Day Objectives

Date 21-Sept-2019

- yesterday Topics revision
- Operaters in Python
  - Arithematics operators (+,-,*,/,//,%,**)
  - Assignment operators (=,-=,+=,*=,/=,//=,%=)
  - Comparision operators (or) Relational operators (<,>,<=,>=,!=,==)
    - returns true or false
  - Logical operators (and,or,not)
  - Identity operators (is,isnot)
  - Membership operators (in,not in)
  - Bitwise operators (&&,||,^,~,<<,>>)
    - operates on bits
- Conditional Statements
  - if
  - if else
  - Nested if
  - elif
- Loops
  - For loop #There is no Do-while loop in python
  - while loop

Assignment operators:

In [16]:

```
#assignment operators (=,+=,-=,*=,/=,//=,**=)

a=10              #a=10
print(a)
a+=1              #a=11
print(a)
a-=2              #a=9
print(a)
a*=3              #a=27
print(a)
a/=2              #a=13.5
print(a)
a//=2             #a=6.0
print(a)
a**=2             #a=36.0
print(a)
```

```
10
11
9
27
13.5
6.0
36.0
```

In [7]:

```
#Comparision operators  (or) Relational operators  (<,>,<=,>=,!=,==)

p=10
q=15
print(p<q)
print(p<=q)
print(p>=q)
print(p>q)
print(p!=q)
print(p==q)
```

```
True
True
False
False
True
False
```

In [10]:

```
#Logical operators  (and,or,not)

print(10>5 and 2<1)
#       1  and  0  => false
print(10<4 or 15>3)
#       0  or  1   => true
a=10
print(not(a<5 and a>2)) #it is false but due to NOT it is true
```

```
False
True
True
```

In [14]:

```
#Bitwise operators  (&(and),|(or),^(ex-or),~(not),<<(left shift),>>(right shift))

a=10        # 10 = 1010
b=5         # 5  = 0101
print(a&b)  # output = (1*0 0*1 1*0 0*1) => 0000 => 0
print(a|b)  # output = (1+0 0+1 1+0 0+1) => 1111 => 15
print(~a)   # -(a+1) ==> -(10+1) => -11
```

```
0
15
-11
```

In [15]:

```
a=5
print(a>>1)     # take the digit as per the shifting requirement
print(a>>2)     # a>>(digit)
print(a<<2)
print(a<<1)

```

```
2
1
20
10
```

In [23]:

```
# * Conditional Statements
#     * if
#     * if else
#     * Nested if
#     * elif

# if condition:
#    Statements        # intendation should be maintained

# 1. To check whether the given number is even or odd number ?
# input : n=10
# output : 10 is even number
# Static way of implementation

n=int(input())
if n%2==0:
    print("%d is even number"%n)
else:print("%d is odd number"%n)
```

```
15
15 is odd number
```

In [25]:

```
a = 7
if a==7:
    print("Welcome")   # There is no relation between the welcome and apssdc statements
print("apssdc")
```

```
Welcome
apssdc
```

In [28]:

```
# if-else statement (syntax)

# if condition:
#     statement
# else:
#     statement

# write the pyton program to find the largest of two numbers
# input: a=10 b=20
# output: 20 is biggest value.

a=int(input())
b=int(input())
if a>b:
    print("%d is the largest value"%a)
else:print("%d is the largest value"%b)
```

```
10
15
15 is the largest value
```

Tasks : Programs on if else 1.write a python program to check whether the given number is positive or negative

2.write a program to check the given two numbers are equal or not? 3.write a python program to check leap year r not? 4.to check if the person age is greater than 18 ? adult or child? 5.to calculate simple interest

In [31]:

```
# 1.to find positive or negative number
n=int(input("number"))
if n>=0:print("%d is positive"%n)
else:print("%d is negative"%n)
```

```
number-5
-5 is negative
```

In [30]:

```
# 2.to check the given numbers are equal or not
a=int(input("number 1"))
b=int(input("number 2"))
if a==b:print("two numbers are equal")
else:print('two numbers are not equal')
```

```
number 15
number 210
two numbers are not equal
```

In [33]:

```
# 3.to check the given year is leap year?
n=int(input("enter the year"))
if (n%4==0 and n%100!=0) or n%400==0:
    print("it is a leap year")
else:print("it is not a leap year")
```

```
enter the year2016
it is a leap year
```

