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In [1]: str1 = ' Hello World! '
str2 = " Welcome To String! "
str3 = '''
This is a Multi Line Strings
This is third line of string.
'''
print('The First String is :',str1)
print('The Second String is : ',str2)
print('The Third String is : ',str3)

The First String is :  Hello World!
The Second String is :  Welcome To String!
The Third String is :
This is a Multi Line Strings
This is third line of string.
```

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Q2.For a given string ‘Hello World!’, extract the following:

- a.H W
- b.o o
- c.llorld
- d.!dlroW olleH
- e.World!
- f.Hello

```
In [2]: My_string = 'Hello World!'
print('My string is :',My_string)
print('My string is :',My_string[0] + ' ' + My_string[6])
print('My string is :',My_string[4] + ' ' + My_string[7])
print('My string is :',My_string[2:5] + My_string[8:11])
print('My string is :',My_string[:-1])
print('My string is :',My_string[6:12])
print('My string is :',My_string[0:5])

My string is : Hello World!
My string is : H W
My string is : o o
My string is : llorld
My string is : !dlroW olleH
My string is : World!
My string is : Hello
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Q3.For the following strings, determine which contain only alphabets, only digits, alphanumeric, which are in lowercase, and which are in uppercase. Also check whether str3 begins or ends with the word “Now”.

- Str1 = ‘Welcome’
- Str2 = ‘Hello World!’
- Str3 = ‘Now is the best time ever! ’
- Str4 = ‘500017’
- Str5 = ‘Iphone 6’

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In [3]: #Following strings
str1='welcome'
print('str1:',str1)
print('str1.alpha():',str1.isalpha())

#Upper case:
str2='Hello world!'
print('str2:',str2)
print('str2.upper():',str2.upper())

#Lower case:
print('str2:',str2)
print('str2.lower():',str2.lower())

#Digit:
str4='500017'
print('str4:',str4)
print('str4.str4.isdigit():',str4.isdigit())

#Alphanumeric:
str5='iphone 6'
print('str5:',str5)
print('str5.isalnum():',str5.isalnum())

#Startswith and endswith:
str3='Now is the best time ever'
print('str3:',str3)
print('str3.startswith():',str3.startswith('Now'))

#ends with
str3='Now is the best time ever'
print('str3:',str3)
print('str3.endswith():',str3.endswith('Now'))

str1: str1
str1.alpha(): True
str2: Hello world!
str2.upper(): HELLO WORLD!
str2: Hello world!
str2.lower(): hello world!
str4: 500017
str4.str4.isdigit(): True
str5: iphone 6
str5.isalnum(): False
str3: Now is the best time ever
str3.startswith(): True
str3: Now is the best time ever
str3.endswith(): False
```

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Q4.Accept a sentence from the user. Convert the case of the input into title case

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In [4]: #Convert into the title case:
name='hello this is Aravindh'.title()
print(name)

Hello This Is Aravindh
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Q5.Write a program that reads an integer from the user. Then your program should display a message indicating whether the integer is even or odd.

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In [5]: #check whether an integer is even or odd:
n=int(input('Enter a integer:'))
if n%2==0:
    print('The number',n,'is even')
else :
    print('The number',n,'is odd')

n=int(input('Enter a integer:'))
if n%2==0:
    print('The number',n,'is even')
else :
    print('The number',n,'is odd')

Enter a integer:24
The number 24 is even
Enter a integer:25
The number 25 is odd
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Q6. Create a program that reads a letter of the alphabet from the user. If the user enters a, e, i, o or u then your program should display a message indicating that the entered letter is a vowel. Otherwise, the program should display a message that the entered letter is a consonant

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In [6]: #The entered letter is consonants:
str=input('Enter a string:')
if (str=='a' or str=='e' or str=='i' or str=='o' or str=='u'):
    print('vowels')
else:
    print('consonants')

Enter a string:g
consonants
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Q7. The length of a month varies from 28 to 31 days. Create a program that reads the name of a month from the user as a string. Then your program should display the number of days in that month. Display “28 or 29 days” for February so that leap years is addressed.

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In [7]: #Name of a month and the number of days in the month:
month=input('Enter the name of a month:')
if month=='January' or month=='March' or month=='May' or month=='August' or month=='October' or month=='December':
    print(month,'has 31 days')
elif month=='April' or month=='June' or month=='September' or month=='November':
    print(month,'has 30 days')
elif month=='February':
    print(month,'has 28 or 29 days')

Enter the name of a month:March
March has 31 days
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In [8]: #Name of a month and the number of days in the month:
month=input('Enter the name of a month:')
if month=='January' or month=='March' or month=='May' or month=='August' or month=='October' or month=='December':
    print(month,'has 31 days')
elif month=='April' or month=='June' or month=='September' or month=='November':
    print(month,'has 30 days')
elif month=='February':
    print(month,'has 28 or 29 days')

Enter the name of a month:June
June has 30 days
```

