Taxi Fare

Write Code

(Regression-Fast Tree)

What's in this session?

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Question and Data

Question: How much is the taxi fair?

Dataset:

taxi-fare-train.csv
https://raw.githubusercontent.com/laploy/ML.NET/master/Taxi-fare/taxi-fare-train.csv

taxi-fare-score.csv
https://raw.githubusercontent.com/laploy/ML.NET/master/Taxi-fare/taxi-fare-score.csv

taxi-fare-batch.csv
https://raw.githubusercontent.com/laploy/ML.NET/master/Taxi-fare/taxi-fare-batch.csv

Dataset description

vendor_id: A code indicating the TPEP provider that provided the record.

rate_code: The final rate code in effect at the end of the trip.

1. Standard rate
2. JFK
3. Newark
4. Nassau or Westchester
5. Negotiated fare
6. Group ride

passenger_count: The number of passengers in the vehicle

trip_time_in_secs:

trip_distance: The elapsed trip distance in miles reported by the taximeter.

payment_type: A numeric code signifying how the passenger paid for the trip.

1= Credit card 2= Cash 3= No charge 4= Dispute 5= Unknown 6= Voided trip

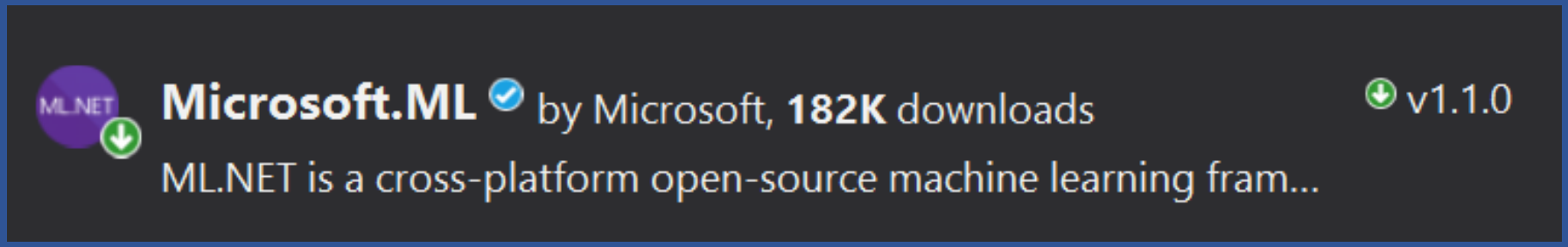
fare_amount: The time-and-distance fare calculated by the meter.

Create New Project

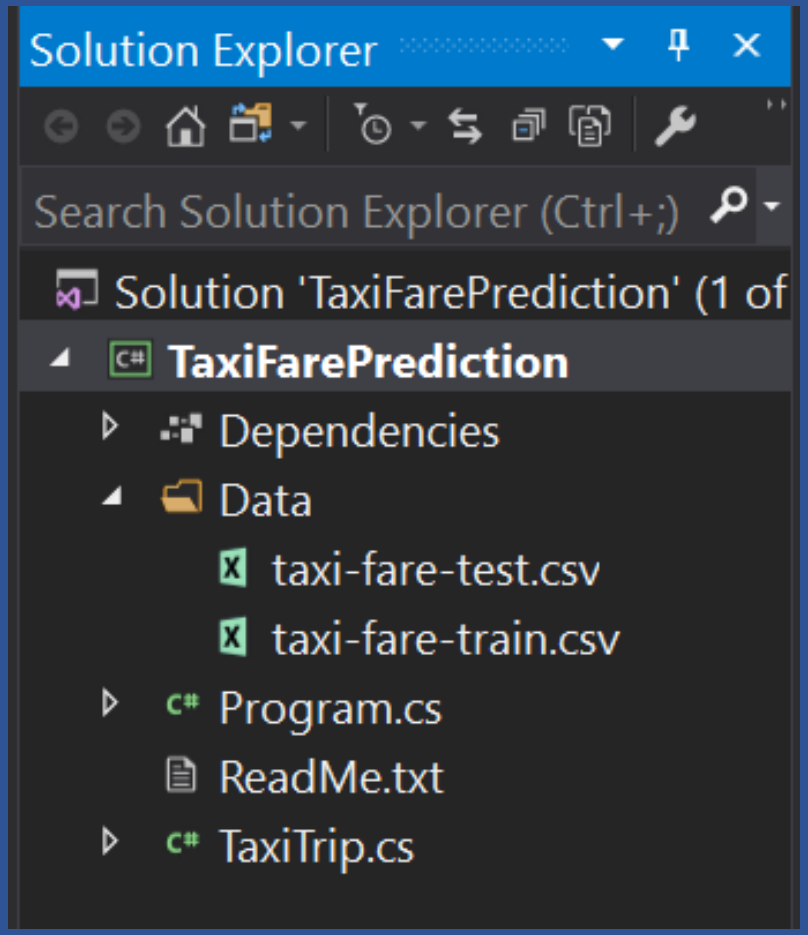
Create new .NET CORE console app project name = “Taxi”

