**Experimental Setup and Results**

**Input:**

Input was coming from movies data set where we have five columns Domain, Label, Rating and Review. We use only review for training our models to predict their ratings.

**Models Used:**

Stochastic Gradient Descent Classifier

Gaussian Naïve Bayes Classifier

Decision -Tree Classifier

K-Nearest Neighbor Classifier

**Results:**

**Stochastic Gradient Descent Classifier:**

precision recall f1-score support  
  
 1 0.47 0.38 0.42 21  
 2 0.00 0.00 0.00 0  
 3 0.22 0.18 0.20 22  
 4 0.33 0.43 0.38 49  
 5 0.82 0.76 0.79 208  
  
 accuracy 0.64 300  
 macro avg 0.37 0.35 0.36 300  
weighted avg 0.67 0.64 0.66 300

**Confusion Matrix:**

[[ 8 0 4 2 3]  
 [ 2 0 0 2 5]  
 [ 3 0 4 2 9]  
 [ 4 0 6 21 32]  
 [ 4 0 8 22 159]]

**Gaussian Naïve Bayes Classifier:**

precision recall f1-score support  
  
 1 0.12 0.22 0.15 9  
 2 0.00 0.00 0.00 10  
 3 0.11 0.07 0.09 28  
 4 0.44 0.31 0.36 91  
 5 0.58 0.69 0.63 162  
  
 accuracy 0.48 300  
 macro avg 0.25 0.26 0.25 300  
weighted avg 0.46 0.48 0.46 300  
  
**Confusion Matrix:**

[ 2 2 1 3 9]  
 [ 0 0 0 4 5]  
 [ 1 1 2 4 10]  
 [ 2 0 7 28 26]  
 [ 4 7 18 52 112]

**Decision -Tree Classifier:**

precision recall f1-score support  
  
 1 0.18 0.08 0.11 38  
 2 0.33 0.33 0.33 9  
 3 0.17 0.17 0.17 18  
 4 0.27 0.35 0.31 48  
 5 0.70 0.72 0.71 187  
  
 accuracy 0.54 300  
 macro avg 0.33 0.33 0.33 300  
weighted avg 0.52 0.54 0.53 300

**Confusion Matrix:**

[ 3 0 3 4 7]  
 [ 3 3 0 0 3]  
 [ 4 0 3 4 7]  
 [ 4 1 6 17 35]  
 [ 24 5 6 23 135]

**K-Nearest Neighbor Classifier:**

precision recall f1-score support  
  
 1 0.65 0.58 0.61 19  
 2 0.11 1.00 0.20 1  
 3 0.06 0.17 0.08 6  
 4 0.14 0.27 0.19 33  
 5 0.88 0.70 0.78 241  
  
 accuracy 0.64 300  
 macro avg 0.37 0.54 0.37 300  
weighted avg 0.76 0.64 0.69 300

**Confusion Matrix:**  
[ 11 0 1 0 5]  
 [ 1 1 1 2 4]  
 [ 3 0 1 4 10]  
 [ 1 0 0 9 53]  
 [ 3 0 3 18 169]