

SOLUTION

1. Write a program to compute the wages of a daily laborer as per the following rules :-

Hours Worked Rate Applicable Upto first 8 hrs Rs100/-

a) For next 4 hrs Rs30/- per hr extra

b) For next 4 hrs Rs40/- per hr extra

c) For next 4 hrs Rs50/- per hr extra

d) For rest Rs60/- per hr extra

Solution

```
initWage=100
```

```
tempHour=0
```

```
tempWage=0
```

```
totalWage=0
```

```
name=input("Enter Name of Labourer:")
```

```
hours=int(input("Enter total hours worked:"))
```

```
if hours<=8:
```

```
    totalWage = initWage
```

```
elif (hours>8) and (hours<=12):
```

```
    tempHour = hours-8
```

```
    tempWage = tempHour*30
```

```
    totalWage =tempWage + initWage
```

```
elif hours>12 and hours<=16:
    tempHour = hours-12
    tempWage = 4*30
    totalWage = initWage + tempWage + (tempHour*40)
elif hours>16 and hours<=20:
    tempHour = hours-16
    tempWage = (4*30) + (4*40)
    totalWage = initWage + tempWage + (tempHour*50)
else:
    tempHour = hours-20
    tempWage = (4*30) + (4*40) + (4*50)
    totalWage = initWage + tempWage + (tempHour*60)

print("Total Wage:", totalWage);
```

Output:

Enter Name of Labourer: Amit

Enter total hours worked:15

Total Wage: 340

OR

Write a program to multiply two numbers by repeated addition

e.g. $6*7 = 6+6+6+6+6+6+6$

Solution

```
num1=int(input("Enter First numbers:"))
num2=int(input("Enter Second numbers:"))
i=1
ml=0
while(i <= num2):
    ml=ml+num1
    i=i+1
print("Multiplication of:",num1,"&",num2,"is",ml)
```

2. Write a function to obtain sum n terms of the following series for any positive integer value of X
 $X + X^3 / 3! + X^5 / 5! + X^7 / 7! + \dots$

Solution

```
import math
n= int(input("Enter range : "))
x=2
i=1
sum=0
for p in range(n):
    sum=sum+((x*i)/math.factorial(i))
    i=i+2
print("The sum of series is:",sum)
```

OR

Write a program to print all Armstrong numbers in a given range. Note: An Armstrong number is a number whose sum of cubes of digits is equal to the number itself. E.g. $370=3^3+7^3+0^3$

Solution

```
lower_Range = int(input("Enter lower range : "))
upper_Range = int(input("Enter upper range : "))
for n in range(lower_Range,upper_Range + 1):
    sum = 0
    temp = n
    while temp > 0:
        digit = temp % 10
        sum = sum + digit ** 3
        temp = temp // 10
    if n == sum:
        print(n)
```

3. Write a program that takes in a sentence as input and displays the number of words, number of capital letters, no. of small letters and number of special symbols.

Solution

```
str=input("Enter String: ")
wCount = 0
lCount = 0
upper=0
```

```
lower=0
special=0
num=0
len = len(str)
for i in range(len):
    ch = str[i]
    if (ch == ' '): #Word Count
        wCount+=1
    elif(str[i]>='A' and str[i]<='Z'): #check upper case letters
        upper+=1
    elif(str[i]>='a' and str[i]<='z'): #check lower case letter
        lower+=1
    elif(str[i]>='1' and str[i]<='9'): #check numeric value
        num+=1
    else:
        special+=1 #check special character
wCount+=1
print("No. of words = ", wCount)
print("Upper case letters: ",upper)
print("Lower case letters: ",lower)
print("Numbers: ",num)
print("Special characters: ",special)
```

Output:

Enter String: Welcome to GyanXp YouTube Channel @123

No. of words = 6

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Upper case letters: 6

Lower case letters: 24

Numbers: 3

Special characters: 1

OR

Write a Python program to combine two dictionary adding values for common keys.

```
d1 = {'a': 100, 'b': 200, 'c':300}
```

```
d2 = {'a': 300, 'b': 200, 'd':400}
```

Sample output: Counter({'a': 400, 'b': 400, 'd': 400, 'c': 300})

Solution

```
from collections import Counter
```

```
d1 = {'a': 100, 'b': 200, 'c':300}
```

```
d2 = {'a': 300, 'b': 200, 'd':400}
```

```
d = Counter(d1) + Counter(d2)
```

```
print(d)
```

Output:

```
Counter({'a': 400, 'b': 400, 'd': 400, 'c': 300})
```