Assigment 2

Question1:

In [4]:
```
def splitevenodd(a):
    even=[]
    odd=[]
    for i in a:
        if ( i % 2 ==0):
            even.append(i)
        else:
            odd.append(i)
    print("even : ",even)
    print("odd : " , odd)

a=list()
n=int(input("size : "))
print("elenemt :")
for i in range(int(n)):
    k=int(input(""))
    a.append(k)
splitevenodd(a)
```

```
size : 10
elenemt :
2
4
5
6
7
8
9
10
11
12
even :  [2, 4, 6, 8, 10, 12]
odd :  [5, 7, 9, 11]
```

Question 2 :

In [18]:
```
# List comprehension
#1
list_comp = [i+3 for i in range(20)]
# above code is similar to
for i in range(20):
    print(i + 3)
 #2
#example: removing common elements found in `a` from `b`.
a = [1,2,3,4,5]
b = [5,6,7,8,9]
print([i for i in a if i not in b])

#3
nums = [4, -7, 9, 1, -1, 8, -6]
half_of_nums = [x/2 for x in nums] #[2, -3.5, 4.5, 0.5, -0.5, 4, -3]
#optionally you can add an if statement like this
half_of_positive_nums = [x/2 for x in nums if x>=0] #[2, 4.5, 0.5, 4]
print(half_of_nums)
print(half_of_positive_nums)

#4
h_letters = [ letter for letter in 'human' ]
print( h_letters)

#5
list_comp = [i+3 for i in range(20)]
# using if statement
a =[i for i in range(20) if i%2==0 if i%3==0]
# using if else in list_comprehension
b =[i if i%2==0 else 'invalid' for i in range(10)]
#Using squares
squares = [i for i in range(10)]
print(list_comp)
print(a)
print(b)
print(squares)
```

```
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
```

```
22
[1, 2, 3, 4]
[2.0, -3.5, 4.5, 0.5, -0.5, 4.0, -3.0]
[2.0, 4.5, 0.5, 4.0]
['h', 'u', 'm', 'a', 'n']
[3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22]
[0, 6, 12, 18]
[0, 'invalid', 2, 'invalid', 4, 'invalid', 6, 'invalid', 8, 'invalid']
[0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
```

Question 3:

In [23]:
```
# 1
n=int(input("Input a number : "))
d = dict()
for x in range(1,n+1):
    d[x]=x*x
print(d)

#2
n=int(input("Input a number "))
d = dict()
for x in range(1,n+1):
    d[x]=x*x
print(d)
```

```
Input a number : 4
{1: 1, 2: 4, 3: 9, 4: 16}
Input a number 8
{1: 1, 2: 4, 3: 9, 4: 16, 5: 25, 6: 36, 7: 49, 8: 64}
```

Question 4 :

In [34]:
```
import math
#Init vars
pos=[0,0]
moves={"UP":[0,1],
       "DOWN":[0,-1],
       "LEFT":[-1,0],
       "RIGHT":[1,0]}

#Set inputs
data=["UP 5",
    "DOWN 3",
    "LEFT 3",
    "RIGHT 2"]

#Move robot on valid moves
for inp in data:
    parts=inp.split()
    mv=parts[0]
    val=parts[1]
    if mv in moves and val.isnumeric():
        pos[0] += moves[mv][0]*int(val)
        pos[1] += moves[mv][1]*int(val)

#get distance
distance=math.sqrt(pos[0]**2 + pos[1]**2)
print(distance,pos);

#Or with nearest integer,but its weird
#print(round(distance),"from [0,0] to",pos)
```

```
2.23606797749979 [-1, 2]
```

Type *Markdown* and LaTeX: α^2