Auto ML

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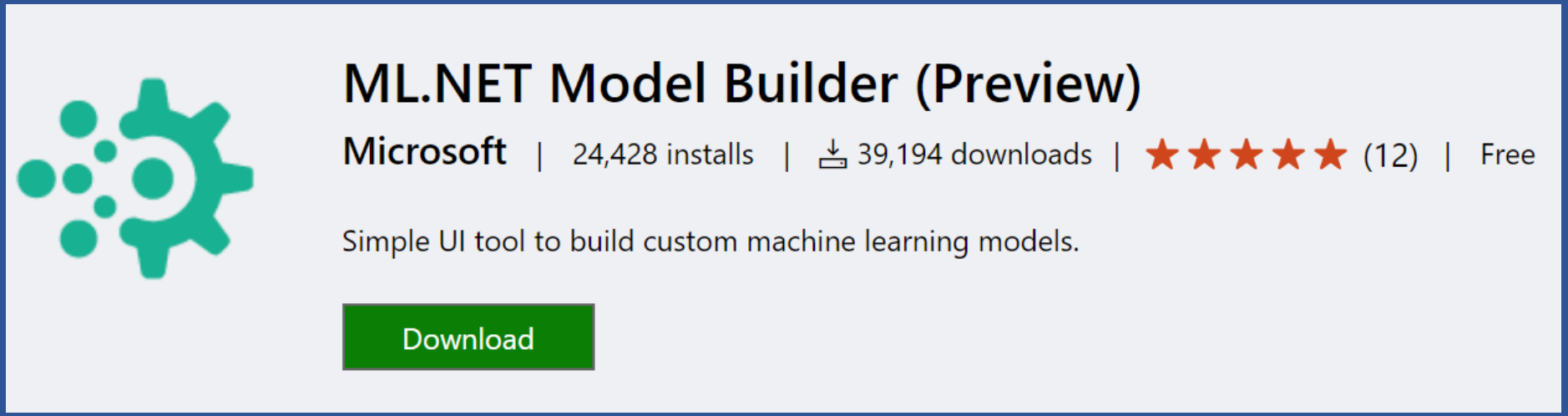
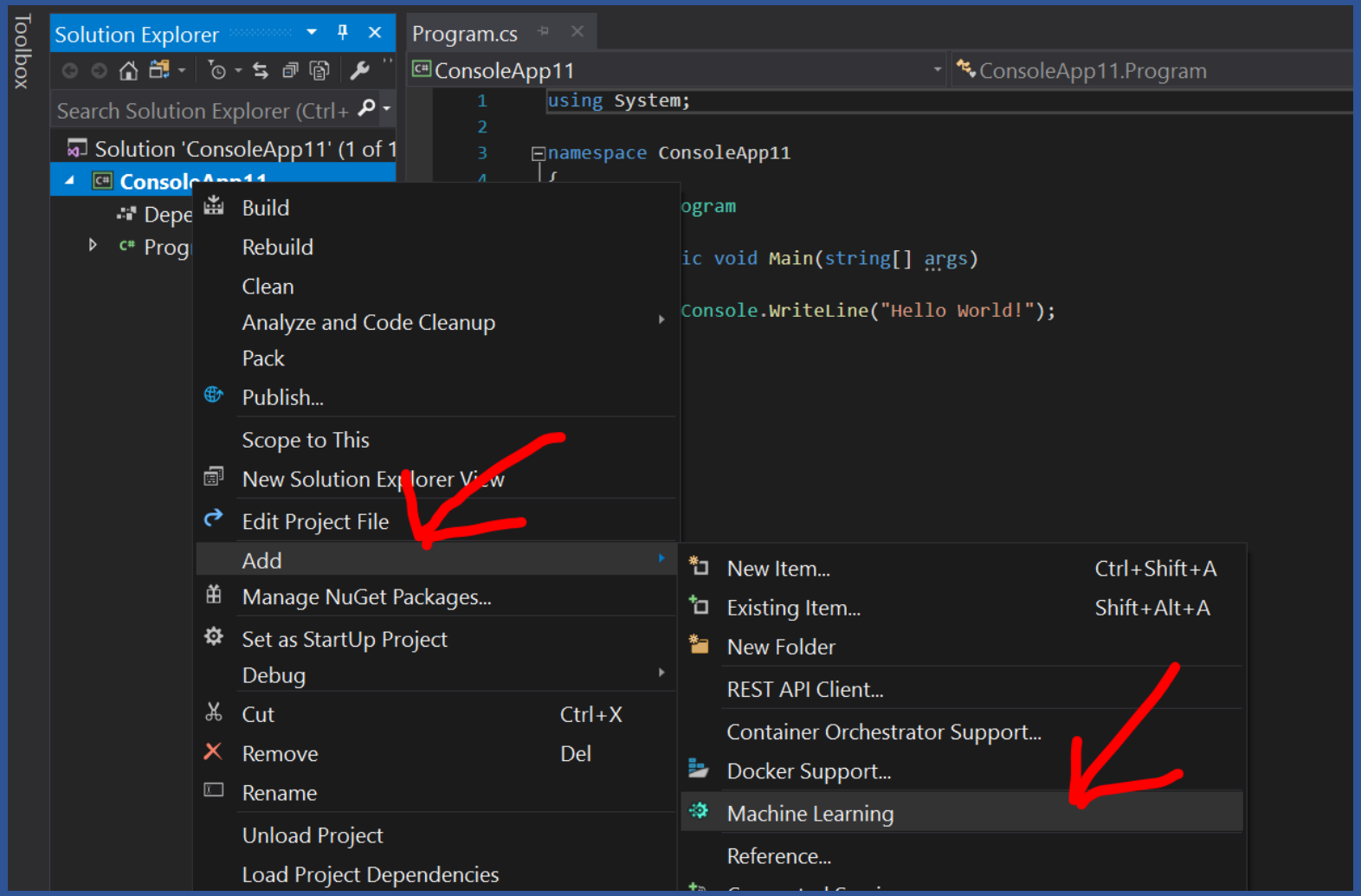
Install ML.NET Model Builder

