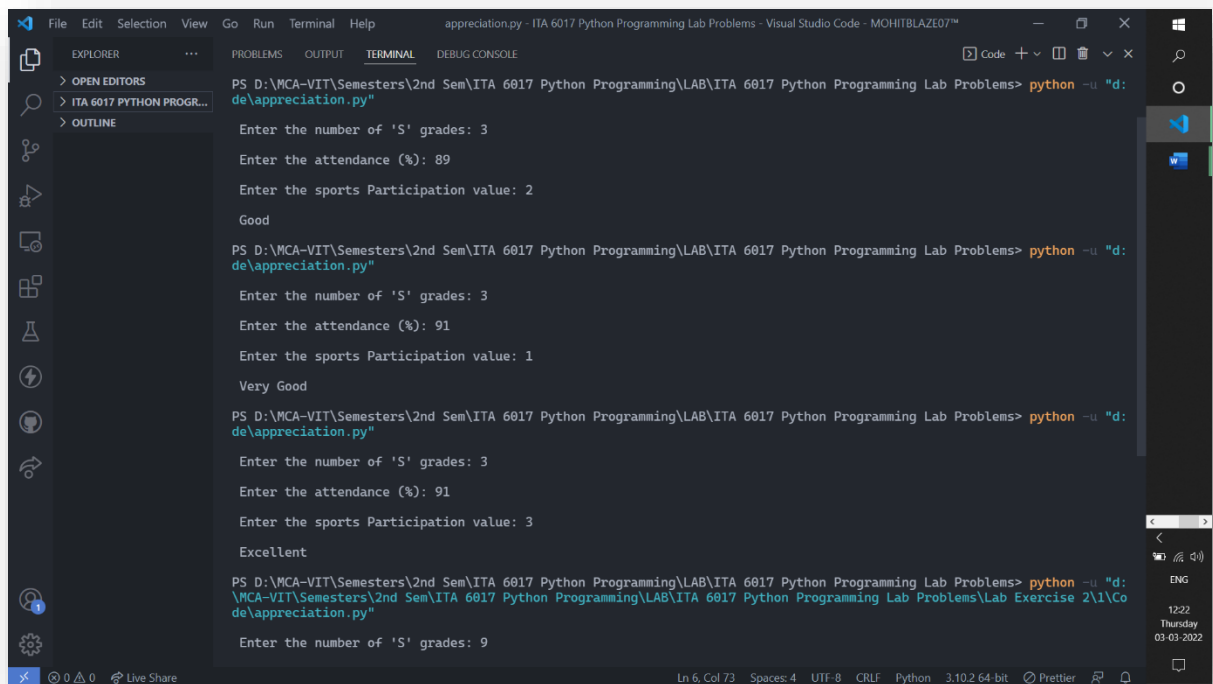
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```
print("\n Excellent\n")
elif( sGrades >= 3 and attendance >= 90 ):
    print("\n Very Good\n")
elif( sGrades >= 3 and sportsParticipation >= 2
):
    print("\n Good\n")
else:
    print("\nInvalid Input\n")
```

## SCREENSHOT OF OUTPUT:



```
PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:
de\appreciation.py"

Enter the number of 'S' grades: 3

Enter the attendance (%): 89

Enter the sports Participation value: 2

Good

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:
de\appreciation.py"

Enter the number of 'S' grades: 3

Enter the attendance (%): 91

Enter the sports Participation value: 1

Very Good

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:
de\appreciation.py"

Enter the number of 'S' grades: 3

Enter the attendance (%): 91

Enter the sports Participation value: 3

Excellent

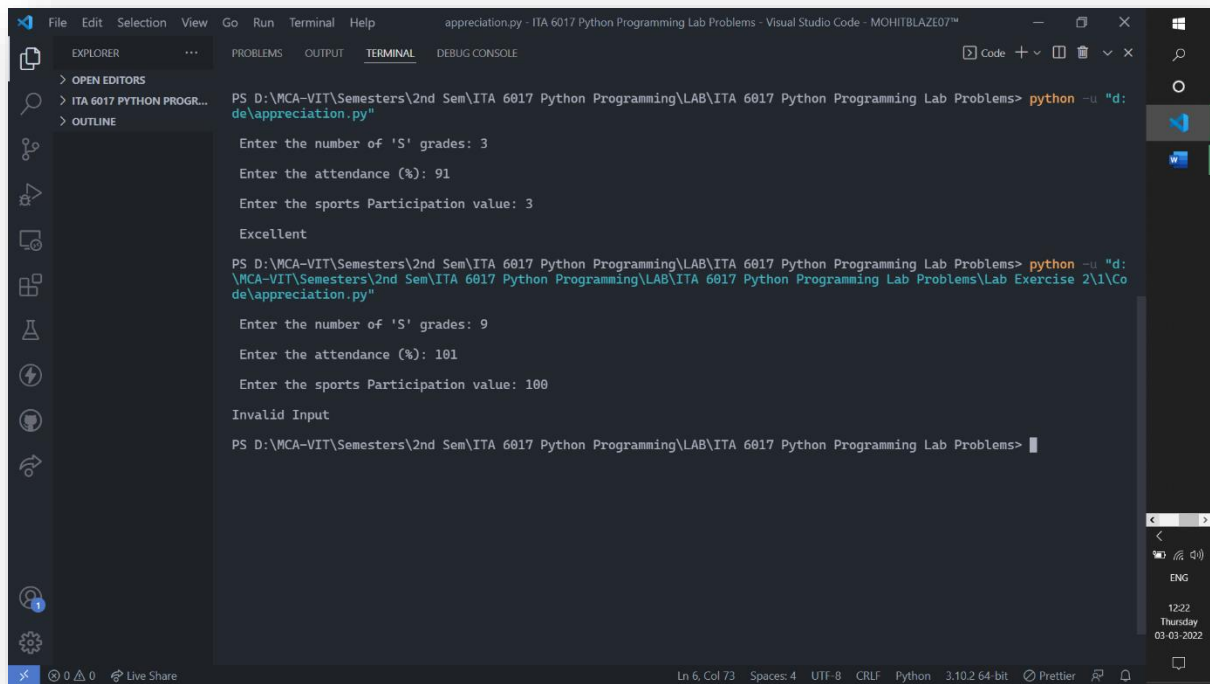
PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:
\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\Co
de\appreciation.py"

Enter the number of 'S' grades: 9
```

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```
PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:
de\appreciation.py"

Enter the number of 'S' grades: 3

Enter the attendance (%): 91

Enter the sports Participation value: 3

Excellent

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:
\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\Co
de\appreciation.py"

Enter the number of 'S' grades: 9

Enter the attendance (%): 101

Enter the sports Participation value: 100

Invalid Input

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems>
```

**Q.2** Design an algorithm and write the Python code to convert time in 24-hour format to 12-hour format. For example, if the input time is 16:45:12 then the output should be 4:45:12 PM. Check boundary conditions and print 'Invalid input' for wrong input.