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In [9]: #Name of a month and the number of days in the month:
month=input('Enter the name of a month:')
if month=='January' or month=='March' or month=='May' or month=='August' or month=='October' or month=='December':
    print(month,'has 31 days')
elif month=='April' or month=='June' or month=='September' or month=='November':
    print(month,'has 30 days')
elif month=='February':
    print(month,'has 28 or 29 days')

Enter the name of a month:February
February has 28 or 29 days
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Q8.A triangle can be classified based on the lengths of its sides as equilateral, isosceles or scalene. All 3 sides of an equilateral triangle have the same length. An isosceles triangle has two sides that are the same length, and a third side that is a different length. If all of the sides have different lengths then the triangle is scalene. Write a program that reads the lengths of 3 sides of a triangle from the user. Display a message indicating the type of the triangle.

```
In [10]: #Indicating the triangle type of side :
x=input('Enter side1:')
y=input('Enter side2:')
z=input('Enter side3:')
if x ==y==z:
    print('Equilateral')
elif x==y or y==z or z==x:
    print('isosceles triangle')
else:
    print('scalene triangle')

Enter side1:6
Enter side2:5
Enter side3:12
scalene triangle
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Q9.The rules for determining whether or not a year is a leap year follow:

Any year that is divisible by 400 is a leap year.

Of the remaining years, any year that is divisible by 100 is not a leap year.

Of the remaining years, any year that is divisible by 4 is a leap year.

All other years are not leap years.

Write a program that reads a year from the user and displays a message indicating whether or not it is a leap year.

```
In [11]: leapYear = int(input("Input a Year "))

if leapYear %4 == 0:
    print("Its a leap year")
else:
    print ("Its a normal year")

Input a Year 2015
Its a normal year
```

Q10.Write a program that computes the real roots of a quadratic function. Your program should begin by prompting the user for the values of a, b and c. Then it should display a message indicating the number of real roots, along with the values of the real roots (if any).

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In [13]: #The values of the real root:
import math
a=int(input('Enter a value of quadratic equation:'))
b=int(input('Enter b value of quadratic equation:'))
c=int(input('Enter c value of quadratic equation:'))
discriminant=(b*b)-(4*a*c)
if (discriminant>0):
    root1=(-b + math.sqrt(discriminant))/(2*a))
    root2=(-b - math.sqrt(discriminant))/(2*a))
    print("Two distinct real roots exists:root1=%2f and root2=%2f" %(root1,root2))
elif (discriminant==0):
    root=root2=-b/(2*a)
    print("Two distinct equal and real roots exists:root1=%2f and root2=%2f" %(root1,root2))
elif (discriminant<0):
    root=root2=-b/(2*a)
    imaginary= math.sqrt(-(discriminant))/(2*a)
    print("Two distinct complex rootsexists:root1=%2f+%.2fandroot2=%2f-%.2f"%(root1,imaginary,root2,imaginary))

Enter a value of quadratic equation:25
Enter b value of quadratic equation:30
Enter c value of quadratic equation:-15
Two distinct real roots exists:root1=-29.08204 and root2=-30.979796
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