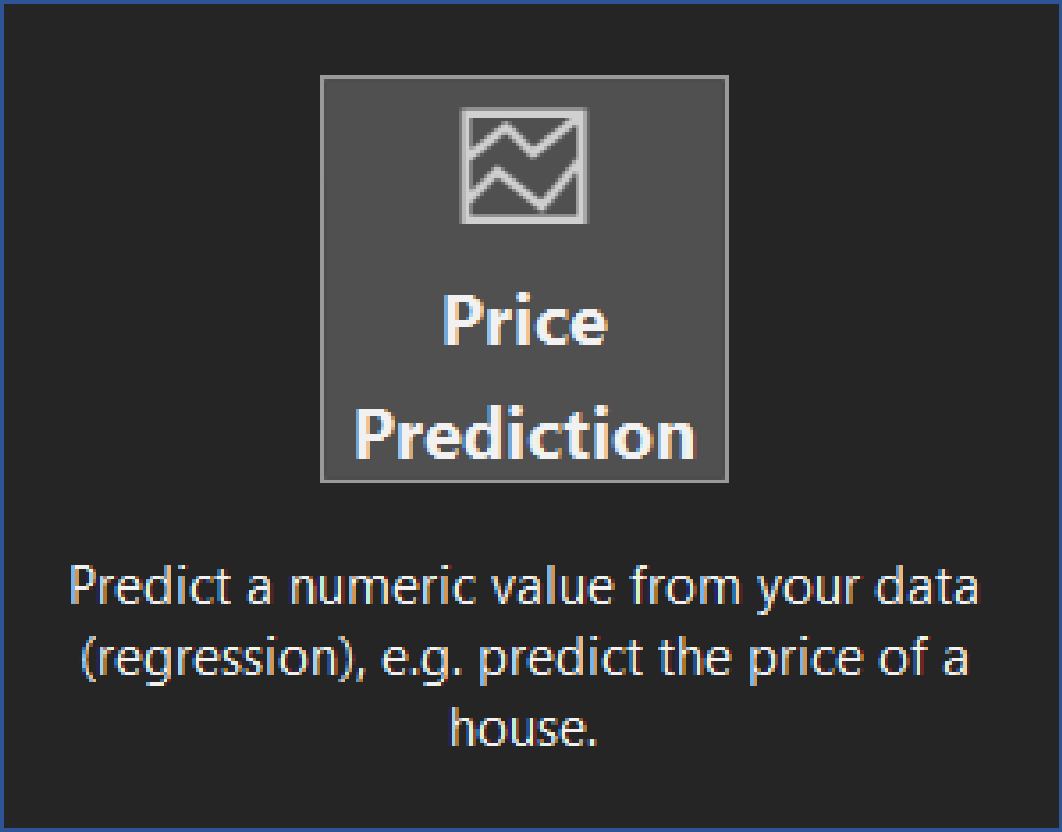
https://marketplace.visualstudio.com/items?itemName=MLNET.07