**Boundary Condition:**

All input  $\geq 0$

Hours  $< 24$

Minutes  $< 59$

Seconds  $< 59$

**CODE:**

```
hours = int( input( "\n Enter the hours in 24 hours
format( 1 - 24 ) : " ) )

minutes = int( input( "\n Enter the minutes ( 1 -
59 ): " ) )

seconds = int( input( "\n Enter the seconds ( 1 -
59 ): " ) )
```

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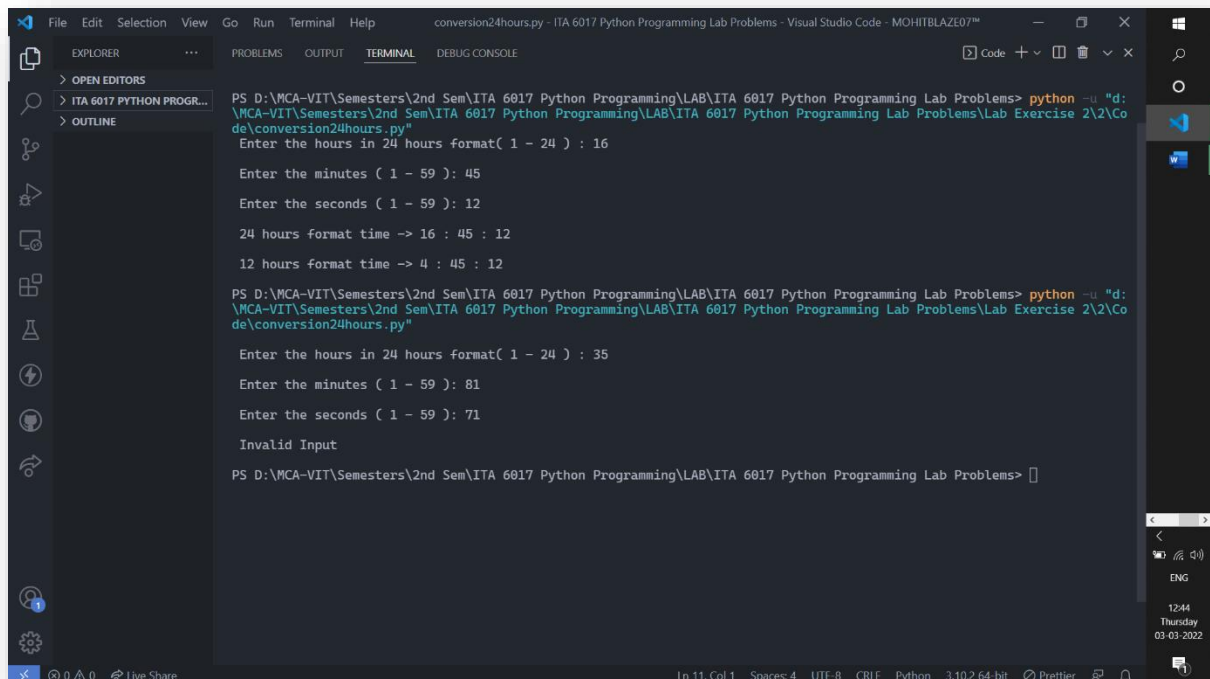
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```
if( hours >= 24 or minutes > 59 or seconds > 59 ):
    print("\n Invalid Input\n")
else:

    if hours <= 12:
        convertedHoursValue = hours
    else:
        convertedHoursValue = hours - 12

    print("\n 24 hours format time -
>",hours,":",minutes,":",seconds)
    print("\n 12 hours format time -
>",convertedHoursValue,":",minutes,":",seconds,"\n"
)
```

## SCREENSHOT OF OUTPUT:



The screenshot shows a Visual Studio Code window with a terminal running a Python script named 'conversion24hours.py'. The script prompts the user to enter hours, minutes, and seconds, and then displays the time in both 24-hour and 12-hour formats. The terminal output shows two successful conversions and one invalid input case.

```
PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\Code\conversion24hours.py"
Enter the hours in 24 hours format( 1 - 24 ) : 16
Enter the minutes ( 1 - 59 ): 45
Enter the seconds ( 1 - 59 ): 12
24 hours format time -> 16 : 45 : 12
12 hours format time -> 4 : 45 : 12

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\Code\conversion24hours.py"
Enter the hours in 24 hours format( 1 - 24 ) : 35
Enter the minutes ( 1 - 59 ): 81
Enter the seconds ( 1 - 59 ): 71
Invalid Input

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems>
```

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Q.3 Write a python program to display the grades according to the student marks in five different subjects. Check boundary conditions on your own intuition.

### CODE:

```
print("\n Enter the marks out of 100 in 5 different  
subjects!\n")

subject1 = int( input("\n Enter the marks of 1st subject:  
"))
subject2 = int( input("\n Enter the marks of 2nd subject:  
"))
subject3 = int( input("\n Enter the marks of 3rd subject:  
"))
subject4 = int( input("\n Enter the marks of 4th subject:  
"))
subject5 = int( input("\n Enter the marks of 5th subject:  
"))

totalMarks = 500

sumOfFiveSubjects = subject1 + subject2 + subject3 +  
subject4 + subject5

percentage = int((sumOfFiveSubjects/totalMarks) * 100)

print( "\nTotal Secured marks: ", sumOfFiveSubjects, "/",  
totalMarks )
print( "\nYour Percentage: ", percentage,"%" )

if percentage <= 0 or percentage > 100:  
    print("\ninvalid input!")
elif percentage >= 90:  
    grade = "S"  
    print("\nYou have secured ", grade, "grade.")
elif percentage < 90 and percentage >= 80:  
    grade = "A"
```

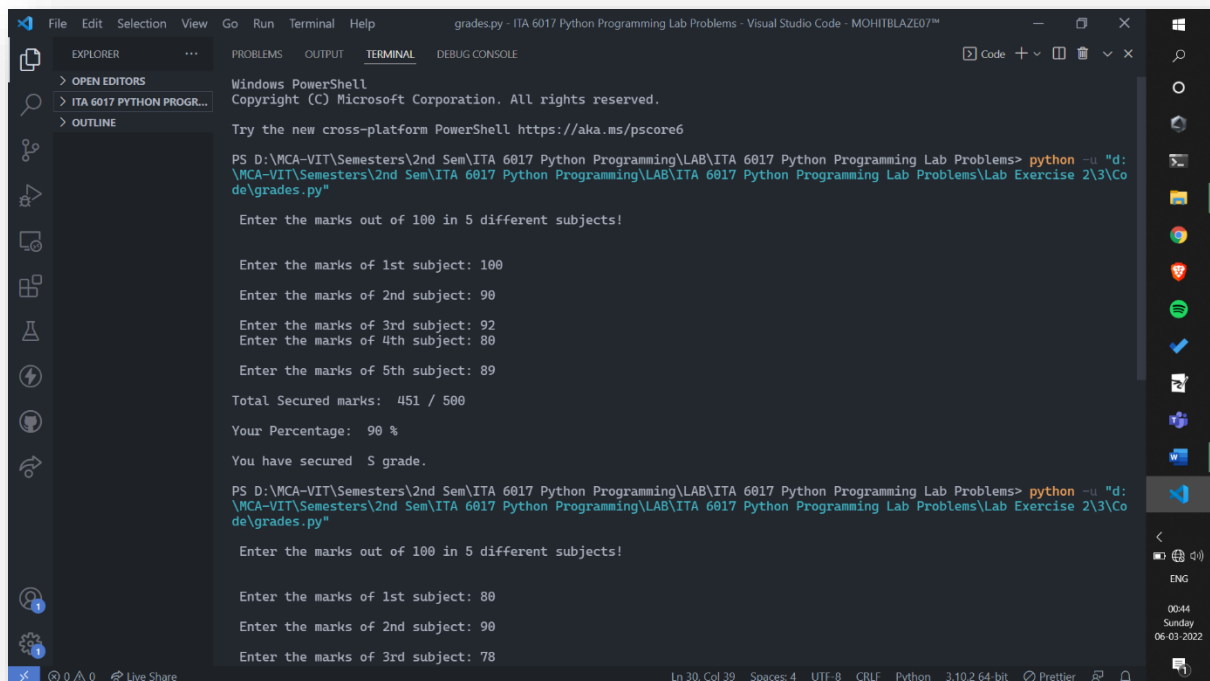
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```
print("\nYou have secured ", grade, "grade.")
elif percentage < 80 and percentage >= 70:
    grade = "B"
    print("\nYou have secured ", grade, "grade.")
elif percentage < 70 and percentage >= 60:
    grade = "C"
    print("\nYou have secured ", grade, "grade.")
elif percentage < 60 and percentage >= 50:
    grade = "D"
    print("\nYou have secured ", grade, "grade.")
elif percentage < 50 and percentage >= 40:
    grade = "E"
    print("\nYou have secured ", grade, "grade.")
elif percentage < 40:
    grade = "N or F"
    print("\nYou have secured ", grade, "grade.")
```

