HelloWorld!

Write Code ML.NET

What's in this session?

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2. Create project
3. Add NuGet packages
4. Add using name space
5. Create data set input/output scheme
6. Set data set path
7. Load data

8. Add algorithm
9. Train the model
10. Predict single item

Question and Data

Question: How much is my diamond costed?

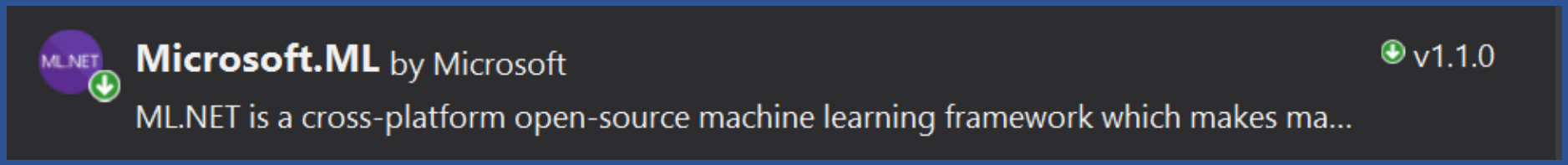
Dataset:

https://github.com/laploy/ML.NET/blob/master/HelloWorld/diamondSmall.csv

Create New Project

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

Add NuGet Packages



Add Namespace

```
3   using System;
4   using Microsoft.ML;
5   using Microsoft.ML.Data;
```

Create data scheme

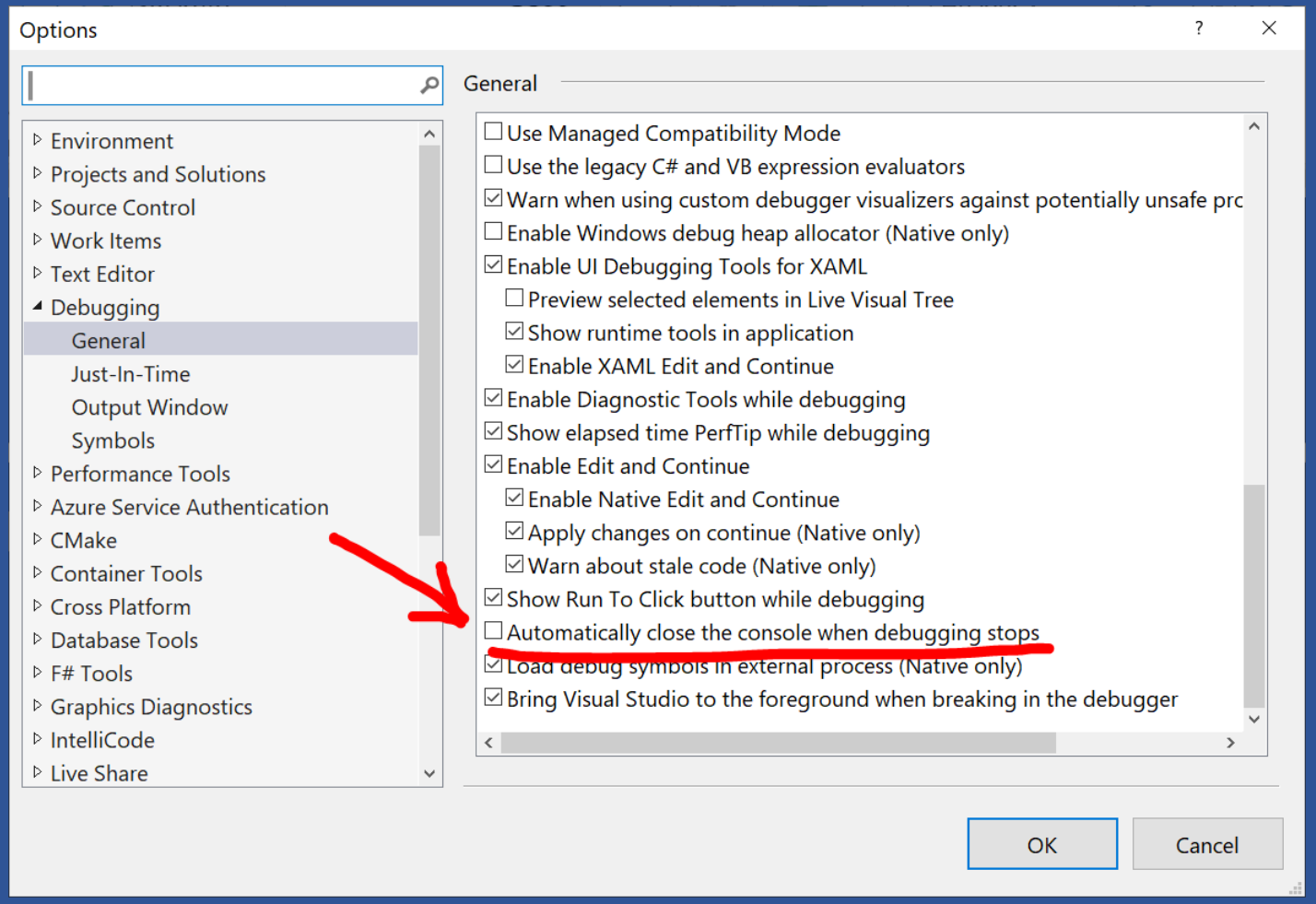
```
public class DiamondScheme
{
    [LoadColumn(0)]
    public float Size { get; set; }
    [LoadColumn(1)]
    public float Price { get; set; }
}
public class DiamonPredic: DiamondScheme
{
    [ColumnName("Score")]
    public float PricePredict { get; set; }
}
```

