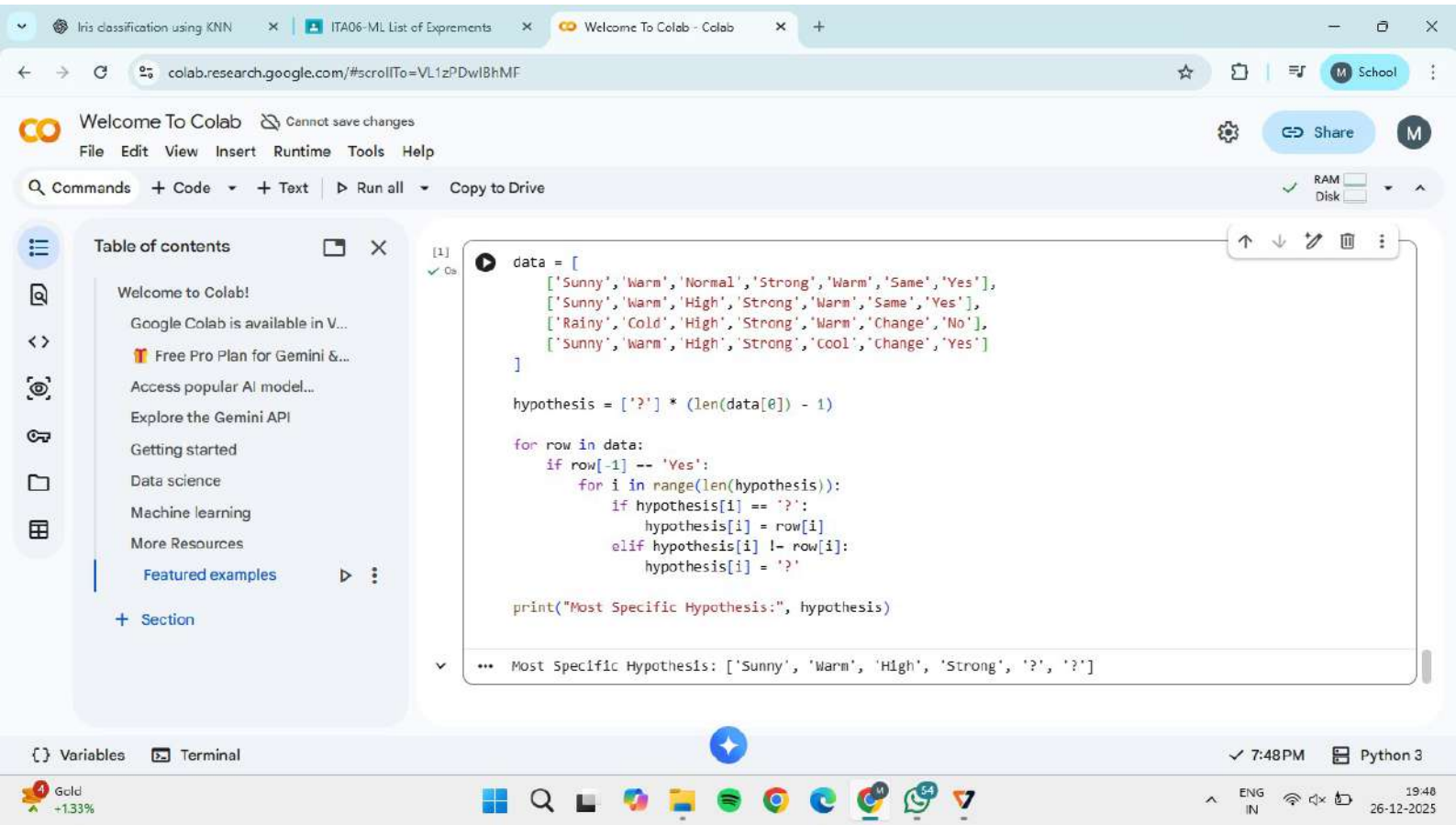
Iris classification using KNN
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[1]
0s
data = [
['Sunny','Warm','Normal','Strong','Warm','Same','Yes'],
['Sunny','Warm','High','Strong','Warm','Same','Yes'],
['Rainy','Cold','High','Strong','Warm','Change','No'],
['Sunny','Warm','High','Strong','Cool','Change','Yes']
]
hypothesis = ['?'] * (len(data[0]) - 1)
for row in data:
if row[-1] == 'Yes':
for i in range(len(hypothesis)):
if hypothesis[i] == '?':
hypothesis[i] = row[i]
elif hypothesis[i] != row[i]:
hypothesis[i] = '?'