## SCREENSHOT OF OUTPUT:



```
PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\Code\grades.py"

Enter the marks out of 100 in 5 different subjects!

Enter the marks of 1st subject: 100
Enter the marks of 2nd subject: 90
Enter the marks of 3rd subject: 92
Enter the marks of 4th subject: 80
Enter the marks of 5th subject: 89

Total Secured marks: 451 / 500
Your Percentage: 90 %
You have secured S grade.

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\Code\grades.py"

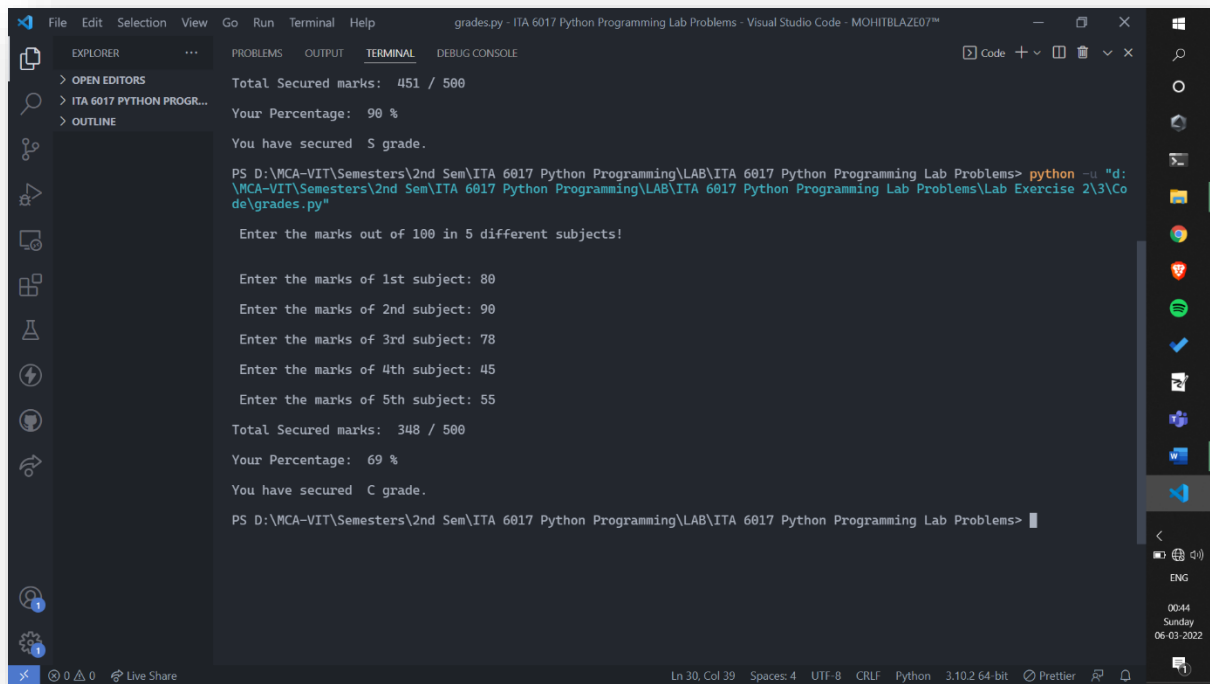
Enter the marks out of 100 in 5 different subjects!

Enter the marks of 1st subject: 80
Enter the marks of 2nd subject: 90
Enter the marks of 3rd subject: 78
```

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```
grades.py - ITA 6017 Python Programming Lab Problems - Visual Studio Code - MOHITBLAZE07™

EXPLORER
> OPEN EDITORS
> ITA 6017 PYTHON PROGR...
> OUTLINE

PROBLEMS
OUTPUT
TERMINAL
DEBUG CONSOLE

Total Secured marks: 451 / 500
Your Percentage: 90 %
You have secured S grade.

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\3\Code\grades.py"

Enter the marks out of 100 in 5 different subjects!

Enter the marks of 1st subject: 80
Enter the marks of 2nd subject: 90
Enter the marks of 3rd subject: 78
Enter the marks of 4th subject: 45
Enter the marks of 5th subject: 55
Total Secured marks: 348 / 500
Your Percentage: 69 %
You have secured C grade.

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems>
```

Q.4 Write a python code to calculate the total money spent on purchase. Get the number of items of a product purchased and the cost of each product. A customer may buy any number of products from the shop. Check boundary conditions and print 'Invalid input' for wrong output.

### Input:

Number of items purchased 'n'.

Cost of ith item

quantity of ith item

### Output:

Total cost of all products.

### Boundary Conditions:

$n > 0$

cost and quantity of each product  $> 0$

### CODE:

