

```
1. import numpy as np
import math
```

```
y=np.random.randint(0,2,(100,))
ycap=np.random.rand(100,)
p=0
for i in range(100):
    P-=y[i]*math.log(ycap[i],2)+1-y[i]*math.log(1-
ycap[i],2)
print(p/100)
```

2. import numpy as np

```
class pair:
    def __init__(self,numbers,target):
        self.numbers=numbers
        self.target=target
    o=1
    m=np.size(numbers)
    dict={}
    for i in range(m):
        for j in range(m):
            if ((numbers[i]+numbers[j])==target):
                if(i!=j):
                    dict[o]=[i,j]
                    o=o+1
```

```
n=int(input())
numbers=np.empty(n)
for i in range(n):
    numbers[i]=int(input())
target=int(input())
obj1=pair(numbers,target)
print(obj1.dict)
```