In [34]:

```
# 4.to check the age of a person and print adult or child
n=int(input("enter the age"))
if n>18:print("eligible to vote")
else:print("not eligible to vote")
```

```
enter the age21
eligible to vote
```

In [38]:

```
# 5.to find the simple interest
p=int(input("principle amount"))
r=int(input("rate of intersert"))
t=int(input("time period"))
simpleinterest=(p*t*r/100)
print("%d is the simple interest"%simpleinterest)

```

```
principle amount1000
rate of intersert10
time period1
100 is the simple interest
```

In [29]:

```
# taking input from the user (dynamic)
# syntax : input()
a = input("enter a number")
```

```
15
```

In [40]:

```
# nested if (syntax)
# if condition:
#     if condition:
#         statement
#     else:
#         statement
# else:
#     if condition:
#         statement
#     else:
#         statement

# sample program

n=int(input("enter number"))
if n>0:
    if n%2==0:
        print("n is even number")
else:
    print("n is negative nmber"
         )
```

```
enter number-5
n is negative nmber
```

In [44]:

```
# elif (syntax)
# if condition:
#     statements
# elif condition:
#     statement
# else:
#     statement

# sample program
# to print week day name
# input: 1
# output : sunday

n=int(input("enter the day number"))
if n<8 and n>0:
    if n==1:print('sunday')
    elif n==2:print('monday')
    elif n==3:print('tuesday')
    elif n==4:print('wednesday')
    elif n==5:print('thursday')
    elif n==6:print('friday')
    else:print('saturday')
else:print('enterd invalid number')

```

```
enter the day number7
saturday
```

For loop

In [ ]:

```
# for loop (syntax)

# for variable_name in range(lower limit,upper limit):
#     statements

# * lower limit is included and upper limit is excluded

#1.to print 1 to 5 natural numbers
#input: 5
#output: 1 2 3 4 5 (they may be in a new line or same line)

n=int(input())
for i in range(1,n+1):
    print(i)              # prints in a new line by default
for i in range(1,n+1):
    print(i,end=" ")      # but to print it in same line use  (,end=" ") in print state

```

In [51]:

```
for i in range(6):
    print(i)
```

```
0
1
2
3
4
5
```

In [1]:

```
# syntax
# for variable_name in range(start,stoop,step):
#     statements


for i in range(1,10,2):
    print(i)
```

```
1
3
5
7
9
```

In [3]:

```
# to print natural numbers from 1 to n

n=int(input("enter the n value"))
for i in range(1,n+1):
    print(i,end=" ")

```

```
enter the n value10
1 2 3 4 5 6 7 8 9 10
```

In [5]:

```
# to print 1 to n natural numbers

n=int(input())
for i in range(n,0,-1):
    print(i,end=" ")

```

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

In [ ]:

```
#Tasks:
# 1. to print sum of 1 to n natural numbers
# 2. to print factorial of a given number
# 3. to print  factors of a given number
# 4. to print count of even and odd numbers of given range
# 5. to to check whether it is prime or not
# 6. to print prime numbrs in between range
# 7. to print prime number between 1 to n
# 8. to check whether given number is perfec or not
# 9. to print perfect numbers in between a range
# 10. to pring avarage of prime numbers in between 20 and 55 (both are icluded)
# 11. to print numbers divisible by 5 and not a fctor of 100 in range of 100 to  1000
# 12. to find the avarage of factors of given number
```

In [12]:

```
# 1. to print 1 to n natural numbers
n=int(input())
sum=0
for i in range(1,n+1):
    sum+=i
print(sum)
```

```
5
15
```

In [18]:

```
# 2. to print factorial of a given number
n=int(input())
fact=1
for i in range(1,n+1):
    fact *=i
print(fact)

```

```
5
120
```

In [20]:

```
# 3. to print  factors of a given number
n=int(input())
for i in range(1,n+1):
    if n%i==0:
        print(i,end=" ")
```

```
10
1 2 5 10
```

In [6]:

```
# 4. to print count of even and odd numbers of given range
ul=int(input("upper limit"))
ll=int(input("lower limit"))
evenc=0
oddc=0
for i in range(ll,ul):
    if i%2==0:
        evenc+=1
    else:
        oddc+=1
print("even count is",evenc)
print("odd count is",oddc)
```

```
upper limit15
lower limit1
even count is 7
odd count is 7
```