```
finalBillAmount = 0
numberOfItemsPurchased = int( input( "\n Enter the number of
items purchased: " ) )
if numberOfItemsPurchased <= 0:
    print("\n Invalid Input!\n")
```

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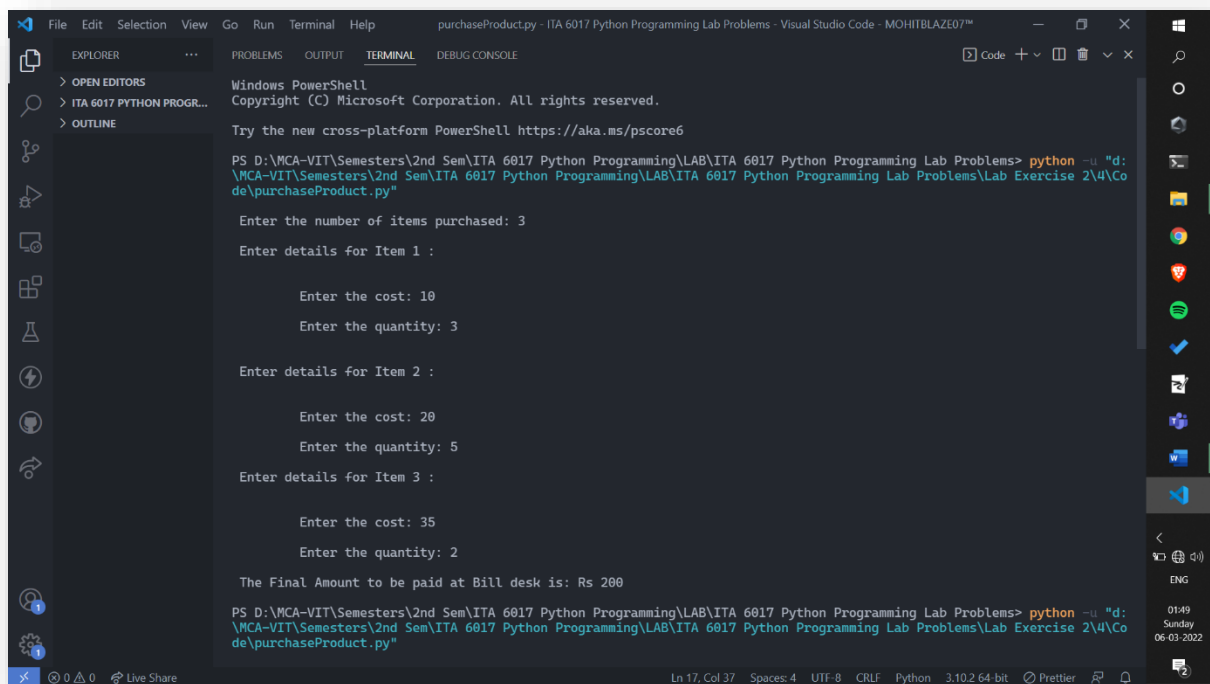
```
else:

    for i in range( 1, numberOfItemsPurchased + 1 ):
        print("\n Enter details for Item",i," : \n" )
        costOfItem = int( input( "\n\t Enter the cost: " ) )
        quantityOfItem = int( input( "\n\t Enter the quantity: "
    ) )

    print()
    totalPriceForItem = costOfItem * quantityOfItem
    finalBillAmount += totalPriceForItem

    print("\n The Final Amount to be paid at Bill desk is: Rs",
finalBillAmount,"\n")
```

## SCREENSHOT OF OUTPUT:



```
File Edit Selection View Go Run Terminal Help purchaseProduct.py - IIA 6017 Python Programming Lab Problems - Visual Studio Code - MOHITBLAZE07™
EXPLORER
> OPEN EDITORS
> IIA 6017 PYTHON PROGR...
> OUTLINE
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:
\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\Code\purchaseProduct.py"

Enter the number of items purchased: 3

Enter details for Item 1 :

    Enter the cost: 10
    Enter the quantity: 3

Enter details for Item 2 :

    Enter the cost: 20
    Enter the quantity: 5

Enter details for Item 3 :

    Enter the cost: 35
    Enter the quantity: 2

The Final Amount to be paid at Bill desk is: Rs 200

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:
\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\Code\purchaseProduct.py"
```



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```
File Edit Selection View Go Run Terminal Help purchaseProduct.py - ITA 6017 Python Programming Lab Problems - Visual Studio Code - MOHITBLAZE07™
EXPLORER PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE
> OPEN EDITORS
> ITA 6017 PYTHON PROGR...
> OUTLINE

Enter the quantity: 2
The Final Amount to be paid at Bill desk is: Rs 200

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\Code\purchaseProduct.py"

Enter the number of items purchased: 0
Invalid Input!

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\Code\purchaseProduct.py"

Enter the number of items purchased: 2
Enter details for Item 1 :

Enter the cost: 0
Invalid Input, Cost of item can't be zero or less. Program exit!

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\Code\purchaseProduct.py"

Enter the number of items purchased: 2
Enter details for Item 1 :

Enter the cost: 10
Enter the quantity: 0
Invalid Input, quantity of item can't be zero or less. Program exit!

Ln 17, Col 37 Spaces: 4 UTF-8 CRLF Python 3.10.2 64-bit Prettier
```

```
File Edit Selection View Go Run Terminal Help purchaseProduct.py - ITA 6017 Python Programming Lab Problems - Visual Studio Code - MOHITBLAZE07™
EXPLORER PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE
> OPEN EDITORS
> ITA 6017 PYTHON PROGR...
> OUTLINE

Enter the number of items purchased: 2
Enter details for Item 1 :

Enter the cost: 0
Invalid Input, Cost of item can't be zero or less. Program exit!

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\Code\purchaseProduct.py"

Enter the number of items purchased: 2
Enter details for Item 1 :

Enter the cost: 10
Enter the quantity: 0
Invalid Input, quantity of item can't be zero or less. Program exit!

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems>

Ln 17, Col 37 Spaces: 4 UTF-8 CRLF Python 3.10.2 64-bit Prettier
```

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Q.5 Write a python code to find the sum of the following series. Get N from the user.

1+2+3+4+5+.....+N  
2+4+6+8+10+.....+ N

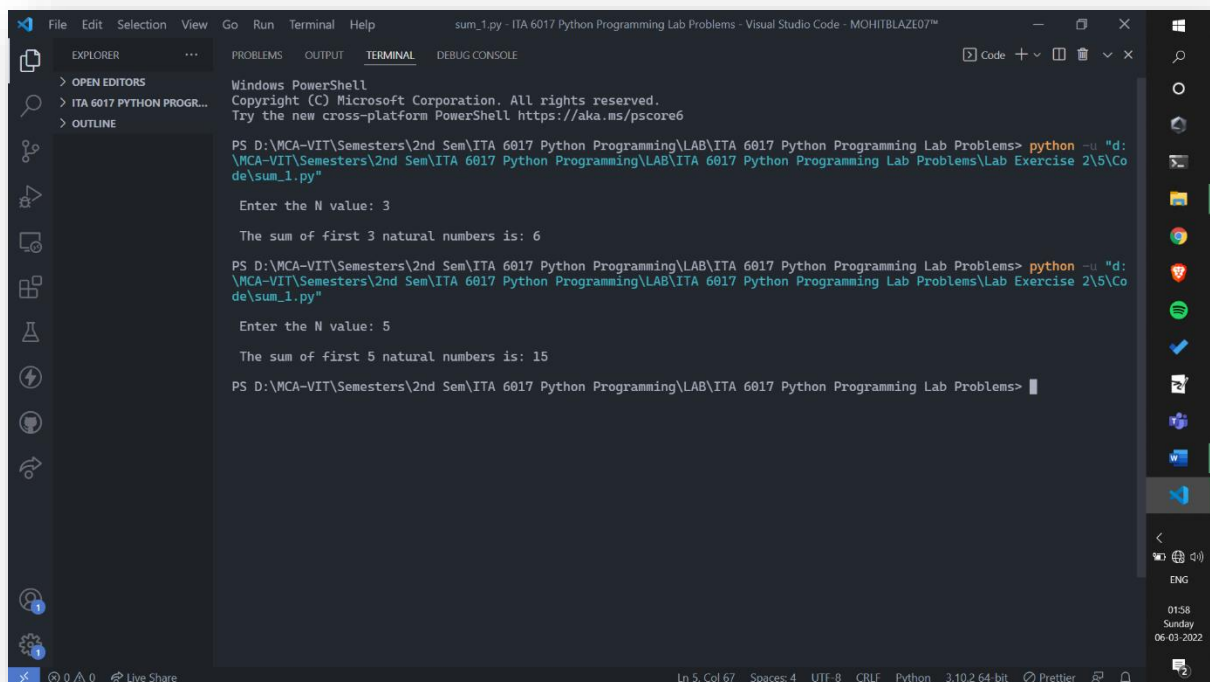
1.

