

Table. Random forest model fit & error metrics of organizational recoverability using Rstudio

312 samples			
10 predictor			
No pre-processing			
Resampling: Cross validated (5 Fold)			
Summary of sample Sizes:250, 248, 250, 250, 250			
Resampling results across tuning parameters			
mtry	RMSE	Rsquared	MAE
2	0.2398250	0.9138444	0.1503523
3	0.2334070	0.9164503	0.1430089
5	0.2308567	0.9170848	0.1378766

RMSE was used to select the optimal model using the smallest value.The final value used for the model was mtry = 5.

Table: Linear Regression of organizational recoverability and its predictor analysis using R studios

Call:					
glm(formula = y_train ~ ., data = X_train)					
Deviance Residuals:					
Min	1Q	Median	3Q	Max	
-1.4537	-0.4579	0.0129	0.4355	1.9221	
Coefficients:					
	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	2.583326	0.183166	14.104	< 2e-16	***
CA	0.085768	0.046697	1.837	0.06724	
COM	0.076350	0.070843	1.078	0.28202	
DJ	0.277381	0.102451	2.707	0.00717	**
InJ	0.223311	0.080577	2.771	0.00593	**
JA	0.091981	0.051690	1.779	0.07617	
OJ	0.352185	0.149184	2.361	0.01888	*

PJ	-0.614135	0.105954	-5.796	1.71e-08	***
SWHR	0.000846	0.059296	0.014	0.98863	
TL	-0.114206	0.056778	-2.011	0.04517	*
TR	-0.030080	0.068043	-0.442	0.65876	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1					
(Dispersion parameter for gaussian family taken to be 0.4129576)					
Null deviance: 190.73 on 311 degrees of freedom					
Residual deviance: 124.30 on 301 degrees of freedom					
AIC: 622.28					
Number of Fisher Scoring iterations: 2					
AIC: 622.28					

Table : Table: Random Forest and predictor Analysis using Rstudio(Result with relevant hyperparameters , error metrics, and leading features)

Error Metrics(at mtry=5)	MAE	0.1378766
	RMSE	0.2308567
	Rsquared	0.9170848
Hyper-parameters	mtry(Random Variable selected)	(2,3,5)
	No. of trees(ntree)	500
	min_samples_leaf	5
	min_samples_split	3
Significant predictors	Most significant variable	TL
	Second most significant variable	DJ
	Third most significant variable	InJ
	Fourth most significant variable	CA
Model Accuracy	Correlation between testing & training data	0.4262502

Feature Importance as per random Forest.

Random forest imp. Parameter before tuning	Random forest imp. Parameter after tuning
IncNodePurity CA 21.807497 COM 15.286661 DJ 25.816432 InJ 22.317378 JA 17.972818 OJ 5.740602 PJ 16.941012 SWHR 17.446936	IncNodePurity CA 21.919612 COM 12.755955 DJ 27.845271 InJ 24.035166 JA 16.922478 OJ 4.030117 PJ 16.005474 SWHR 17.627878 TL 30.246932 TR 17.265080

TL	26.680539	
TR	17.873575	