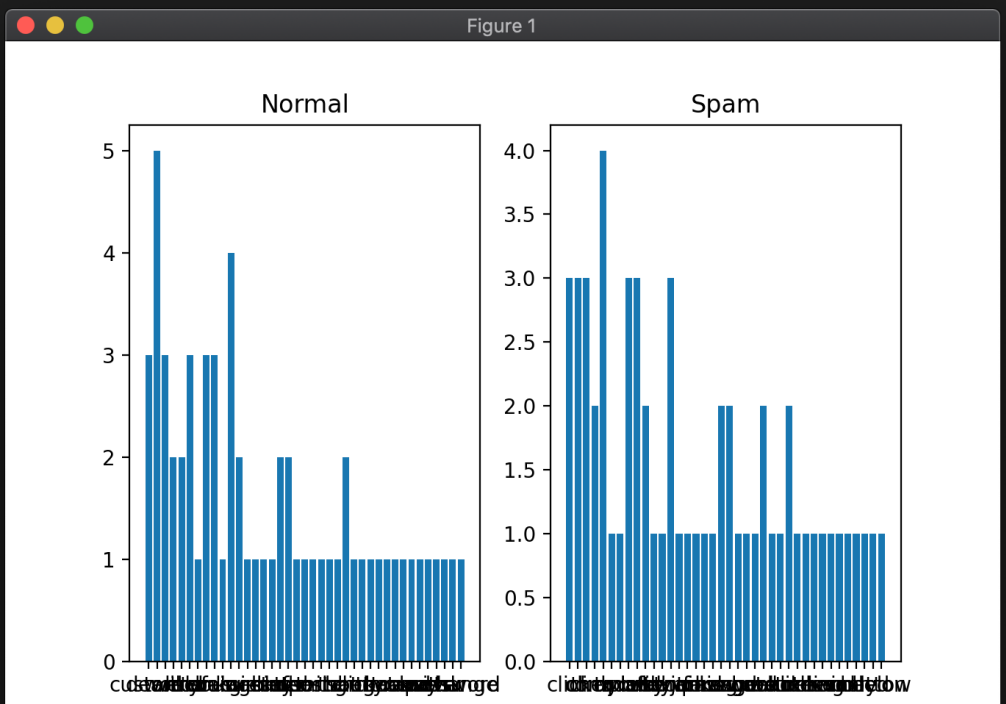
```
22  from collections import Counter
23  from matplotlib import pyplot as plt
24
25  with open("train_N_I.txt", "r") as f:
26      train_N_I = f.read().split()
27  with open("train_N_II.txt", "r") as f:
28      train_N_II = f.read().split()
29  with open("train_N_III.txt", "r") as f:
30      train_N_III = f.read().split()
31
32  with open("train_S_I.txt", "r") as f:
33      train_S_I = f.read().split()
34  with open("train_S_II.txt", "r") as f:
35      train_S_II = f.read().split()
36  with open("train_S_III.txt", "r") as f:
37      train_S_III = f.read().split()
38
39  with open("testEmail_I.txt", "r") as f:
40      testEmail_I = f.read().split()
41  with open("testEmail_II.txt", "r") as f:
42      testEmail_II = f.read().split()
43
44  normalTrain=train_N_I+train_N_II+train_N_III
45  spamTrain=train_S_I+train_S_II+train_S_III
46  countsN = Counter(normalTrain)
47  countsS = Counter(spamTrain)
48  key_listN = list(countsN.keys())
49  val_listN = list(countsN.values())
50  wordCountN=0
51  for i in range(len(val_listN)):
52      wordCountN+=val_listN[i]
53
54  key_listS = list(countsS.keys())
55  val_listS = list(countsS.values())
56  wordCountS=0
57  for i in range(len(val_listS)):
58      wordCountS+=val_listS[i]
59
```

```
60  countsT1 = Counter(testEmail_I)
61  countsT2 = Counter(testEmail_II)
62  print(countsT1)
63  print(countsT2)
64  key_listT1 = list(countsT1.keys())
65  key_listT2 = list(countsT2.keys())
66  pST1=.73
67  pNT1=.27
68  pST2=.73
69  pNT2=.27
70  for i in range(len(key_listT1)):
71      n1=countsN.get(key_listT1[i])/wordCountN
72      s1=countsS.get(key_listT1[i])/wordCountS
73      pNT1*=n1
74      pST1*=s1
75  for i in range(len(key_listT2)):
76      n2=countsN.get(key_listT2[i])/wordCountN
77      s2=countsS.get(key_listT2[i])/wordCountS
78      pNT2*=n2
79      pST2*=s2
80
81  if(pNT1>pST1):
82      print(f'Email 1 is normal')
83  else:
84      print(f'Email 1 is spam')
85  if(pNT2>pST2):
86      print(f'Email 2 is normal')
87  else:
88      print(f'Email 2 is spam')
89
90  fig, ax=plt.subplots(nrows=1,ncols=2)
91  ax[0].bar(key_listN,val_listN)
92  ax[1].bar(key_listS,val_listS)
93  ax[0].set_title('Normal')
94  ax[1].set_title('Spam')
95  plt.show()
```

```
/usr/local/bin/python3 "/Users/raulrodriguez/Library/Mobile Documents/com~apple~CloudDocs/Documents/WorkSpaceVSPython/
raulrodriguez@Rauls-MacBook-Air WorkSpaceVSPython % /usr/local/bin/python3 "/Users/raulrodriguez/Library/Mobile Docume
n/HW10_1ML.py"
Counter({'click': 1, 'button': 1, 'to': 1, 'change': 1, 'password': 1, 'and': 1, 'get': 1, 'your': 1, 'money': 1})
Counter({'dear': 1, 'customer': 1, 'click': 1, 'button': 1, 'to': 1, 'like': 1, 'us': 1})
Email 1 is spam
Email 2 is normal
```



Ln 59, Col 1