Data Boot Camp Grading Rubric

Unit 21 - Machine Learning Homework - Exoplanet Exploration

Instructions:

Evaluate the homework against the outlined criteria in the below rubric, assigning a rating to each criterion. Add points earned across all criteria and convert the total points to a letter grade, assigning a “+” or “-” letter grade designation at your discretion.

A (+/-)	90+	C (+/-)	40-64	F (+/-)	<15
B (+/-)	65-89	D (+/-)	15-39		

Notes:

The deployed assignment utilizes the **sklearn** library to train models on a set of data and used to make predictions. The source code should also be deployed to **Github** or **Gitlab**. There are more models that could have been used for this HW, the 3 given solutions are only a select few. Therefore, if a student uses a different model that we did not provide as a solution, they will not be docked any points as long as they still meet the requirements specified in the rubric.

Rubric for Exoplanet Exploration:

	Mastery 20 points	**Approaching Mastery 15 points**	**Progressing 10 points**	**Emerging 5-0 points**	**Incomplete**

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Data Preprocessing	The submission does all of the following: ✓ Unnecessary Columns are removed. ✓ All rows containing NaN are removed. ✓ Data is correctly split into a training and test set. ✓ Numerical data is scaled accordingly.	The submission does 3 of the following: ✓ Unnecessary Columns are removed. ✓ All rows containing NaN are removed. ✓ Data is correctly split into a training and test set. ✓ Numerical data is scaled accordingly.	The submission does 2 of the following: ✓ Unnecessary Columns are removed. ✓ All rows containing NaN are removed. ✓ Data is correctly split into a training and test set. ✓ Numerical data is scaled accordingly.	The submission does 0-1 of the following: ✓ Unnecessary Columns are removed. ✓ All rows containing NaN are removed. ✓ Data is correctly split into a training and test set. ✓ Numerical data is scaled accordingly. -OR- ✓ No preprocessing done.	No submission was received -OR- Submission was empty or blank -OR- Submission contains evidence of academic dishonesty
Model Creation & Feature Selection	The submission does all of the following: **Model Creation:** ✓ Creates, trains, and tests at least 2 different classification models ✓ Correctly sets `X` and `y` (koi_disposition) variables **Feature Selection:** ✓ Uses some form of feature selection method to identify insignificant variables (`feature_importance`, `RFE`, backwards elimination, etc.) ✓ Remove insignificant variables and retrain models with the significant features	The submission does 3 of the following: **Model Creation:** ✓ Creates, trains, and tests at least 2 different classification models ✓ Correctly sets `X` and `y` (koi_disposition) variables **Feature Selection:** ✓ Uses some form of feature selection method to identify insignificant variables (`feature_importance`, `RFE`, backwards elimination, etc.) ✓ Remove insignificant variables and retrain models with the significant features	The submission does 2 of the following: **Model Creation:** ✓ Creates, trains, and tests at least 2 different classification models ✓ Correctly sets `X` and `y` (koi_disposition) variables **Feature Selection:** ✓ Uses some form of feature selection method to identify insignificant variables (`feature_importance`, `RFE`, backwards elimination, etc.) ✓ Remove insignificant variables and retrain models with the significant features	The submission does 0-1 of the following: **Model Creation:** ✓ Creates, trains, and tests at least 2 different classification models ✓ Correctly sets `X` and `y` (koi_disposition) variables **Feature Selection:** ✓ Uses some form of feature selection method to identify insignificant variables (`feature_importance`, `RFE`, backwards elimination, etc.) ✓ Remove insignificant variables and retrain models with the significant features -OR- ✓ Only uses non-classification models.	
Model Tuning	The submission does all of the	The submission does 2 of the	The submission does 1 of the	The submission does 0 of the	

	following: **Model Tuning:** ✓ Uses `GridSearch` or some hyperparameter tuning to find the best parameters for the model ✓ The tuned model is used to make the final exoplanet prediction	following: **Model Tuning:** ✓ Uses `GridSearch` or some hyperparameter tuning to find the best parameters for the model ✓ The tuned model is used to make the final exoplanet prediction	following: **Model Tuning:** ✓ Uses `GridSearch` or some hyperparameter tuning to find the best parameters for the model ✓ The tuned model is used to make the final exoplanet prediction	following: **Model Tuning:** ✓ Uses `GridSearch` or some hyperparameter tuning to find the best parameters for the model ✓ The tuned model is used to make the final exoplanet prediction	
Model Accuracy	✓ Model scores greater than 85% accuracy on test data.	✓ Model scores between 85% and 75% accuracy on test data.	✓ Model scores between 75% and 50% accuracy on test data.	✓ Model scores less than 50% accuracy on test data.	
Reporting	The submission does all of the following: **Reporting** ✓ README compares each of the models' performances and predictions ✓ README summarizes the findings and makes assumptions based on the data and their models. ✓ README discusses the predictions of the possible exoplanets with their models.	The submission does 2 of the following: **Reporting** ✓ README compares each of the models' performances and predictions ✓ README summarizes the findings and makes assumptions based on the data and their models. ✓ README discusses the predictions of the possible exoplanets with their models.	The submission does 1 of the following: **Reporting** ✓ README compares each of the models' performances and predictions ✓ README summarizes the findings and makes assumptions based on the data and their models. ✓ README discusses the predictions of the possible exoplanets with their models.	The submission does 0 of the following: **Reporting** ✓ README compares each of the models' performances and predictions ✓ README summarizes the findings and makes assumptions based on the data and their models. ✓ README discusses the predictions of the possible exoplanets with their models. -OR- ✓ Does not submit a README	