

```
In [1]: #python is a case sensitive language  
print("hello world")
```

hello world

```
In [2]: print("radha krsna")
```

radha krsna

```
In [3]: print(7)
```

7

```
In [4]: print(7.7)
```

7.7

```
In [5]: print("True")
```

True

```
In [6]: print("hello",1,4.5,True)
```

hello 1 4.5 True

```
In [7]: print("hello",1,4.5,True,sep="/")
```

hello/1/4.5/True

```
In [9]: print("hello")  
print("world")
```

hello  
world

## 2.DATA TYPES

```
In [10]: #integer  
print(8)
```

8

```
In [11]: #1*10^1e309  
print(1e309)
```

inf

```
In [12]: #decimal/Float  
print(8.55)  
print(1.7e309)
```

8.55  
inf

```
In [13]: #boolean  
print(True)  
print(False)
```

True  
False

```
In [14]: #text/ string  
print("krsna is supream lord")
```

krsna is supream lord

```
In [16]: #complex  
print(5+5j)
```

(5+5j)

```
In [18]: #list -> c->Array  
print([1,2,3,4,5])
```

[1, 2, 3, 4, 5]

```
In [19]: #tuple  
print((1,2,3,4,5))
```

(1, 2, 3, 4, 5)

```
In [20]: #sets  
print({1,2,3,45})
```

{1, 2, 3, 45}

```
In [21]: #dictionary  
print({"name": "krsna", "lord": "vishnu"})
```

{'name': 'krsna', 'lord': 'vishnu'}

```
In [22]: #type  
type([1,2,3,4])
```

Out[22]: list

## 3.Variable

```
In [23]: #static vs dynamic typing  
#static vs dynamic binding  
#stylish declaration techniques
```

```
In [24]: #c/c++  
name="radha"  
print(name)
```

radha

```
In [25]: a=5  
b=5  
print(a+b)
```

10

```
In [34]: #dynamic typing  
a = 6  
#static typing  
print(a)
```

6

```
In [35]: a=5  
print(a)  
a="krsna"  
print(a)
```

5  
krsna

```
In [36]: a,b,c=1,2,3  
print(a)  
print(b)  
print(c)
```

1  
2  
3

## comments

```
In [40]: #this is a comment  
#second comment  
a=4  
b=6#like this  
#second comment  
print(a+b)
```

10

## 4. keyword and identifiers

```
In [41]: #keywords
```

```
In [42]: #identifiers  
#you can't start with a digit  
name1="krsna"  
print(name1)
```

krsna

```
In [44]: #you can use special chars -> _  
_="radha"  
print(_)
```

radha

```
In [45]: #identifies is not be keyword
```

## temp heading

```
In [47]: #static vs dynamic  
input("enter email :")
```

enter email :alkapandey80858085@gmail.com

```
Out[47]: 'alkapandey80858085@gmail.com'
```

```
In [67]: fnum = float(input("Enter first number: "))  
snum = float(input("Enter second number: "))  
  
# Add the two variables  
result = fnum + snum  
  
# Print the result  
print("The sum is:", result)  
print(type(fnum)) # Corrected variable name from 'fnum' to 'num1'
```

Enter first number: 45  
Enter second number: 56  
The sum is: 101.0  
<class 'float'>

```
In [ ]:
```

## 6.type conversion

```
In [70]: #implicit vs explicit  
print(type(5+5.6))
```

<class 'float'>

```
In [71]: #explicit  
  
#str -> int  
#int(4+5j)  
  
#int to str  
str(5)
```

```
Out[71]: '5'
```

## 7.literals

```
In [73]: a=0b1010 #binary literals
b=100#decimal literals
c=0o310#octal literal
d=0x12c#hexadecimal literal
#float literal
float_1=10.5
float_2=1.5e2 #1.5 *10^2
float_3=1.5e-3 #1.5 *10^-3
#complex literals
x=3.14j
print(a,b,c,d)

print(float_1,float_2,float_3)
print(x,x.imag,x.real)
```

```
10 100 200 300
10.5 150.0 0.0015
3.14j 3.14 0.0
```

```
In [75]: #binary

x=3.14j
print(x.imag)
```

```
3.14
```

```
In [76]: a=True+4
b=False+10
print("a :",a)
print("b : ",b)
```

```
a : 5
b : 10
```

```
In [77]: k=None
a=5
b=6
print("program exe")
```

```
program exe
```

## Task 1

**Q1. print the given string as per stated formate.**

```
In [78]: print("Data","science","mentorship","program",sep="-")
```

```
Data-science-mentorship-program
```

**Q2.write a program that will convert celsius to**

~~fahrenheit~~

```
In [80]: celsius=34.5
fahrenheit=(celsius*1.8)+32
print("0%.1f degree celsius is equal to 0%.1f degree fahrenheit" %(celsius,f
034.5 degree celsius is equal to 94.1 degree fahrenheit
```

### Q3. take 2 numbers as input from the user. write a program to swap the numbers without using any special python syntax

```
In [81]: # Get two numbers from the user
num1 = float(input("Enter the first number: "))
num2 = float(input("Enter the second number: "))

# Display the original numbers
print("Original numbers: num1 =", num1, ", num2 =", num2)

# Swap the numbers without using a third variable
num1 = num1 + num2
num2 = num1 - num2
num1 = num1 - num2

# Display the swapped numbers
print("Swapped numbers: num1 =", num1, ", num2 =", num2)
```

```
Enter the first number: 5
Enter the second number: 6
Original numbers: num1 = 5.0 , num2 = 6.0
Swapped numbers: num1 = 6.0 , num2 = 5.0
```

