WEEK 1

Importing dataset into a matrix using numpy

In [3]:
```
import numpy as np
f=np.genfromtxt('data.txt',delimiter="\t")
f[0][0]=0
row,column=f.shape
```

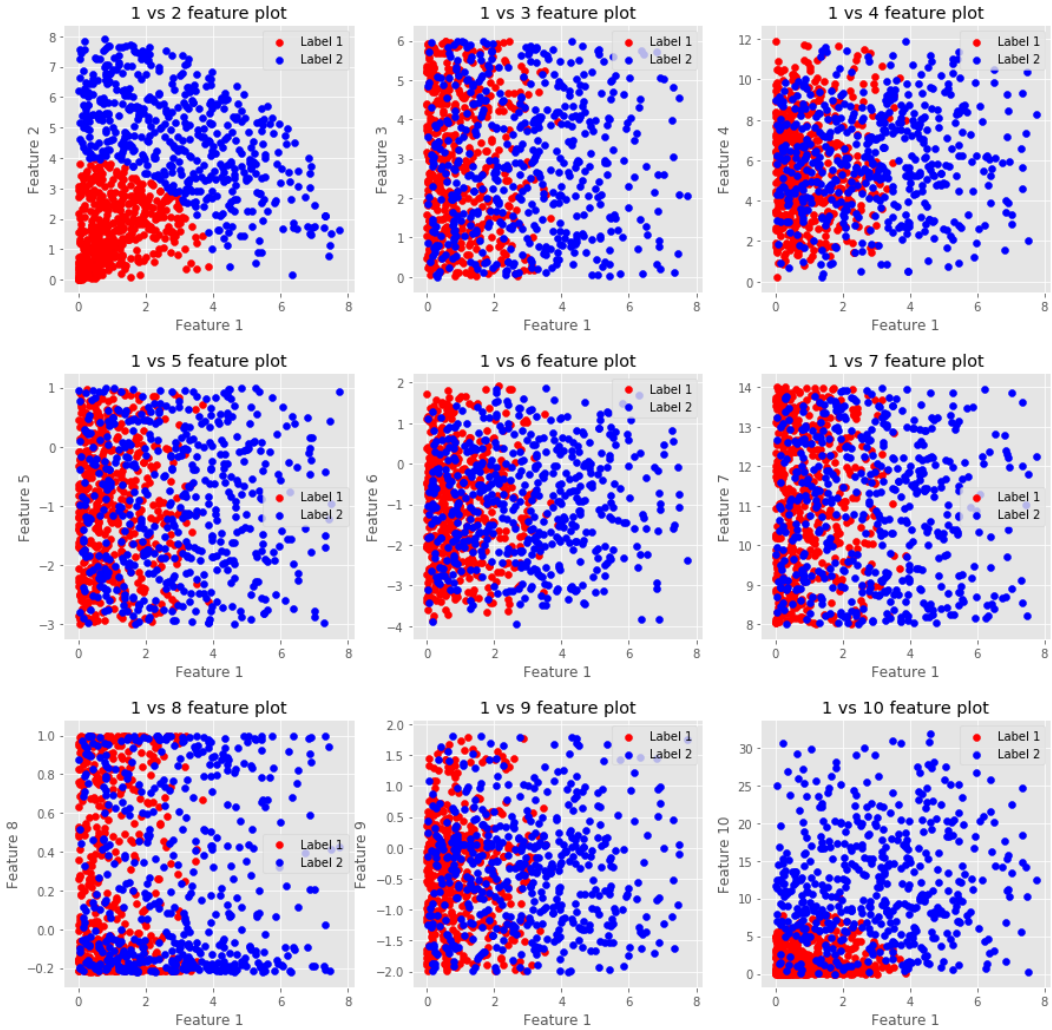
Label wise classification of data.

In [4]:
```
list1=[]
list2=[]
for i in range(row):
    if(f[i][0]==1):
        list1.append(i)
    if(f[i][0]==2):
        list2.append(i)

label1=f[list1,:]
label2=f[list2,:]
```

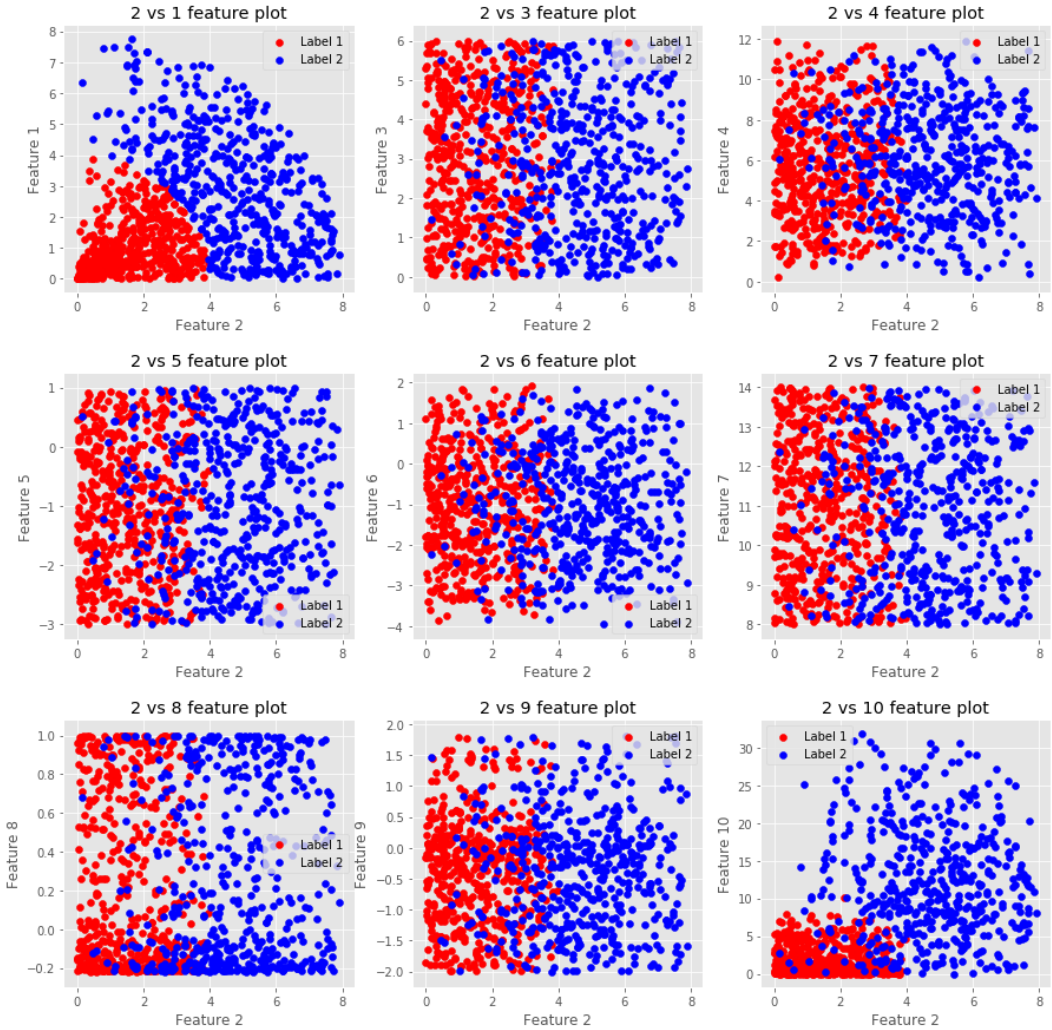
Plotting all features vs each other.

In [5]:
```
from matplotlib import pyplot as plt
from matplotlib import style

style.use('ggplot')
for i in range(1,column):
    fig, axs = plt.subplots(3, 3,figsize=(15,15))
    plt.subplots_adjust(hspace=0.3)
    fig.suptitle("Plot for feature-%d" % i)
    x=0
    for j in range(1,column):
        x+=1
        if(i==j):
            x-=1
            continue
        x-=1;

        f1_l1=label1[1::,i]
        f2_l1=label1[1::,j]
        axs[x//3,x%3].scatter(f1_l1,f2_l1,c="r",label="Label 1")

        f1_l2=label2[1::,i]
        f2_l2=label2[1::,j]
        axs[x//3,x%3].scatter(f1_l2,f2_l2,c="b",label="Label 2")

        axs[x//3,x%3].set_xlabel('Feature %d' % i)
        axs[x//3,x%3].set_ylabel('Feature %d' % j)
        axs[x//3,x%3].title.set_text("%d vs %d feature plot" % (i, j))
        axs[x//3,x%3].legend()
        x+=1
    plt.show();
    print('\n\n')
```

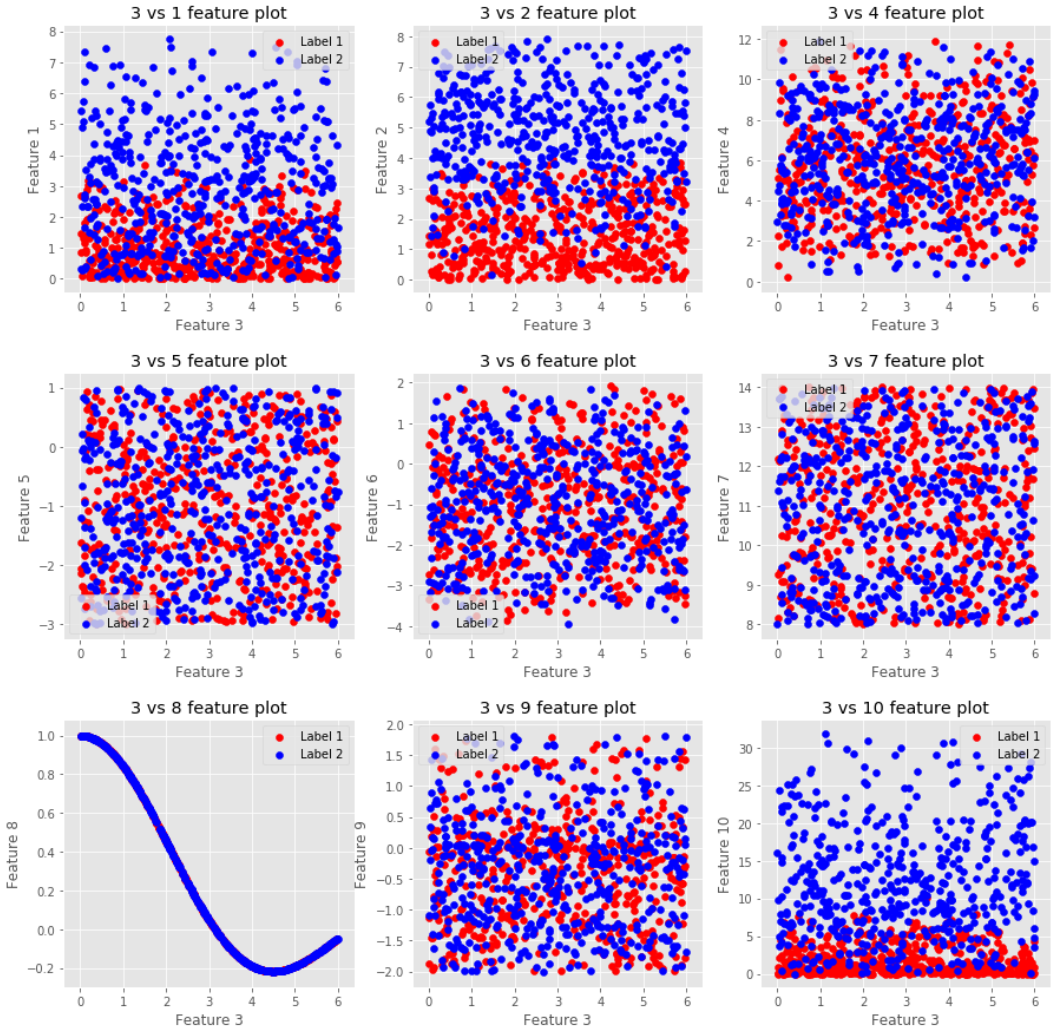
Plot for feature-1



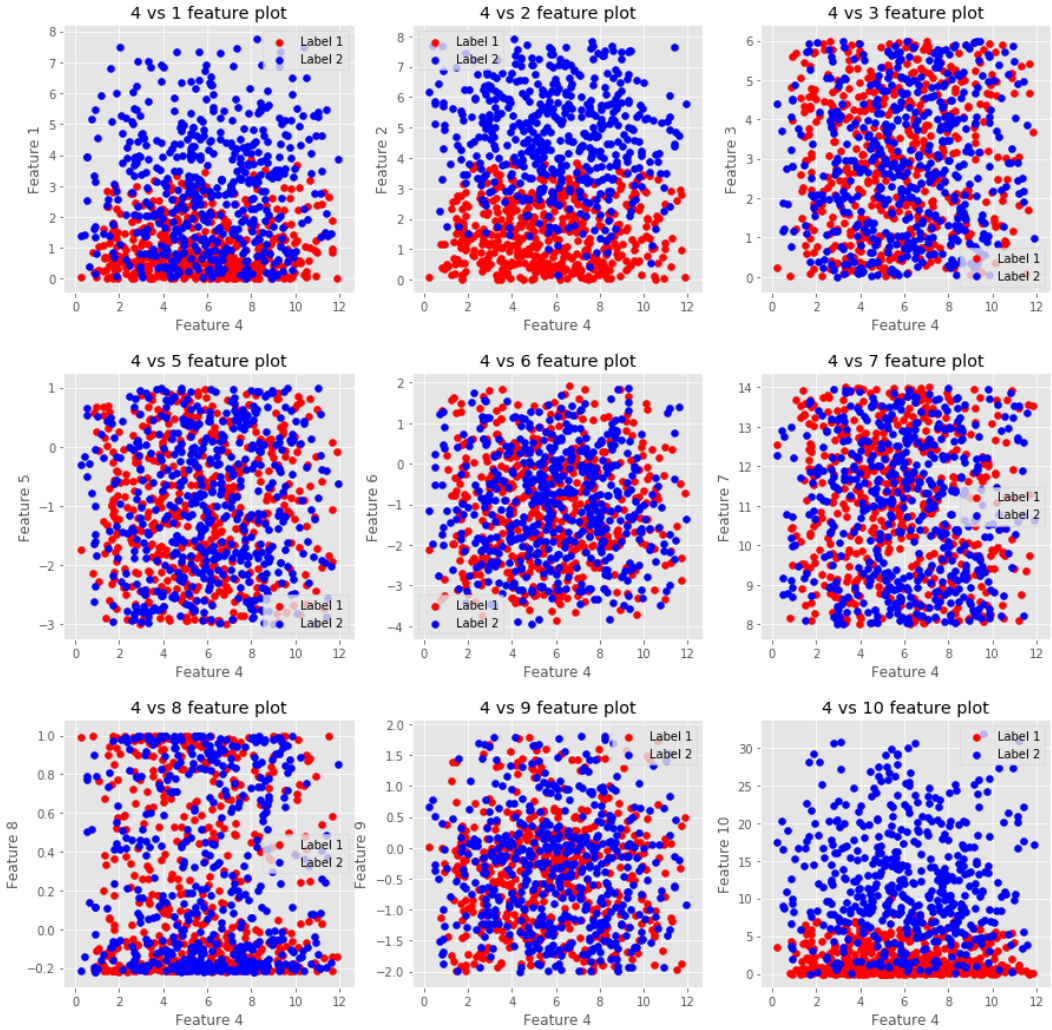
Plot for feature-2



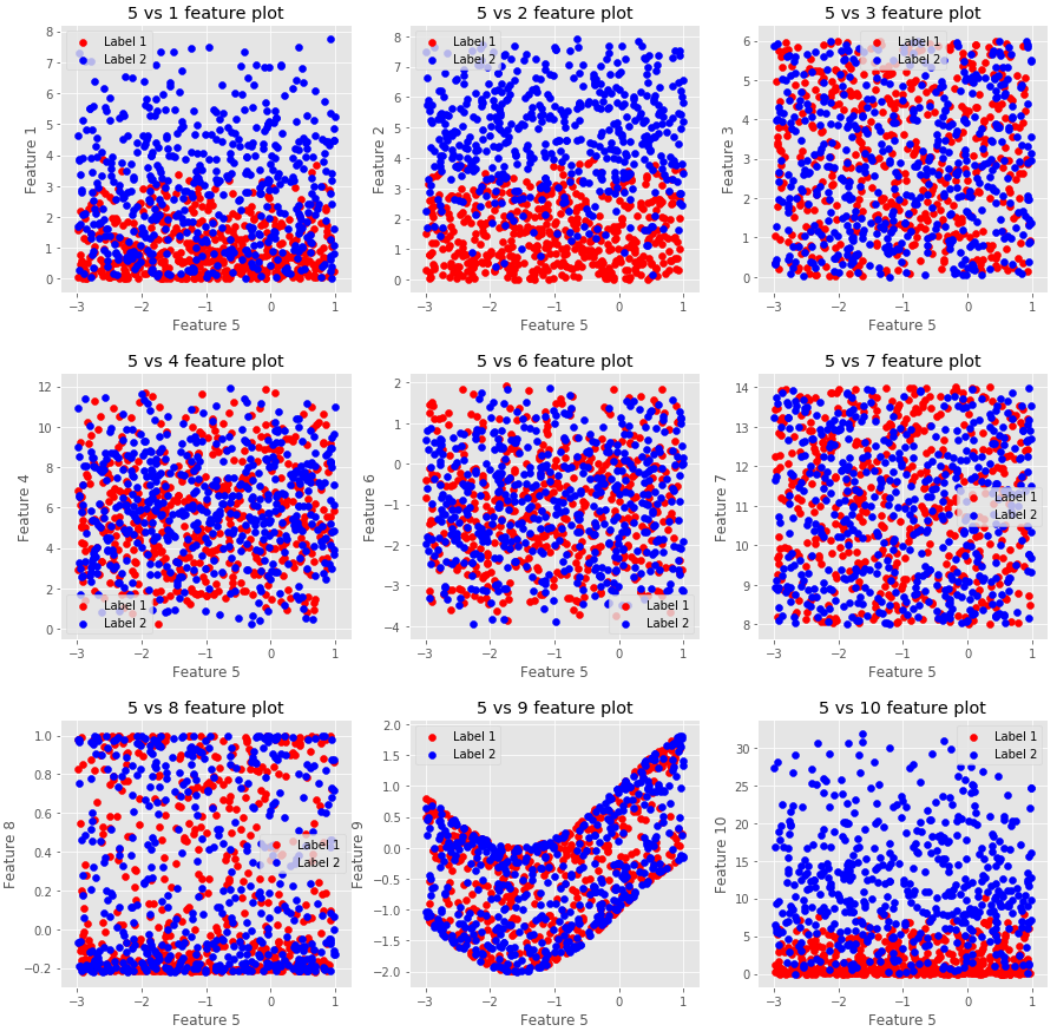
Plot for feature-3



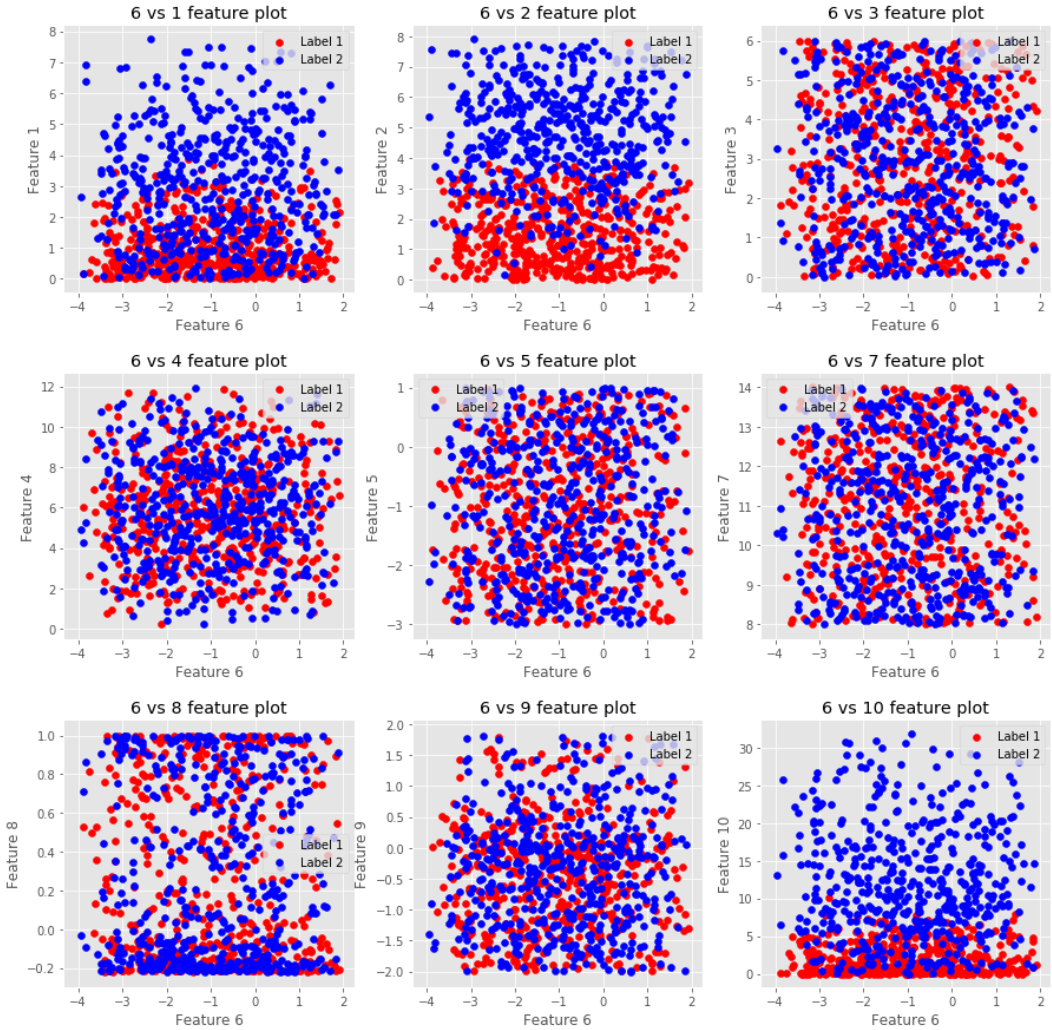
Plot for feature-4



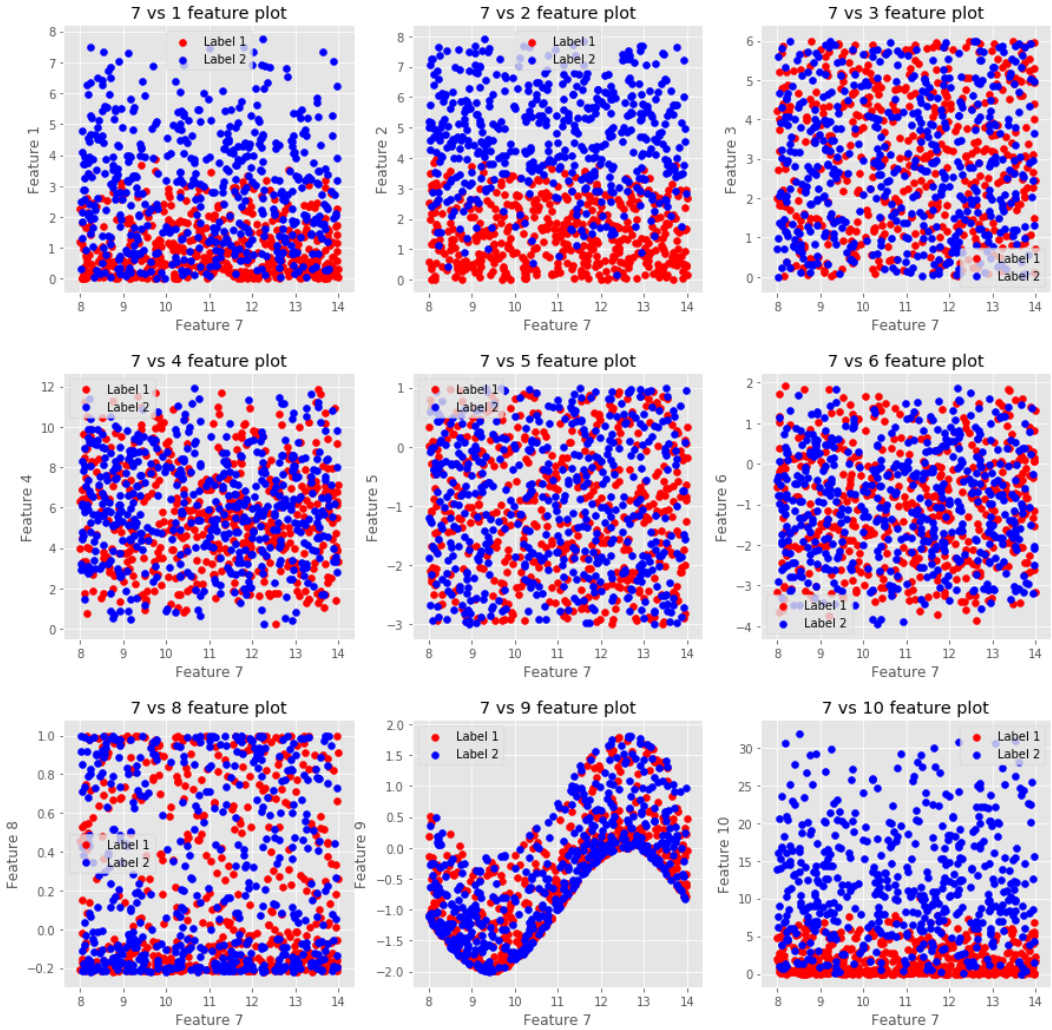
Plot for feature-5



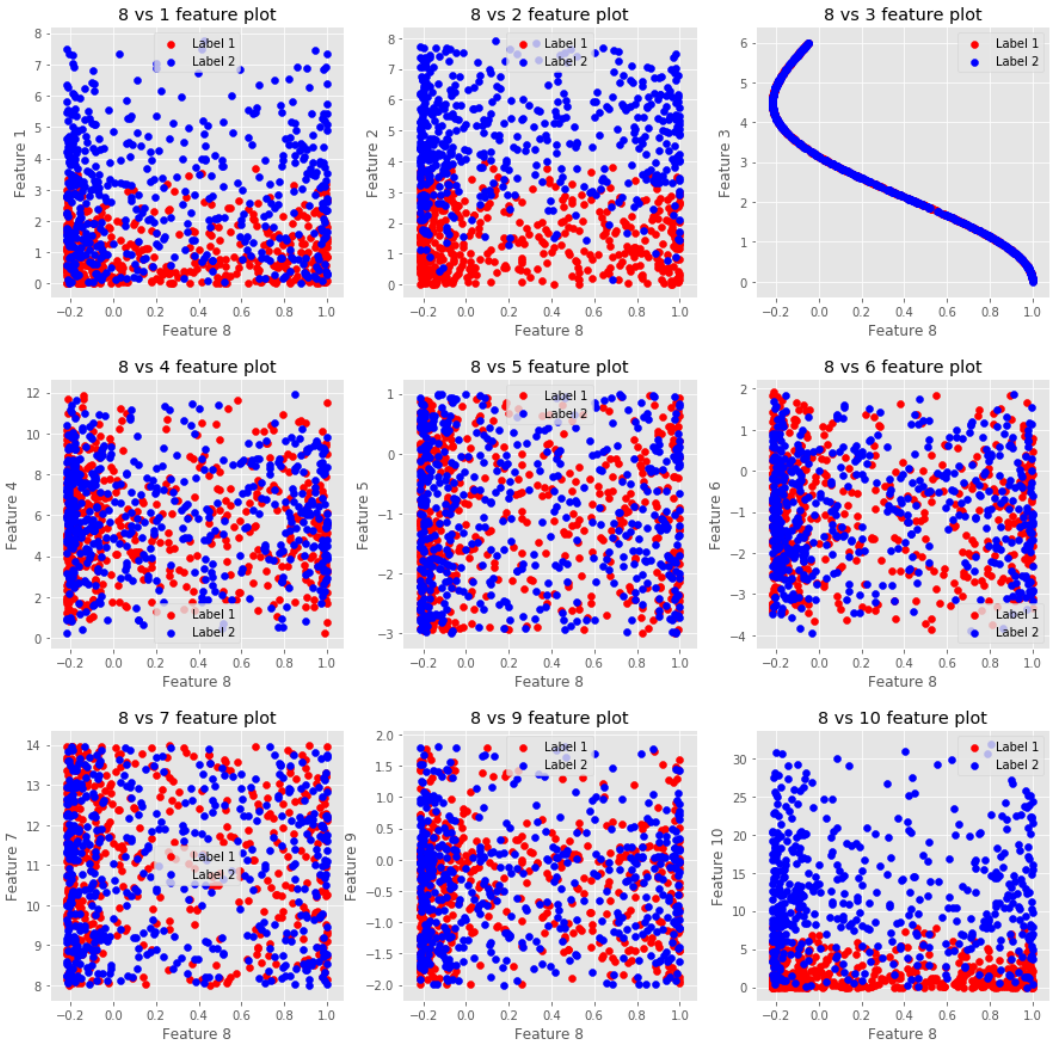
Plot for feature-6



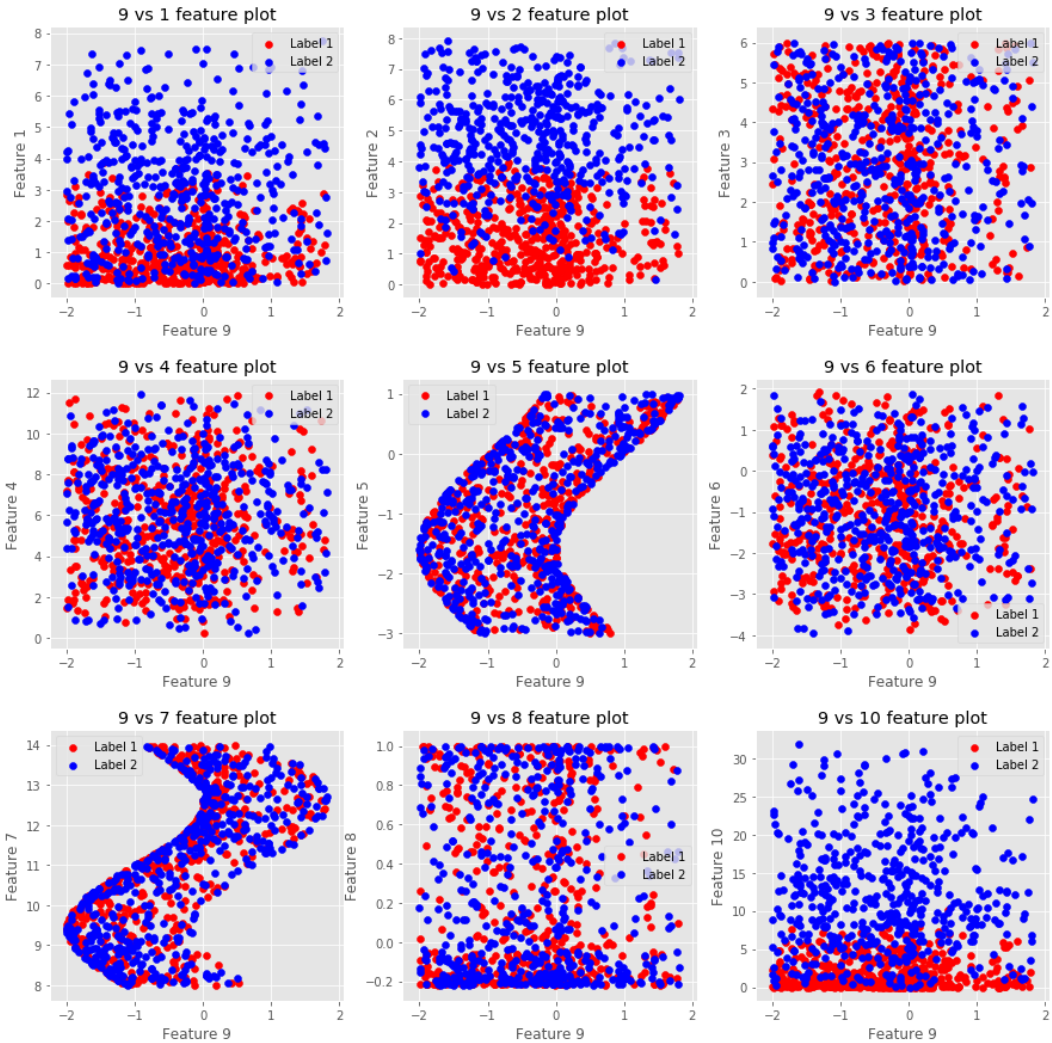
Plot for feature-7

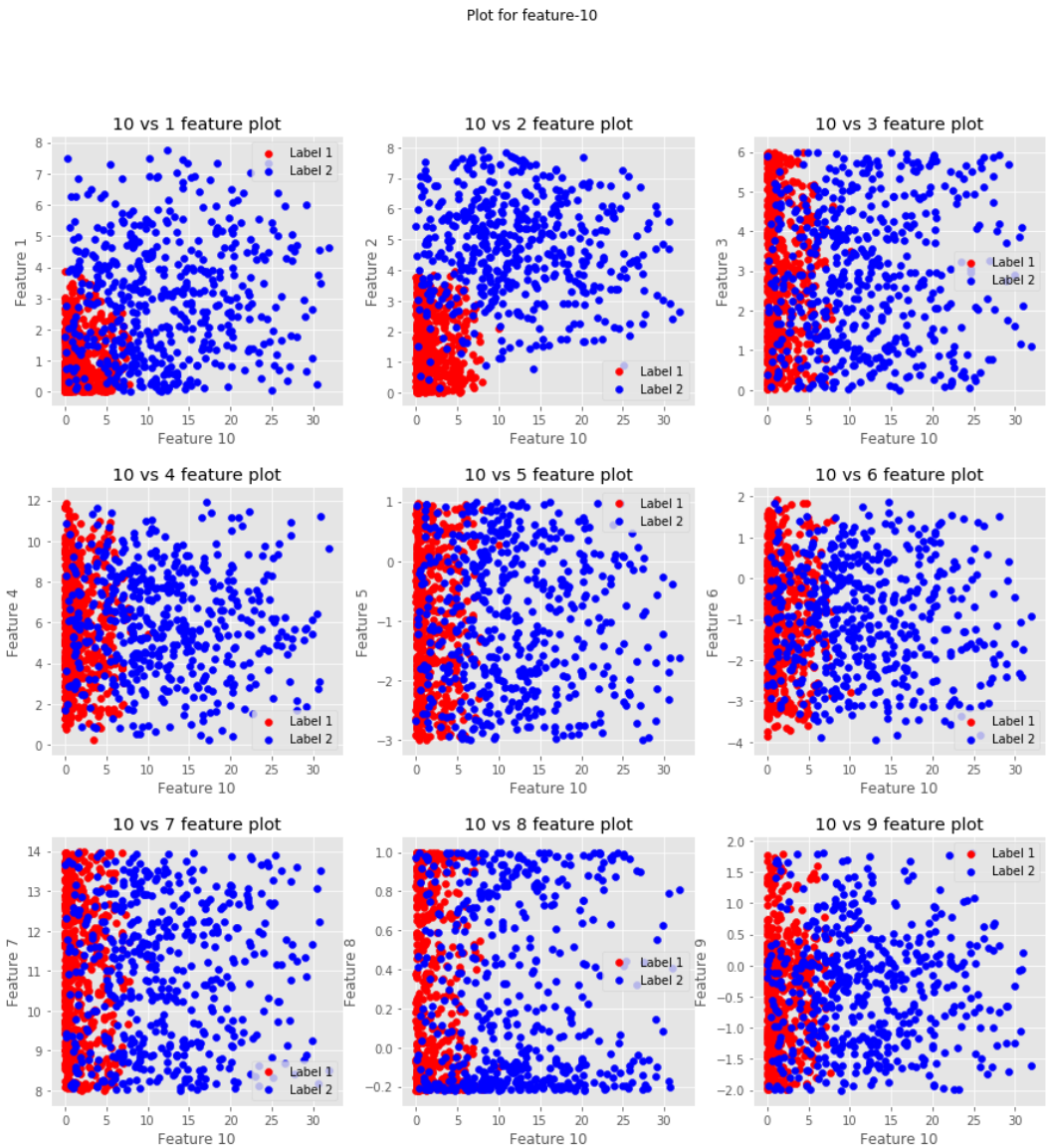


Plot for feature-8



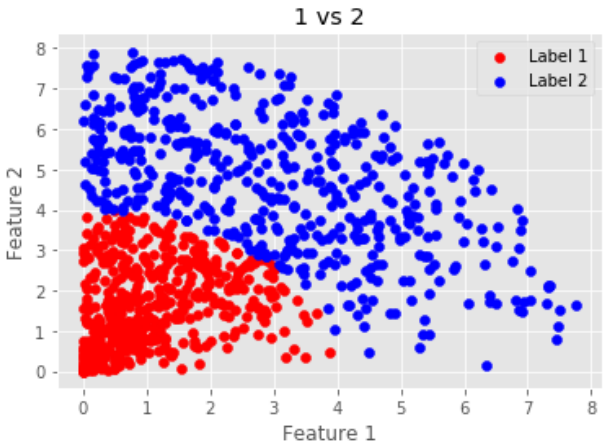
Plot for feature-9





Features 1 and 2 can classify the two labels perfectly.

In [7]:
```
f1_l1=label1[1::,1]
f2_l1=label1[1::,2]
plt.scatter(f1_l1,f2_l1,c="r",label="Label 1")

f1_l2=label2[1::,1]
f2_l2=label2[1::,2]
plt.scatter(f1_l2,f2_l2,c="b",label="Label 2")

plt.xlabel('Feature %d' % 1)
plt.ylabel('Feature %d' % 2)
plt.title("1 vs 2")
plt.legend()
plt.show()
print("Features 1 and 2 can classify the two labels perfectly.")
```




```
Features 1 and 2 can classify the two labels perfectly.
```

In [ ]: