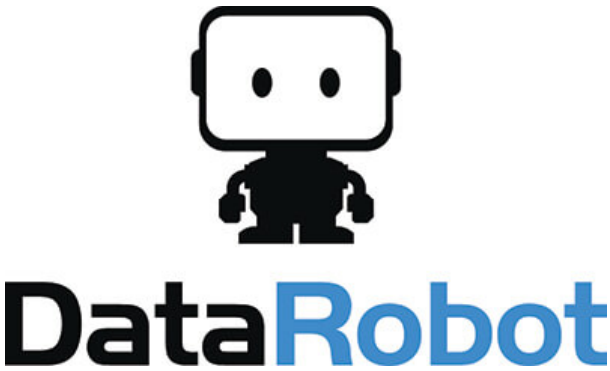
M8 Practical Challenge: Time-Series Prediction—Python versus DataRobot

Submit Assignment

Due Sunday by 11:59pm **Points** 100 **Submitting** a file upload

In this Practical Challenge, you'll get your chance to develop your own time-series models from scratch in Python as well as DataRobot and compare your predictions.



Here's what to do:

Model Development (Python)

Identify a data set that is suitable for a time series prediction that we have not used in class.

First create at least 3 different time-series models.

Don't forget to split your data into training and testing (e.g., the final 12 months or final 52 weeks, assuming the data has calendar based seasonality).

These models should only account for seasonality and trend. We are not attempting to account for other potential influencers.

Then use each model to forecast at least one full final cycle of your data (e.g., final 12 months or 52 weeks) and graph your actual versus predicted results and residuals.

Pick the best one and explain your choice using appropriate model statistics (e.g., RMSE) and your residual plots.

Model Development (DataRobot)

Run the same data base in DataRobot as used in previous step.

Examine at least 3 of the best models the tool created.

Then use each model to forecast your final cycle of data as above (e.g., final 12 months or 52 weeks) and graph your actual versus predicted and residuals.

Pick the best one and explain your choice using appropriate model statistics (e.g., RMSE) and your residual plots.

Predictive comparisons

Compare your best DataRobot prediction to your best hand coded Python model prediction.

Pick a winner and explain your choice using appropriate model statistics (e.g., RMSE) and your residual plots.

Write a paper

That documents what you did and provides the requested forecasts, model selections and accompanying rationales.

This assignment is due prior to the conclusion of M8 (Sunday, 11:59pm ET).

Questions?

Please review the grading rubric for this assignment. Then post to our course Slack workspace.

M8 Practical Challenge (1)

Criteria	Ratings				Pts
Predictive Model Development (Python)	**25.0 pts** **Exemplary** Notebook contains appropriately documented and runnable Python code for 3 different predictive modeling approaches	**20.0 pts** **Proficient** Notebook contains runnable Python code for the requested models but code could be better organized/documented.	**15.0 pts** **Developing** Notebook provided but does not cover the 3 requested approaches and/or code cannot be run	**0.0 pts** **Not attempted** No evidence of Python model development	25.0 pts
Future Time Period Forecasting (Python)	**10.0 pts** **Exemplary** 12 units into the future have been forecasted for each of the three models and graphed correctly and clearly	**8.0 pts** **Proficient** 12 units into the future have been forecasted for each of the three models and graphed but graphs are not clear or incorrect.	**6.0 pts** **Developing** Future time period forecasting fails to meet specifications.	**0.0 pts** **Not attempted**	10.0 pts
Predictive Model Selection (Python)	**10.0 pts** **Exemplary** Discussion of model performance addresses requested metrics and is insightful. Chosen model aligns with provided metrics/discussion.	**8.0 pts** **Proficient** Discussion of model performance addresses requested metrics and chosen model aligns with provided metrics/discussion. However discussion could be more complete or insightful.	**6.0 pts** **Developing** Discussion of model performance is incomplete or insufficient and/or choice of preferred model does not align with metrics or discussion.	**0.0 pts** **Not attempted** No discussion of model selection	10.0 pts
Predictive Model Development (DataRobot)	**25.0 pts** **Exemplary** Effort to develop predictive model using DataRobot is thoroughly and clearly documented with text and screenshots.	**20.0 pts** **Proficient** Effort to develop predictive model using DataRobot is documented with text and screenshots but could me more thorough or clear.	**15.0 pts** **Developing** Predictive modeling efforts using DataRobot is insufficiently documented.	**0.0 pts** **Not attempted** No discussion of Data Robot model development	25.0 pts

Criteria	Ratings				Pts
Future Time Period Forecasting (DataRobot)	**10.0 pts** **Exemplary** 12 units into the future have been forecasted for 3 selected models (that can rationalized as being superior to the others) and graphed correctly and clearly.	**8.0 pts** **Proficient** 12 units into the future have been forecasted for each of the three models and graphed but graphs are not clear or incorrect OR selected models cannot be rationalized as being superior to others	**6.0 pts** **Developing** Future time period forecasting fails to meet specifications.	**0.0 pts** **Not attempted**	10.0 pts
Predictive Model Selection (DataRobot)	**10.0 pts** **Exemplary** Discussion of model performance addresses requested metrics and is insightful. Chosen model aligns with provided metrics/discussion.	**8.0 pts** **Proficient** Discussion of model performance addresses requested metrics and chosen model aligns with provided metrics/discussion. However discussion could be more complete or insightful.	**6.0 pts** **Developing** Discussion of model performance is incomplete or insufficient and/or choice of preferred model does not align with metrics or discussion	**0.0 pts** **Not attempted** No discussion of model selection	10.0 pts
DataRobot versus Python	**10.0 pts** **Exemplary** A winner is declared and the conclusion is clearly supported by the cited model metrics.	**8.0 pts** **Proficient** A winner is declared but the conclusion could be better explained or better supported by the cited model metrics.	**6.0 pts** **Developing** Winner declared but no rationalization provided	**0.0 pts** **Not attempted**	10.0 pts
					Total Points: 100.0