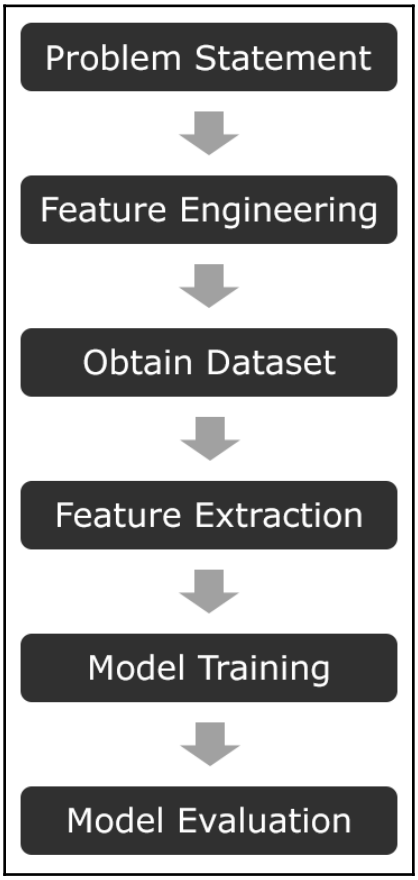
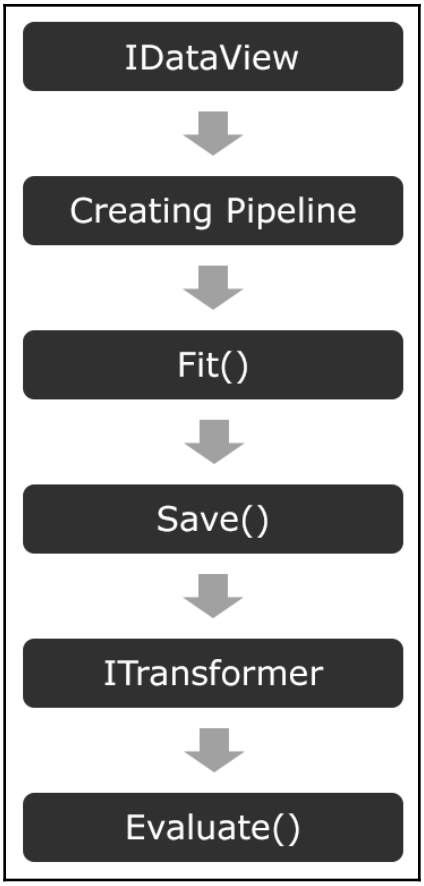
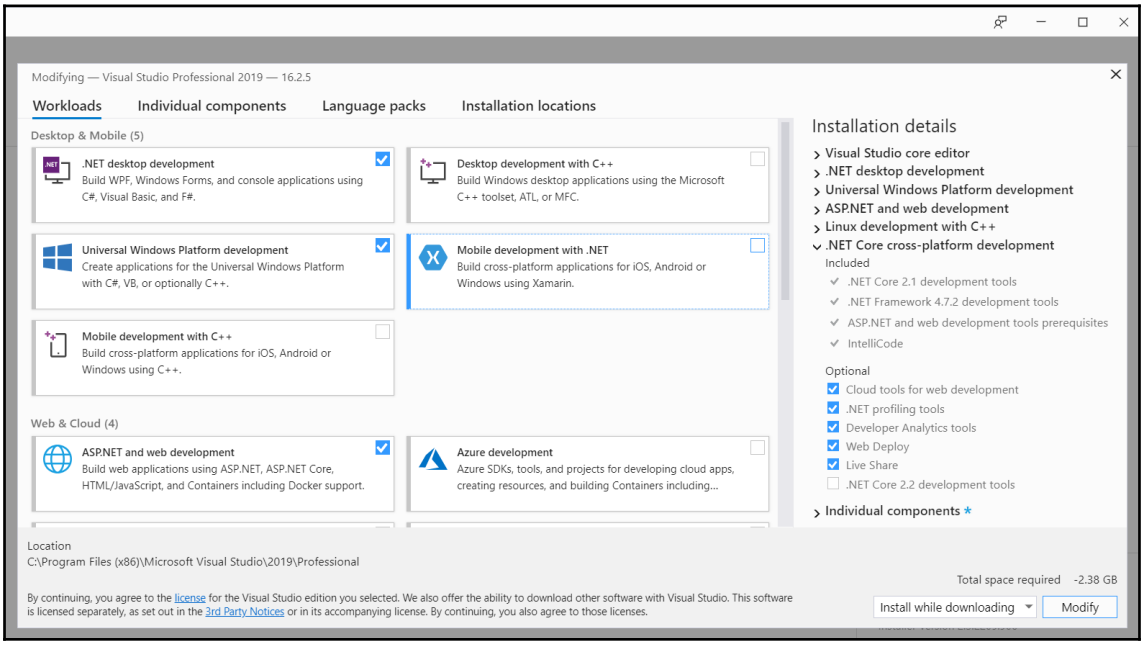
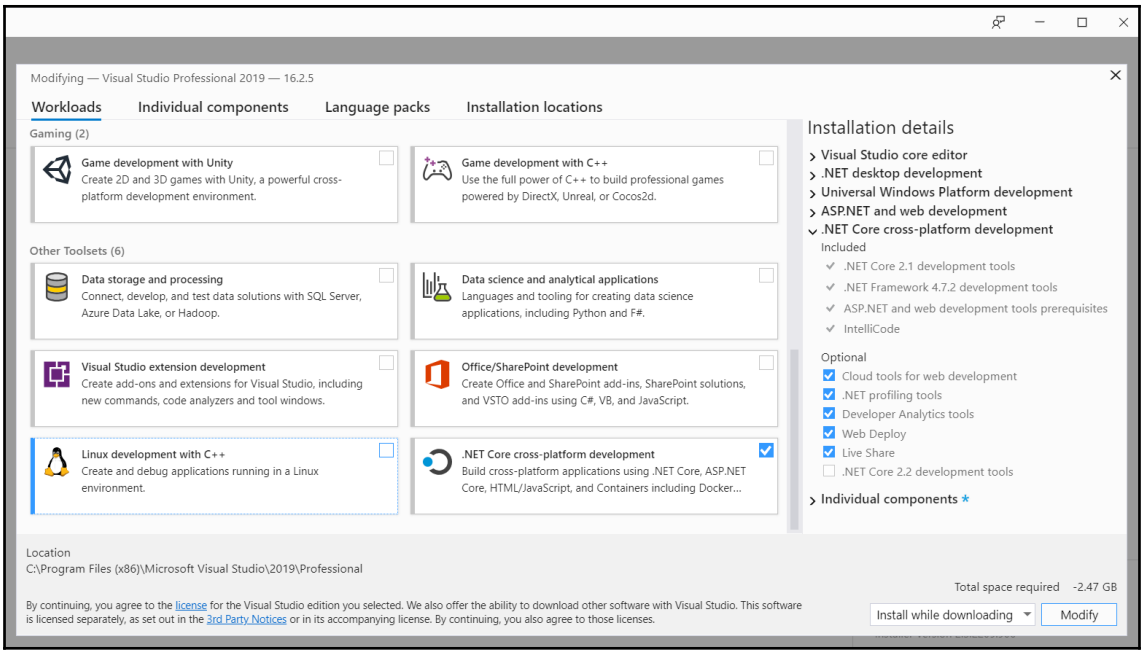
Chapter 1: Getting Started with Machine Learning and ML.NET

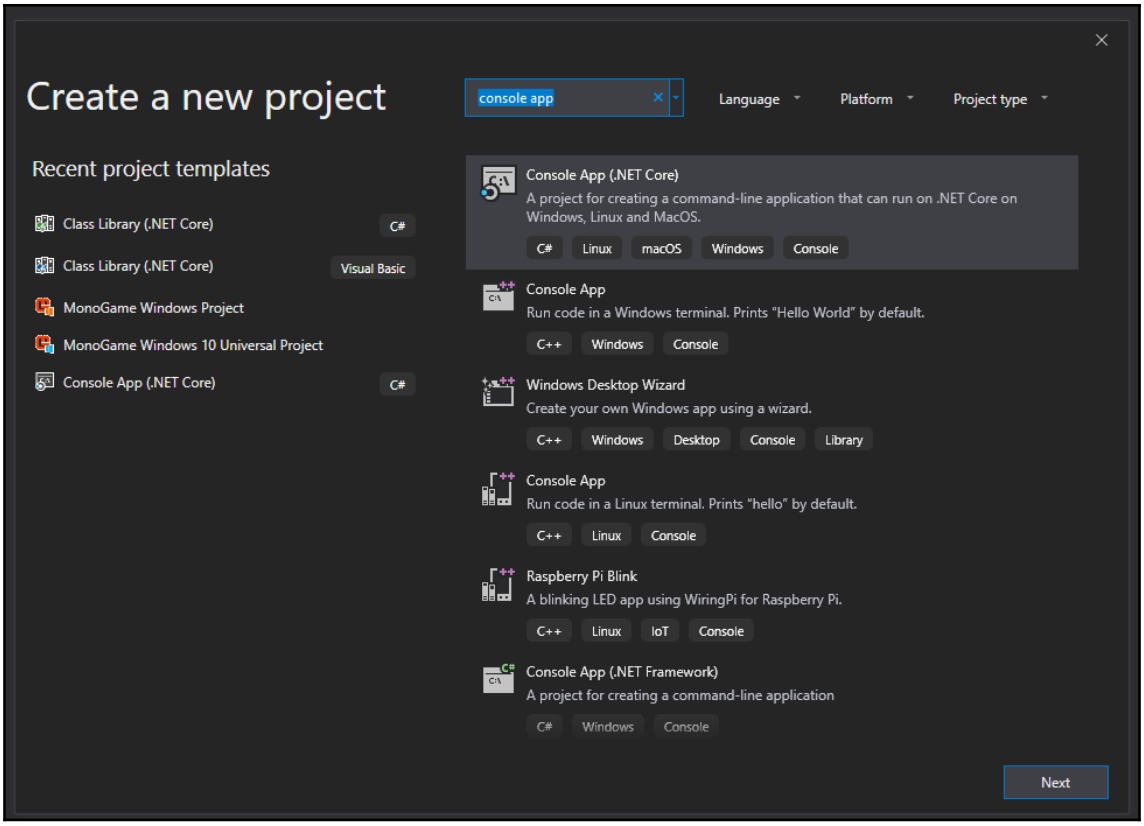



IDataView
Creating Pipeline
Fit()
Save()
ITransformer
Evaluate()

Chapter 2: Setting Up the ML.NET Environment




Modifying — Visual Studio Professional 2019 — 16.2.5
Workloads
Individual components
Language packs
Installation locations
Gaming (2)
Game development with Unity
Create 2D and 3D games with Unity, a powerful cross-platform development environment.
Game development with C++
Use the full power of C++ to build professional games powered by DirectX, Unreal, or Cocos2d.
Other Toolsets (6)
Data storage and processing
Connect, develop, and test data solutions with SQL Server, Azure Data Lake, or Hadoop.
Data science and analytical applications
Languages and tooling for creating data science applications, including Python and F#.
Visual Studio extension development
Create add-ons and extensions for Visual Studio, including new commands, code analyzers and tool windows.
Office/SharePoint development
Create Office and SharePoint add-ins, SharePoint solutions, and VSTO add-ins using C#, VB, and JavaScript.
Linux development with C++
Create and debug applications running in a Linux environment.
.NET Core cross-platform development
Build cross-platform applications using .NET Core, ASP.NET Core, HTML/JavaScript, and Containers including Docker...
Installation details
Visual Studio core editor
.NET desktop development
Universal Windows Platform development
ASP.NET and web development
.NET Core cross-platform development
Included
.NET Core 2.1 development tools
.NET Framework 4.7.2 development tools
ASP.NET and web development tools prerequisites
IntelliCode
Optional
Cloud tools for web development
.NET profiling tools
Developer Analytics tools
Web Deploy
Live Share
.NET Core 2.2 development tools
Individual components *
Location
C:\Program Files (x86)\Microsoft Visual Studio\2019\Professional
Total space required -2.47 GB
By continuing, you agree to the license for the Visual Studio edition you selected. We also offer the ability to download other software with Visual Studio. This software is licensed separately, as set out in the 3rd Party Notices or in its accompanying license. By continuing, you also agree to those licenses.
Install while downloading
Modify