print("Most Specific Hypothesis:", hypothesis)
Most Specific Hypothesis: ['Sunny', 'Warm', 'High', 'Strong', '?', '?']
Variables
Terminal
7:48PM
Python 3
Gold
+1.33%
ENG
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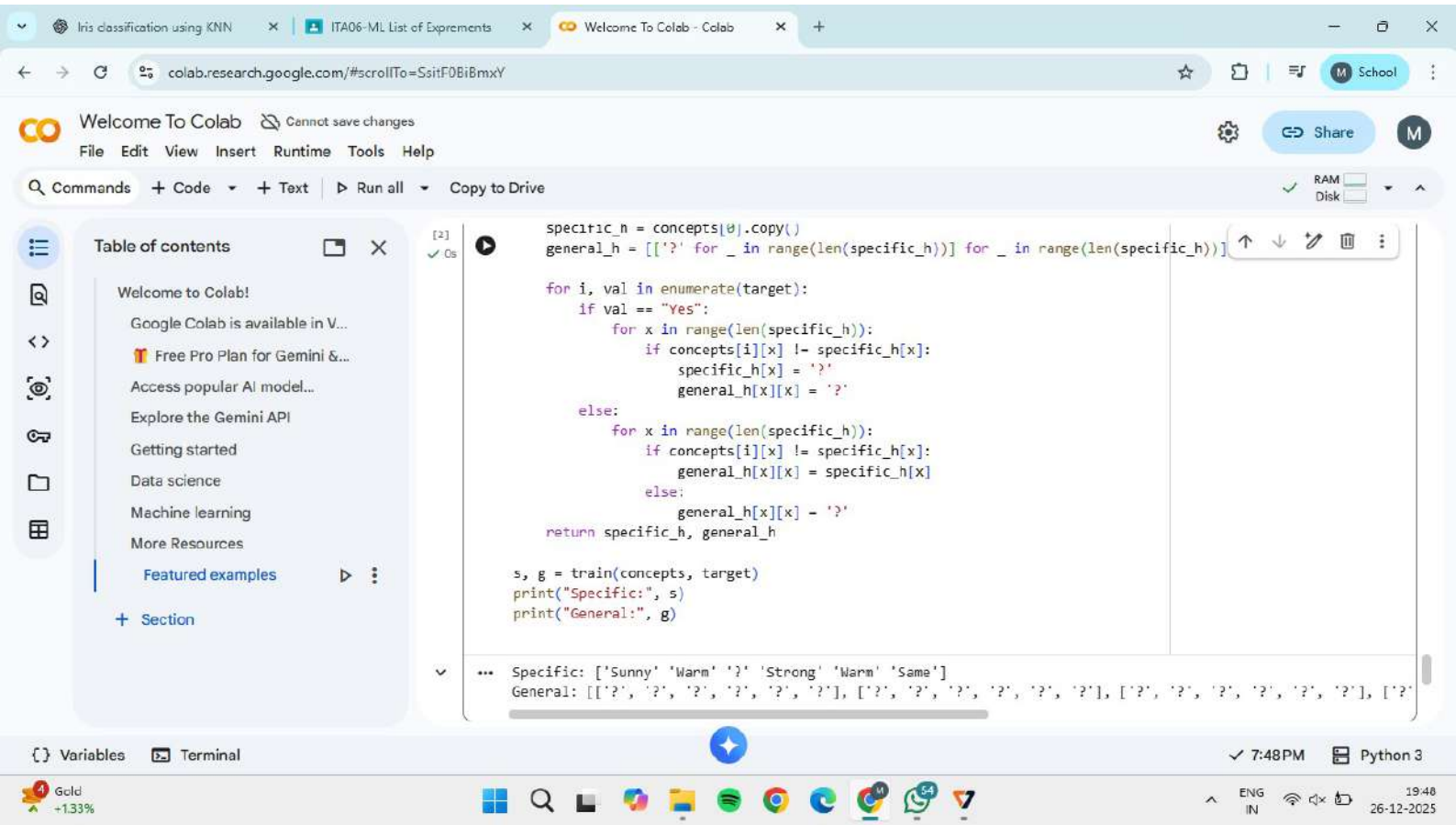
19:48
26-12-2025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[2]
0s
specific_h = concepts[0].copy()
general_h = [['?' for _ in range(len(specific_h))] for _ in range(len(specific_h))]
for i, val in enumerate(target):
if val == "Yes":
for x in range(len(specific_h)):
if concepts[i][x] != specific_h[x]:
