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1 Assignment

Solution to problem 1

importing modules math and random, and creating two empty lists for y and y_hat.

```
[1]: import math
import random
n=10
y=[]
y_hat=[]
0=0
```

Assigning random numbers to the lists

```
[2]: for i in range(0,n,1):
    x_hat=random.random()
    y_hat.append(x_hat)
    x=random.randint(0,1)
    y.append(x)
```

```
[3]: y
```

```
[3]: [0, 1, 1, 0, 0, 1, 1, 1, 1, 0]
```

```
[4]: y_hat
```

```
[4]: [0.4261838171178437,
0.3066712960993745,
0.9703304631584334,
0.34470566943228365,
0.7427490660410773,
0.16503048112909746,
0.23498358782949746,
0.4123941274052142,
0.43274156663618213,
0.8352692849298834]
```

Evaluating the expression

```
[5]: for i in range(0,n,1):  
      0=0-1/n*(y[i]*math.log(y_hat[i],2) + (1-y[i])*math.log(1-y_hat[i],2))
```

Final Answer

```
[6]: 0
```

```
[6]: 1.4895272038576808
```

Solution to Problem 2

```
[7]: class Myclass:  
      def __init__(self,listofno,target):  
          self.listofno=listofno  
          self.target=target  
      def process(self):  
          key=1  
          d={}  
          for i in range(0,len(self.listofno),1):  
              for j in range(0,len(self.listofno),1):  
                  if((self.listofno[i]+self.listofno[j])==self.target):  
                      d[key]=[i,j]  
                      key=key+1  
          print(d);
```

Output

```
[8]: p1=Myclass([10,20,30,40,50,60,70],50)  
      p1.process()
```

```
{1: [0, 3], 2: [1, 2], 3: [2, 1], 4: [3, 0]}
```

```
[ ]:
```