

## Printed Out Results:

```
runfile('/Users/mahalakshmimaddu/Desktop/IML/proj2code/main.py',  
wdir='/Users/mahalakshmimaddu/Desktop/IML/proj2code')
```

### LeToR Data

Number of Clusters for LeToR Data = 11  
Value of Lambda for LeToR Data = 0.6  
Value of Learning rate for LeToR Data = 0.05

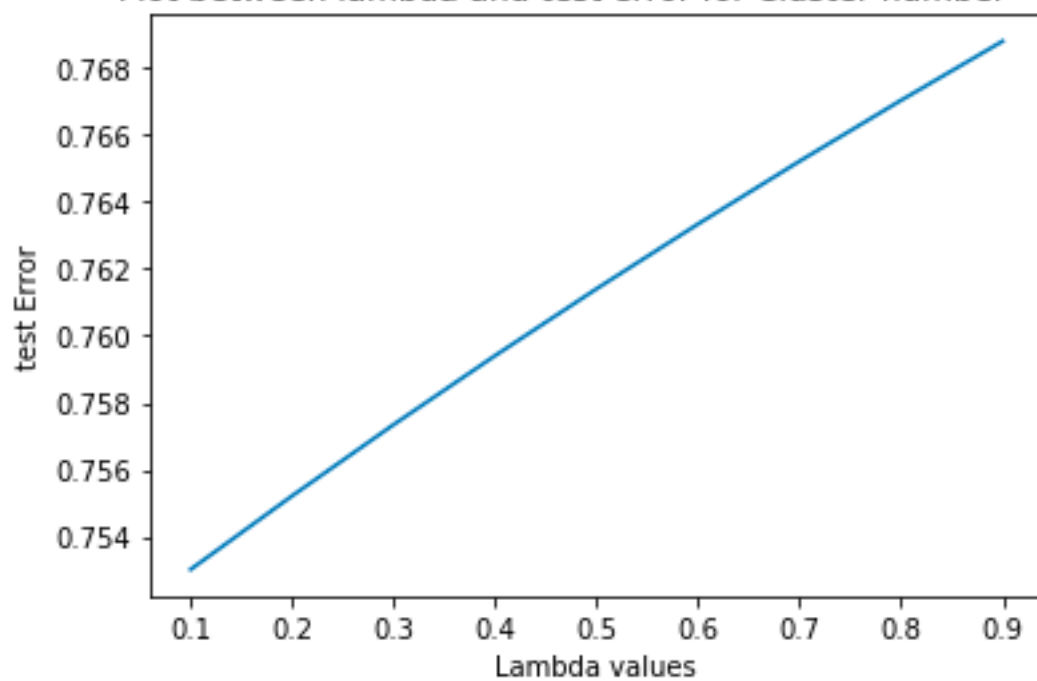
LeToR-Training-CF ERMS = 0.5635418535672246  
LeToR-Validation-CF ERMS = 0.5526788131524345  
LeToR-Test ERMS-CF = 0.6388892323067138  
LeToR-Training-SGD ERMS = 0.565512576103435  
LeToR-Validation-SGD ERMS = 0.5553957010369408  
LeToR-Test-SGD ERMS = 0.6433203390096157

### Synthetic Data

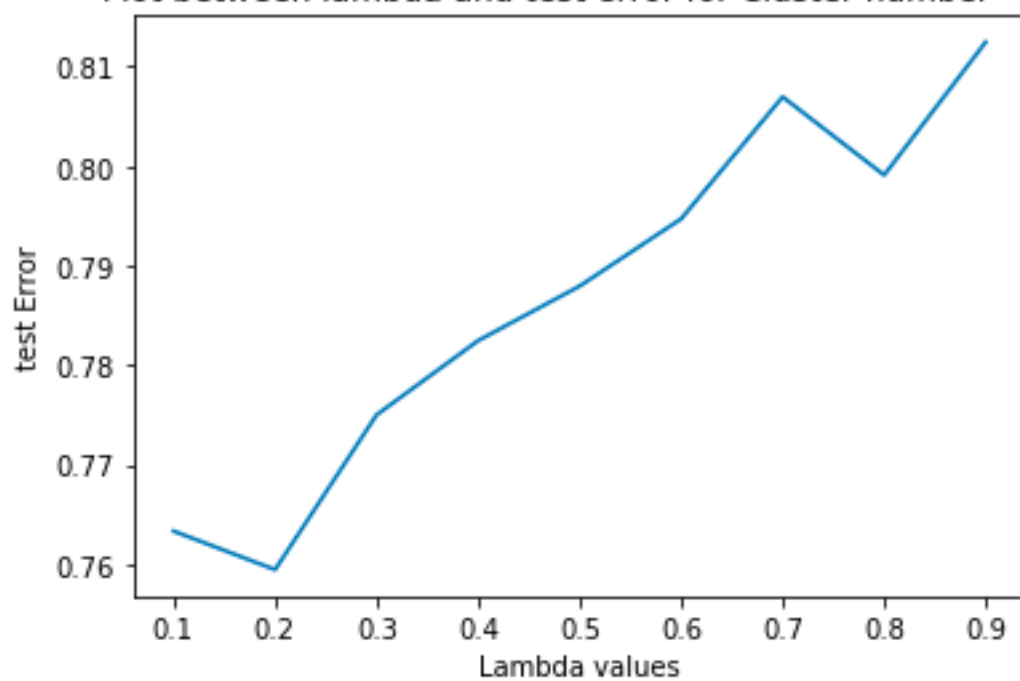
Number of Clusters for Synthetic Data = 6  
Value of Lambda for Synthetic Data = 0.1  
Value of Learning Rate for Synthetic Data = 0.05