Create new .NET CORE console project and add Machine Learning



Pick a Scenario / Price prediction



Set Data File

Data / File /pmsm_temperature_data_small.csv
Label column name = motor_speed

Input

Choose input data source from either SQL Server or File:

File

Select a file: G:\temp\pmsm_tempera ...

Supported file formats: csv or tsv.

Column to Predict (Label): motor_speed

Input Columns (Features): 11 of 11 columns selected

Data Preview

10 of 376,481 rows and 12 of 12 columns. (1 Label, 11 Features).

motor_speed (Label)	ambient	coolant	u_d	u_q	torque	i_d	i_q	pr
-1.2224282	-0.75214297	-1.1184461	0.3279352	-1.2978575	-0.2501821	1.0295724	-0.24586003	-2
-1.2224293	-0.77126324	-1.1170206	0.3296648	-1.2976865	-0.2491333	1.029509	-0.24583231	-2
-1.2224278	-0.78289163	-1.1166813	0.3327715	-1.3018217	-0.24943107	1.0294477	-0.24581794	-2
-1.2224301	-0.78093535	-1.1167642	0.3336999	-1.301852	-0.24863635	1.0328449	-0.2469548	-2
-1.2224286	-0.7740426	-1.116775	0.3352061	-1.303118	-0.24870083	1.0318071	-0.24660969	-2
-1.2224286	-0.7629362	-1.1169548	0.33490124	-1.3030168	-0.248197	1.0310309	-0.24634062	-2

Train 600 seconds

Input

Time to train (seconds): 600

Cancel training

Progress

Start training to see progress and results

Status: 582 seconds remaining
Best Accuracy:
Best Algorithm:
Last Algorithm:

Understand the Train result

Progress

Start training to see progress and results

Status:	Done
Best Quality (RSquared):	0.9512
Best Algorithm:	LightGbmRegression
Last Algorithm:	FastTreeRegression