### CODE:

```
sum = 0

counter = int( input( "\n Enter the N value: " ) )
for i in range( 1, counter + 1 ):
    sum += i
print("\n The sum of first",counter, "natural numbers
is:",sum,"\n")
```

### SCREENSHOT OF OUTPUT:



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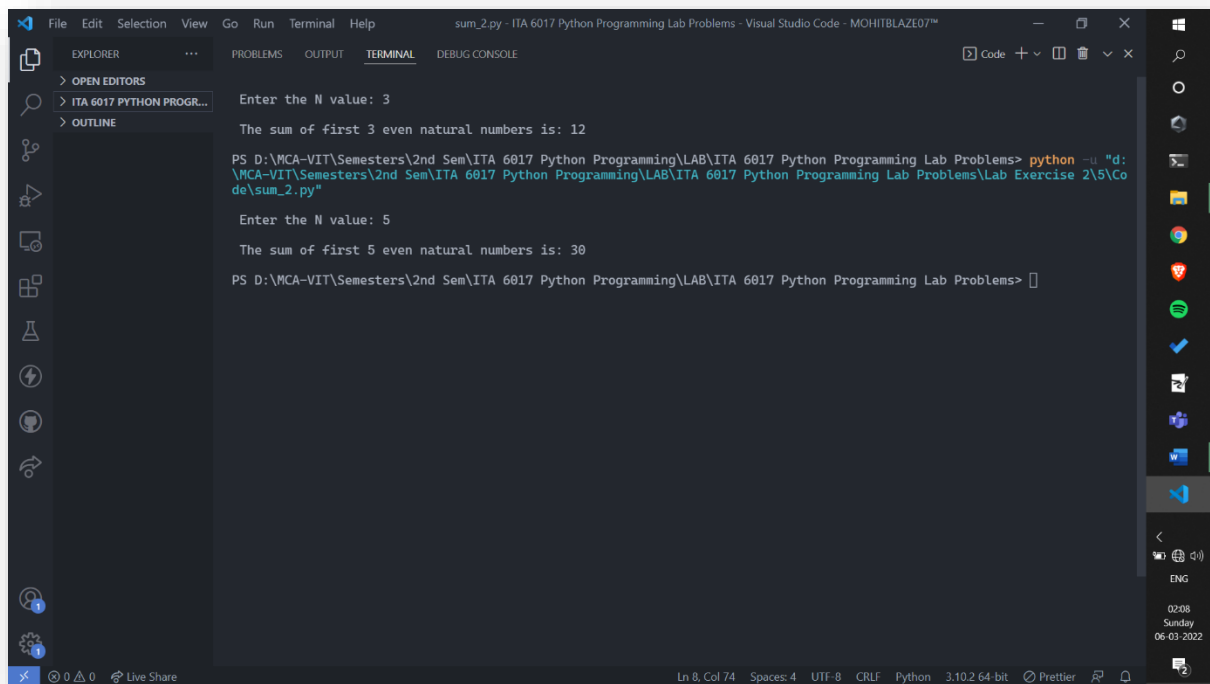
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2.

### CODE:

```
counter = int( input( "\n Enter the N value: " ) )
sum = 0
initialVal = 2
for i in range( 1, counter + 1):
    sum += initialVal
    initialVal += 2
print("\n The sum of first",counter, "even natural
numbers is:",sum,"\n")
```

### SCREENSHOT OF OUTPUT:



```
sum_2.py - ITA 6017 Python Programming Lab Problems - Visual Studio Code - MOHITBLAZE07™

EXPLORER
> OPEN EDITORS
> ITA 6017 PYTHON PROGR...
> OUTLINE

TERMINAL
Enter the N value: 3
The sum of first 3 even natural numbers is: 12

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\5\Code\sum_2.py"

Enter the N value: 5
The sum of first 5 even natural numbers is: 30

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems>
```

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Q.6 A palindromic number (also known as a numeral palindrome or a numeric palindrome) is a number (such as 16461) that remains the same when its digits are reversed. Write an algorithm/pseudo code, draw a flow chart and write the python code to check whether the given number is palindrome or not. Check boundary conditions and print 'Invalid input' for wrong input.

**Boundary Condition:**

Number>0

### CODE:

```
number = int( input( "\n Enter the number: " ) )

dummyNumber = number
reversedNumber = 0
while number > 0:
    lastDigit = int(number%10)
    reversedNumber = reversedNumber * 10 +
lastDigit
    number = int(number/10)

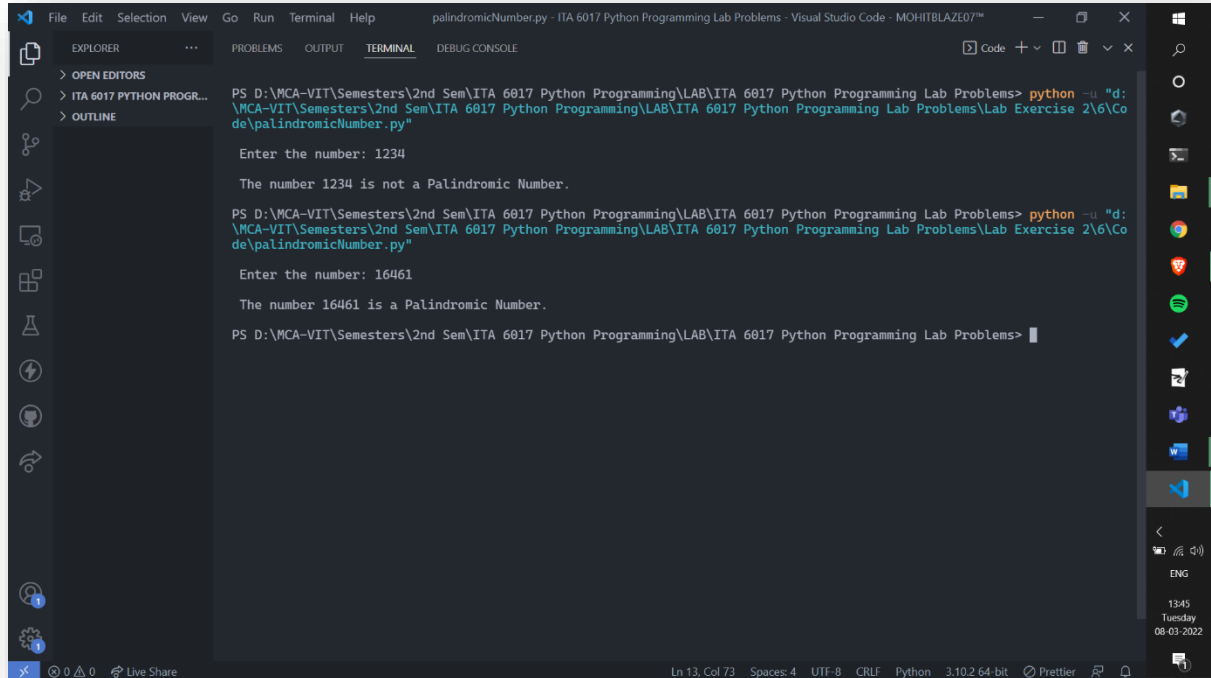
if reversedNumber == dummyNumber:
    print("\n The number",dummyNumber ,"is a
Palindromic Number.\n")
else:
    print("\n The number",dummyNumber ,"is not a
Palindromic Number.\n")
```