Synthetic-Training-CF ERMS = 0.7319092307150009  
Synthetic-Validation-CF ERMS = 0.7459776704864695  
Synthetic-Test ERMS-CF = 0.7462547693910417  
Synthetic-Training-SGD ERMS = 0.7903497374968788  
Synthetic-Validation-SGD ERMS = 0.7852440748289281  
Synthetic-Test-SGD ERMS = 0.7876426860609201

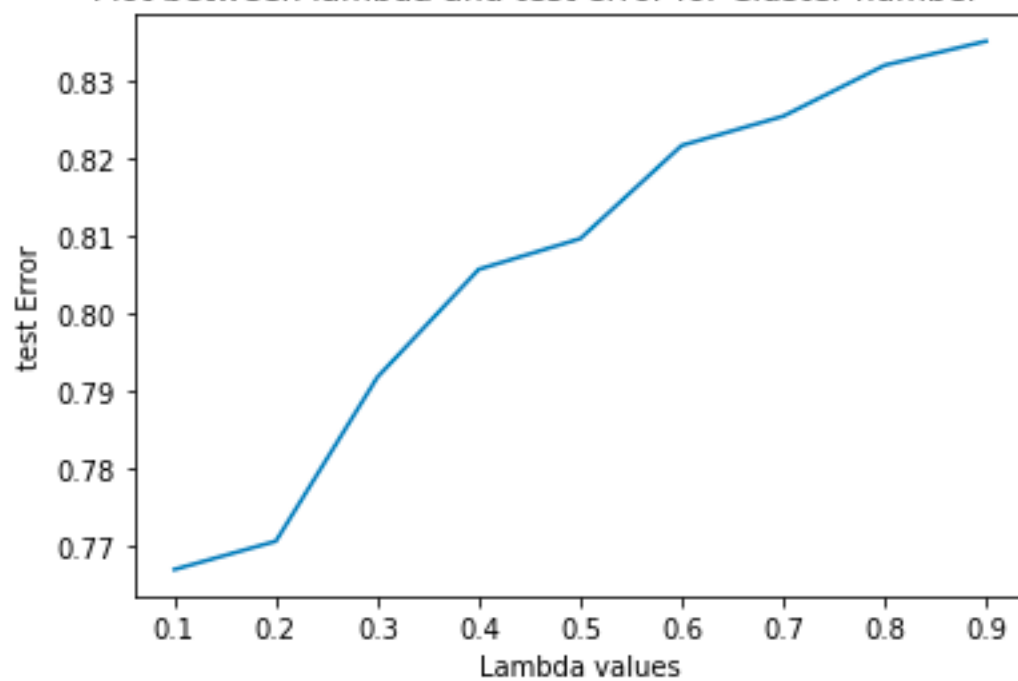
Plot between lambda and test error for Cluster number = 1