Understand evaluation result

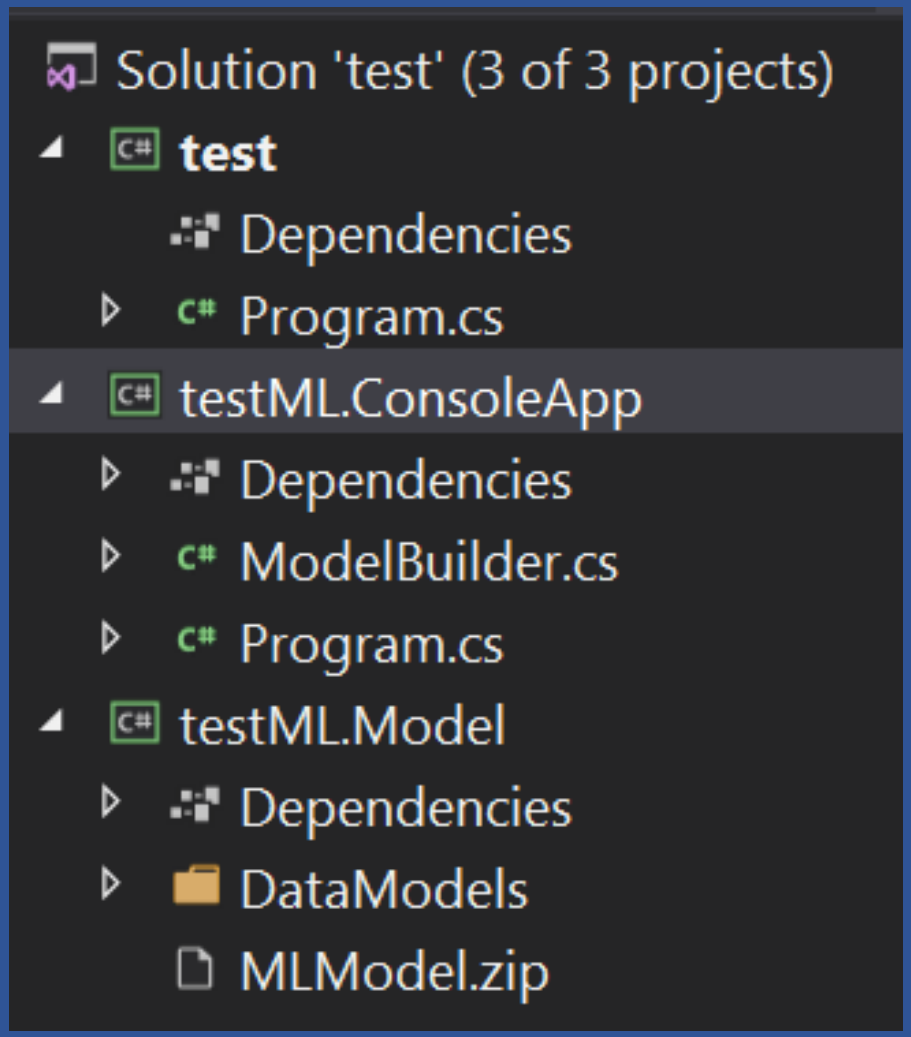
Output

ML Task:	regression
Dataset:	taxi-fare-train.csv
Column to Predict (Label):	fare_amount
Best Model:	LightGbmRegression
Best Model Quality (RSquared):	0.9512
Training Time:	601.41 seconds
Models Explored (Total):	58

Top 5 models explored

Rank	Trainer	RSquared	Absolute-loss	Squared-loss	RMS-loss	Duration
1	LightGbmRegression	0.9512	0.41	4.50	2.12	4.3
2	LightGbmRegression	0.9506	0.43	4.56	2.14	4.2
3	LightGbmRegression	0.9502	0.43	4.60	2.14	3.2
4	LightGbmRegression	0.9497	0.41	4.64	2.15	5.4
5	FastTreeTweedieRegression	0.9491	0.44	4.70	2.17	10.0

Examine Code



Run testML.ConsoleApp to see result

C:\Program Files\dotnet\dotnet.exe

```
Using model to make single prediction -- Comparing actual Motor_speed with
 predicted Motor_speed from sample data...


ambient: -0.752143
coolant: -1.118446
u_d: 0.3279352
u_q: -1.297858
torque: -0.2501821
i_d: 1.029572
i_q: -0.24586
pm: -2.522071
stator_yoke: -1.831422
stator_tooth: -2.066143
stator_winding: -2.018033


Actual Motor_speed: -1.222428
Predicted Motor_speed: -1.222829


=============== End of process, hit any key to finish ===============
```

What's next?