

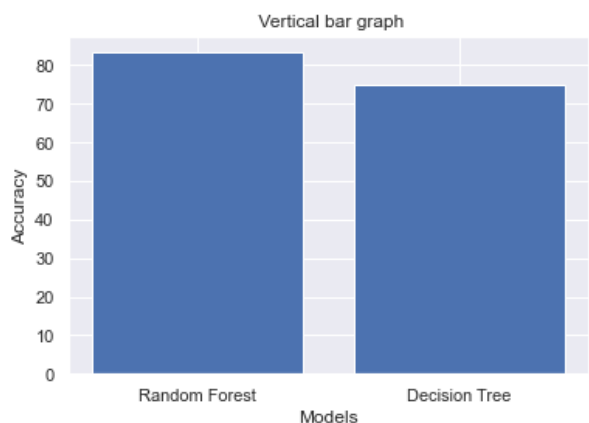
Project Development Phase Model Performance Test

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|---------------|--|
| Date | 15 November 2022 |
| Team ID | PNT2022TMID52690 |
| Project Name | Project – Detecting Parkinson's Disease using Machine Learning |
| Maximum Marks | 10 Marks |

Model Performance Testing:

Project team shall fill the following information in model performance testing template.

| S.No. | Parameter | Values | Screenshot | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|-----------|---|---|---------|-----------|--------|----------|---------|---|------|------|------|----|---|------|------|------|----|----------|--|--|------|----|-----------|------|------|------|----|--------------|------|------|------|----|--|---|---|---|----|---|---|---|----|
| 1. | Metrics | Classification Model: Ensemble Model(Voting Classifier)-KNN(K- Nearest Neighbor,Decision Tree,Random Forest) Confusion Matrix , Accuray Score- 95.93% & Classification Report | <pre>from sklearn.metrics import classification_report</pre> <pre>print(classification_report(testY, preds))</pre> <table><thead><tr><th></th><th>precision</th><th>recall</th><th>f1-score</th><th>support</th></tr></thead><tbody><tr><td>0</td><td>0.78</td><td>0.93</td><td>0.85</td><td>15</td></tr><tr><td>1</td><td>0.92</td><td>0.73</td><td>0.81</td><td>15</td></tr><tr><td>accuracy</td><td></td><td></td><td>0.83</td><td>30</td></tr><tr><td>macro avg</td><td>0.85</td><td>0.83</td><td>0.83</td><td>30</td></tr><tr><td>weighted avg</td><td>0.85</td><td>0.83</td><td>0.83</td><td>30</td></tr></tbody></table> <table><thead><tr><th></th><th>0</th><th>1</th></tr></thead><tbody><tr><th>0</th><td>14</td><td>1</td></tr><tr><th>1</th><td>4</td><td>11</td></tr></tbody></table> | | precision | recall | f1-score | support | 0 | 0.78 | 0.93 | 0.85 | 15 | 1 | 0.92 | 0.73 | 0.81 | 15 | accuracy | | | 0.83 | 30 | macro avg | 0.85 | 0.83 | 0.83 | 30 | weighted avg | 0.85 | 0.83 | 0.83 | 30 | | 0 | 1 | 0 | 14 | 1 | 1 | 4 | 11 |
| | precision | recall | f1-score | support | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 0.78 | 0.93 | 0.85 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0.92 | 0.73 | 0.81 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| accuracy | | | 0.83 | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| macro avg | 0.85 | 0.83 | 0.83 | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| weighted avg | 0.85 | 0.83 | 0.83 | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 14 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 4 | 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| 2. | Tune the Model | Hyperparameter Tuning – Grid SearchCV, Finding best estimators for each algorithm in ensemble model Validation Method – Cross Validation | <p>Vertical bar graph</p>  <table><tr><th>Models</th><th>Accuracy</th></tr><tr><td>Random Forest</td><td>82</td></tr><tr><td>Decision Tree</td><td>75</td></tr></table> | Models | Accuracy | Random Forest | 82 | Decision Tree | 75 |
|---------------|----------------|---|---|--------|----------|---------------|----|---------------|----|
| Models | Accuracy | | | | | | | | |
| Random Forest | 82 | | | | | | | | |
| Decision Tree | 75 | | | | | | | | |