Math library/Module

1 stap

import math

In [1]:
```
import math
dir(math) # it give all function
```

Out[1]:
```
['__doc__',
 '__loader__',
 '__name__',
 '__package__',
 '__spec__',
 'acos',
 'acosh',
 'asin',
 'asinh',
 'atan',
 'atan2',
 'atanh',
 'cbrt',
 'ceil',
 'comb',
 'copysign',
 'cos',
 'cosh',
 'degrees',
 'dist',
 'e',
 'erf',
 'erfc',
 'exp',
 'exp2',
 'expm1',
 'fabs',
 'factorial',
 'floor',
 'fmod',
 'frexp',
 'fsum',
 'gamma',
 'gcd',
 'hypot',
 'inf',
 'isclose',
 'isfinite',
 'isinf',
 'isnan',
 'isqrt',
 'lcm',
 'ldexp',
 'lgamma',
 'log',
 'log10',
 'log1p',
 'log2',
 'modf',
 'nan',
 'nextafter',
 'perm',
 'pi',
 'pow',
```

```
 'prod',
 'radians',
 'remainder',
 'sin',
 'sinh',
 'sqrt',
 'sumprod',
 'tan',
 'tanh',
 'tau',
 'trunc',
 'ulp']
```

In [4]:
```
print(math.pi)
```

```
3.141592653589793
```

In [5]:
```
print(math.sqrt(50))
```

```
7.0710678118654755
```

In [6]:
```
print(math.factorial(10))
```

```
3628800
```

In [7]:
```
import math as m
print(m.pi)
```

```
3.141592653589793
```

In [8]:
```
from math import *
print(sqrt(50)) # without using math or m
```

```
7.0710678118654755
```

In [34]:
```
#Q. WPP to find area of circle radius will be enter by user
import math
r=int(input("Enter radius:"))
print(math.pi*r*r)
```

```
78.53981633974483
```

In [33]:
```
# Cylinder area and volume
import math
h=int(input("Enter height:"))
r=int(input("Enter radius:"))

print("area is ", (2*math.pi*r*r + 2*math.pi*r*h))
print("Vol is ", math.pi*r*r*h)
```

```
area is  226.1946710584651
Vol is  251.32741228718345
```

In [32]:
```
# c=(F-32)*(5/9)
f=int(input("Enter tenp in f:"))
print((f-32)*(5/9))
```

```
100.0
```

In [31]:
```
c=float(input("Enter temp in c:"))
print((9/5)*c+32)
```

```
212.0
```

UNIT 2

Conditional Execution and Intration

1.simple if

In [ ]:
```
if condition:
    statment
```

2.if-else

In [ ]:
```
if condition:
    Action 1
else:
    Action 2
```

In [30]:
```
#eg
name=input("Enter Name:")
if name=="Arman":
    print("Hello Arman")
else:
    print("Hello",name)
print("print")
```

```
Hello Arman
print
```

3.if-elif-else

```
if condition:
    ...
elif condition:
    ...
else:
    ...
```

In [29]:
```
#eg
# max num
n1=int(input("Enter n1:"))
n2=int(input("Enter n2:"))
n3=int(input("Enter n3:"))
```

```
if n1>n2 and n1>n3:
    print("Biggest num:",n1)
elif n2>n3:
    print("Biggest num:",n2)
else:
    print("Biggest num:",n3)
```

```
Biggest num: 140
```

4.Nested if

In [28]:
```
x=41
if x>10:
    print("Above 10")
    if x>20:
        print("also above 20")
    else:
        print("but above 20")
```

```
Above 10
also above 20
```

Loops

1.for

2.while

1.for

```
syntex:
for x in sequance:
    body
```

In [27]:
```
#eg
s="Arman"
for i in s:
    print(i)
```

```
A
r
m
a
n
```

In [20]:
```
l=[11,33,22,44]
for i in l:
    print(i)
```

```
11
33
22
44
```

using range()

In [21]:
```
for i in range(len(l)):
    print(l[i])
```

```
11
33
22
44
```

2.while

In [ ]:
```
while condition:
    body
```

In [22]:
```
i=0
while i<5:
    print(i)
    i+=1
```

```
0
1
2
3
4
```

In [23]:
```
name=""
while name!="Arman":
    name=input("Enter name:")
print("Thanks")
```

```
Thanks
```

Nested loop

In [24]:
```
for i in range(3):
    for j in range(3):
        print(i,j)
```

```
0 0
0 1
0 2
1 0
1 1
1 2
2 0
2 1
2 2
```

Break

use to break loop

In [25]:
```
for i in range(10):
    if i==7:
        print("stop")
        break
    print(i)
```

```
0
1
2
3
4
5
6
stop
```

continue

for skip condition

In [26]:
```
for i in range(10):
    if i%2==0:
        continue
    print(i)
```

```
1
3
5
7
9
```

pass

In [24]:
```
if True:

print("hi")
```

```
  File "<ipython-input-24-747f0d9e2792>", line 3
    print("hi")
    ^
IndentationError: expected an indented block
```

In [25]:
```
if True:
    pass
print("hi")
```

```
hi
```

Q. WPP to check given charector is vowel or consont

In [2]:
```
c=input("Enter char:")
if c in 'aeiouAEIOU':
    print("vowel")
else:
    print("consonant")
```

```
vowel
```

In [34]:
```
n1=int(input("Enter number n1:"))
n2=int(input("Enter number n2:"))
s=input("Enter sign:")
if s=='+':
    print(n1+n2)
elif s=='-':
    print(n1-n2)
elif s=='*':
    print(n1*n2)
elif s=='/':
    print(n1/n2)
elif s=='^':
    print(n1**n2)
elif s=='%':
    print(n1%n2)
else:
    print("Enter velid sign")
```

```
Enter number n1:10
,Enter number n2:2
,Enter sign:^
,100
```

Q.

unit	price
first 100 unit	no charge
next 100 unit	Rs.5 per unit
After 200 unit	Rs.10 per unit

eg

350 unit
100 free
100-200 =500
200-350 = 1500
total 2000

In [7]:
```
unit=int(input("Enter units:"))
price=0;
if unit<=100:
    price=0
else:
    unit=unit-100
    if unit<=100:
        print(unit*5)
```

```
    else:
        unit=unit-100
        print(100*5 + x*10)
print(price)
```

```
2000
0
```

Q WPP to check given year leap year or not

In [8]:
```
year=int(input("Enter year:"))
if (year%4==0 and year%100!=0) or (year%400==0):
    print("leap year")
else:
    print("not a leap year")
```

```
leap year
```

Q. last digit is divesibal by 3 or not

In [9]:
```
n=int(input("Enter number"))
r=n%10
if r%3==0:
    print("yes")
else:
    print("No")
```

```
yes
```

Q. Keep asking the user to enter a number until they enter a three-digit number. Once a three-digit number is entered, print its middle digit

In [18]:
```
while True:
    n=int(input("Enter 3 digit number:"))
    c=0;
    n2=n;
    while n!=0:
        c=c+1
        n=n//10
    if c==3:
        n2=n2//10
        print(n2%10)
        break
```

```
2
```