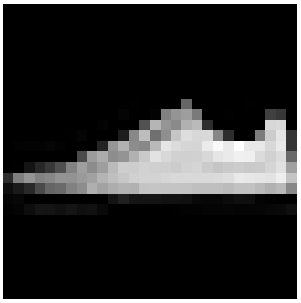
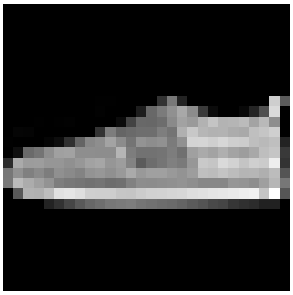
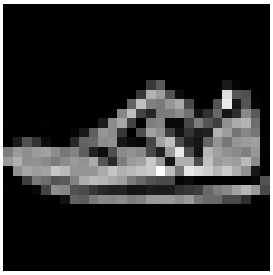
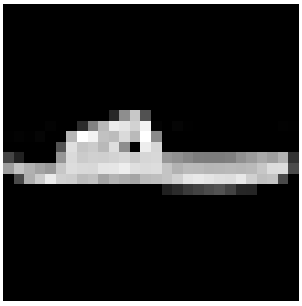
Report Assignment-3

Adaboost:

Only parameters were number of trees & threshold variance in pca, and best validation score in sufficient time came on 36 trees and threshold= 0.8

`Validation Score for 36 trees: 0.8752125255048 Accuracy for 36 trees: 0.914375`

`Misclassified instances= 411/4800`

Last image wrongly classified as positive and rest wrongly as negative

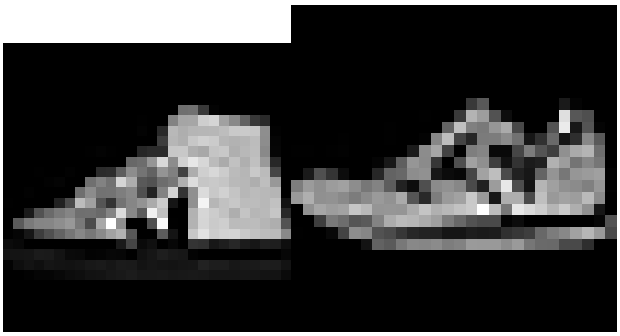
`Random Forest:`

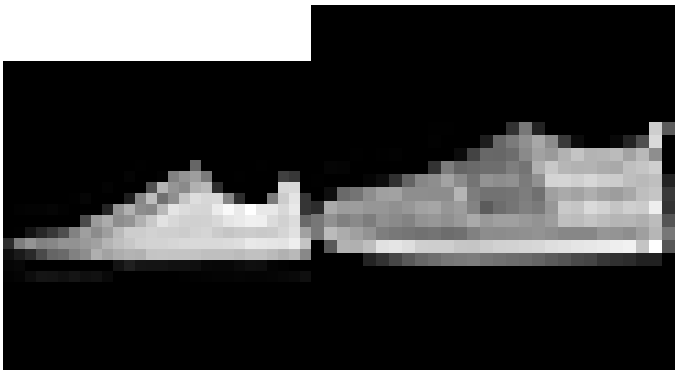
`Best parameters:`

```
        'num_trees' : 20,
         ‘threshold variance’: 0.35
        "bootstrap_fraction" : 0.3,
        "min_samples_split" : 7,
        "max_depth" : 20,
        "min_gain" : 0.2,
        "criterion" : "gini",
        "class_weight" : 1.0,
```

```
        "k_features" : None,
        "weighted_forest" : True,
        "val_score" : 0.85,
“accuracy” : 0.89
Misclassified: 528
```

All these images were wrongly classified as 0



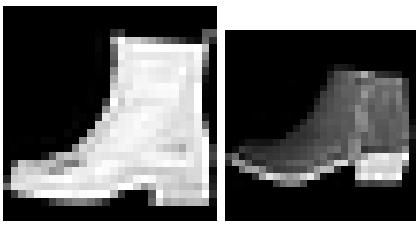


SVM:

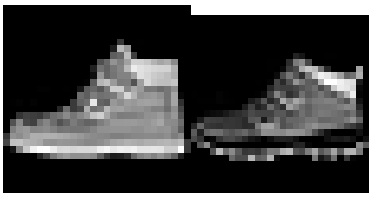
Hard margin linear:

No pca was used and C is fixed, no other parameter

0.87

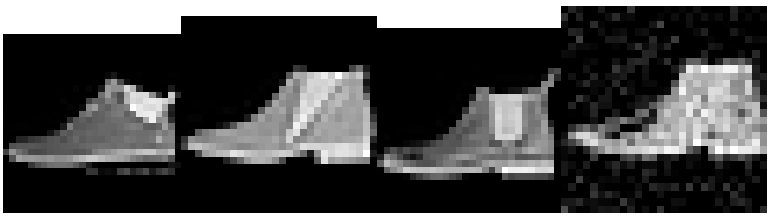


all wrongly classified as positive



Soft margin linear: Pca not used

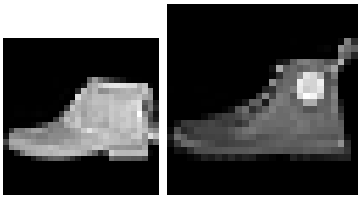
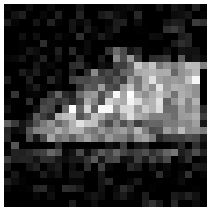
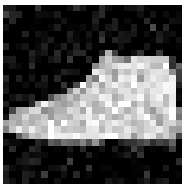
```
        "C" : 1e-2,
        "kernel" : 'linear',
        "zero_threshold" : 1e-5,
        "val_score" : 0.93,
```



all wrongly classified as positive

Soft margin rbf: Pca

```
"C" : 1e-2,
         "kernel" : 'rbf',
         "gamma" : 1e-2,
         "zero_threshold" : 1e-5,
         "val_score" : 0.84
```

wrongly classified as positive

Hard margin rbf:

Unable to finish on time