Add NuGet Package

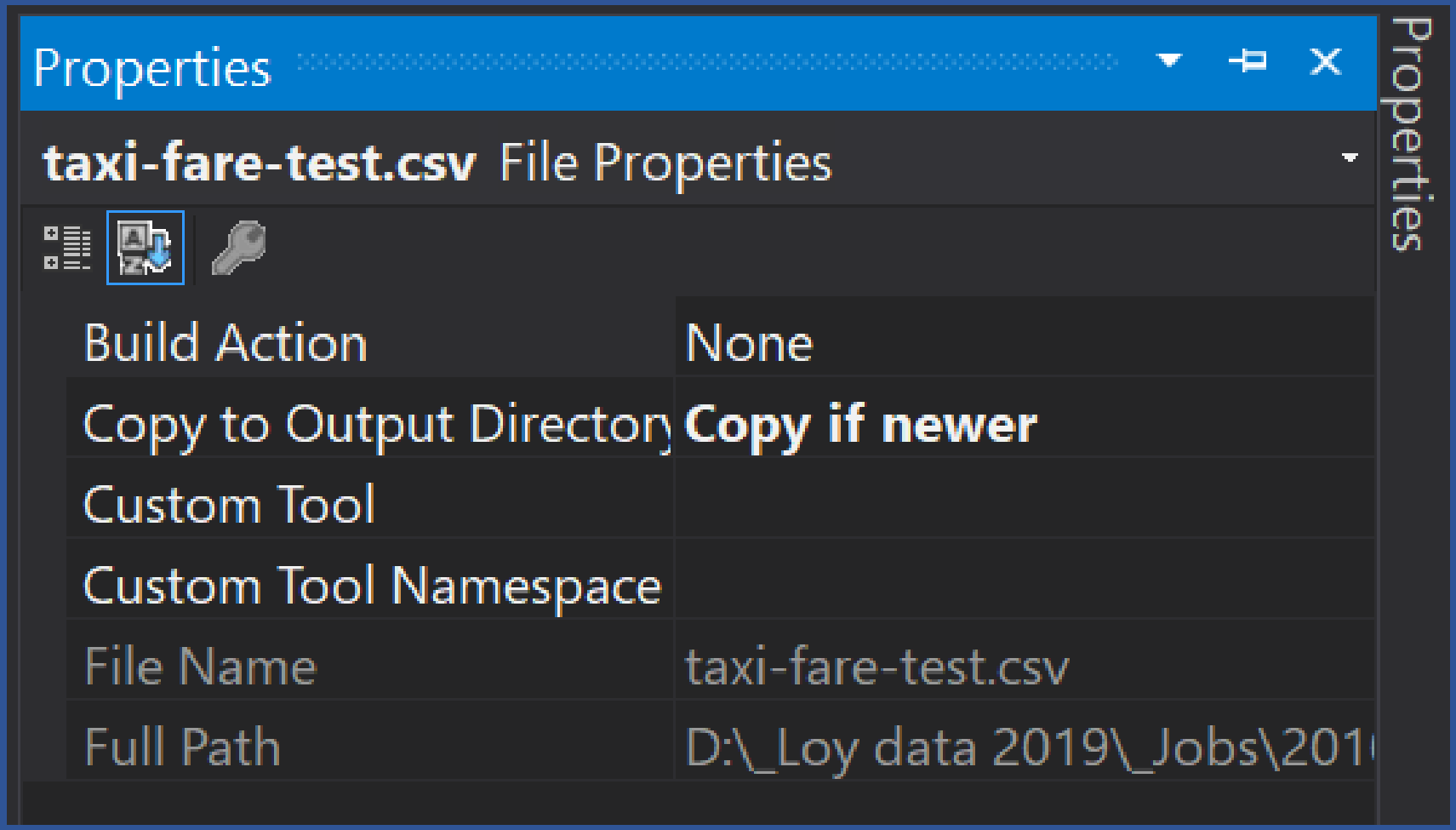
- Microsoft.ML
- Microsoft.ML.Fast



Add new folder “Data”
Copy datasets to this folder



Set property of each datasets to “Copy if newer”



Create data set input/output scheme

```
 8   namespace TaxiFarePrediction
 9   {
10       // input data class
11       public class TaxiTrip...
28
29       // output data class
30       public class TaxiTripFarePrediction
31       {
32           // In case of the regression task the Score column contai
33           [ColumnName("Score")]
34           // Use the float type to represent floating-point values
35           public float FareAmount;    // is the prediction output
36       }
37   }
```

Set data set paths

```
class Program
{
    static readonly string _trainDataPath = Path.Combine
        (Environment.CurrentDirectory, "Data", "taxi-fare-train.csv");
    static readonly string _testDataPath = Path.Combine
        (Environment.CurrentDirectory, "Data", "taxi-fare-test.csv");
```

Create ML Context, Load data, and Process Data

```
static void Main(string[] args)
{
    // create comtext
    MLContext mlContext = new MLContext(seed: 0);

    // train model
    var model = Train(mlContext, _trainDataPath);

    // Evaluate the model
    Evaluate(mlContext, model);

    // Use the model for predictions
    TestSinglePrediction(mlContext, model);


}
```

The program output result

```
Load train data.
create pipeline.
Strat training. 6/16/2019 9:35:31 AM
Training done. 6/16/2019 9:35:39 AM
Loads the test dataset.
Creates the regression evaluator.
Evaluates the model and creates metrics.

*************************************************
* Model quality metrics evaluation
*------------------------------------------------
* RSquared Score: 0.92
* Root Mean Squared Error: 2.81
*************************************************
Predicted fare: 15.7855, actual fare: 15.5
*************************************************
```

What's next?

Predict taxi fare