Neural Network About Titanic Survived

https : // www . bilibili . com/video/BV1Wa411e7dk

https : // www . wolfram . com/wolfram - u/catalog/wl035/

In[ ]:=
```
titanicdata = ExampleData[{"Dataset", "Titanic"}];
              范例数据          数据集
titanicdata = DeleteMissing[titanicdata, 1, 2];
              删除丢失的数据
{trainingData, testData} = TakeDrop[RandomSample@titanicdata, 800]
                           提取删…    伪随机采样
```

Out[ ]=

class	age	sex	survived
2nd	54	female	True
1st	40	male	False
3rd	7	male	False
3rd	18	male	False
2nd	29	male	False
3rd	41	female	False
2nd	24	female	True
2nd	28	female	True
1st	24	female	True
3rd	6	male	False
3rd	24	male	False
1st	2	female	False
2nd	29	female	True
1st	6	male	True
1st	52	female	True
3rd	3	female	False
3rd	22	male	False
1st	58	male	False
3rd	21	male	False
1st	21	female	True

rows 1–20 of **800**

,

class	age	sex	survived
3rd	17	male	False
2nd	42	male	True
3rd	21	male	False
1st	30	female	True
1st	36	female	False
1st	38	female	True
3rd	26	female	False
3rd	65	male	False
1st	64	male	False
1st	24	female	True
2nd	54	male	False
1st	26	male	True
1st	36	female	True
1st	48	female	True
1st	27	male	True
3rd	45	female	False
3rd	24	male	False
3rd	30	male	False
2nd	18	male	False
3rd	20	male	False

rows 1–20 of **246**

In[ ]:=

```
classEncoder = NetEncoder[{"Class", {"1st", "2nd", "3rd"}, "UnitVector"}]
                          神经网络编码器                    单位向量
genderEncoder = NetEncoder[{"Class", {"male", "female"}, "UnitVector"}]
                           神经网络编码器                  单位向量
```

Out[ ]=

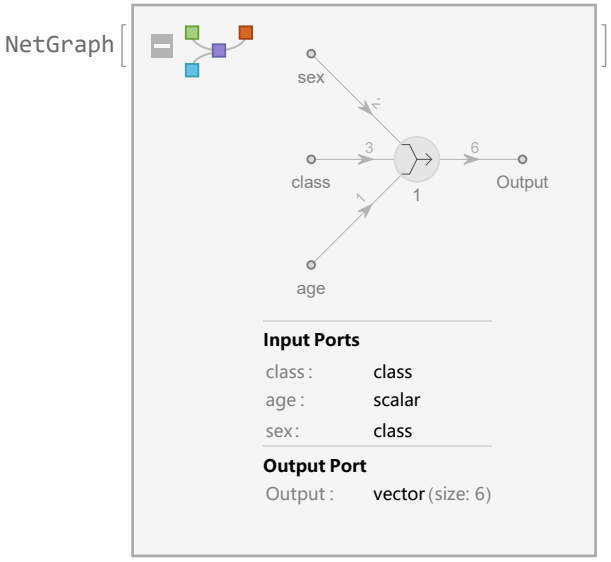
NetEncoder[Type: Class
Output: vector (size: 3) of booleans]

Out[ ]=

NetEncoder[Type: Class
Output: vector (size: 2) of booleans]

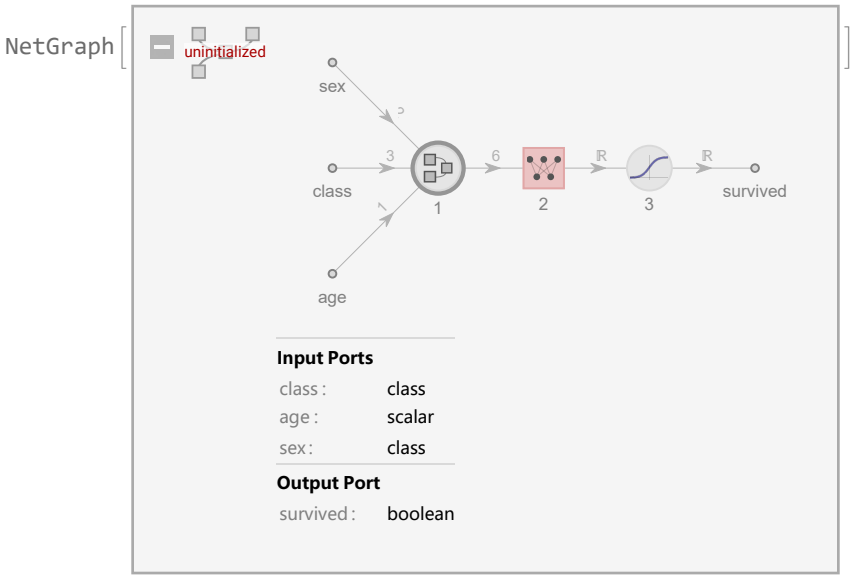
In[ ]:=
```
net1 = NetGraph[{CatenateLayer[]},
        神经网络图   链接网络层
  {{NetPort["class"], NetPort["age"], NetPort["sex"]} → 1},
    网络口              网络口              网络口
  "class" → classEncoder, "age" → "Scalar", "sex" → genderEncoder]
```

Out[ ]=



In[ ]:=
```
net2 = NetGraph[{net1, LinearLayer[], LogisticSigmoid},
        神经网络图          线性层            逻辑乙形函数
  {1 → 2 → 3 → NetPort["survived"]}, "survived" → "Boolean"]
                网络口
```

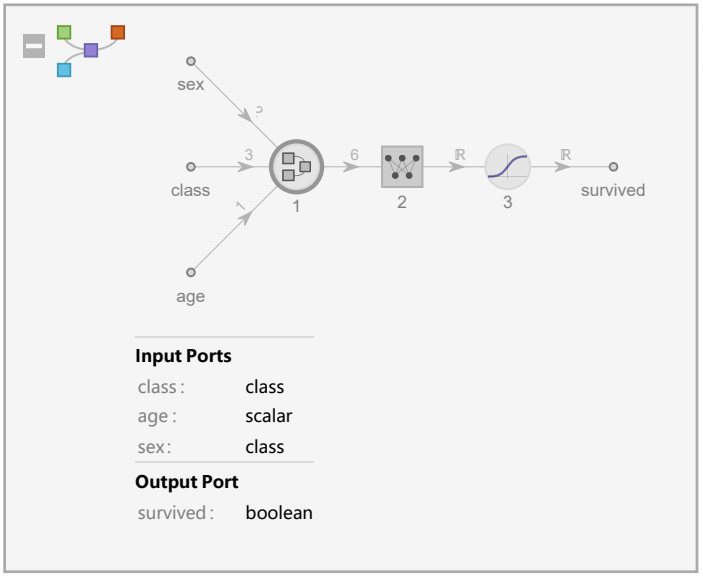
Out[ ]=



In[ ]:=
```
trained = NetTrain[net2, trainingData, MaxTrainingRounds → 1000]
```
神经网络培训　　最大培训回合

Out[ ]=

NetGraph



In[ ]:=
```
{trained[<|"class" → "1st", "age" → 20, "sex" → "female"|>],
 trained[<|"class" → "1st", "age" → 20, "sex" → "female"|>, None]}
```
无

```
{trained[<|"class" → "3rd", "age" → 30, "sex" → "male"|>],
 trained[<|"class" → "3rd", "age" → 30, "sex" → "male"|>, None]}
```
无

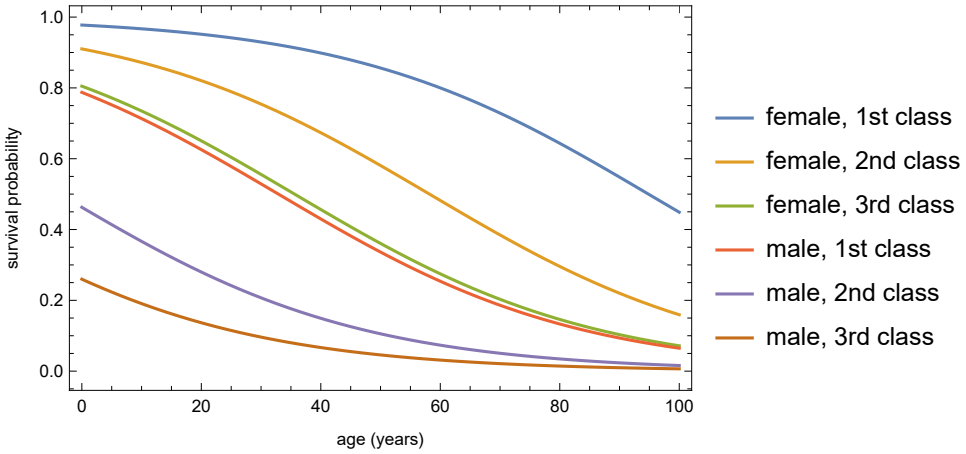
Out[ ]=
```
{True, 0.951568}
```

Out[ ]=
```
{False, 0.0961094}
```

In[ ]:=
```
p[class_, age_, sex_] := trained[<|"class" → class, "age" → age, "sex" → sex|>, None];
                                                                                  无

Plot[{p["1st", x, "female"], p["2nd", x, "female"], p["3rd", x, "female"],
绘图
  p["1st", x, "male"], p["2nd", x, "male"], p["3rd", x, "male"]},
 {x, 0, 100}, PlotLegends → {"female, 1st class", "female, 2nd class",
                 绘图的图例
   "female, 3rd class", "male, 1st class", "male, 2nd class", "male, 3rd class"},
 Frame → True, FrameLabel → {"age (years)", "survival probability"}]
 边框      真      边框标签
```

Out[ ]=



In[ ]:=
```
cm = ClassifierMeasurements[trained, testData → "survived", "Accuracy"]
     分类器度量                                                  准确度
cf = Classify[trainingData → "survived"];
     分类
ClassifierMeasurements[cf, testData → "survived", "Accuracy"]
分类器度量                                                  准确度
```

Out[ ]=
```
0.792683
```

Out[ ]=
```
0.792683
```

In[ ]:=
```
model of cat
```

Out[ ]=
```
Failure[ ⚠ Message: 网络操作超时. 请稍后再试.
         Tag: TimedOut
         Query: model of cat ]
```

neural WORD