specific_h[x] = '?'
general_h[x][x] = '?'
else:
for x in range(len(specific_h)):
if concepts[i][x] != specific_h[x]:
general_h[x][x] = specific_h[x]
else:
general_h[x][x] = '?'
return specific_h, general_h
s, g = train(concepts, target)
print("Specific:", s)
print("General:", g)
Specific: ['Sunny' 'Warm' '?' 'Strong' 'Warm' 'Same']
General: [['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?'
Variables
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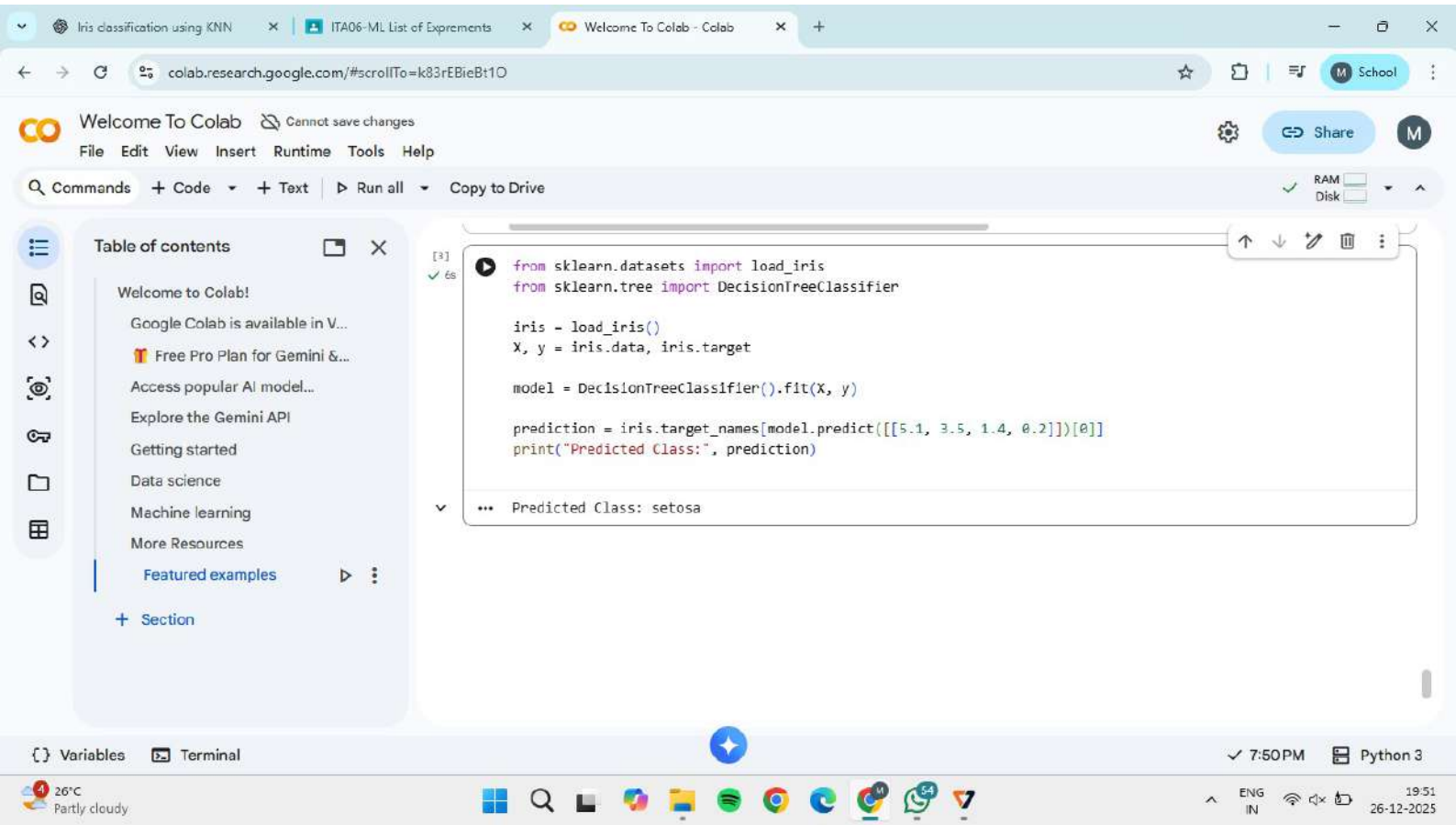
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[3]
