**Machine Learning Algorithm Results**

**Time Calculations:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Algorithms | Exercise A  Movement = 13 | Exercise B  Movement = 17 | Exercise C  Movement = 23 | All Movements  Movement = 53 |
| Decision Tree Classifier | 0.454 | 0.889 | 3.290 | 6.776 |
| KNeighbors Classifier | 0.268 | 0.297 | 1.335 | 2.492 |
| Random Forest | 11.744 | 26.886 | 57.877 | 169.559 |
| Extra Trees Classifier | 9.795 | 23.260 | 59.279 | 138.323 |
| XGBoost | 66.105 | 104.051 | 237.172 | 1187.911 |

**Table:** Comparison of Time Calculations (Seconds)

**Accuracy Results:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Algorithms | Exercise A  Movement = 13 | Exercise B  Movement = 17 | Exercise C  Movement = 23 | All Movements  Movement = 53 |
| Decision Tree Classifier | 86.862% | 87.656% | 90.423% | 86.593% |
| KNeighbors Classifier | 89.167% | 91.820% | 97.266% | 92.664% |
| Random Forest | 91.339% | 93.184% | 97.092% | 93.895% |
| Extra Trees Classifier | 91.246% | 93.499% | 97.164% | 93.781% |
| XGBoost | 91.059% | 91.728% | 93.591% | 90.162% |

**Table:** Comparison of Accuracy.

**F1 Score Results:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Algorithms | Exercise A  Movement = 13 | Exercise B  Movement = 17 | Exercise C  Movement = 23 | All Movements  Movement = 53 |
| Decision Tree Classifier | 0.868 | 0.876 | 0.904 | 0.865 |
| KNeighbors Classifier | 0.890 | 0.918 | 0.973 | 0.926 |
| Random Forest | 0.911 | 0.931 | 0.971 | 0.937 |
| Extra Trees Classifier | 0.910 | 0.934 | 0.971 | 0.936 |
| XGBoost | 0.907 | 0.916 | 0.935 | 0.899 |

**Table:** Comparison of F1 Score.

0

**Deep Learning Algorithm Results**

**Time Calculations:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Algorithms | Exercise A  Movement = 13 | Exercise B  Movement = 17 | Exercise C  Movement = 23 | All Movements  Movement = 53 |
| Deep Learning | 8562.048 | 12580.572 | 22565.775 | 43394.592 |

**Table:** Comparison of Deep Learning Time Calculations (Seconds)

**Accuracy Results:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Algorithms | Exercise A  Movement = 13 | Exercise B  Movement = 17 | Exercise C  Movement = 23 | All Movements  Movement = 53 |
| Deep Learning | 92.139% | 93.286% | 97.899% | 94.579% |

**Table:** Comparison of Deep Learning Accuracy Score.

**F1 Score Results:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Algorithms | Exercise A  Movement = 13 | Exercise B  Movement = 17 | Exercise C  Movement = 23 | All Movements  Movement = 53 |
| Deep Learning | 0.918 | 0.932 | 0.979 | 0.944 |

**Table:** Comparison of Deep Learning F1 Score.