**The optimized parameters for each algorithm.**

Model: SVM, Best Parameters: {'C': 0.1, 'break\_ties': False, 'cache\_size': 200, 'class\_weight': None, 'coef0': 0.0, 'decision\_function\_shape': 'ovr', 'degree': 3, 'gamma': 0.01, 'kernel': 'rbf', 'max\_iter': -1, 'probability': True, 'random\_state': None, 'shrinking': True, 'tol': 0.001, 'verbose': False}

Model: Random forest, Best Parameters: {'bootstrap': True, 'ccp\_alpha': 0.0, 'class\_weight': None, 'criterion': 'gini', 'max\_depth': 4, 'max\_features': 'auto', 'max\_leaf\_nodes': None, 'max\_samples': None, 'min\_impurity\_decrease': 0.0, 'min\_samples\_leaf': 1, 'min\_samples\_split': 2, 'min\_weight\_fraction\_leaf': 0.0, 'n\_estimators': 50, 'n\_jobs': None, 'oob\_score': False, 'random\_state': None, 'verbose': 0, 'warm\_start': False}

Model: Logistic regression, Best Parameters: {'C': 10, 'class\_weight': None, 'dual': False, 'fit\_intercept': True, 'intercept\_scaling': 1, 'l1\_ratio': None, 'max\_iter': 100, 'multi\_class': 'auto', 'n\_jobs': None, 'penalty': 'l2', 'random\_state': None, 'solver': 'lbfgs', 'tol': 0.0001, 'verbose': 0, 'warm\_start': False}

Model: XGBoost, Best Parameters: {'objective': 'binary:logistic', 'use\_label\_encoder': False, 'base\_score': 0.5, 'booster': 'gbtree', 'callbacks': None, 'colsample\_bylevel': 1, 'colsample\_bynode': 1, 'colsample\_bytree': 1, 'early\_stopping\_rounds': None, 'enable\_categorical': False, 'eval\_metric': None, 'gamma': 0, 'gpu\_id': -1, 'grow\_policy': 'depthwise', 'importance\_type': None, 'interaction\_constraints': '', 'learning\_rate': 0.1, 'max\_bin': 256, 'max\_cat\_to\_onehot': 4, 'max\_delta\_step': 0, 'max\_depth': 3, 'max\_leaves': 0, 'min\_child\_weight': 1, 'missing': nan, 'monotone\_constraints': '()', 'n\_estimators': 30, 'n\_jobs': 0, 'num\_parallel\_tree': 1, 'predictor': 'auto', 'random\_state': 0, 'reg\_alpha': 0, 'reg\_lambda': 1, 'sampling\_method': 'uniform', 'scale\_pos\_weight': 1, 'subsample': 1, 'tree\_method': 'exact', 'validate\_parameters': 1, 'verbosity': None}