6s
from sklearn.datasets import load_iris
from sklearn.tree import DecisionTreeClassifier
iris = load_iris()
X, y = iris.data, iris.target
model = DecisionTreeClassifier().fit(X, y)
prediction = iris.target_names[model.predict([[5.1, 3.5, 1.4, 0.2]])[0]]
print("Predicted Class:", prediction)
Predicted Class: setosa
Variables
Terminal
7:50 PM
Python 3
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ENG
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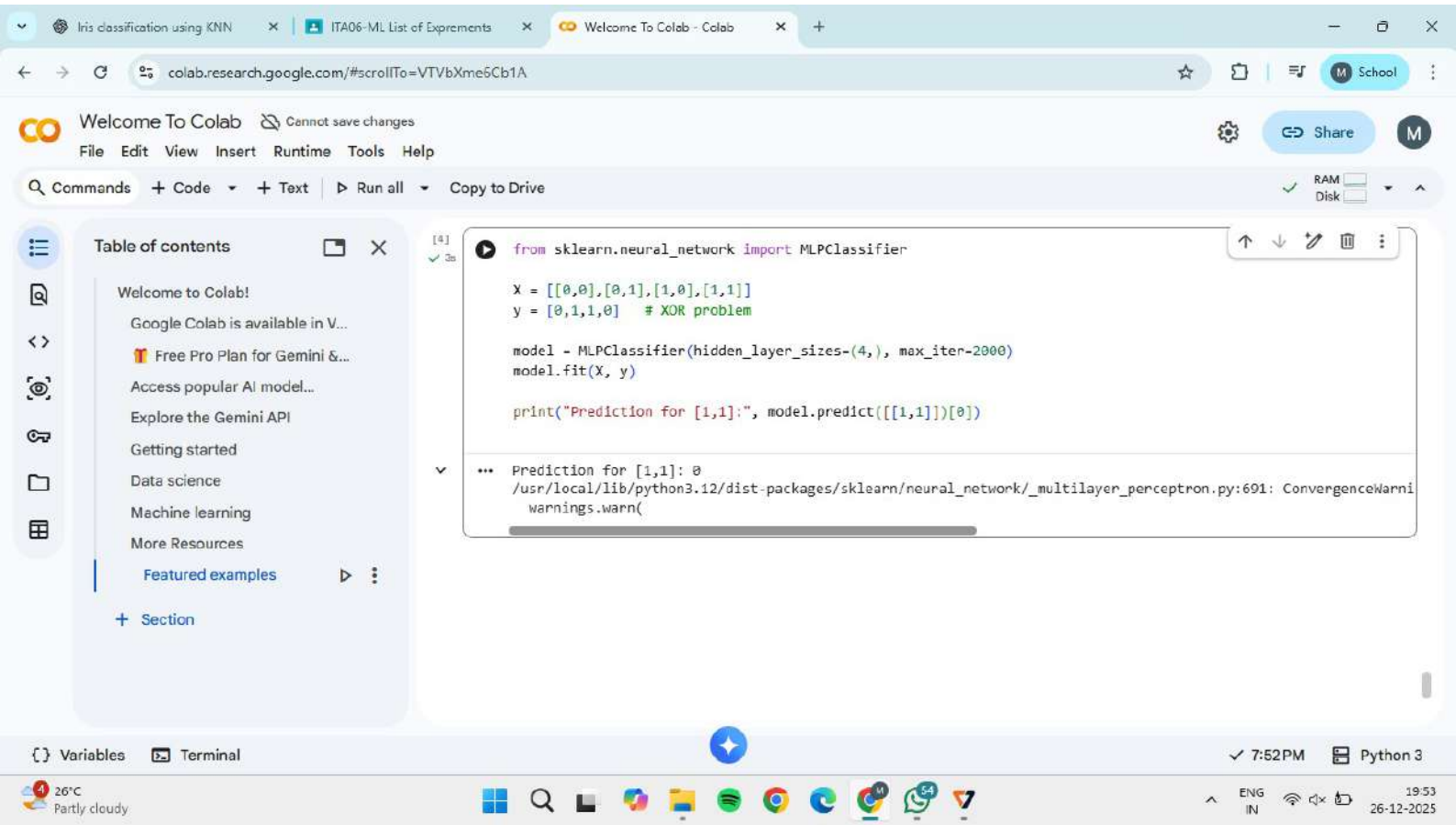
19:51
