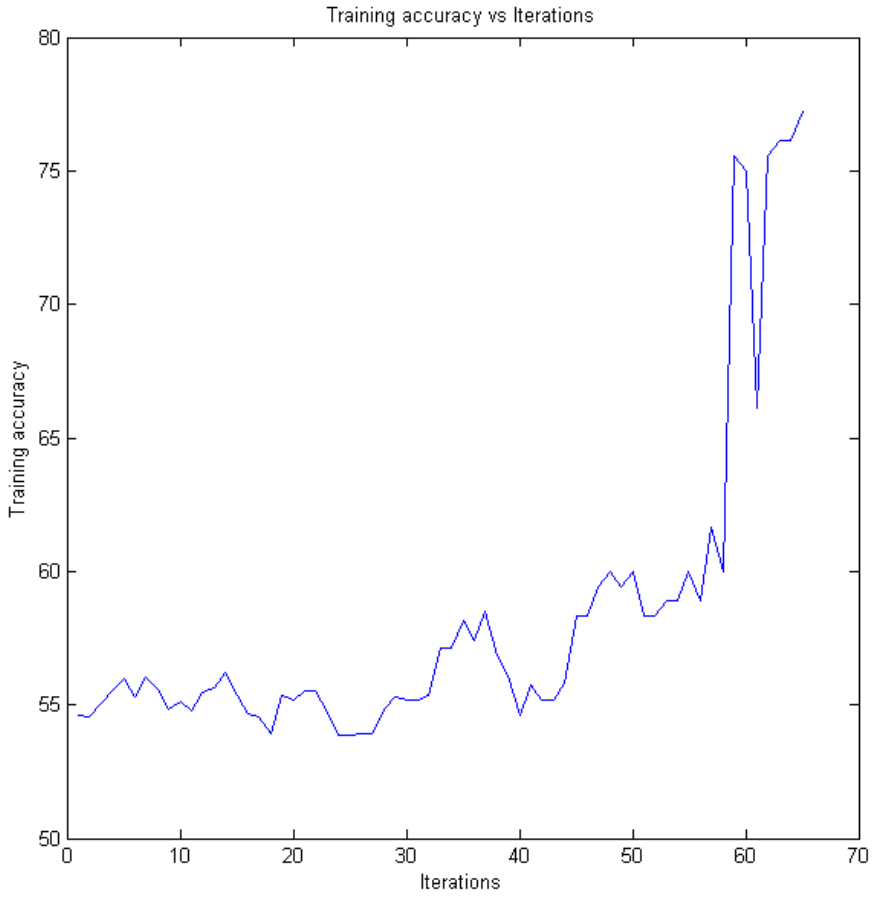
Machine Learning-hw5part1

Jaskaran Singh-2011cs1012

Ans1

Note: For sampling from the distribution D_t , weighted sampling with replacement has been implemented in the WeightedSampleWithReplacement.m file. Due to this randomness, the curve isn't smooth.



From the graph we conclude that with increasing iterations, the training accuracy increases.

Trend of training accuracy with increasing iterations:

Iteration	Average Training accuracy
1	54.6121
2	54.5559
3	55.0584
4	55.5007
5	56.0038
6	55.3118
7	56.0536
8	55.5874

9	54.8224
10	55.1002
11	54.7556
12	55.4462
13	55.6569
14	56.2101
15	55.3513
16	54.6400
17	54.5607
18	53.9258
19	55.3513
20	55.1925
21	55.5448
22	55.5448
23	54.7145
24	53.8817
25	53.8817
26	53.9398
27	53.9398
28	54.8287
29	55.2732
30	55.2026
31	55.2026
32	55.3415
33	57.1470
34	57.1470
35	58.1481
36	57.4074
37	58.5185
38	56.8519
39	56.1111
40	54.6296
41	55.7407
42	55.1852
43	55.1852
44	55.8333
45	58.3333
46	58.3333
47	59.4444
48	60.0000
49	59.4444
50	60.0000
51	58.3333
52	58.3333
53	58.8889
54	58.8889
55	60.0000
56	58.8889
57	61.6667
58	60.0000

59	75.5556
60	75.0000
61	66.1111
62	75.5556
63	76.1111
64	76.1111
65	77.2222

Average test accuracy per fold: 57.8835%

Average confusion matrix :

9.0000 1.8000

6.6000 2.6000

Average precision of class1=0.623844

Average precision of class2=NaN(because in some cases precision on 2nd class is NaN)

Average recall of class1=0.832727

Average recall of class2=0.277778

Precision per fold

Class 1 Class -1

1.0000 0.6667

0.5238 NaN

0.8000 0.5333

0.6429 0.6667

0.5500 NaN

0.5500 NaN

0.5500 NaN

0.5500 NaN

0.5263 NaN

0.5455 0.5000

Recall per fold

Class +1 Class -1

0.5455 1.0000

1.0000 0

0.3636 0.8889

0.8182 0.4444

1.0000 0

1.0000 0

1.0000 0

1.0000 0

1.0000 0

0.6000 0.4444

Confusion matrix for every fold

ans =

6 5

0 10

ans =

11 0

10 0

ans =

4 7

1 8

ans =

9 2

5 4

ans =

11 0

9 0

ans =

11 0

9 0

ans =

11 0

9 0

ans =

```
    11     0
     9     0
```

ans =

```
    10     0
     9     0
```

ans =

```
     6     4
     5     4
```