Data Driven Project Management
Predicting the Development Time

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Statistic	dayss	hours	hours-filtered-30	hours-filtered-10
unit	days	hours	hours	hours
count	2935.000	2935.000	2771.000	2472.000
mean	8.536	205.252	95.229	57.273
std	28.265	678.103	130.036	59.080
min	0.000	2.000	2.000	2.000
25%	1.000	15.000	13.000	12.000
50%	2.000	49.000	44.000	33.000
75%	6.000	148.000	121.000	86.000
max	625.000	15003.000	719.000	240.000

Table 1. DATASET CHARACTERISTICS.

***Abstract*—Predicting development time is hard. In this paper we are trying to explain all the difficulties encountered on the journey to predicting time with as low**

1. Introduction

explain PMO's problems

2. Model data

JIRA data briefly and what the model is consisted of

3. Testing model quality

Present different the results (MAE, RMSE, R2) obtained by different regressors. As the variance lowers, so do the metrics of quality of the models.

4. Model Explainability

Write about feature importance and how to explain the made decisions.

5. Conclusion

Quick recap of the problem and how we solved it. XGBoost [**?**], SHAP [2].

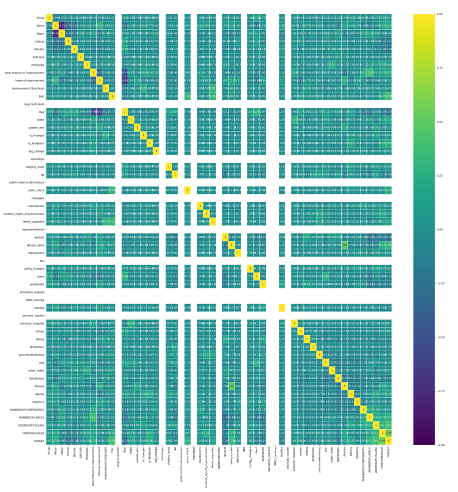
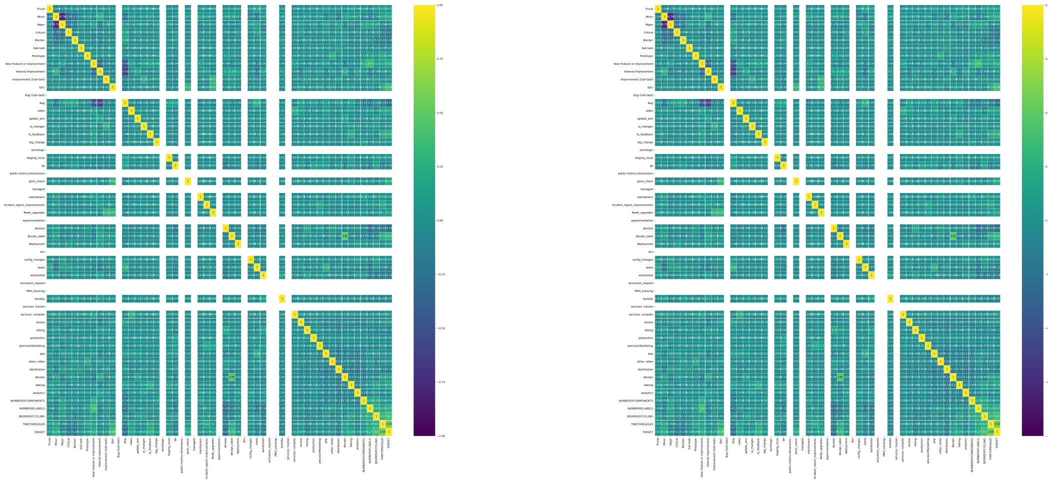


Figure 1. Simulation results for the network.

References

[1] T. Chen and C. Guestrin, "Xgboost: A scalable tree boosting system," in *Proceedings of the 22nd acm sigkdd international conference on knowledge discovery and data mining*, 2016, pp. 785–794.

[2] S. M. Lundberg, G. Erion, H. Chen, A. DeGrave, J. M. Prutkin, B. Nair, R. Katz, J. Himmelfarb, N. Bansal, and S.-I. Lee, "From local explanations to global understanding with explainable ai for trees," *Nature Machine Intelligence*, vol. 2, no. 1, pp. 2522–5839, 2020.



(a) Case I (b) Case II

Figure 2. Simulation results for the network.

DataSet	Method	RMSE	MAE	R^2
1	boost	33.476	11.307	-0.073
	naive	53.129	40.126	-1.702
	forest	41.136	10.392	-0.620
	SVM	**33.079**	**7.988**	-0.047
1*	boost	**32.974**	10.581	-0.041
	naive	69.530	48.106	-3.628
	forest	34.364	9.683	-0.130
	SVM	33.020	**7.961**	-0.044
2	XGBoost	809.712	281.738	-0.091
	GaussianNB	890.796	381.685	-0.321
	RandomForest	1021.232	280.129	-0.736
	SVM	**792.962**	**193.070**	-0.046
2*	XGBoost	**792.284**	255.451	-0.045
	GaussianNB	941.595	411.579	-0.475
	RandomForest	897.283	267.935	-0.340
	SVM	792.589	**191.877**	-0.045
3	boost	**135.966**	89.841	-0.026
	naive	263.943	209.445	-2.865
	forest	170.992	103.386	-0.622
	SVM	144.008	**79.159**	-0.150
3*	boost	**135.020**	90.459	-0.011
	naive	279.474	232.818	-3.333
	forest	180.686	113.533	-0.811
	SVM	143.295	**79.605**	-0.139
4	XGBoost	**54.720**	41.941	0.050
	GaussianNB	122.290	105.834	-3.744
	RandomForest	75.167	54.669	-0.792
	SVM	59.238	**40.390**	-0.113
4*	XGBoost	**53.706**	42.230	0.085
	GaussianNB	124.868	109.788	-3.946
	RandomForest	78.889	56.857	-0.974
	SVM	58.114	**39.974**	-0.071

Table 2. PERFORMANCE OF DIFFERENT METHODS ON THE VARIATIONS OF THE DATASET. THE $*$ SYMBOL INDICATES THAT THE DATASET DOES NOT CONTAIN ALL THE INITIAL ATTRIBUTES, THUS IT IS MORE REALISTIC.