26-12-2025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[4]
3s
from sklearn.neural_network import MLPClassifier
X = [[0,0],[0,1],[1,0],[1,1]]
y = [0,1,1,0] # XOR problem
model = MLPClassifier(hidden_layer_sizes=(4,), max_iter=2000)
model.fit(X, y)
print("Prediction for [1,1]:", model.predict([[1,1]])[0])
Prediction for [1,1]: 0
/usr/local/lib/python3.12/dist-packages/sklearn/neural_network/_multilayer_perceptron.py:691: ConvergenceWarni
warnings.warn(
Variables
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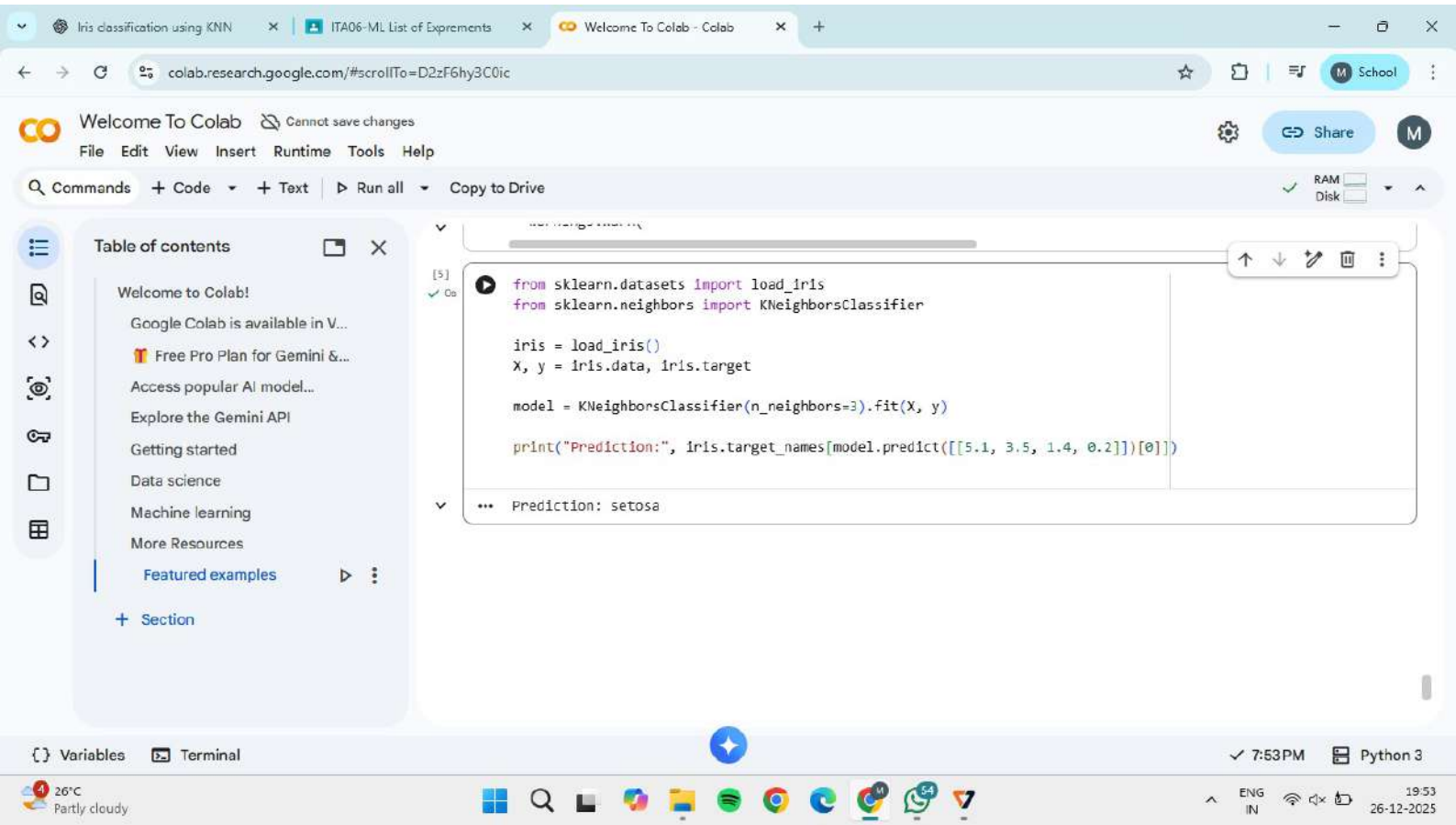
