```
#Question:1 program to create empty list and append to the list if it is even number.
input_list=[1,3,5,8,9,4,9,10,5,42]
output_list=[ ]
for var in input_list:
  if var%2==0:
    output_list.append(var)
print(output_list);
```

```
[8, 4, 10, 42]
```

```
#Question:2 list comprehension
#1.
x=[i for i in range(10)]
print(x)
```

```
[0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
```

```
#2.
squares=[x**2 for x in range(7)]
print(squares)
```

```
[0, 1, 4, 9, 16, 25, 36]
```

```
#3.multiplication
l=[2,6,4]
multiplied=[item*3 for item in l]
print(multiplied)
```

```
[6, 18, 12]
```

```
#4.To take the first letter of each word and to make list out of it.
listofwords=["Datascience","letsupgrade","Community"]
items=[word[0] for word in listofwords]
print(items)
```

```
['D', 'l', 'C']
```

```
#5.To convert into uppercase to lowercase and lowercase to uppercase.
x=[x.lower() for x in ["A","S","R"]]
print(x)
y=[x.upper() for x in ["r","t","u"]]
print(y)
```

```
['a', 's', 'r']
['R', 'T', 'U']
```

```
#6.using if
```

```
l=[x for x in range(20) if x%2==0]
print(l)
```

```
[0, 2, 4, 6, 8, 10, 12, 14, 16, 18]
```

```
#7.using for loop
l=[i**2 for i in [1,2,3,5,6]]
print(l)
```

```
[1, 4, 9, 25, 36]
```

```
#8.squares only even numbers in list.
l=[i**2 for i in [1,2,3,4,5] if i%2==0]
print(l)
```

```
[4, 16]
```

```
#Question:3 Program to generate dictionary
n=int(input())
d=dict()
for x in range(1,n+1):
  d[x]=x*x
print(d)
```

```
5
{1: 1, 2: 4, 3: 9, 4: 16, 5: 25}
```

```
#Question:4 program to compute the distance between the current position after a sequence of
import math
pos=[0,0]
moves={"UP":[0,1],
       "DOWN":[0,-1],
       "LEFT":[-1,0],
       "RIGHT":[1,0]}
n=float(input("number of directions="))
data= ["UP 5",
      "DOWN 3",
      "LEFT 3",
      "RIGHT 2"]
for n in data:
  parts=n.split()
  m=parts[0]
  val=parts[1]
  if m in moves and val.isnumeric():
    pos[0]+=moves[m][0]*int(val)
    pos[1]+=moves[m][1]*int(val)
distance=(round(math.sqrt(pos[0]**2+pos[1]**2)))
print(distance);
```

```
number of directions=4
2
```