In [ ]:
```
#=========== Basic python===============

- Basic syntax

- data types

- type casting

- overview of packages

- random/math

- eval input end sep

- Conditional if else elif

- functions

- try-exception

- for

- while

#-===================================
Strings
List
Dictionary
Tuple
set
lambda function
file handling session
=====================================================

Statistics : theory (two weeks)

EDA with Python:
      pandas
      numpy
      matpl
```

In [ ]:
```
# any loop we need three things

- Intialization

- condition

- incement/decrement
```

In [ ]:
```
for i in range(1,10)


in while loop we need to provide all three are individually
```

In [ ]:
```
# I want print first 10 numbers 0 to 9

# intial point = 0

# increment

# condition : whenever i will see value 9 then i will stop my loop
```

In [ ]:
```
# wrapper

i=0       # intial point

while <condition>:
    # st1
    # st2
    # st3

    i=i+1
```

In [1]:
```
# I want print first 10 numbers 0 to 9
for i in range(10):
    print(i,end=' ')
```

```
0 1 2 3 4 5 6 7 8 9
```

In [ ]:
```
i=0
while <>:
    print(i,end=' ')
    i=i+1

# Tell me some True conditions based on i=0
# i<100
# i>=0
# i<10
# i>-1
# i!=1
```

In [2]:
```
i=0
while i>=0:
    print(i,end=' ')
    i=i+1

# step-1:   i=0    0>=0  True   print(0)  i=0+1 =1
# step-2:   i=1    1>=0   T     print(1)  i=1+1=2
# step-3:   i=2    2>=0   T     print(2)  i= 2+2=3
```

```
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 2
7 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 5
1 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 7
5 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 9
9 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 11
7 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 13
5 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 15
3 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 17
1 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 18
9 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 20
7 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 22
5 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 24
3 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 26
1 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 27
9 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 29
7 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 31
5 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 33
3 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 35
1 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 36
```

In [4]:
```
i=0
while i<10:
    print(i,end=' ')
    i=i+1
```

```
0 1 2 3 4 5 6 7 8 9
```

- If you want avoid infinite loop , give proper a condition
- based on given question
- even though the condition is valid , you can enter inside the loop
- but you never come out of the loop

In [5]:
```
# Print 10 to 20

i=10

while i<21:
    print(i,end=' ')
    i=i+1
```

```
10 11 12 13 14 15 16 17 18 19 20
```

In [6]:
```
# print -1 to -10
# First create the wrapper
i=-1
while i>-11:
    print(i,end=' ')
    i=i-1
```

```
-1 -2 -3 -4 -5 -6 -7 -8 -9 -10
```

In [7]:
```
i=-1
while True:
    print(i,end=' ')
    i=i-1
    if i==-11:
        break
```

```
-1 -2 -3 -4 -5 -6 -7 -8 -9 -10
```

In [ ]:
```
# By mistake you provided not a valid condition
# then your loop is going infinite
# then provide a if condition inside the loop

# Suppose you are not good at provide condtions
# then appaly While True=== then provide the if condition
# inside the loop
```

In [10]:
```
################### Infinite loop #############
i=0
while i>=0:
    print(i,end=' ')
    i=i+1
    if i==10:
        break

################### True#####################
i=0
while True:
    print(i,end=' ')
    i=i+1
    if i==10:
        break

############### I know the condition################
i=0
while i<10:
    print(i,end=' ')
    i=i+1
```

```
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9
```

In [11]:
```
# ask the user enter a number 5 times
# print the square of the number

# First do with for loop
# then with while loop

for i in range(5):
    num=eval(input("enter a number:"))
    print("the square of {} is {}".format(num,num*num))
```

```
enter a number:6
the square of 6 is 36
enter a number:8
the square of 8 is 64
enter a number:9
the square of 9 is 81
enter a number:5
the square of 5 is 25
enter a number:4
the square of 4 is 16
```

In [12]:
```
i=0
while i<=4:  # 5<=4 F
    num=eval(input("enter a number:"))
    print("the square of {} is {}".format(num,num*num))
    i=i+1
```

```
enter a number:1
the square of 1 is 1
enter a number:2
the square of 2 is 4
enter a number:3
the square of 3 is 9
enter a number:4
the square of 4 is 16
enter a number:5
the square of 5 is 25
```

In [14]:
```
# wap take a random number between 10 to 20, Five times you need to take
# and print the square of the number

import random
for i in range(5):
    r=random.randint(10,30)
    print("The sqaure of {} is {}".format(r,r*r))
```

```
The sqaure of 21 is 441
The sqaure of 30 is 900
The sqaure of 21 is 441
The sqaure of 27 is 729
The sqaure of 15 is 225
```