Create a new project
console app
Language
Platform
Project type
Recent project templates
Class Library (.NET Core)
C#
Class Library (.NET Core)
Visual Basic
MonoGame Windows Project
MonoGame Windows 10 Universal Project
Console App (.NET Core)
C#
Console App (.NET Core)
A project for creating a command-line application that can run on .NET Core on Windows, Linux and MacOS.
C# Linux macOS Windows Console
Console App
Run code in a Windows terminal. Prints "Hello World" by default.
C++ Windows Console
Windows Desktop Wizard
Create your own Windows app using a wizard.
C++ Windows Desktop Console Library
Console App
Run code in a Linux terminal. Prints "hello" by default.
C++ Linux Console
Raspberry Pi Blink
A blinking LED app using WiringPi for Raspberry Pi.
C++ Linux IoT Console
Console App (.NET Framework)
A project for creating a command-line application
C# Windows Console
Next

Configure your new project

Console App (.NET Core) C# Linux macOS Windows Console

Project name

Chapter02

Location

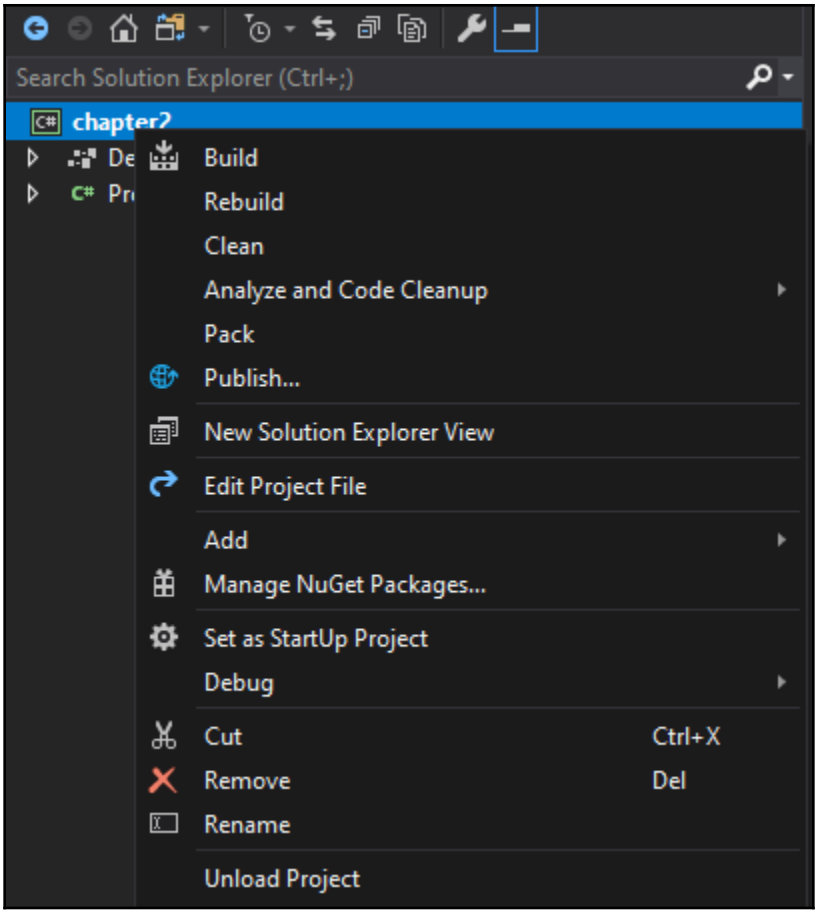
C:\Users\jcape\source\repos

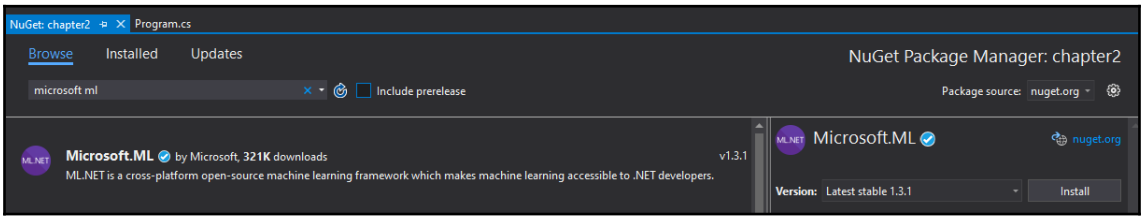
Solution name

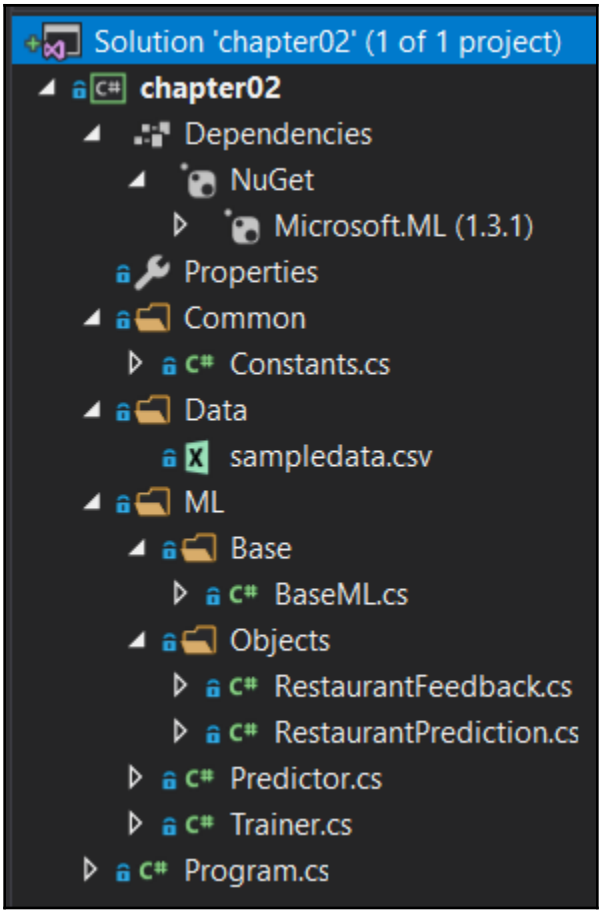
Chapter02

☑ Place solution and project in the same directory

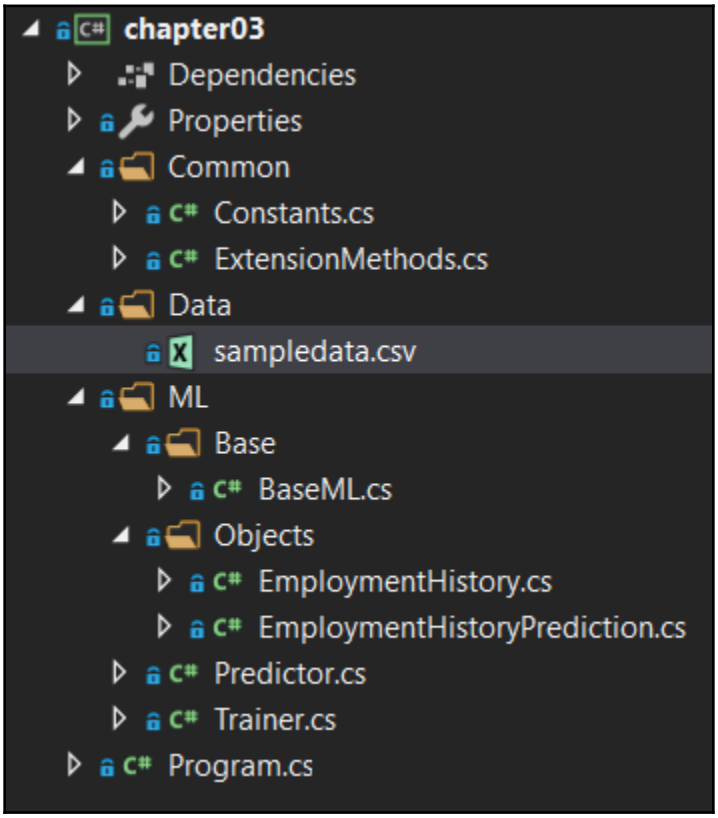
Back Create

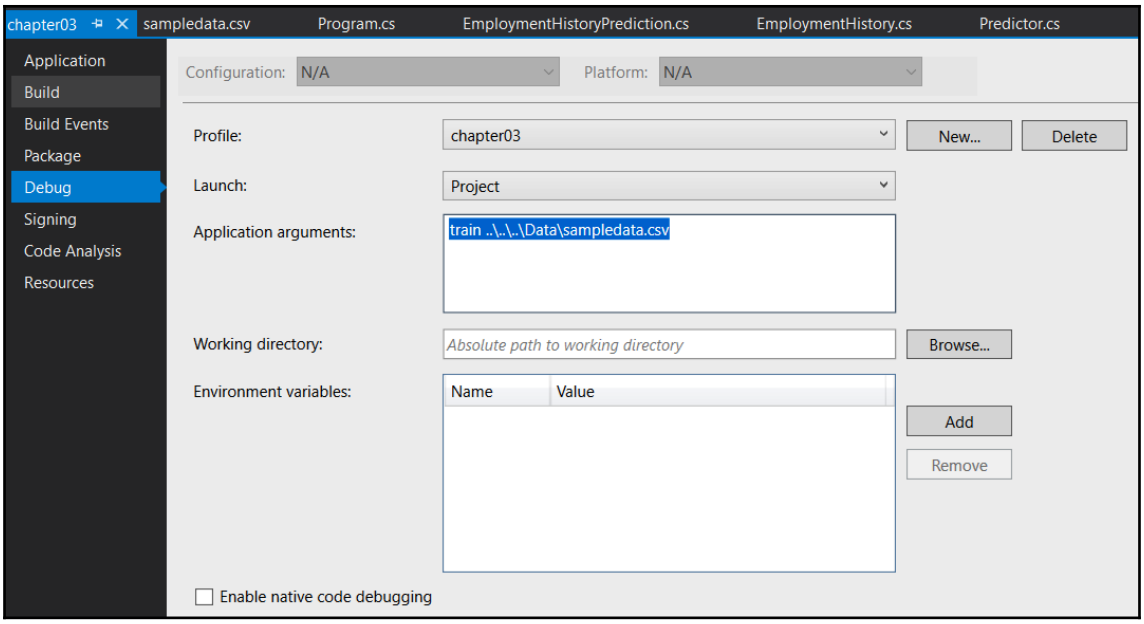

Search Solution Explorer (Ctrl+;)
chapter2
Build
Rebuild
Clean
Analyze and Code Cleanup
Pack
Publish...
New Solution Explorer View
Edit Project File
Add
Manage NuGet Packages...
Set as StartUp Project
Debug
Cut Ctrl+X
Remove Del
Rename
Unload Project

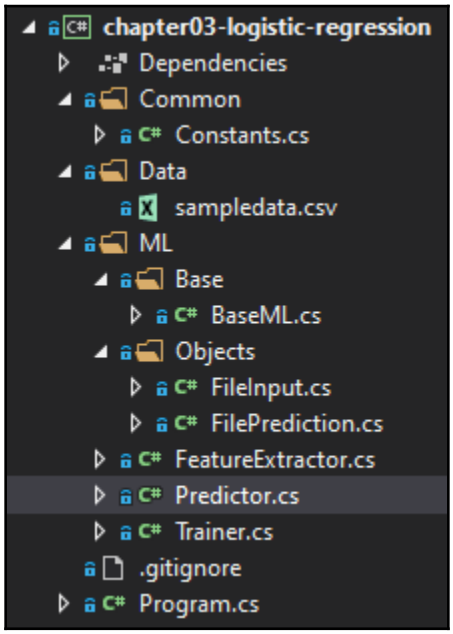

NuGet: chapter2
Program.cs
Browse
Installed
Updates
NuGet Package Manager: chapter2
microsoft ml
Include prerelease
Package source: nuget.org
Microsoft.ML by Microsoft, 321K downloads
v1.3.1
ML.NET is a cross-platform open-source machine learning framework which makes machine learning accessible to .NET developers.
Microsoft.ML
nuget.org
Version: Latest stable 1.3.1
Install

