**k-NN Algorithm**

1. **Target variable = Pclass, IDV = remaining, k=3,4,5,6,7**

Score Pclass 3 0.8576779026217228

Confusion\_Matrx: Pclass 3 [[ 62 6 2]

[ 8 28 13]

[ 3 6 139]]

Score Pclass 4 0.8239700374531835

Confusion\_Matrx: Pclass 4 [[ 60 7 3]

[ 8 31 10]

[ 5 14 129]]

Score Pclass 5 0.8164794007490637

Confusion\_Matrx: Pclass 5 [[ 57 10 3]

[ 8 26 15]

[ 4 9 135]]

Score Pclass 6 0.8314606741573034

Confusion\_Matrx: Pclass 6 [[ 63 5 2]

[ 7 31 11]

[ 4 16 128]]

Score Pclass 7 0.8352059925093633

Confusion\_Matrx: Pclass 7 [[ 59 8 3]

[ 7 29 13]

[ 4 9 135]]

1. **Target variable = Survived, IDV = remaining, k=3,4,5,6,7**

Score Survived 3 0.6891385767790262

Confusion\_Matrix: Survived 3 [[122 35]

[ 48 62]]

Score Survived 4 0.6591760299625468

Confusion\_Matrix: Survived 4 [[133 24]

[ 67 43]]

Score Survived 5 0.6966292134831461

Confusion\_Matrix: Survived 5 [[125 32]

[ 49 61]]

Score Survived 6 0.6891385767790262

Confusion\_Matrix: Survived 6 [[130 27]

[ 56 54]]

Score Survived 7 0.6928838951310862

Confusion\_Matrix: Survived 7 [[124 33]

[ 49 61]]

1. **Target variable = Sex, IDV = remaining, k=3,4,5,6,7**

Score Sex 3 0.6404494382022472

Confusion\_Matrix: Sex 3 [[ 49 49]

[ 47 122]]

Score Sex 4 0.6367041198501873

Confusion\_Matrix: Sex 4 [[ 64 34]

[ 63 106]]

Score Sex 5 0.704119850187266

Confusion\_Matrix: Sex 5 [[ 56 42]

[ 37 132]]

Score Sex 6 0.6741573033707865

Confusion\_Matrix: Sex 6 [[ 59 39]

[ 48 121]]

Score Sex 7 0.651685393258427

Confusion\_Matrix: Sex 7 [[ 45 53]

[ 40 129]]

1. **Target variable = Age, IDV = remaining, k=3,4,5,6,7**

Score Age 3 0.08239700374531835

Confusion\_Matrix: Age 3 [[1 0 1 ... 0 0 0]

[0 0 0 ... 0 0 0]

[0 0 0 ... 0 0 0]

...

[0 0 0 ... 0 0 0]

[0 0 0 ... 0 0 0]

[0 0 0 ... 0 0 0]]

Score Age 4 0.09737827715355805

Confusion\_Matrix: Age 4 [[1 0 1 ... 0 0 0]

[0 0 0 ... 0 0 0]

[0 0 0 ... 0 0 0]

...

[0 0 0 ... 0 0 0]

[0 0 0 ... 0 0 0]

[0 0 0 ... 0 0 0]]

Score Age 5 0.12359550561797752

Confusion\_Matrix: Age 5 [[1 0 1 ... 0 0 0]

[0 0 0 ... 0 0 0]

[0 0 0 ... 0 0 0]

...

[0 0 0 ... 0 0 0]

[0 0 0 ... 0 0 0]

[0 0 0 ... 0 0 0]]

Score Age 6 0.15355805243445692

Confusion\_Matrix: Age 6 [[1 1 1 ... 0 0 0]

[0 0 0 ... 0 0 0]

[0 0 1 ... 0 0 0]

...

[0 0 0 ... 0 0 0]

[0 0 0 ... 0 0 0]

[0 0 0 ... 0 0 0]]

Score Age 7 0.15355805243445692

Confusion\_Matrix: Age 7 [[1 0 1 ... 0 0 0]

[0 0 0 ... 0 0 0]

[0 0 1 ... 0 0 0]

...

[0 0 0 ... 0 0 0]

[0 0 0 ... 0 0 0]

[0 0 0 ... 0 0 0]]

1. **Target variable = Embarked, IDV = remaining, k=3,4,5,6,7**

Score Embarked 3 0.700374531835206

Confusion\_Matrix: Embarked 3 [[ 17 3 29]

[ 1 8 13]

[ 30 4 162]]

Score Embarked 4 0.7228464419475655

Confusion\_Matrix: Embarked 4 [[ 24 5 20]

[ 2 10 10]

[ 27 10 159]]

Score Embarked 5 0.7602996254681648

Confusion\_Matrix: Embarked 5 [[ 21 5 23]

[ 1 9 12]

[ 18 5 173]]

Score Embarked 6 0.7378277153558053

Confusion\_Matrix: Embarked 6 [[ 23 6 20]

[ 1 8 13]

[ 23 7 166]]

Score Embarked 7 0.7453183520599251

Confusion\_Matrix: Embarked 7 [[ 18 7 24]

[ 1 7 14]

[ 19 3 174]]

1. **Target variable = Parch, IDV = remaining, k=3,4,5,6,7**

Score Parch 3 0.7865168539325843

Confusion\_Matrix: Parch 3 [[190 7 1 0 0]

[ 26 13 1 0 0]

[ 15 5 7 0 0]

[ 1 0 0 0 0]

[ 1 0 0 0 0]]

Score Parch 4 0.7865168539325843

Confusion\_Matrix: Parch 4 [[193 4 1 0 0]

[ 29 11 0 0 0]

[ 15 6 6 0 0]

[ 0 1 0 0 0]

[ 1 0 0 0 0]]

Score Parch 5 0.7865168539325843

Confusion\_Matrix: Parch 5 [[193 4 1 0 0]

[ 28 9 3 0 0]

[ 15 4 8 0 0]

[ 0 1 0 0 0]

[ 1 0 0 0 0]]

Score Parch 6 0.797752808988764

Confusion\_Matrix: Parch 6 [[197 0 1 0 0]

[ 29 8 3 0 0]

[ 15 4 8 0 0]

[ 0 0 1 0 0]

[ 1 0 0 0 0]]

Score Parch 7 0.7940074906367042

Confusion\_Matrix: Parch 7 [[196 1 1 0 0]

[ 29 8 3 0 0]

[ 15 4 8 0 0]

[ 0 1 0 0 0]

[ 1 0 0 0 0]]

1. **Target variable = SibSp, IDV = remaining, k=3,4,5,6,7**

Score SibSp 3 0.7340823970037453

Confusion\_Matrix: SibSp 3 [[157 22 1 0 2 0 0]

[ 27 31 3 2 2 0 0]

[ 5 1 1 1 0 0 0]

[ 1 3 0 3 0 0 0]

[ 0 1 0 0 1 0 0]

[ 0 0 0 0 0 1 0]

[ 0 0 0 0 0 0 2]]

Score SibSp 4 0.7078651685393258

Confusion\_Matrix: SibSp 4 [[163 16 1 0 2 0 0]

[ 38 20 3 2 2 0 0]

[ 5 1 0 2 0 0 0]

[ 1 4 0 2 0 0 0]

[ 0 0 1 0 1 0 0]

[ 0 0 0 0 0 1 0]

[ 0 0 0 0 0 0 2]]

Score SibSp 5 0.7265917602996255

Confusion\_Matrix: SibSp 5 [[159 20 1 0 2 0 0]

[ 30 30 3 0 1 0 1]

[ 5 1 1 1 0 0 0]

[ 2 5 0 0 0 0 0]

[ 0 0 1 0 1 0 0]

[ 0 0 0 0 0 1 0]

[ 0 0 0 0 0 0 2]]

Score SibSp 6 0.7265917602996255

Confusion\_Matrix: SibSp 6 [[161 19 1 0 1 0 0]

[ 33 29 0 0 2 0 1]

[ 6 2 0 0 0 0 0]

[ 1 5 0 0 1 0 0]

[ 0 0 1 0 1 0 0]

[ 0 0 0 0 0 1 0]

[ 0 0 0 0 0 0 2]]

Score SibSp 7 0.7228464419475655

Confusion\_Matrix: SibSp 7 [[157 23 1 0 1 0 0]

[ 30 32 0 0 2 0 1]

[ 6 2 0 0 0 0 0]

[ 1 4 0 0 2 0 0]

[ 0 0 1 0 1 0 0]

[ 0 0 0 0 0 1 0]

[ 0 0 0 0 0 0 2]]

1. **Target variable = Fare, IDV = remaining, k=3,4,5,6,7**

Score Fare 3 0.27715355805243447

Confusion\_Matrix: Fare 3 [[ 3 0 1 ... 0 0 0]

[ 0 0 2 ... 0 0 0]

[ 0 0 51 ... 0 0 0]

...

[ 0 0 0 ... 0 0 0]

[ 0 0 1 ... 0 0 0]

[ 0 0 0 ... 0 0 0]]

Score Fare 4 0.27340823970037453

Confusion\_Matrix: Fare 4 [[3 0 0 ... 0 0 0]

[0 0 0 ... 0 0 0]

[0 0 0 ... 0 0 0]

...

[0 0 0 ... 0 0 0]

[0 0 0 ... 0 0 0]

[0 0 0 ... 0 0 0]]

Score Fare 5 0.2696629213483146

Confusion\_Matrix: Fare 5 [[ 2 0 1 ... 0 0 0]

[ 0 0 2 ... 0 0 0]

[ 1 1 51 ... 0 0 0]

...

[ 0 0 0 ... 0 0 0]

[ 0 0 1 ... 0 0 0]

[ 0 0 0 ... 0 0 1]]

Score Fare 6 0.26217228464419473

Confusion\_Matrix: Fare 6 [[ 2 0 2 ... 0 0 0]

[ 0 0 3 ... 0 0 0]

[ 1 0 56 ... 0 0 0]

...

[ 0 0 0 ... 0 0 0]

[ 0 0 1 ... 0 0 0]

[ 0 0 0 ... 0 0 1]]

Score Fare 7 0.250936329588015

Confusion\_Matrix: Fare 7 [[ 2 0 2 ... 0 0 0]

[ 0 0 3 ... 0 0 0]

[ 1 0 53 ... 0 0 0]

...

[ 0 0 0 ... 0 0 0]

[ 0 0 1 ... 0 0 0]

[ 0 0 0 ... 0 0 1]]