In [15]:
```
#i in range(5): ========== 3lines
import random
i=0
while i<=4:
    r=random.randint(10,30)
    print("The sqaure of {} is {}".format(r,r*r))
    i=i+1
```

```
The sqaure of 25 is 625
The sqaure of 17 is 289
The sqaure of 12 is 144
The sqaure of 18 is 324
The sqaure of 27 is 729
```

In [16]:
```
# wap ask the user print a number is an even or odd
# consider number from 10 to 20

# For
# While

for i in range(10,21):
    if i%2==0:
        print('{} is an even number'.format(i))
    else:
        print('{} is an odd number'.format(i))
```

```
10 is an even number
11 is an odd number
12 is an even number
13 is an odd number
14 is an even number
15 is an odd number
16 is an even number
17 is an odd number
18 is an even number
19 is an odd number
20 is an even number
```

In [17]:
```
i=10
while i<21:
    if i%2==0:
        print('{} is an even number'.format(i))
    else:
        print('{} is an odd number'.format(i))
    i=i+1
```

```
10 is an even number
11 is an odd number
12 is an even number
13 is an odd number
14 is an even number
15 is an odd number
16 is an even number
17 is an odd number
18 is an even number
19 is an odd number
20 is an even number
```

In [18]:
```
i=10
while i<21:
    i=i+1   # 10+1=11
    if i%2==0:
        print('{} is an even number'.format(i))
    else:
        print('{} is an odd number'.format(i))
```

```
11 is an odd number
12 is an even number
13 is an odd number
14 is an even number
15 is an odd number
16 is an even number
17 is an odd number
18 is an even number
19 is an odd number
20 is an even number
21 is an odd number
```

In [20]:
```
# Print sum of fisrt 10 natural number
# ans = 55

# for loop

summ=0
for i in range(1,11):
    summ+=i
print(summ)
```

```
55
```

In [21]:
```
i=1
summ=0
while i<11:
    summ+=i
    i=i+1

print(summ)
```

```
55
```

In [23]:
```
# WAP get 10 random numbers  between 1 to 100
# and sum those numbers

import random
summ=0
for i in range(10):
    num=random.randint(1,100)
    summ=summ+num
print(summ)
```

```
561
```

In [24]:
```
import random
i=0
summ=0
while i<10:
    num=random.randint(1,100)
    summ=summ+num
    i=i+1

print(summ)
```

```
489
```

In [25]:
```
# WAP ask the user get a 10 random number between 10 to 100
# count how many are greater than 50

count=0
for i in range(10):
    num=random.randint(10,100)
    if num>50:
        count+=1

print(count)
```

```
5
```

In [29]:
```
i=0
count=0
while i<10:
    num=random.randint(10,100)
    if num>50:
        print(num,end=' ')
        count+=1
    i=i+1
print('/')
print(count)
```

```
90 81 92 55 97 81 /
6
```

In [30]:
```
# WAP ask the user get a 10 random number between 0 to 10
# count how many are greater than 5 and equal=0

i=0
count=0
while i<10:
    num=random.randint(0,10)
    if num>5 or num==0:
        print(num,end=' ')
        count+=1
    i=i+1
print('/')
print(count)
```

```
7 10 0 10 8 /
5
```

In [36]:
```
# WAP ask the user get a 10 random number between 0 to 10
# two count how many are greater than 5
# how many are equal=0

#i=0
#count_5=0
#count_0=0
i=count_5=count_0=0
while i<10:
    num=random.randint(0,10)
    if num>5:
        print(num,end=' ')
        count_5+=1

    if num==0:
        print(num,end=' ')
        count_0+=1

    i=i+1
print('/')
print(count_5)
print('/')
print(count_0)
```

```
6 7 0 0 7 7 6 8 0 /
6
/
3
```

In [ ]:
```
# 5 lines
# take a random number from random package between 1 to 10

# ========= you need to repat 3 times============
# ask the user enter a number between 1 to 10
# if the number == random number:
#        print('you won')
# else:
#     print('you lost')

# While loop
```

Suppose that a player wants to play a game which requires him Rs. 1,000 to start. If the current balance in his account is less than Rs. 1,000 he needs to withdraw the extra money from his e-wallet.

Note that if the sum of money in his courrent account and the amount withdrawn is greater than or equal to Rs. 1,000 then he can start playing the game. However if the sum is less than Rs. 1,000 then the program should keep displaying the user the message “You still do not have enough money to start playing.” and keep prompting the user to withdraw money unless it crosses Rs. 1,000. Once ready, i.e. if his current account balance crosses Rs. 1,000, it will display a message “Now, you are ready to play the game.” Your program should also display the account balance and the current amount in the e-wallet.

(consider: initial account balance is Rs. 200 and money in the e-wallet is Rs. 5,000)

(Do further improvement by checking if the e-wallet balance becomes NIL, etc.)

In [ ]:
```
# Condition: 1000 ======== go play the game
# Condition: 500
            take the money
            500+100 <1000
            take the money
            100
            500+100+100
```