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## SCREENSHOT OF OUTPUT:



```
palindromicNumber.py - ITA 6017 Python Programming Lab Problems - Visual Studio Code - MOHITBLAZE07™
EXPLORER  PROBLEMS  OUTPUT  TERMINAL  DEBUG CONSOLE
> OPEN EDITORS
> ITA 6017 PYTHON PROGR...
> OUTLINE

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\6\Code\palindromicNumber.py"

Enter the number: 1234

The number 1234 is not a Palindromic Number.

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\6\Code\palindromicNumber.py"

Enter the number: 16461

The number 16461 is a Palindromic Number.

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> 
```

Q.7

Draw a flow chart and write a python pseudo-code, program to print the following pattern. Get input as a number of rows from the user. Display "Invalid input" if the boundary condition fails.

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

## CODE:

```
rows = int(input("\n Enter the number of rows: " )
)
if rows <= 0:
    print("\nInvalid Input!\n")
else:
    print()
```

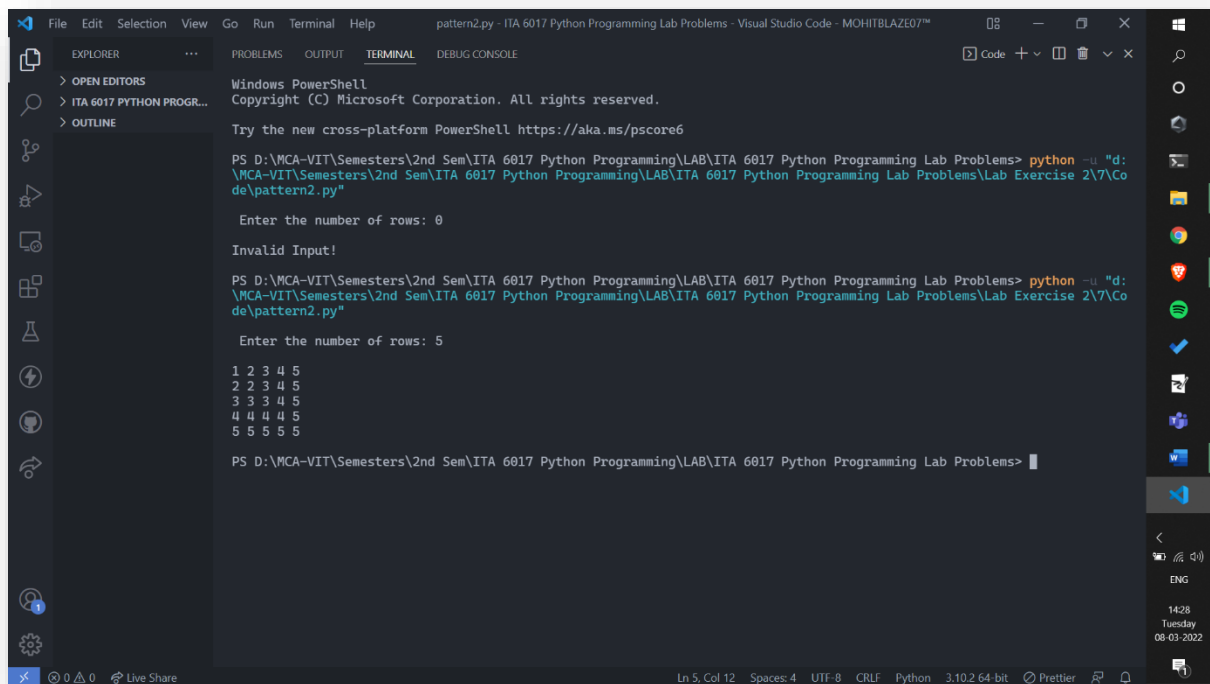
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```
for i in range(1, rows+1):
    for j in range(1, rows+1):
        if j <= i:
            print(i, end=" ")
        else:
            print(j, end = " ")
    print()
print()
```

### SCREENSHOT OF OUTPUT:



```
pattern2.py - ITA 6017 Python Programming Lab Problems - Visual Studio Code - MOHITBLAZE07™
File Edit Selection View Go Run Terminal Help
EXPLORER PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE
> OPEN EDITORS
> ITA 6017 PYTHON PROGR...
> OUTLINE

Windows PowerShell
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PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\Code\pattern2.py"

Enter the number of rows: 0

Invalid Input!

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\Code\pattern2.py"

Enter the number of rows: 5

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

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> 
```

Q.8 Develop an algorithm and write the Python code to print the following pattern. Check boundary conditions and print 'Invalid input' for wrong output.

```
*
***
*****
*****
```

**Boundary Condition:**

$n > 0$

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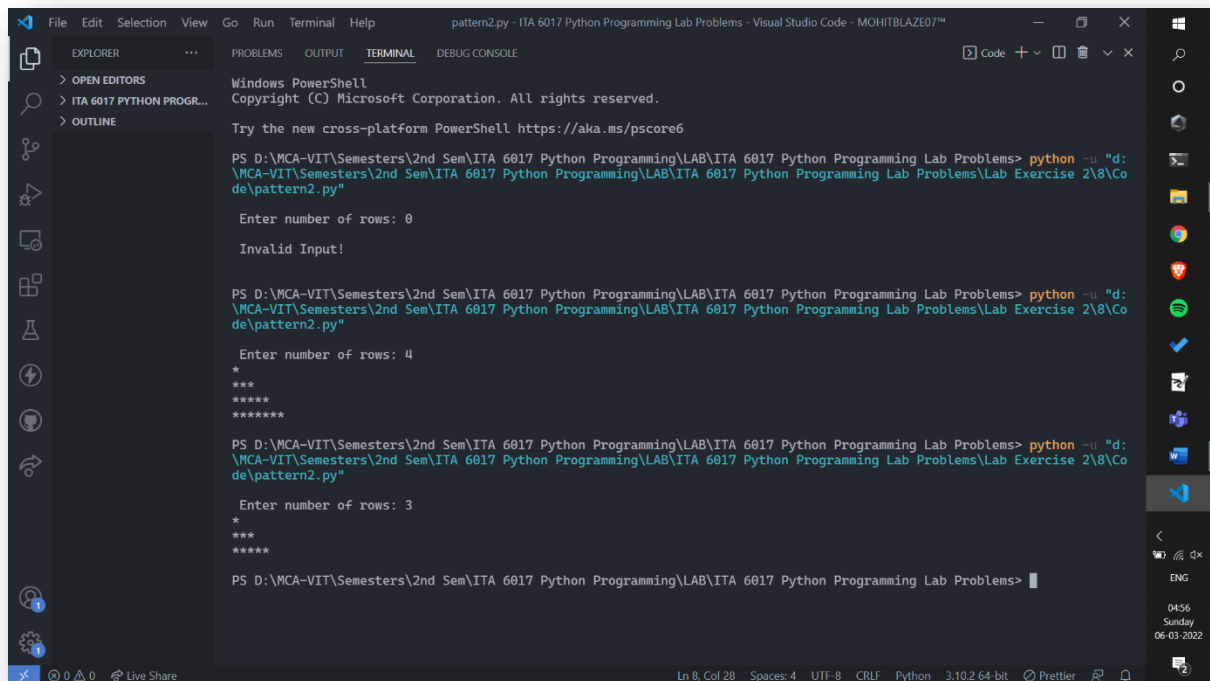
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## CODE:

```
rows = int( input("\n Enter number of rows: "))
if rows <= 0:
    print("\n Invalid Input!\n")
else:
    count = 1
    for i in range( 1, rows + 1 ):
        for j in range( 1, count+1):
            print("*",end=" ")
        count += 2
        print()
print()
```

## SCREENSHOT OF OUTPUT:



```
pattern2.py - ITA 6017 Python Programming Lab Problems - Visual Studio Code - MOHITBLAZE07™
EXPLORER
> OPEN EDITORS
> ITA 6017 PYTHON PROGR...
> OUTLINE
PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\8\Code\pattern2.py"

Enter number of rows: 0

Invalid Input!

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\8\Code\pattern2.py"

Enter number of rows: 4
*
***
*****
*****

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\8\Code\pattern2.py"

Enter number of rows: 3
*
***
*****

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems>
```

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MOHIT PAL

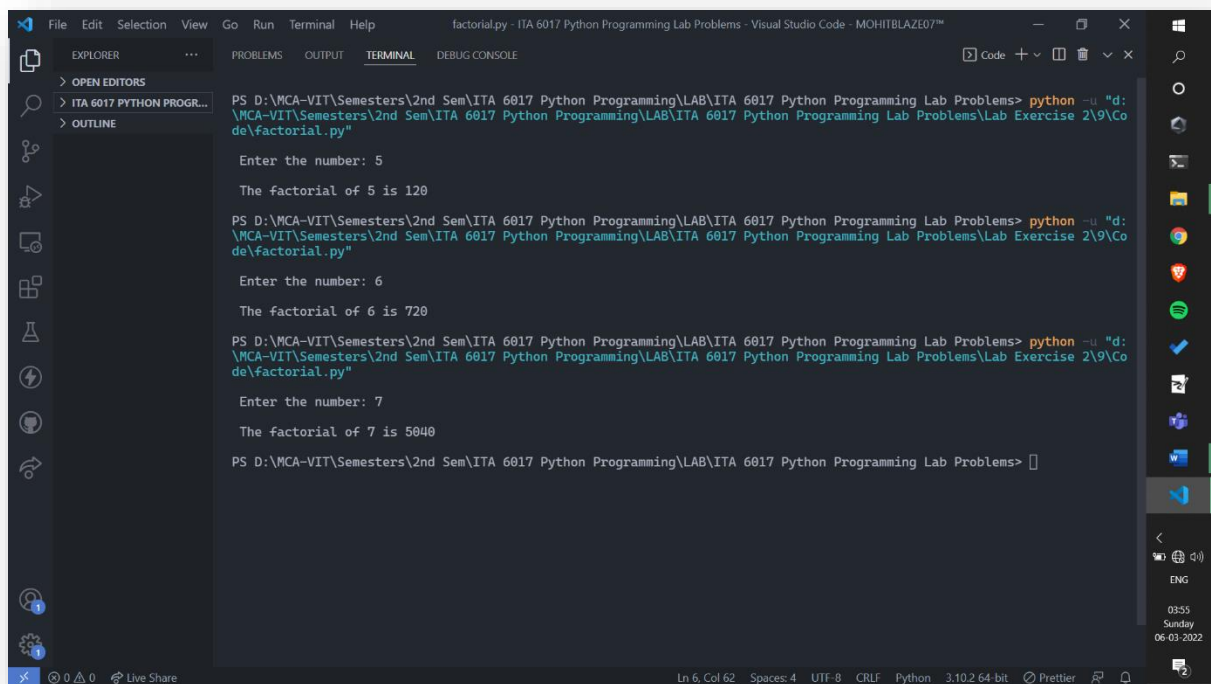
Q.9 Write a python code to find the factorial of the given number.

### CODE:

```
number = int( input( "\n Enter the number: " ) )
factorialResult = 1

for count in range( number, 0, -1 ):
    factorialResult *= count
print("\n The factorial
of",number,"is",factorialResult,"\n")
```

### SCREENSHOT OF OUTPUT:



```
factorial.py - ITA 6017 Python Programming Lab Problems - Visual Studio Code - MOHITBLAZE07™

> OPEN EDITORS
> ITA 6017 PYTHON PROGR...
> OUTLINE

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:
\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\9\Co
de\factorial.py"

Enter the number: 5

The factorial of 5 is 120

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:
\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\9\Co
de\factorial.py"

Enter the number: 6

The factorial of 6 is 720

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:
\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\9\Co
de\factorial.py"

Enter the number: 7

The factorial of 7 is 5040

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> 
```



Submitted By:

21MCA0132

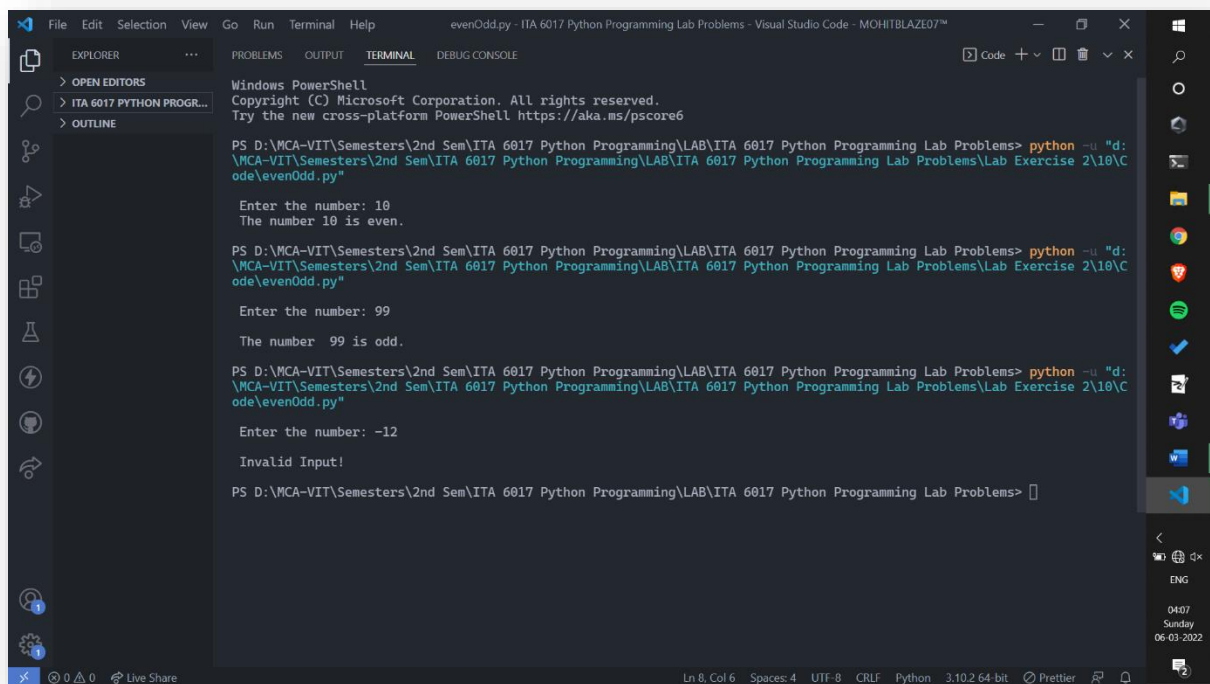
MOHIT PAL

Q.10 Write a python code to check whether a given number of odd or even.

### CODE:

```
number = int( input( "\n Enter the number: " ) )
print()
if number < 0:
    print(" Invalid Input!\n")
elif number % 2 == 0:
    print(" The number", number, "is even.\n")
else:
    print(" The number ", number, "is odd.\n")
```

### SCREENSHOT OF OUTPUT:

The screenshot shows the Visual Studio Code interface with a terminal window open. The terminal displays the execution of a Python script named 'evenOdd.py'. The script prompts the user to enter a number. Three test cases are shown: 10 (even), 99 (odd), and -12 (invalid input). The terminal output matches the expected behavior of the code.

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.
Try the new cross-platform PowerShell https://aka.ms/pscore6

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -i "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\10\Code\evenOdd.py"

Enter the number: 10
The number 10 is even.

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -i "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\10\Code\evenOdd.py"

Enter the number: 99
The number 99 is odd.

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -i "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\10\Code\evenOdd.py"

Enter the number: -12
Invalid Input!

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> 
```

Submitted By:

21MCA0132

MOHIT PAL

Q.11 Write a python program to segregate student based on their CGPA as outstanding, excellent, good, average, better and poor.

### CODE:

```
cgpa = int( input( "\n Enter the CGPA: " ) )

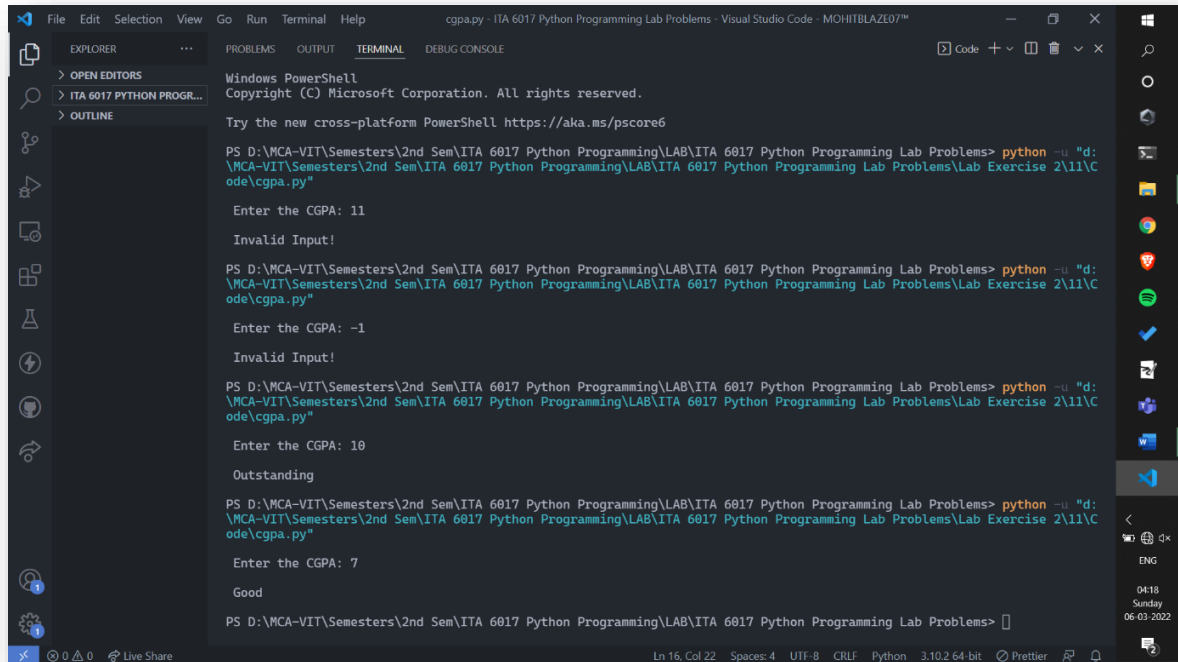
if cgpa < 0 or cgpa > 10:
    print("\n Invalid Input!\n")
elif cgpa <= 10 and cgpa >= 9:
    print("\n Outstanding\n")
elif cgpa < 9 and cgpa >= 8:
    print("\n Excellent\n")
elif cgpa < 8 and cgpa >= 7:
    print("\n Good\n")
elif cgpa < 7 and cgpa >= 6:
    print("\n Average\n")
elif cgpa < 6 and cgpa >= 5:
    print("\n Better\n")
elif cgpa < 5:
    print("\nPoor\n")
```

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## SCREENSHOT OF OUTPUT:



```
Windows PowerShell
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PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\11\Code\cgpa.py"

Enter the CGPA: 11

Invalid Input!

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\11\Code\cgpa.py"

Enter the CGPA: -1

Invalid Input!

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\11\Code\cgpa.py"

Enter the CGPA: 10

Outstanding

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\11\Code\cgpa.py"

Enter the CGPA: 7

Good

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems>
```

Q.12 Write a python script that accepts 5 numbers form the user. It then prints one of the two things: if any of the values entered are duplicates, print DUPLICATES otherwise, it prints ALL UNIQUE.

## CODE:

```
a = int( input("\n Enter the first value: ") )
b = int( input("\n Enter the second value: ") )
c = int( input("\n Enter the third value: ") )
d = int( input("\n Enter the fourth value: ") )
e = int( input("\n Enter the fifth value: ") )

if a == b or a == c or a == d or a == e or b == c
or b == d or b == e or c == d or c == e or d == e:
    print("\n DUPLICATES\n")
else:
    print("\n ALL UNIQUE \n")
```

Submitted By:

21MCA0132

MOHIT PAL

## SCREENSHOT OF OUTPUT:

```
Windows PowerShell
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PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\12\Code\duplicateValues.py"

Enter the first value: 10
Enter the second value: 20

Enter the third value: 39

Enter the fourth value: 54

Enter the fifth value: 54

DUPLICATES

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\12\Code\duplicateValues.py"

Enter the first value: 11
Enter the second value: 12

Enter the third value: 34

Enter the fourth value: 33

Enter the fifth value: 12

DUPLICATES

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\12\Code\duplicateValues.py"
```

```
Enter the third value: 39

Enter the fourth value: 54

Enter the fifth value: 54

DUPLICATES

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\12\Code\duplicateValues.py"

Enter the first value: 11
Enter the second value: 12

Enter the third value: 34

Enter the fourth value: 33

Enter the fifth value: 12

DUPLICATES

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\12\Code\duplicateValues.py"

Enter the first value: 12
Enter the second value: 1344

Enter the third value: 134443

Enter the fourth value: 1344

Enter the fifth value: 90

DUPLICATES

PS D:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems> python -u "d:\MCA-VIT\Semesters\2nd Sem\ITA 6017 Python Programming\LAB\ITA 6017 Python Programming Lab Problems\Lab Exercise 2\12\Code\duplicateValues.py"
```