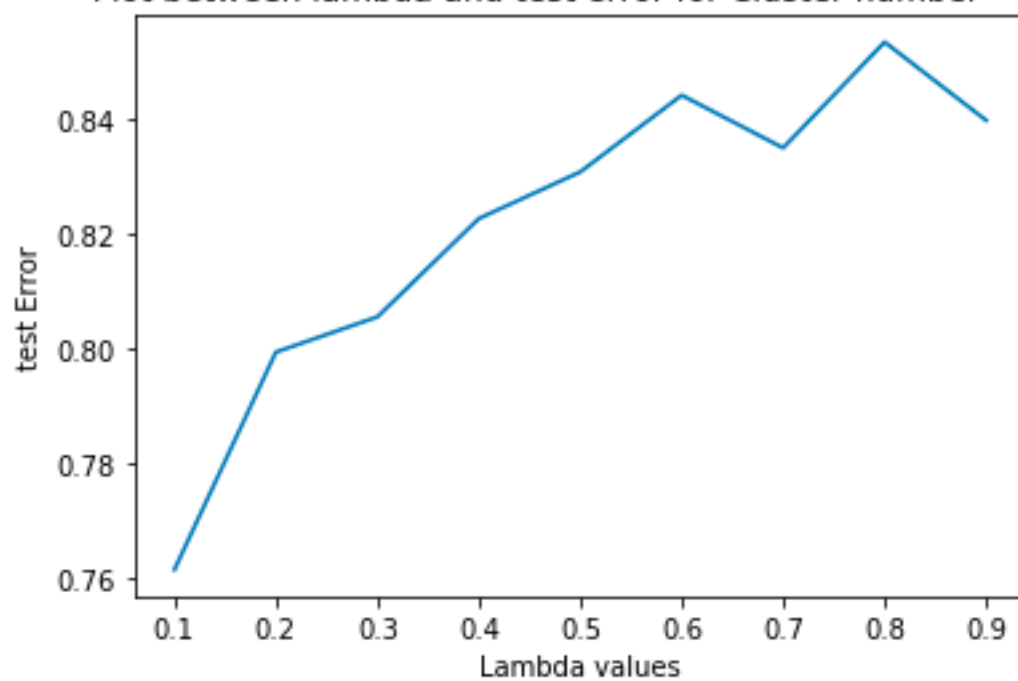
Plot between lambda and test error for Cluster number = 6



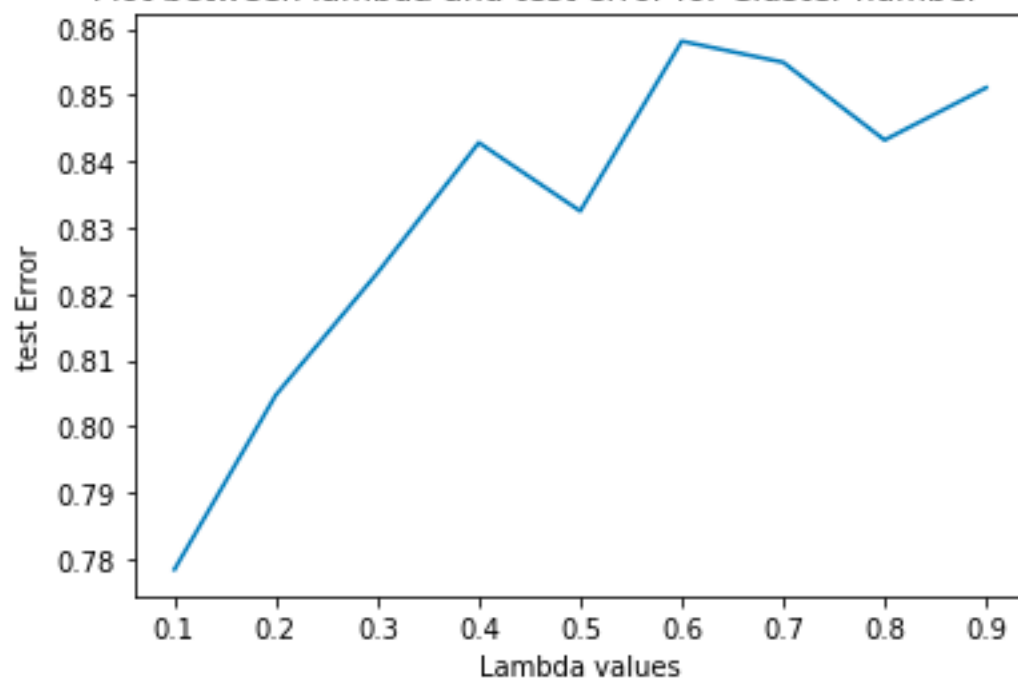
Plot between lambda and test error for Cluster number = 11