Add data path, context, IDataView, and Debug

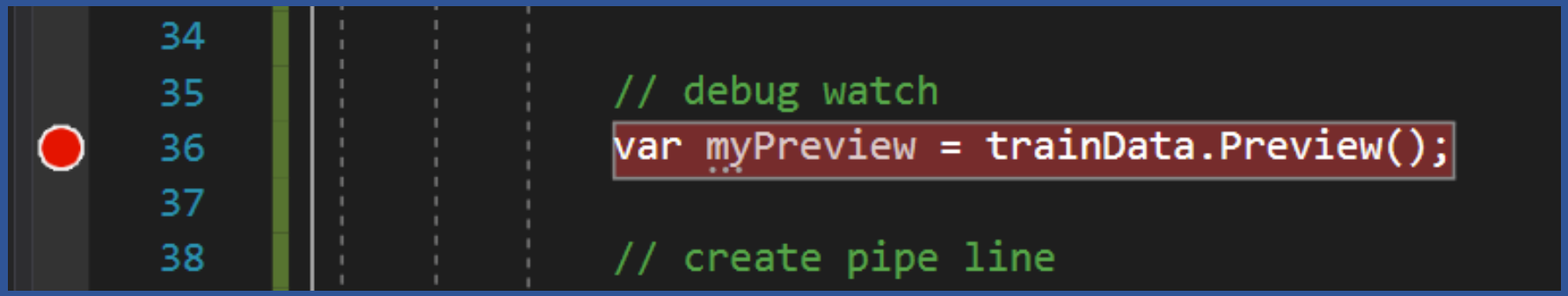
```
string trainDataPath = @"E:\ml\diamondSmall.csv";

// create context
MLContext mlContext = new MLContext();

// Load train data
IDataView trainData = mlContext.Data.LoadFromTextFile<DiamondScheme>
    (trainDataPath, hasHeader: true, separatorChar: ',');

// debug watch
var myPreview = trainData.Preview();
```

Set the console to remain open

Tools->Options->Debugging->Automatically close the console when debugging stops



Set break point / run / add watch



Create pipe line / set algorithm / train

```
// create pipe line
var pipeline = mlContext.Transforms.Concatenate
    ("Features", new[] { "Size" })

// set training algorithm
    .Append(mlContext.Regression.Trainers.Sdca
        (labelColumnName: "Price",
        maximumNumberOfIterations:100));

// Train model
var myModel = pipeline.Fit(trainData);
```

Make predict / Show result

```
// Make a prediction
var mySize = new DiamondScheme() { Size = 1.35F };
var myPrice = mlContext.Model.CreatePredictionEngine
    <DiamondScheme, DiamonPredic>
    (myModel).Predict(mySize);

// Show result
Console.WriteLine("\n============================");
Console.WriteLine("Predicted result");
Console.WriteLine("----------------------------");
Console.WriteLine($"Size = {mySize.Size} " +
    $": Price = {myPrice.PricePredict:C}");
Console.WriteLine("----------------------------");
```

Examine the result

```
=============================
Predicted result
-----------------------------
Size = 1.35 : Price = $7,715.11
-----------------------------
```

What's next?