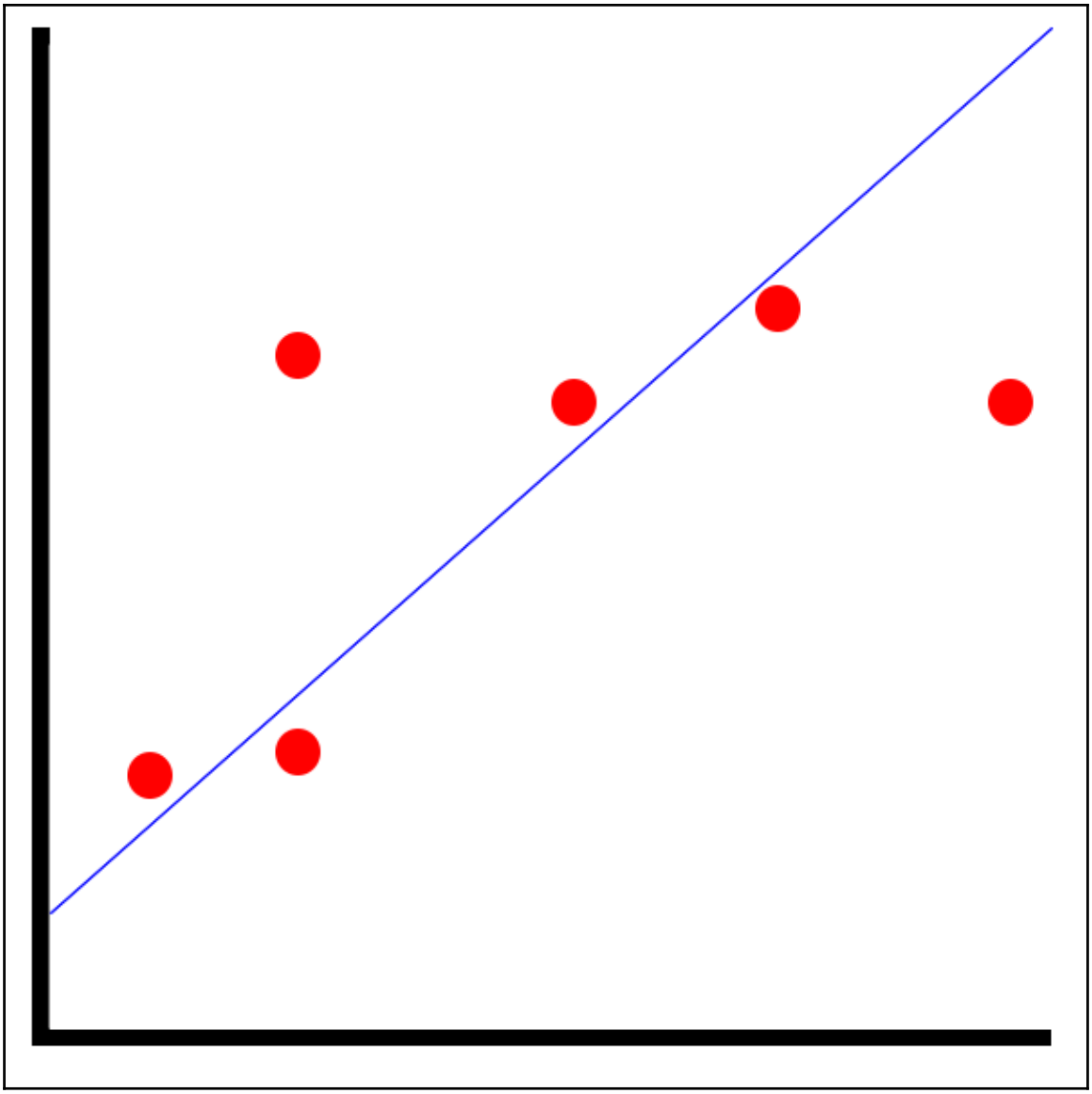

Solution 'chapter02' (1 of 1 project)
chapter02
Dependencies
NuGet
Microsoft.ML (1.3.1)
Properties
Common
Constants.cs
Data
sampledata.csv
ML
Base
BaseML.cs
Objects
RestaurantFeedback.cs
RestaurantPrediction.cs
Predictor.cs
Trainer.cs
Program.cs

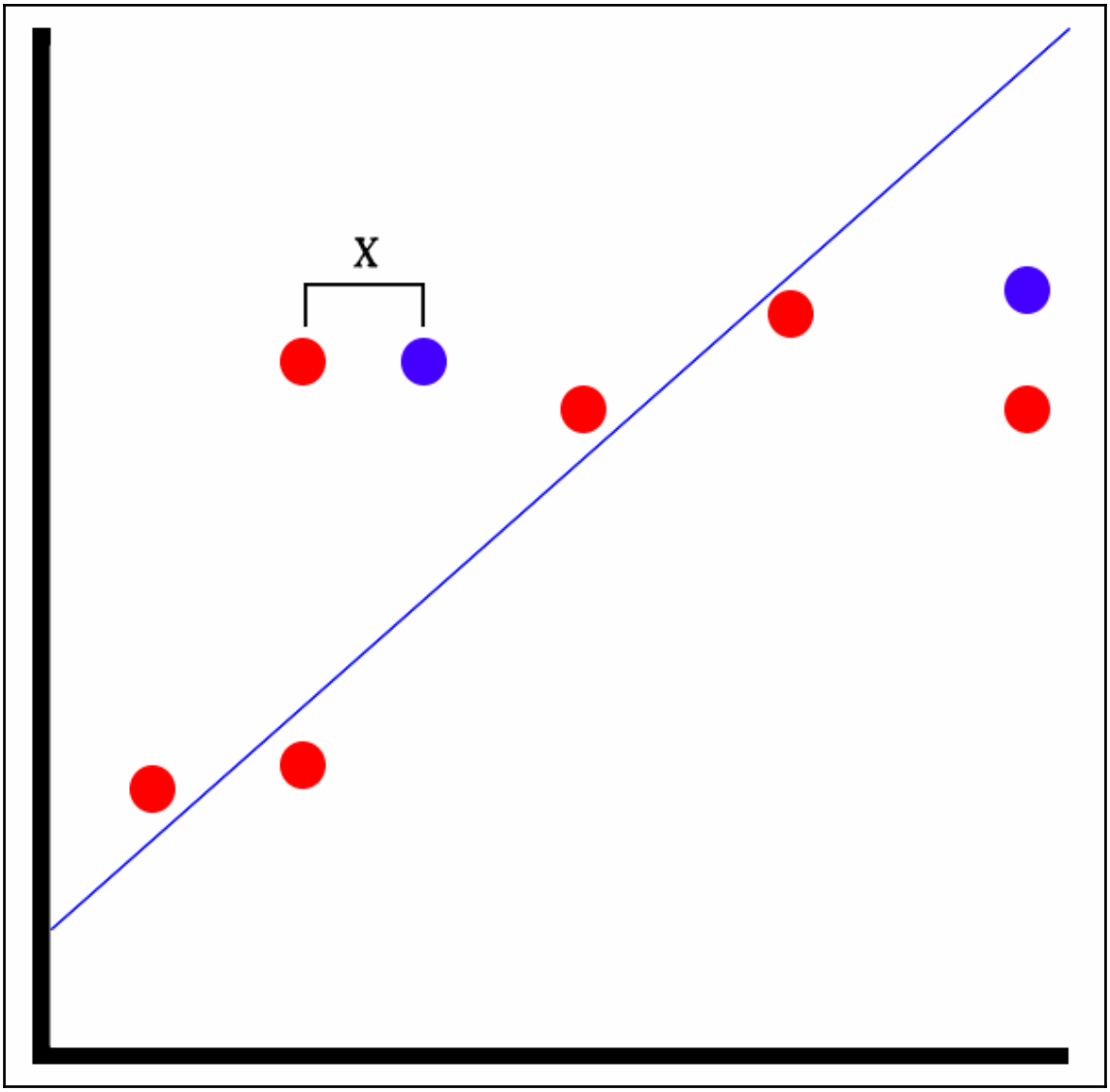
Chapter 3: Regression Model



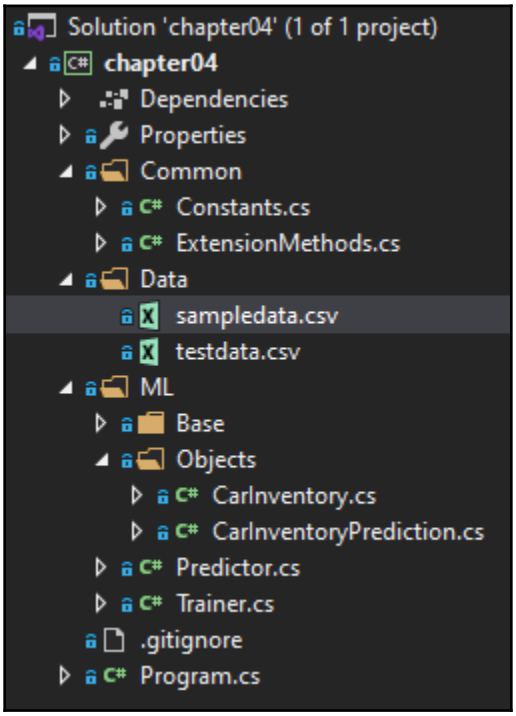

chapter03
sampledata.csv
Program.cs
EmploymentHistoryPrediction.cs
EmploymentHistory.cs
Predictor.cs
Application
Build
Build Events
Package
Debug
Signing
Code Analysis
Resources
Configuration: N/A
Platform: N/A
Profile:
chapter03
New...
Delete
Launch:
Project
Application arguments:
train ..\..\..\Data\sampledata.csv
Working directory:
Absolute path to working directory
Browse...
Environment variables:
Name
Value
Add
Remove
Enable native code debugging

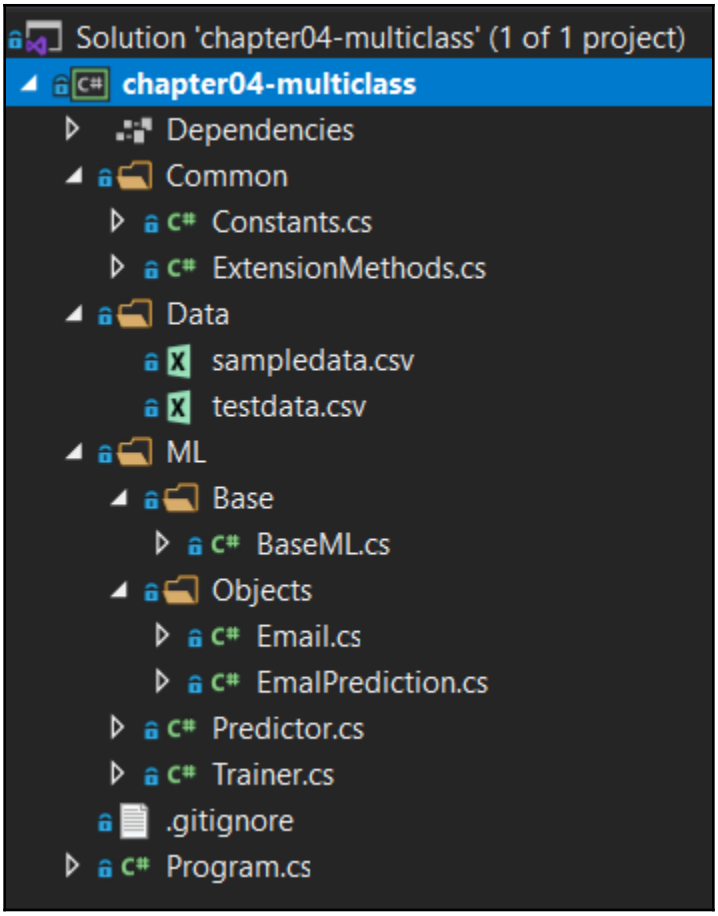

chapter03-logistic-regression
Dependencies
Common
Constants.cs
Data
sampledata.csv
ML
Base
BaseML.cs
Objects
FileInput.cs
FilePrediction.cs
FeatureExtractor.cs
Predictor.cs
Trainer.cs
.gitignore
Program.cs



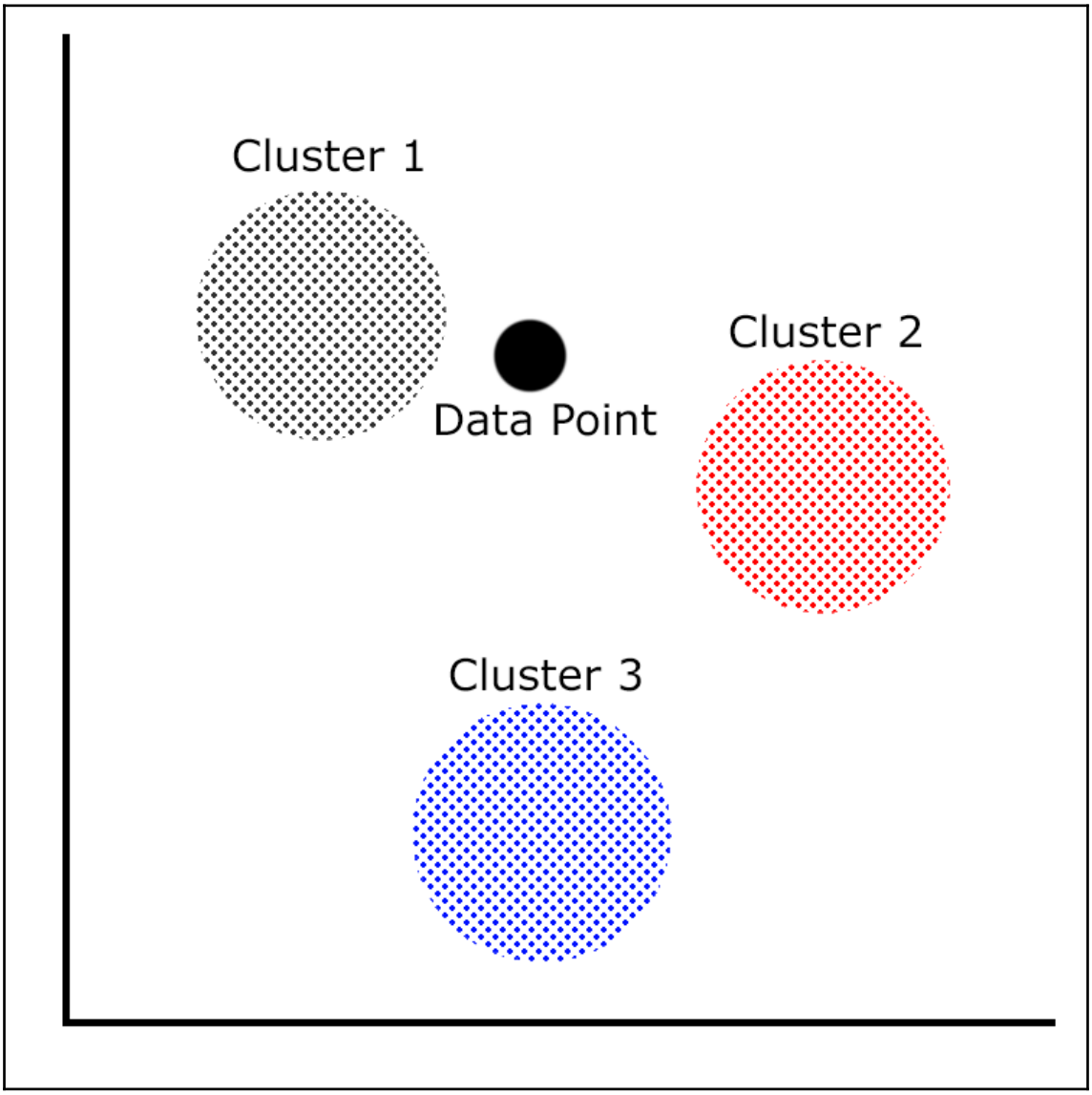

X

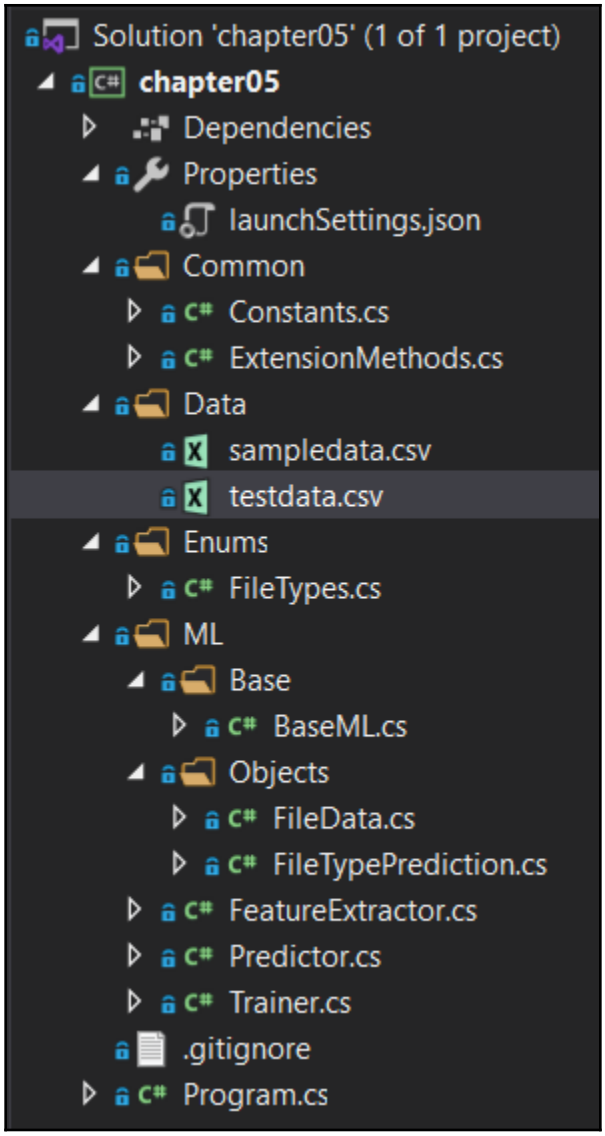
Chapter 4: Classification Model



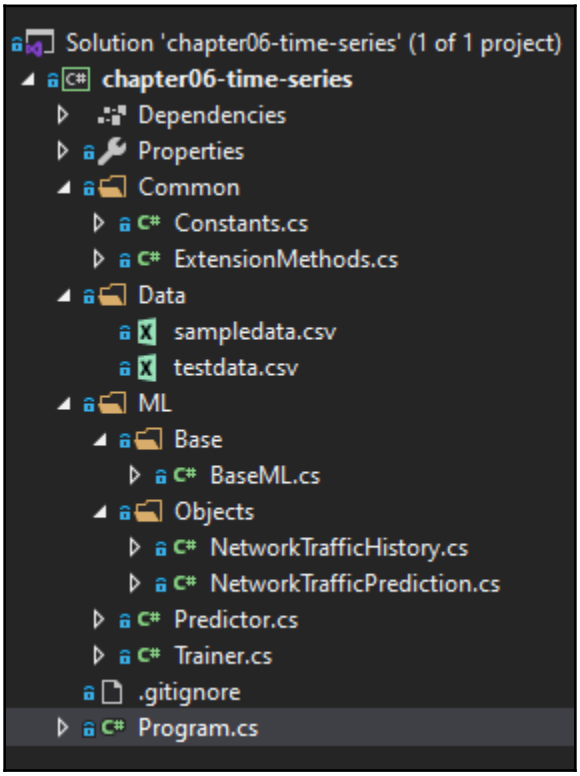

Solution 'chapter04-multiclass' (1 of 1 project)
chapter04-multiclass
Dependencies
Common
Constants.cs
ExtensionMethods.cs
Data
sampledata.csv
testdata.csv
ML
Base
BaseML.cs
Objects
Email.cs
EmalPrediction.cs
Predictor.cs
Trainer.cs
.gitignore
Program.cs

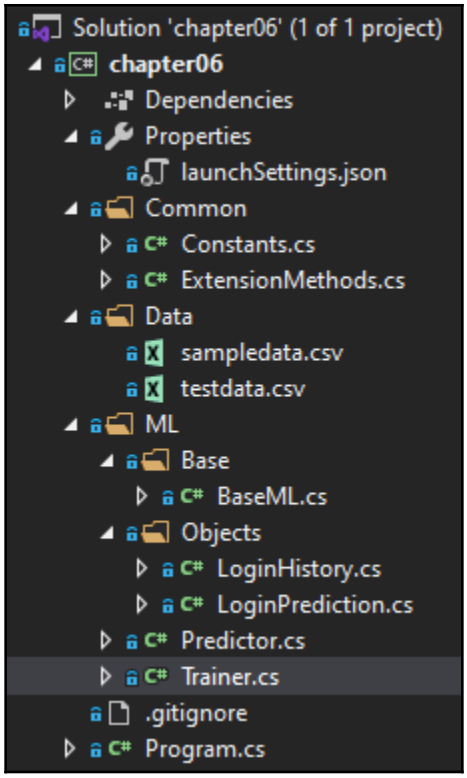
Chapter 5: Clustering Model

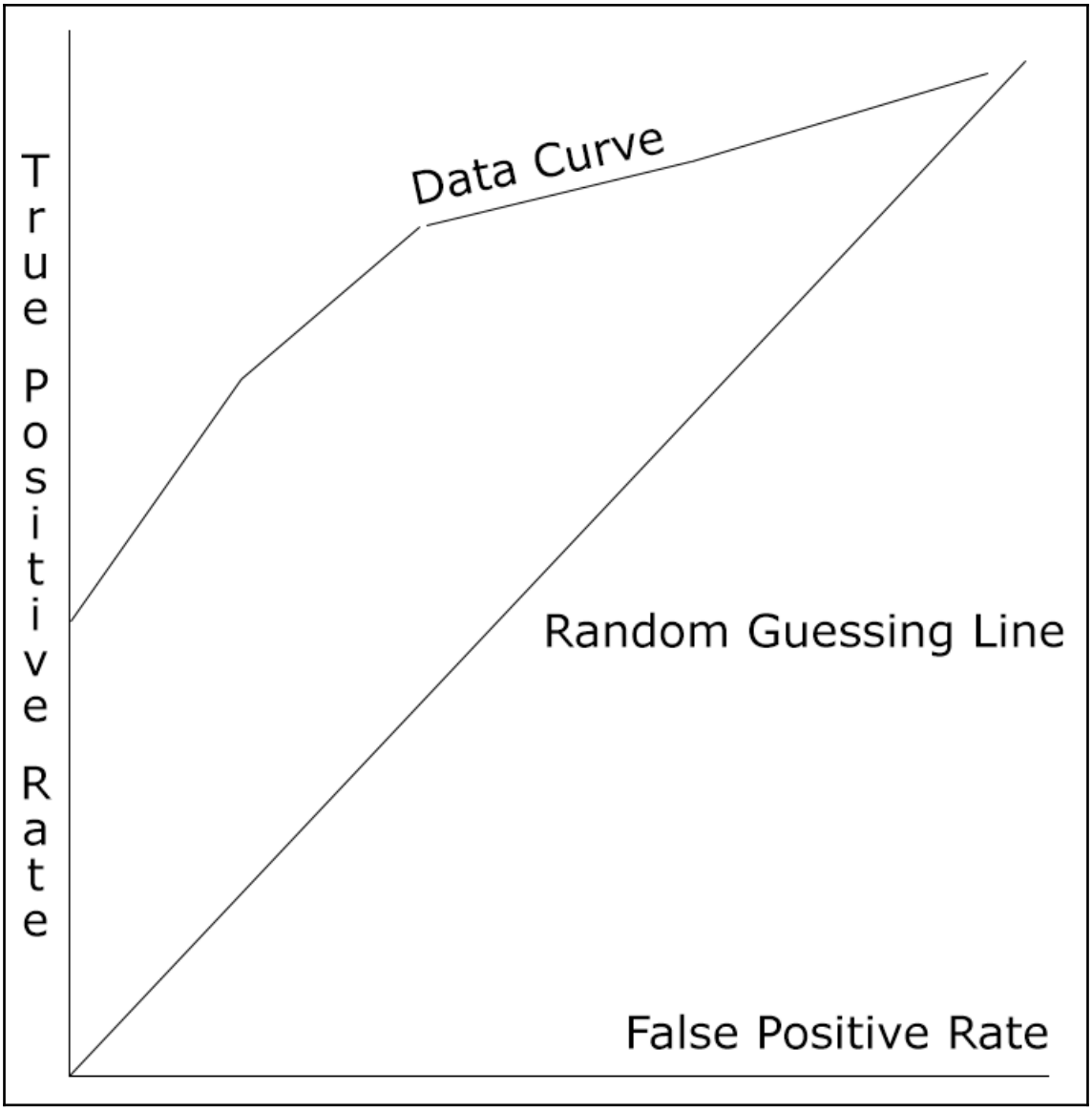



Solution 'chapter05' (1 of 1 project)
chapter05
Dependencies
Properties
launchSettings.json
Common
Constants.cs
ExtensionMethods.cs
Data
sampledata.csv
testdata.csv
Enums
FileTypes.cs
ML
Base
BaseML.cs
Objects
FileData.cs
FileTypePrediction.cs
FeatureExtractor.cs
Predictor.cs
Trainer.cs
.gitignore
Program.cs

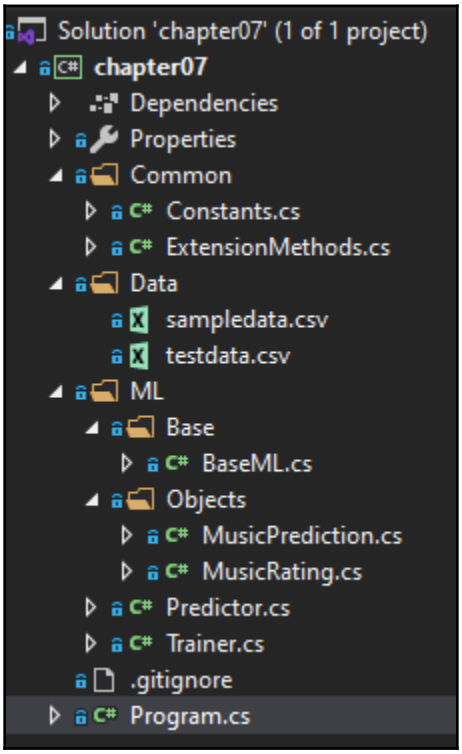
Chapter 6: Anomaly Detection Model

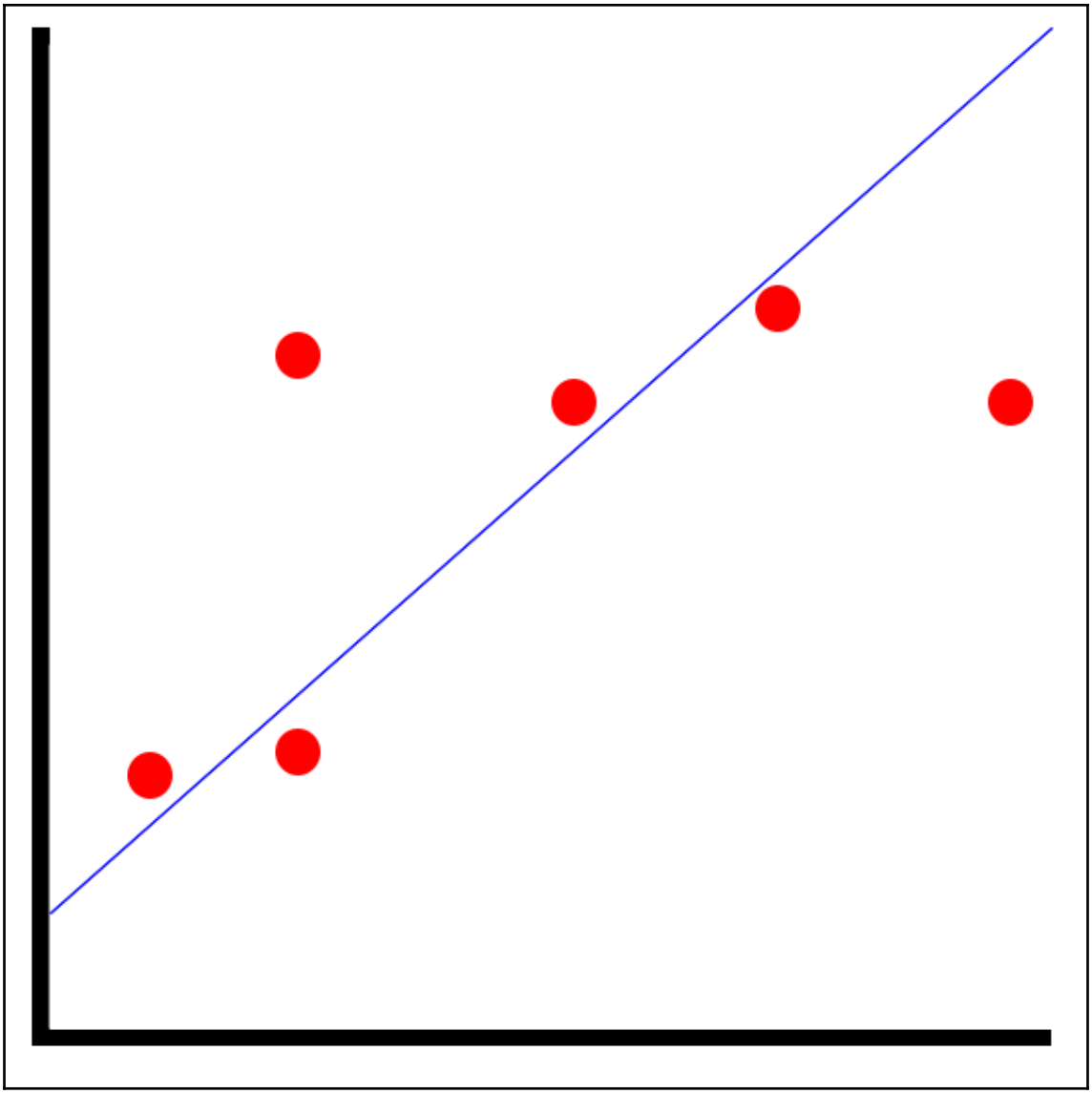


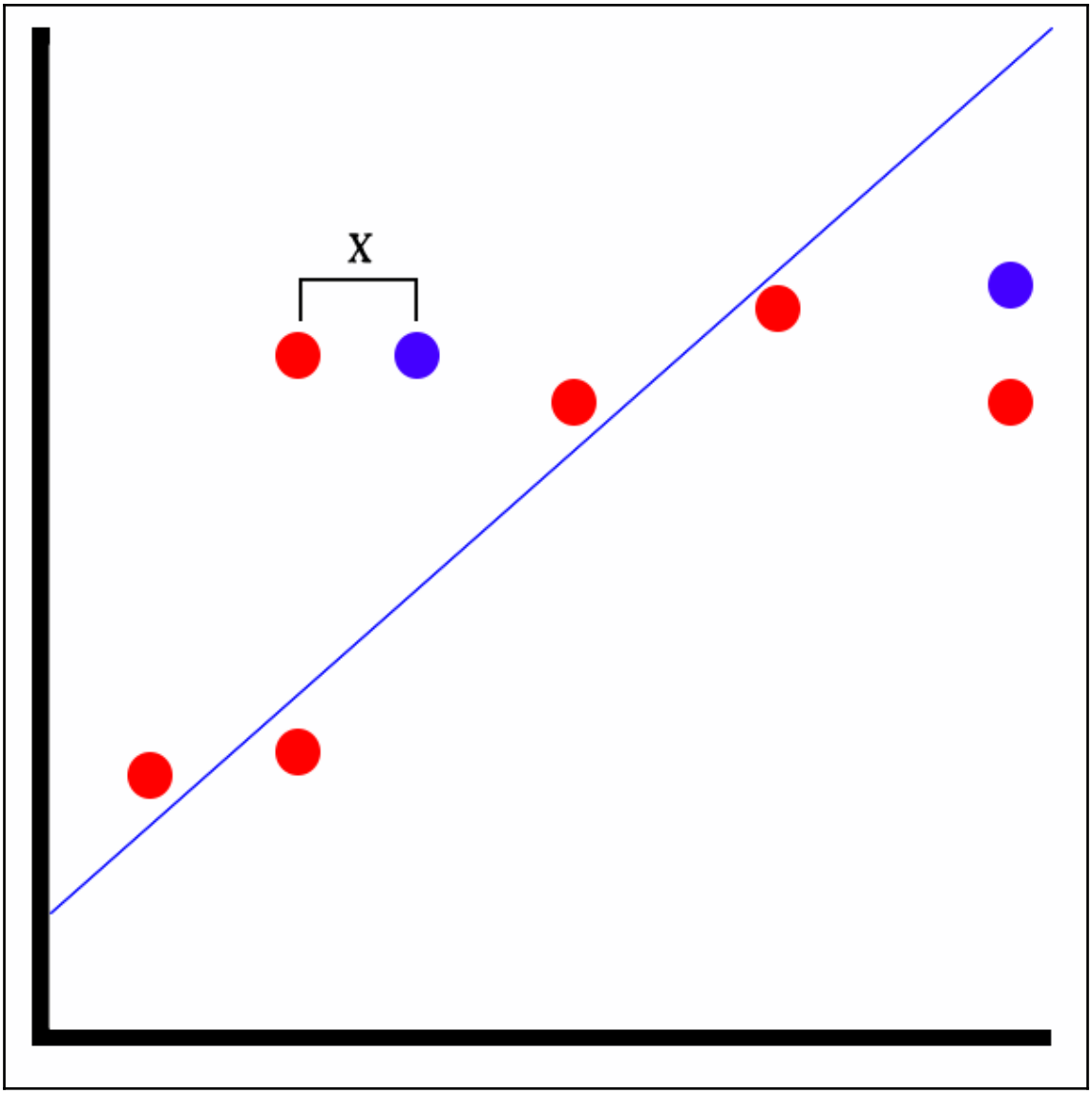

Solution 'chapter06' (1 of 1 project)
chapter06
Dependencies
Properties
launchSettings.json
Common
Constants.cs
ExtensionMethods.cs
Data
sampledata.csv
testdata.csv
ML
Base
BaseML.cs
Objects
LoginHistory.cs
LoginPrediction.cs
Predictor.cs
Trainer.cs
.gitignore
Program.cs


True Positive Rate
Data Curve
Random Guessing Line
False Positive Rate

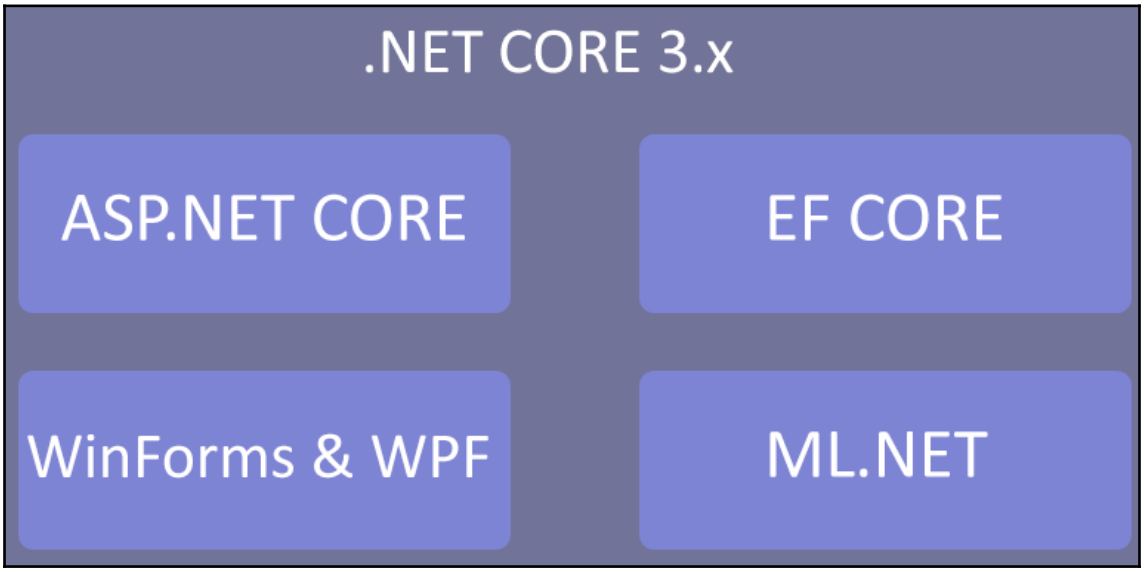
Chapter 7: Matrix Factorization Model

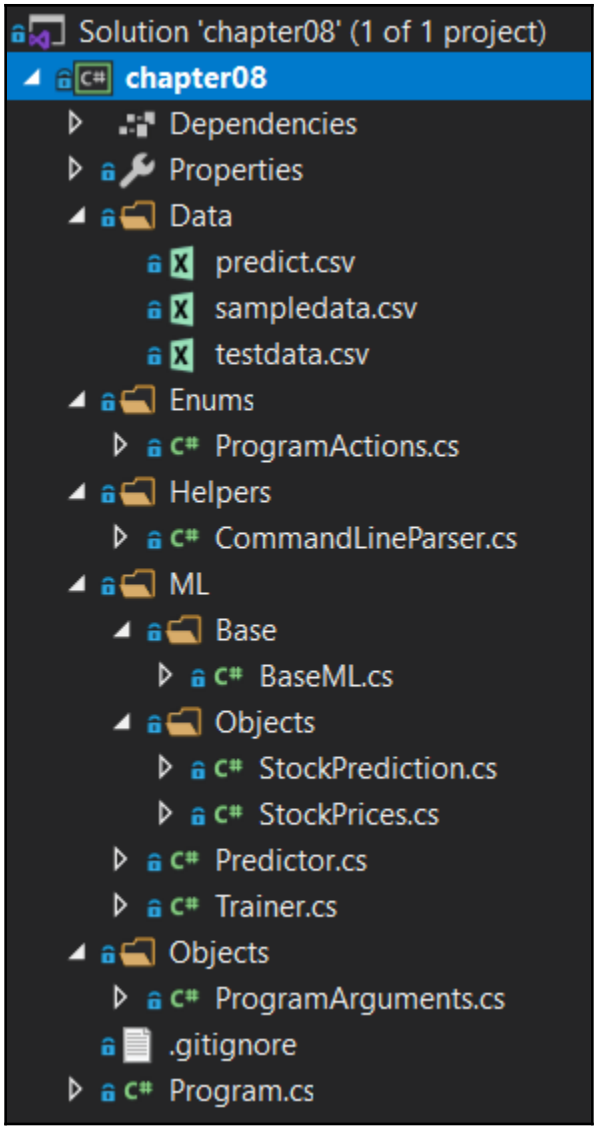




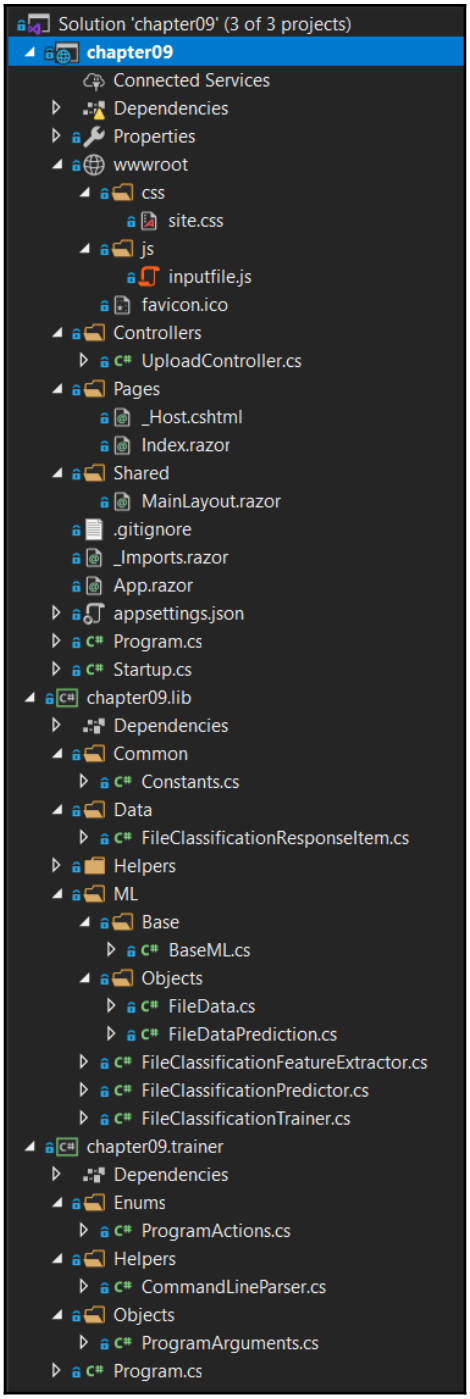

X

Chapter 8: Using ML.NET with .NET Core and Forecasting




Solution 'chapter08' (1 of 1 project)
chapter08
Dependencies
Properties
Data
predict.csv
sampledata.csv
testdata.csv
Enums
ProgramActions.cs
Helpers
CommandLineParser.cs
ML
Base
BaseML.cs
Objects
StockPrediction.cs
StockPrices.cs
Predictor.cs
Trainer.cs
Objects
ProgramArguments.cs
.gitignore
Program.cs

Chapter 9: Using ML.NET with ASP.NET Core


Solution 'chapter09' (3 of 3 projects)
chapter09
Connected Services
Dependencies
Properties
wwwroot
css
site.css
js
inputfile.js
favicon.ico
Controllers
UploadController.cs
Pages
_Host.cshtml
Index.razor
Shared
MainLayout.razor
.gitignore
_Imports.razor
App.razor
appsettings.json
Program.cs
Startup.cs
chapter09.lib
Dependencies
Common
Constants.cs
Data
FileClassificationResponseItem.cs
Helpers
ML
Base
BaseML.cs
Objects
FileData.cs
FileDataPrediction.cs
FileClassificationFeatureExtractor.cs
FileClassificationPredictor.cs
FileClassificationTrainer.cs
chapter09.trainer
Dependencies
Enums
ProgramActions.cs
Helpers
CommandLineParser.cs
Objects
ProgramArguments.cs
Program.cs

Chapter 9 - ML.NET with Blazor and ASP.NET Core

Click on **Choose File** below to upload and get the file's classification

Choose File No file chosen

Chapter 9 - ML.NET with Blazor and ASP.NET Core

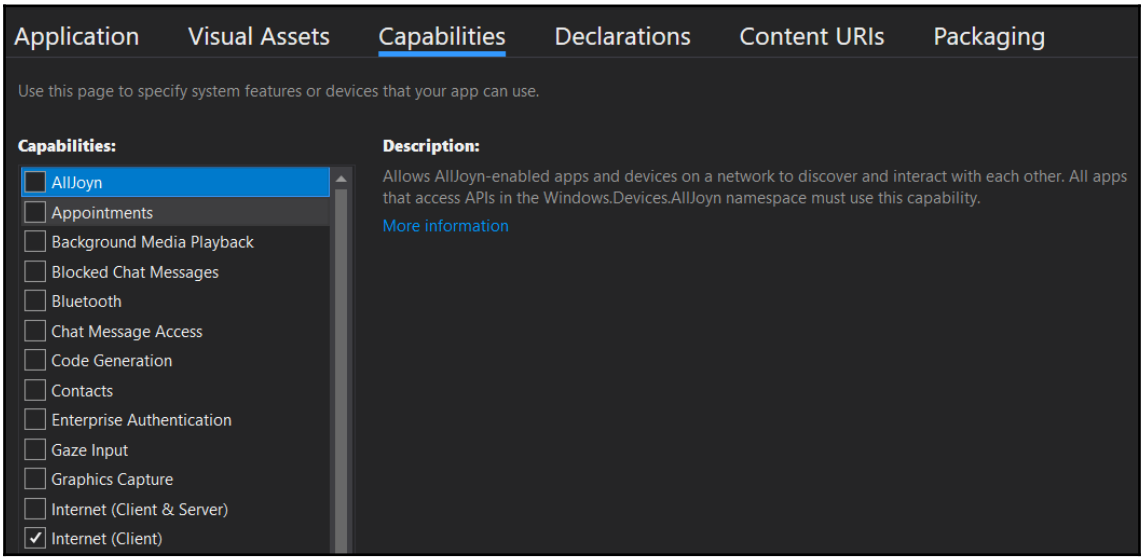
Click on **Choose File** below to upload and get the file's classification

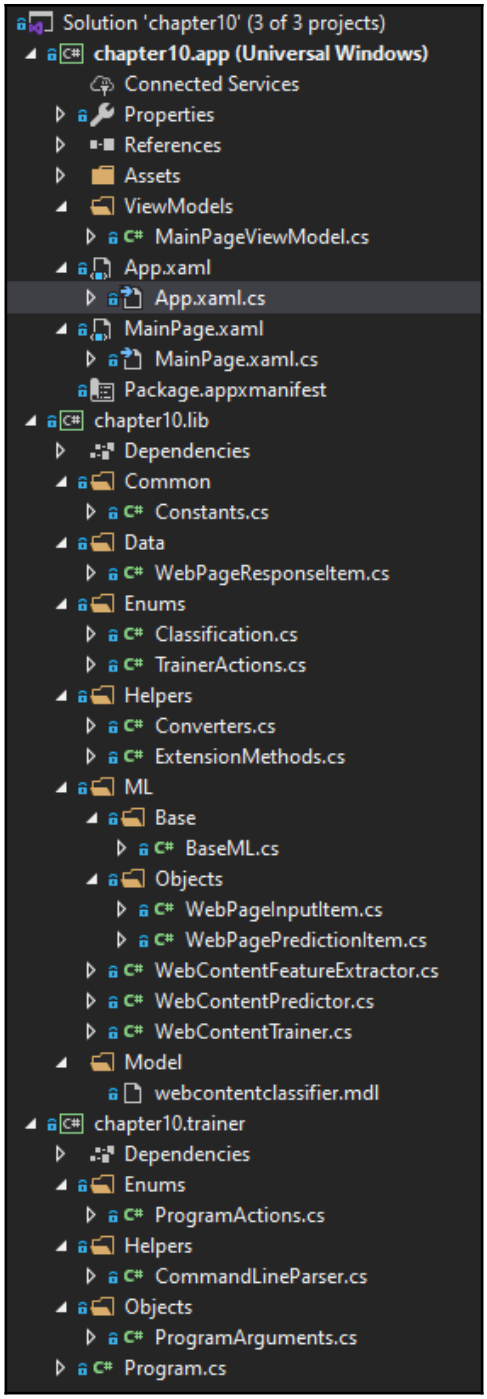
Choose File chapter09.dll

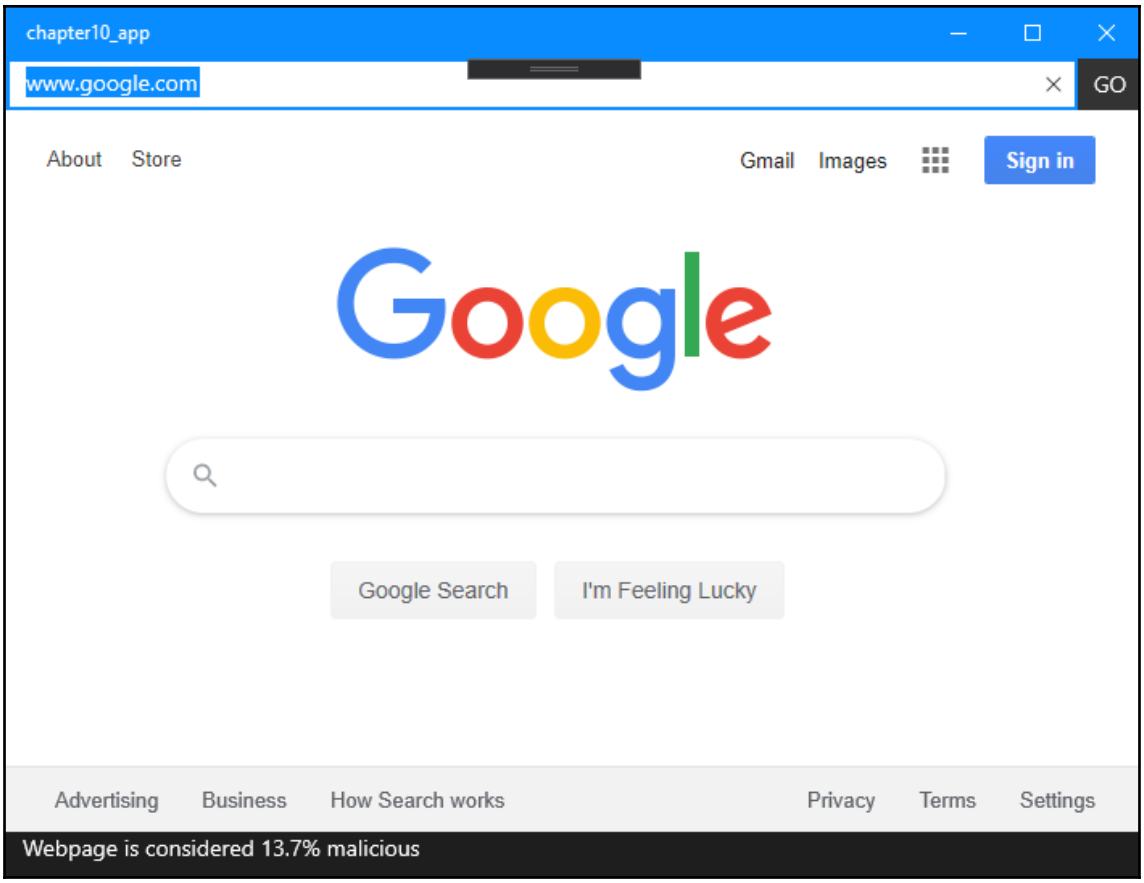
File Prediction Results:

SHA1 Hash	fGMEbIGMHHle5CxV+KeN5Nu68nM=
Is Malicious?	False
Confidence	0.0%

Chapter 10: Using ML.NET with UWP

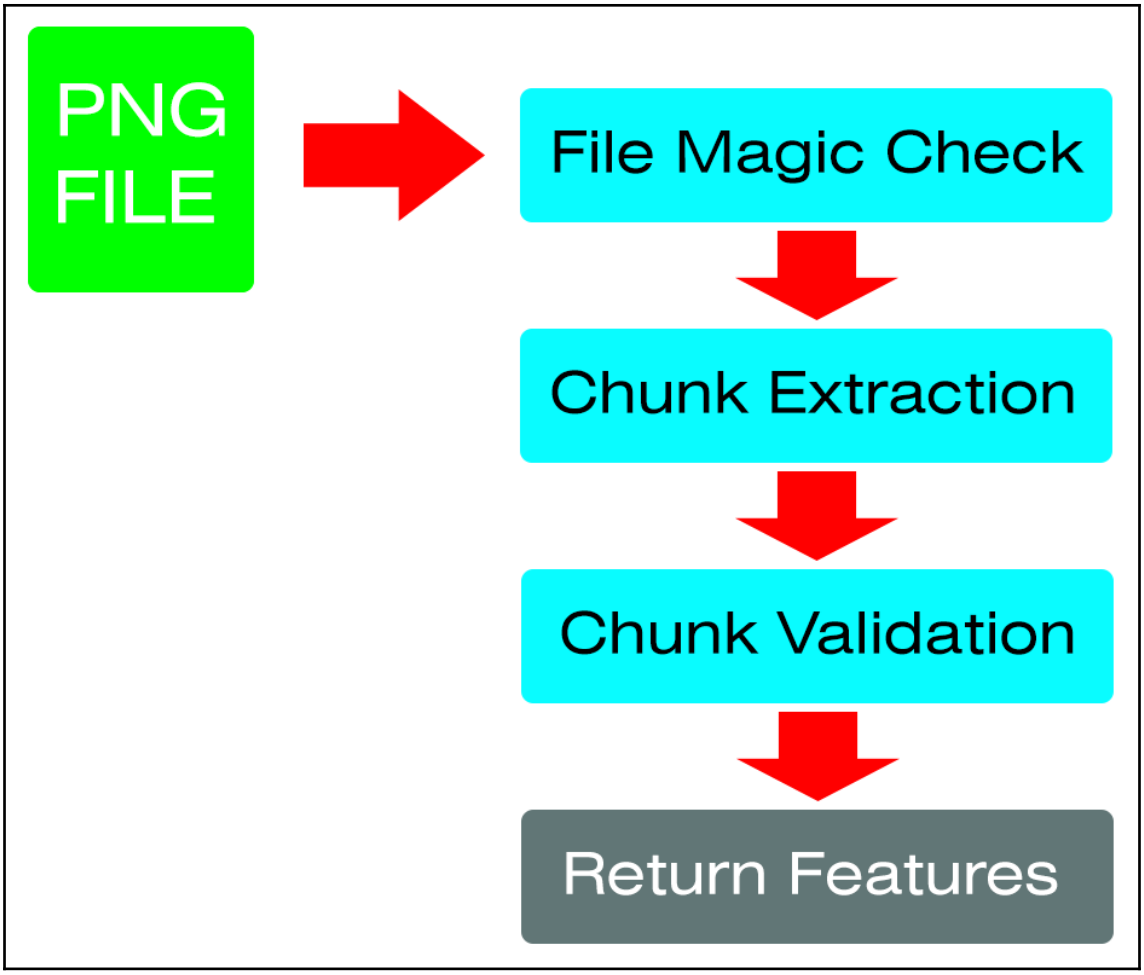



Solution 'chapter10' (3 of 3 projects)
chapter10.app (Universal Windows)
Connected Services
Properties
References
Assets
ViewModels
MainPageViewModel.cs
App.xaml
App.xaml.cs
MainPage.xaml
MainPage.xaml.cs
Package.appxmanifest
chapter10.lib
Dependencies
Common
Constants.cs
Data
WebPageResponseItem.cs
Enums
Classification.cs
TrainerActions.cs
Helpers
Converters.cs
ExtensionMethods.cs
ML
Base
BaseML.cs
Objects
WebPageInputItem.cs
WebPagePredictionItem.cs
WebContentFeatureExtractor.cs
WebContentPredictor.cs
WebContentTrainer.cs
Model
webcontentclassifier.mdl
chapter10.trainer
Dependencies
Enums
ProgramActions.cs
Helpers
CommandLineParser.cs
Objects
ProgramArguments.cs
Program.cs

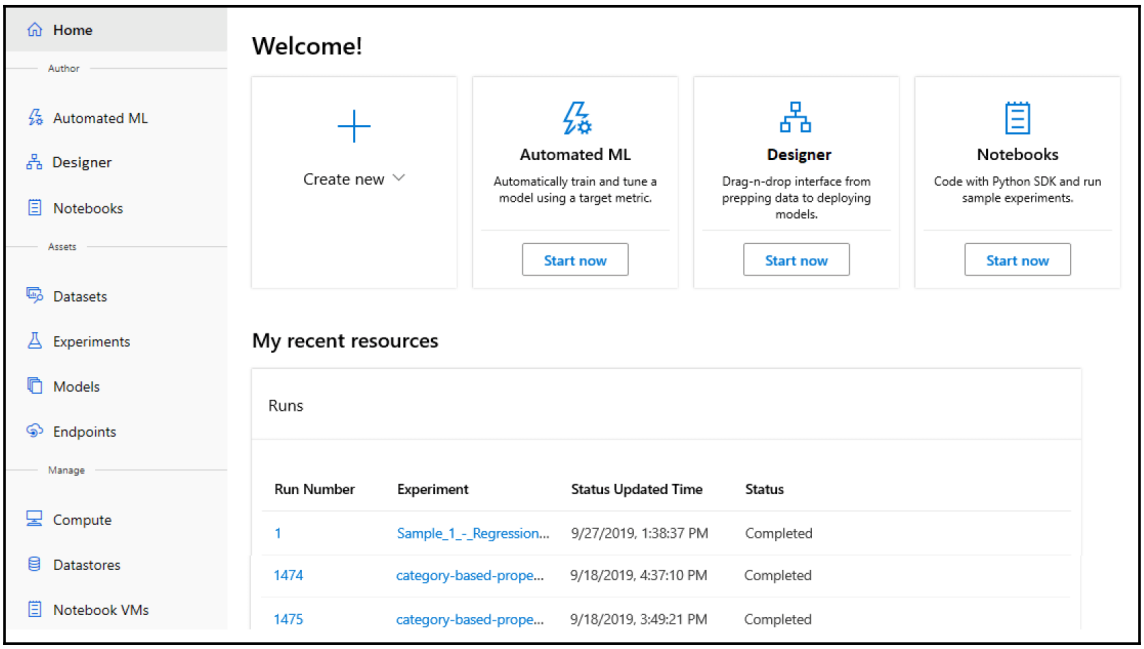

chapter10_app
www.google.com
GO
About
Store
Gmail
Images
Sign in
Google
Google Search
I'm Feeling Lucky
Advertising
Business
How Search works
Privacy
Terms
Settings
Webpage is considered 13.7% malicious

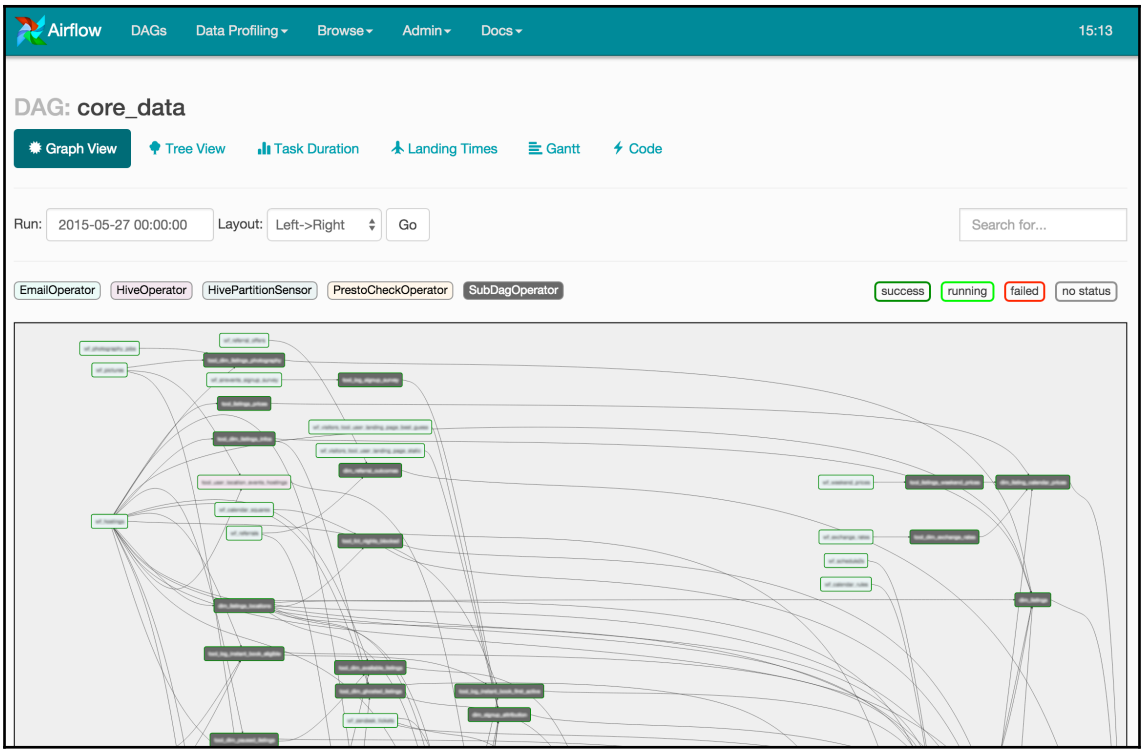

chapter10_app
dasmalwerk.eu
GO
dasmalwerk.eu was found to be a malicious site
Webpage is considered 99.7% malicious

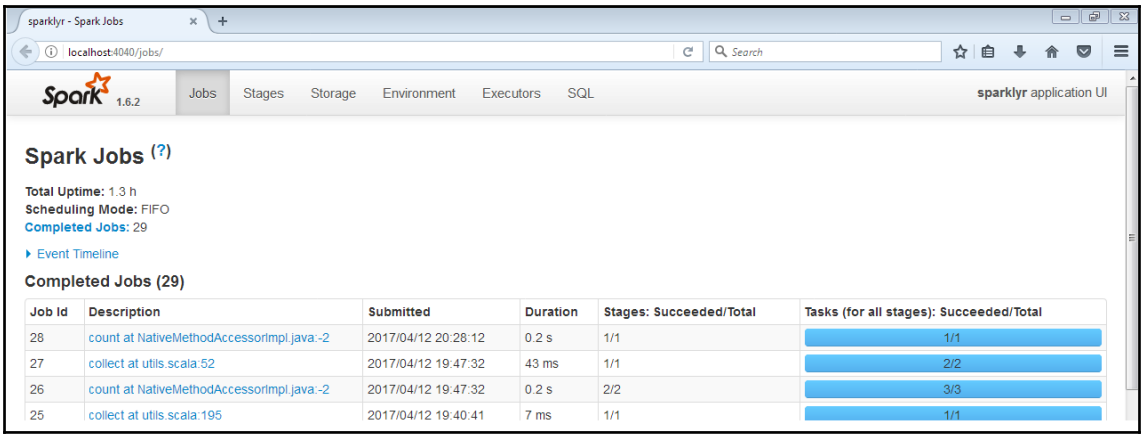
Chapter 11: Training and Building Production Models


PNG FILE
File Magic Check
Chunk Extraction
Chunk Validation
Return Features

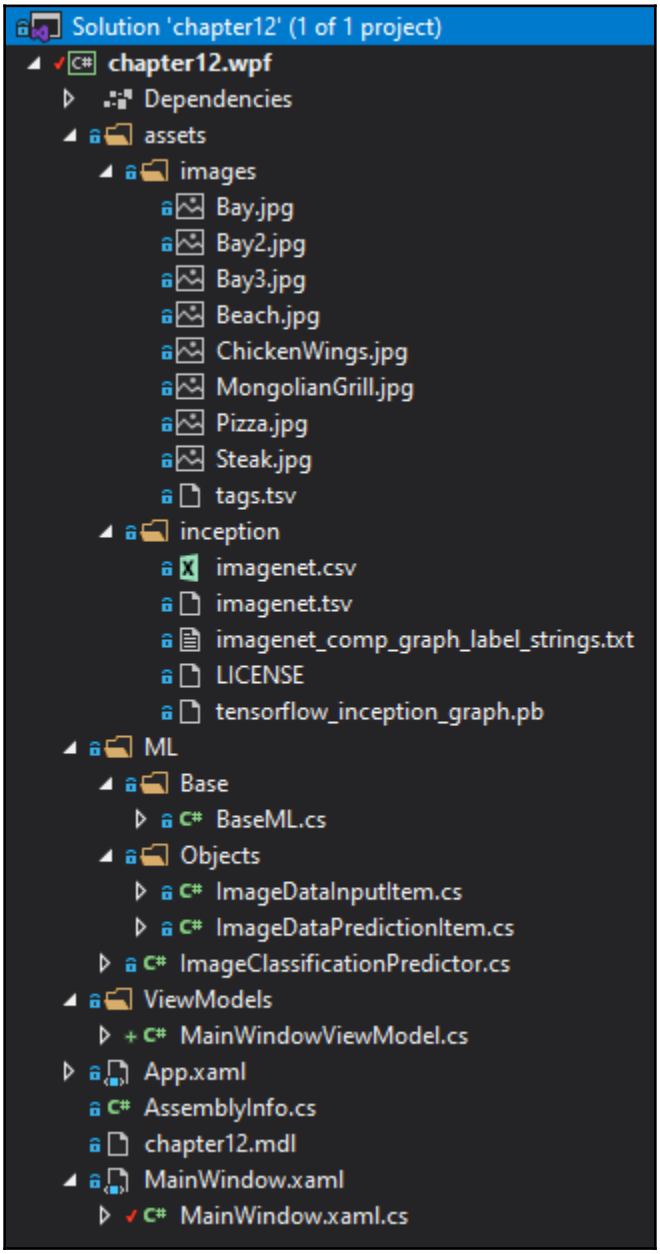

1. Prepare Data
2. Train Model
3. Validate Model
4. Deploy Model

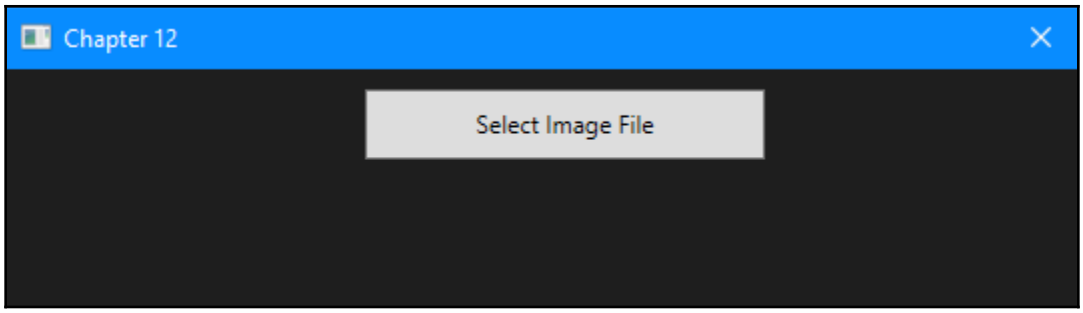

Home
Author
Automated ML
Designer
Notebooks
Assets
Datasets
Experiments
Models
Endpoints
Manage
Compute
Datastores
Notebook VMs
Welcome!
Create new
Automated ML
Automatically train and tune a model using a target metric.
Start now
Designer
Drag-n-drop interface from prepping data to deploying models.
Start now
Notebooks
Code with Python SDK and run sample experiments.
Start now
My recent resources
Runs
Run Number
Experiment
Status Updated Time
Status
1
Sample_1_-_Regression...
9/27/2019, 1:38:37 PM
Completed
1474
category-based-prope...
9/18/2019, 4:37:10 PM
Completed
1475
category-based-prope...
9/18/2019, 3:49:21 PM
Completed

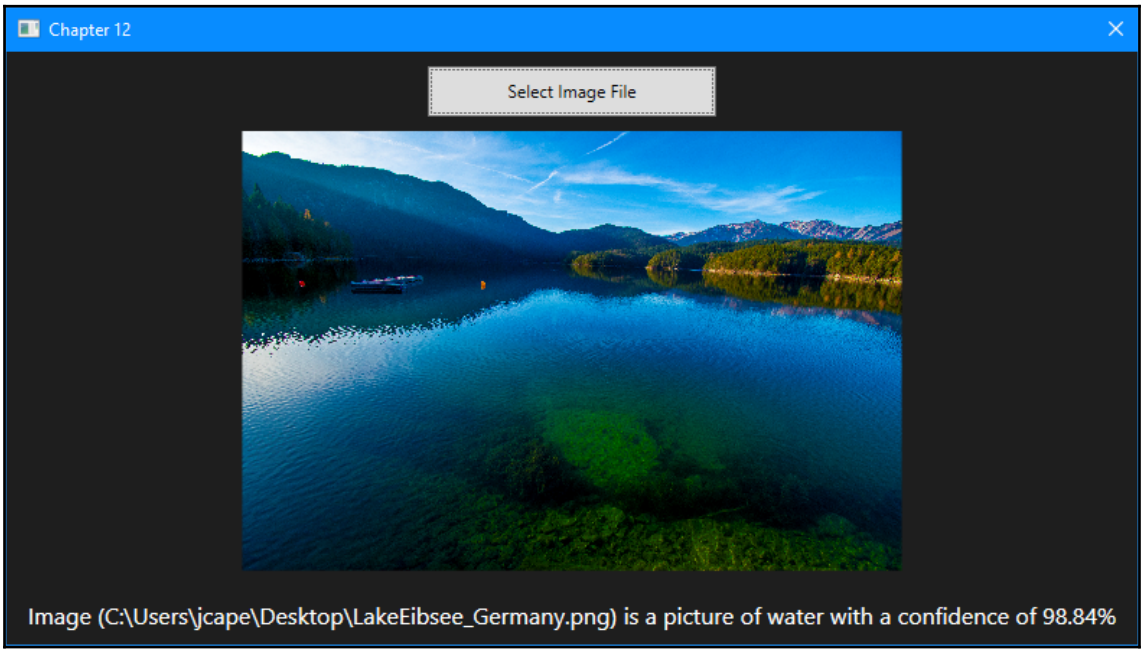

Airflow
DAGs
Data Profiling
Browse
Admin
Docs
15:13
DAG: core_data
Graph View
Tree View
Task Duration
Landing Times
Gantt
Code
Run: 2015-05-27 00:00:00
Layout: Left->Right
Go
Search for...
EmailOperator
HiveOperator
HivePartitionSensor
PrestoCheckOperator
SubDagOperator
success
running
failed
no status


sparklyr - Spark Jobs
localhost:4040/jobs/
Search
Spark 1.6.2
Jobs
Stages
Storage
Environment
Executors
SQL
sparklyr application UI
Spark Jobs (?)
Total Uptime: 1.3 h
Scheduling Mode: FIFO
Completed Jobs: 29
Event Timeline
Completed Jobs (29)
Job Id | Description | Submitted | Duration | Stages: Succeeded/Total | Tasks (for all stages): Succeeded/Total
28 | count at NativeMethodAccessorImpl.java:-2 | 2017/04/12 20:28:12 | 0.2 s | 1/1 | 1/1
27 | collect at utils.scala:52 | 2017/04/12 19:47:32 | 43 ms | 1/1 | 2/2
26 | count at NativeMethodAccessorImpl.java:-2 | 2017/04/12 19:47:32 | 0.2 s | 2/2 | 3/3
25 | collect at utils.scala:195 | 2017/04/12 19:40:41 | 7 ms | 1/1 | 1/1

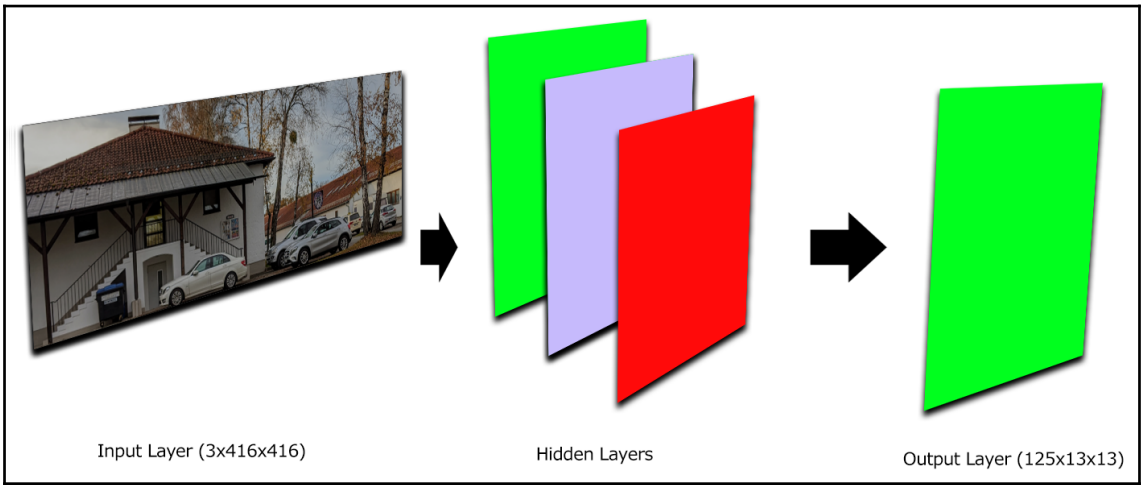
Chapter 12: Using TensorFlow with ML.NET

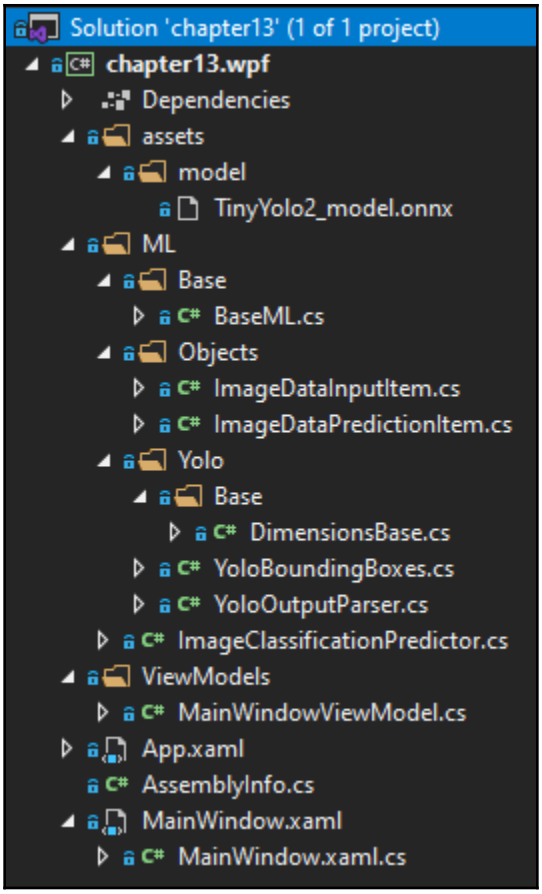



Chapter 12
Select Image File

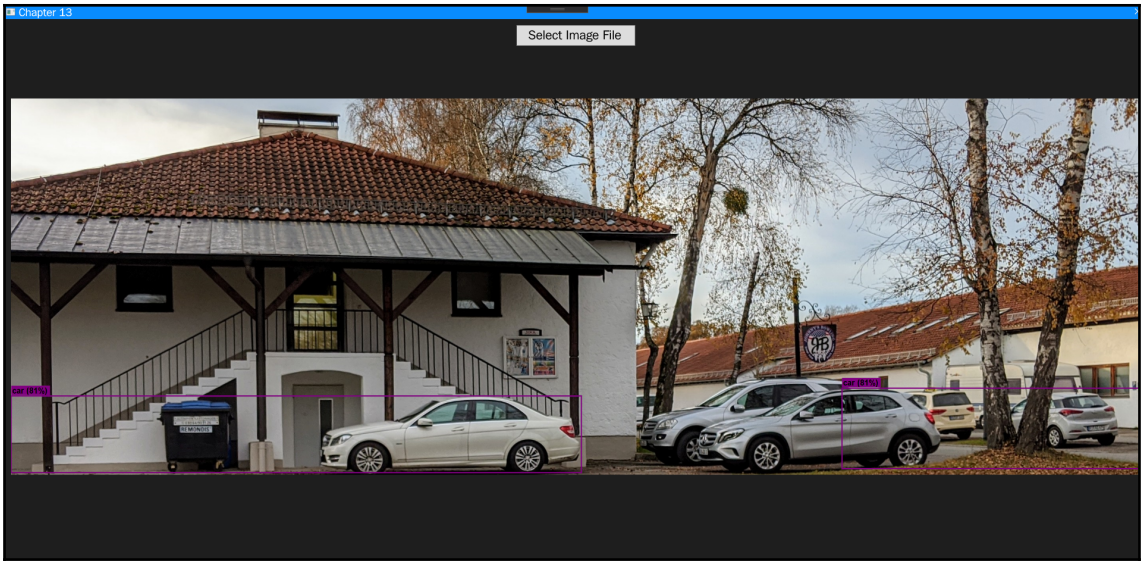

Chapter 12
Select Image File
Image (C:\Users\jcape\Desktop\LakeEibsee_Germany.png) is a picture of water with a confidence of 98.84%

Chapter 13: Using ONNX with ML.NET




Solution 'chapter13' (1 of 1 project)
chapter13.wpf
Dependencies
assets
model
TinyYolo2_model.onnx
ML
Base
BaseML.cs
Objects
ImageDataInputItem.cs
ImageDataPredictionItem.cs
Yolo
Base
DimensionsBase.cs
YoloBoundingBoxes.cs
YoloOutputParser.cs
ImageClassificationPredictor.cs
ViewModels
MainWindowViewModel.cs
App.xaml
AssemblyInfo.cs
MainWindow.xaml
MainWindow.xaml.cs


Debug
Any CPU
chapter13.wpf


Chapter 13
Select Image File
car (81%)
car (81%)