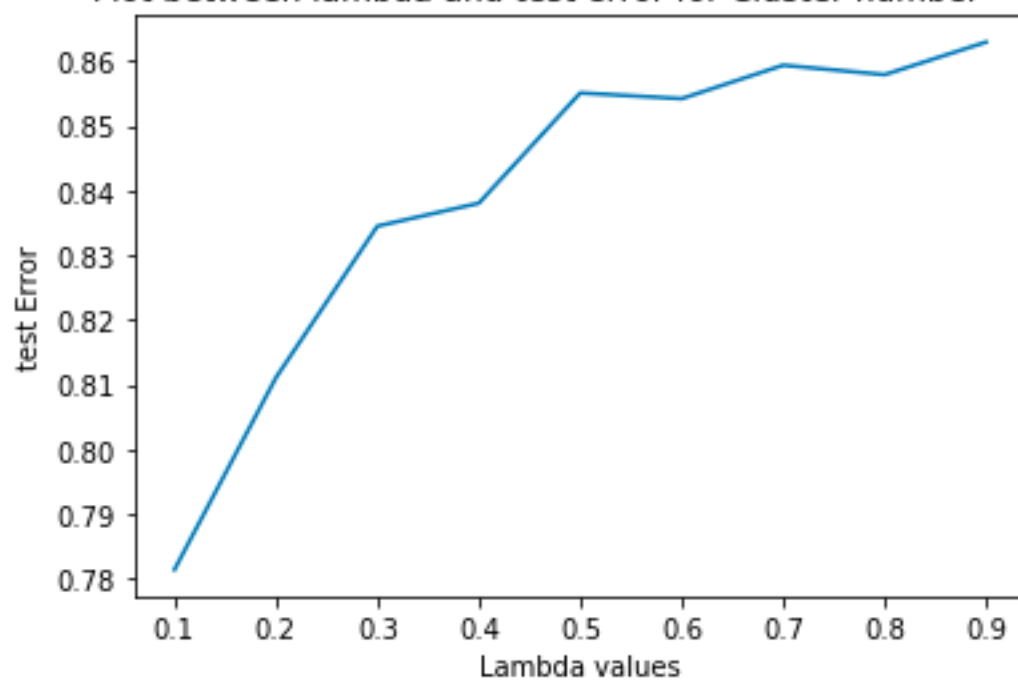
Plot between lambda and test error for Cluster number = 16



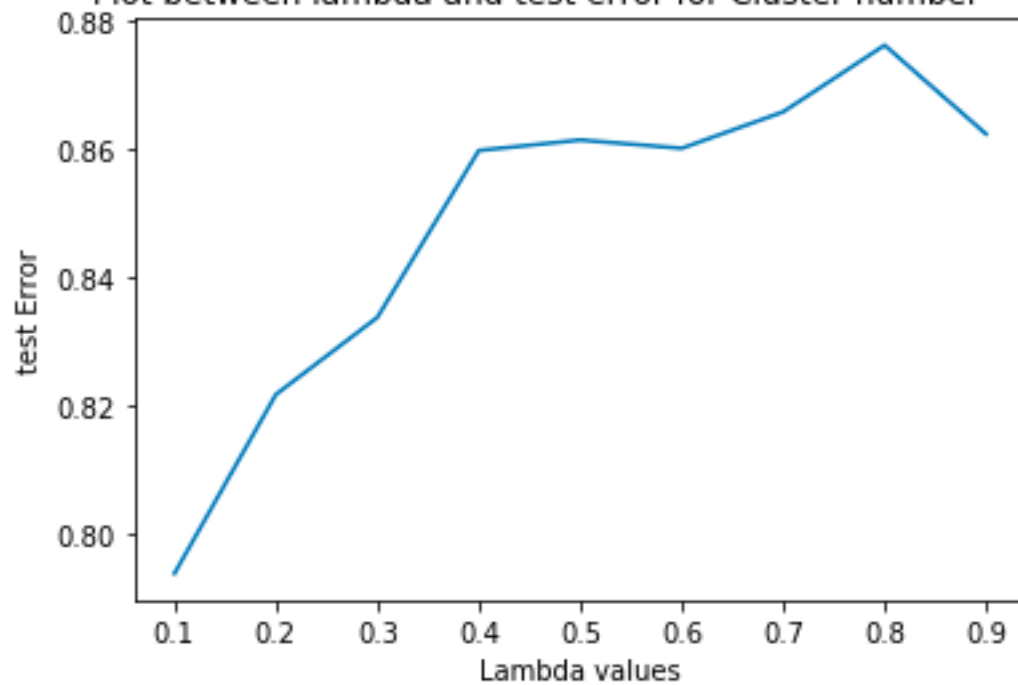
Plot between lambda and test error for Cluster number = 21