In [9]:

```
# 5. to to check whether it is prime or not
n=int(input())
count=0
for i in range(1,n+1):
    if n%i==0:
        count+=1
if count==2:
    print("prime")
else:print("not prime")
```

```
7
prime
```

In [5]:

```
# 6. to print prime numbrs in between range
ll=int(input("lower limit"))
ul=int(input("upper limit"))

for i in range(ll,ul+1):
    count=0
    for j in range(1,i+1):
        if i%j==0:
            count+=1
    if count==2:
        print(i,end=" ")

```

```
lower limit1
upper limit15
2 3 5 7 11 13
```

In [6]:

```
# 7. to print prime number between 1 to n
ul=int(input())

for i in range(1,ul+1):
    count=0
    for j in range(1,i+1):
        if i%j==0:
            count+=1
    if count==2:
        print(i,end=" ")
```

```
15
2 3 5 7 11 13
```

In [3]:

```
# 8. to check whether given number is perfect or not
n=int(input("enter the number"))
#finding factors of given number
fsum=0
for i in range(1,n+1):
    if n%i==0:
        sum=+i
if sum==n:
    print("perfect number")
else:print("not perfect")
```

```
enter the number6
perfect number
```

In [7]:

```
# 9. to print perfect numbers in between a range
ll=int(input('lowerlimit'))
ul=int(input('upperlimit'))
for i in range(ll,ul+1):
    sum=0
    for j in range(1,i):
        if i%j==0:
            sum+=j
    if sum==i:
        print(i)
```

```
lowerlimit1
upperlimit100
6
28
```

In [15]:

```
# 10. to print avarage of prime numbers in between 20 and 55 (both are icluded)
sum=0
ncount=0
for i in range(20,55+1):
    count=0
    for j in range(1,i+1):
        if i%j==0:
            count+=1
    if count==2:
        ncount+=1
        sum+=i
print(sum//ncount)
```

```
38
```

In [17]:

```
# 11. to print numbers divisible by 5 and not a fctor of 100 in range of 100 to  1000
for i in range(100,1000):
    if i%5==0 and i%100!=0:
        print(i,end=" ")


```

```
105 110 115 120 125 130 135 140 145 150 155 160 165 170 175 180 185 190 195
205 210 215 220 225 230 235 240 245 250 255 260 265 270 275 280 285 290 295
305 310 315 320 325 330 335 340 345 350 355 360 365 370 375 380 385 390 395
405 410 415 420 425 430 435 440 445 450 455 460 465 470 475 480 485 490 495
505 510 515 520 525 530 535 540 545 550 555 560 565 570 575 580 585 590 595
605 610 615 620 625 630 635 640 645 650 655 660 665 670 675 680 685 690 695
705 710 715 720 725 730 735 740 745 750 755 760 765 770 775 780 785 790 795
805 810 815 820 825 830 835 840 845 850 855 860 865 870 875 880 885 890 895
905 910 915 920 925 930 935 940 945 950 955 960 965 970 975 980 985 990 995
```

In [20]:

```
# 12. to find the avarage of factors of given number
n=int(input())
sum=0
count=0
for i in range(1,n+1):
    if n%i==0:
        sum+=i
        count+=1
print(sum//count)
```

```
6
3
```

while loop

In [19]:

```
# while condition:
#       statements
#       updation

# 1.to count number of digits in a number

n=int(input("enter n value"))
count=0
while n!=0:
    count+=1
    n=n//10
print(count)
```

```
enter n value556
3
```

In [ ]:

```
# Tasks:
# 1.To print only even digits of a given number
# input: n=567893
# output :3 8 6 (try reversing)
# 2.To print reverse of a given number ?
# 3.to check whether given number is palindrome r not
# 4.to check whether given number is special number
        #59
    # product => 45
    # sum => 14
    # product + sum =>59 so 59 is a special number
```

In [ ]:

```
# 1.To print only even digits of a given number
# input: n=567893
# output :3 8 6 (try reversing)
 n=int(input())

```

In [ ]:

```
# 2.To print reverse of a given number ?
n=int(input())
for i in range()

```

In [ ]:

```
# 3.to check whether given number is palindrome r not
n=int(input())

```

In [ ]:

```
# 4.to check whether given number is special number
        #59
    # product => 45
    # sum => 14
    # product + sum =>59 so 59 is a special number
n=int(input())
```