### Q4 write a python program to find the euclidean distance between two coordinates. take both the coordinates from the user as input

```
In [82]: # Get the coordinates from the user
x1 = float(input("Enter the x-coordinate of point 1: "))
y1 = float(input("Enter the y-coordinate of point 1: "))
x2 = float(input("Enter the x-coordinate of point 2: "))
y2 = float(input("Enter the y-coordinate of point 2: "))

# Calculate the Euclidean distance
distance = ((x2 - x1) ** 2 + (y2 - y1) ** 2) ** 0.5

# Display the result
print(f"The Euclidean distance between ({x1}, {y1}) and ({x2}, {y2}) is: {di
```

```
Enter the x-coordinate of point 1: 56
Enter the y-coordinate of point 1: 98
Enter the x-coordinate of point 2: 89
Enter the y-coordinate of point 2: 45
The Euclidean distance between (56.0, 98.0) and (89.0, 45.0) is: 62.433965
115151864
```

## ##Q5.write a program to find the simple interest when the value of principle, rate of interest and time period is provided by the user.

```
In [83]: # Get the input from the user
principal = float(input("Enter the principal amount: "))
rate_of_interest = float(input("Enter the rate of interest (in percentage): "))
time_period = float(input("Enter the time period (in years): "))

# Calculate simple interest
simple_interest = (principal * rate_of_interest * time_period) / 100

# Display the result
print(f"The simple interest for principal ${principal}, at {rate_of_interest
```

```
Enter the principal amount: 458900
Enter the rate of interest (in percentage): 20
Enter the time period (in years): 5
The simple interest for principal $458900.0, at 20.0% interest, over 5.0 y
ears is: $458900.0
```

## Q6. write a program that will tell the number of dogs and chicken are there when the user will provide the value of total heads and legs

```
In [85]: # Get input from the user
total_heads = float(input("Enter the total number of heads: "))
total_legs = float(input("Enter the total number of legs: "))

# Calculate the number of dogs and chickens
# Assuming each dog has 4 legs and each chicken has 2 legs
# The total number of legs equation: 4 * num_dogs + 2 * num_chickens = total

# Solving the equations to find the number of dogs and chickens
num_chickens = (4 * total_heads - total_legs) // 2
num_dogs = total_heads - num_chickens

# Display the result
print(f"There are {num_dogs} dogs and {num_chickens} chickens.")
```

```
Enter the total number of heads: 4
Enter the total number of legs: 4
There are -2.0 dogs and 6.0 chickens.
```

## Q7.write a program to find the sum of squares of first n natural numbrs where n will be provided by the user

```
In [89]: # Get input from the user
n = 2

# Calculate the sum of squares
sum_of_squares = sum(i ** 2 for i in range(1, n + 1))

# Display the result
print(f"The sum of squares of the first {n} natural numbers is: {sum_of_squares}")
```

The sum of squares of the first 2 natural numbers is: 5

## Q8 given the first 2 terms of an arithmetic series. find the nth term of the series. assume all inputs are provided by the user.

```
In [91]: # Get input from the user
first_term = float(input("Enter the first term of the arithmetic series: "))
second_term = float(input("Enter the second term of the arithmetic series: "))
common_difference = float(input("Enter the common difference: "))
n = float(input("Enter the value of n for the nth term: "))

# Calculate the nth term
nth_term = first_term + (n - 1) * common_difference

# Display the result
print(f"The {n}th term of the arithmetic series is: {nth_term}")
```

Enter the first term of the arithmetic series: 4  
Enter the second term of the arithmetic series: 5  
Enter the common difference: 6  
Enter the value of n for the nth term: 7  
The 7.0th term of the arithmetic series is: 40.0



## Q9. given 2 fractions, find the sum of those 2 fractions .take the numerator and denominator values of the fractions fromm the user

```
In [*]: # Get input for the first fraction
numerator1 = float(input("Enter the numerator of the first fraction: "))
denominator1 = float(input("Enter the denominator of the first fraction: "))

# Get input for the second fraction
numerator1= float(input("Enter the numerator of the second fraction: "))
denominator2 = float(input("Enter the denominator of the second fraction: "))

# Calculate the sum of fractions
# Formula: (a/b) + (c/d) = (ad + bc) / bd
sum_numerator = numerator1 * denominator2 + numerator2 * denominator1
sum_denominator = denominator1 * denominator2

# Display the result
print(f"The sum of {numerator1}/{denominator1} and {numerator2}/{denominator2} is {sum_numerator}/{sum_denominator}")
```

## Q10.given the height, width and breadth of a milk tank, you have to find out how many glsses of milk can be obtained? assume all the inputs are provided by the users

```
In [*]: # Get input from the user
height = float(input("Enter the height of the milk tank (in meters): "))
width = float(input("Enter the width of the milk tank (in meters): "))
breadth = float(input("Enter the breadth of the milk tank (in meters): "))
glass_volume = float(input("Enter the volume of a glass of milk (in liters): "))

# Calculate the total volume of the milk tank
tank_volume = height * width * breadth

# Calculate the number of glasses of milk
num_glasses = tank_volume / glass_volume

# Display the result
print(f"You can obtain {num_glasses:.2f} glasses of milk from the milk tank.")
```

In [ ]:

In [ ]: