

# Adult AutoML

# What's in this session?

1. Install ML.NET Model Builder
2. Create new .NET CORE console project and add Machine Learning job
3. Pick a Scenario / Price Prediction
4. Set Data File
5. Set train time
6. Understand Train result
7. Understand evaluation result
8. Generate Code
9. Examine Code

# Install ML.NET Model Builder

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



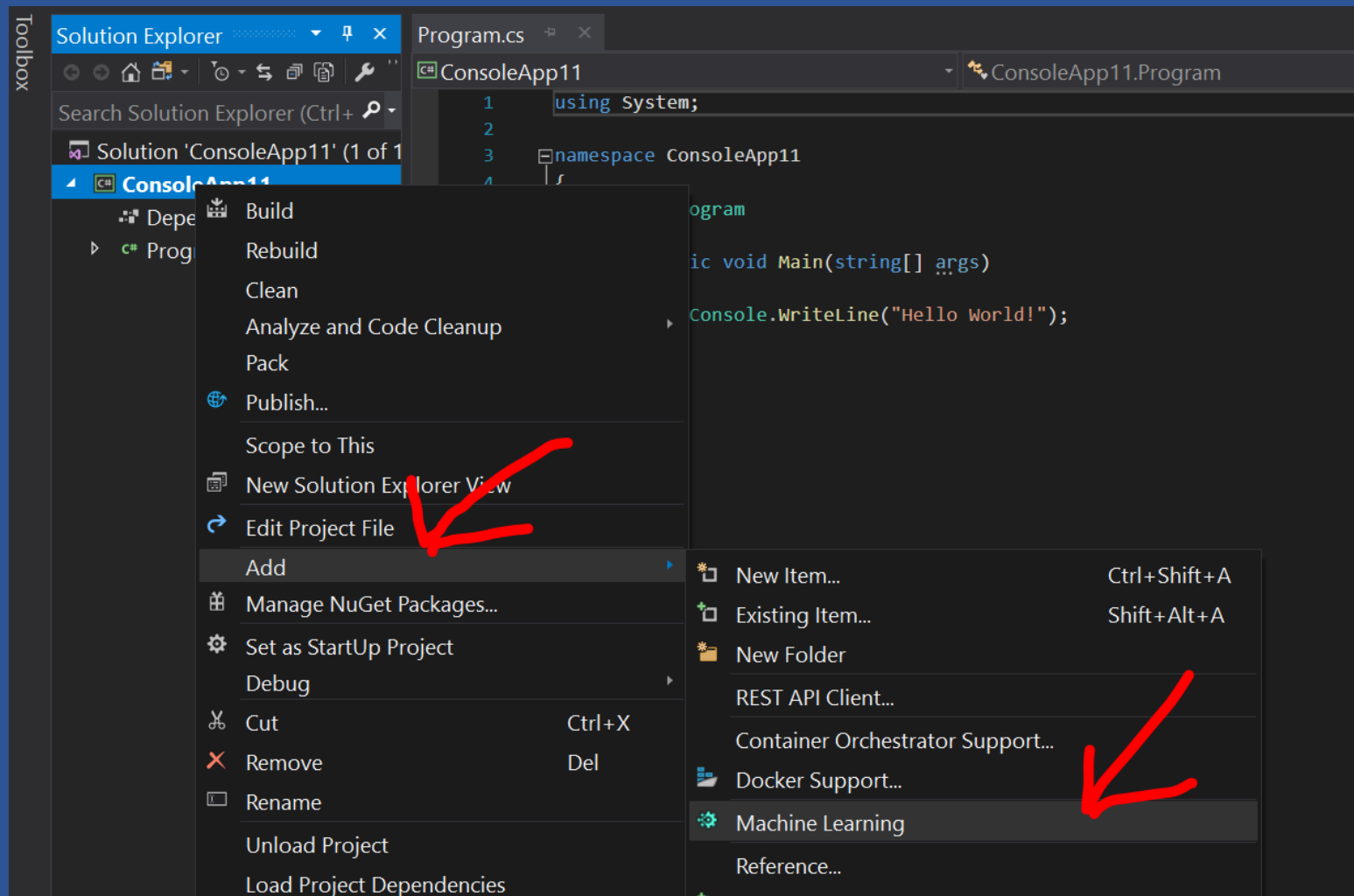
## ML.NET Model Builder (Preview)

**Microsoft** | 24,428 installs |  39,194 downloads | ★★★★★ (12) | Free

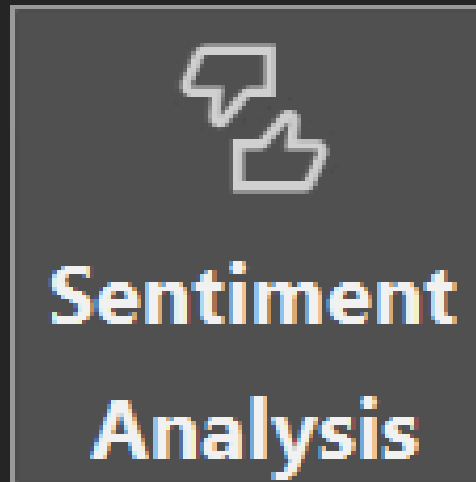
Simple UI tool to build custom machine learning models.