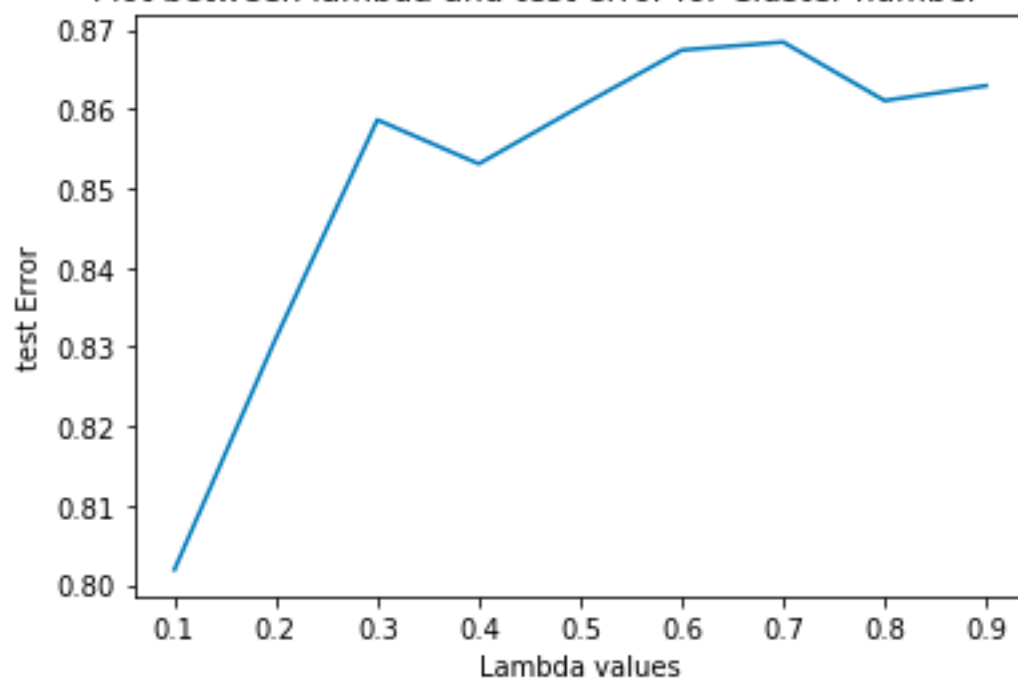
Plot between lambda and test error for Cluster number = 26



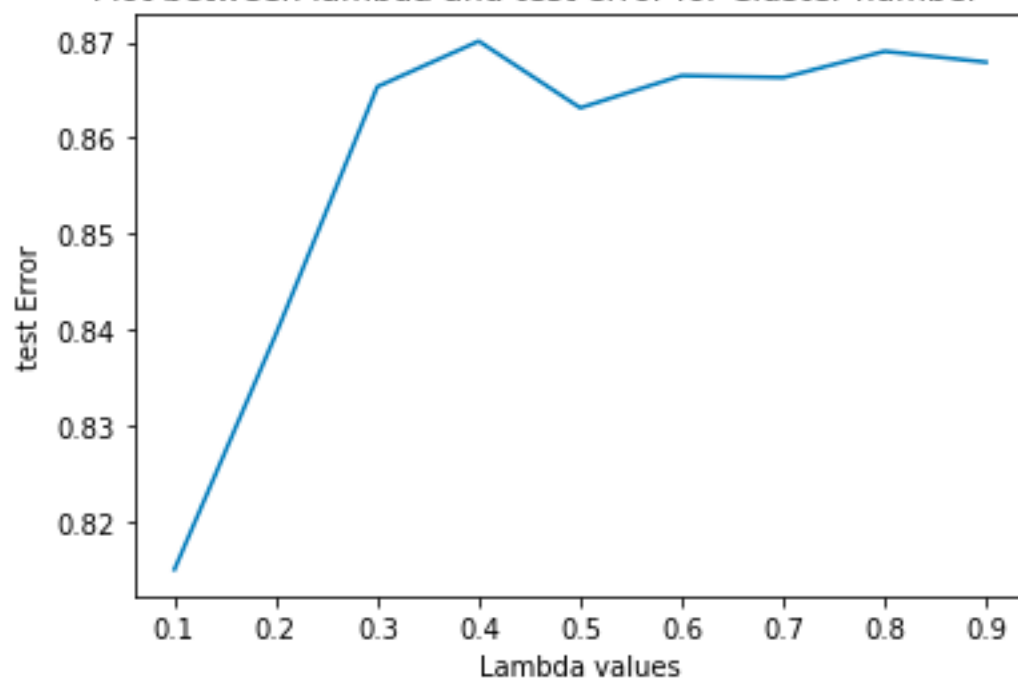
Plot between lambda and test error for Cluster number = 31



Plot between lambda and test error for Cluster number = 36



Plot between lambda and test error for Cluster number = 46



Plot between Clusternumbers and test error for Cluster number incrementing by 5