Download

# Create new .NET CORE console project and add Machine Learning



## Pick a Scenario / Custom Scenario



Classify data into 2 categories (binary classification), e.g. predict positive or negative sentiment of comments.

## Connect to SQL Server

### Input

Choose input data source from either SQL Server or File:

SQL Server

Connect to SQL Server database:

<SQL database>



Maximum size: 1 GB.

## Set server name & database name

Server name:  
DESKTOP-VUBCKOA\SQLEXPRESS Refresh

Log on to the server

Authentication: Windows Authentication

User name:

Password:

☐ Save my password

Connect to a database

☒ Select or enter a database name:  
mlldb

☐ Attach a database file:

## Set table name & Label column

Table Name:

adult

Column to Predict (Label):

label

### Data Preview


id	age	workclass	fnlwgt	education	educationnum	maritalstatus
1	39	State-gov	77516	Bachelors	13	Never-married
2	50	Self-emp-not-inc	83311	Bachelors	13	Married-civ-sp
3	38	Private	215646	HS-grad	9	Divorced
4	53	Private	234721	11th	7	Married-civ-sp



Task = multiclass-classification

Time = 60 seconds

## Input

Time to train (seconds): 

Start training

## Understand the Train result

### Progress

Start training to see progress and results

Status:	Done
Best Accuracy:	87.24%
Best Algorithm:	FastTreeBinary
Last Algorithm:	FastTreeBinary

# Understand evaluation result

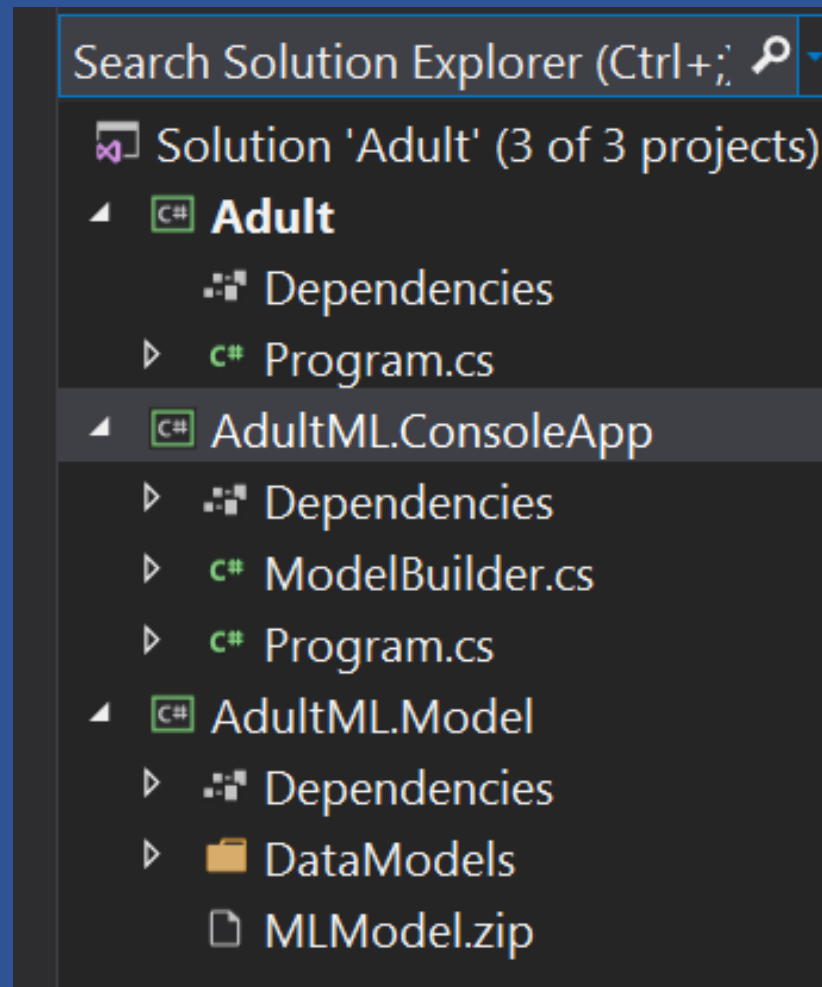
## Output

ML Task: binary-classification  
Dataset: mldb adult  
Column to Predict (Label): label  
Best Model: FastTreeBinary  
Best Model Accuracy: 87.24%  
Training Time: 10.63 seconds  
Models Explored (Total): 11

## Top 5 models explored

Rank	Trainer	Accuracy	AUC	AUPRC	F1-score	Duration
1	FastTreeBinary	0.8724	0.9287	0.8175	0.7048	0.8
2	FastTreeBinary	0.8724	0.9241	0.8118	0.6876	1.3
3	LightGbmBinary	0.8697	0.9292	0.8184	0.6963	0.6
4	FastForestBinary	0.8661	0.9132	0.7902	0.6606	0.7
5	LbfgsLogisticRegressionBinary	0.8583	0.9056	0.7485	0.6580	0.5

## Examine Code



# Next Step

Write Code to build, train, evaluate, and use  
ML model