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[5]
from sklearn.datasets import load_iris
from sklearn.neighbors import KNeighborsClassifier
iris = load_iris()
X, y = iris.data, iris.target
model = KNeighborsClassifier(n_neighbors=3).fit(X, y)
print("Prediction:", iris.target_names[model.predict([[5.1, 3.5, 1.4, 0.2]])[0]])
Prediction: setosa
Variables
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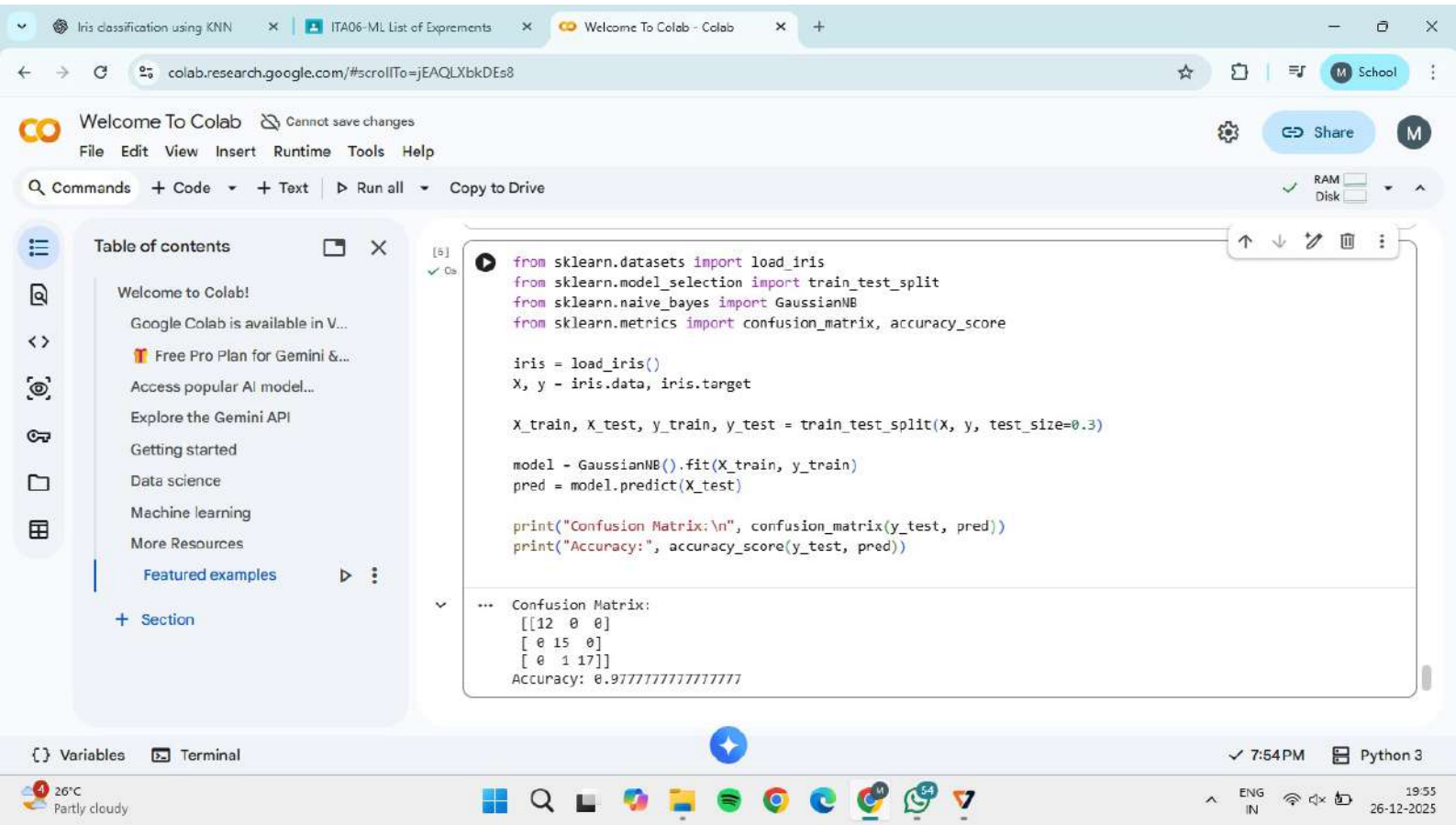
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[6]
0s
from sklearn.datasets import load_iris
from sklearn.model_selection import train_test_split
from sklearn.naive_bayes import GaussianNB
from sklearn.metrics import confusion_matrix, accuracy_score
iris = load_iris()
X, y = iris.data, iris.target
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.3)
model = GaussianNB().fit(X_train, y_train)
pred = model.predict(X_test)
print("Confusion Matrix:\n", confusion_matrix(y_test, pred))
print("Accuracy:", accuracy_score(y_test, pred))
Confusion Matrix:
[[12 0 0]
[0 15 0]
[0 1 17]]
Accuracy: 0.9777777777777777
Variables
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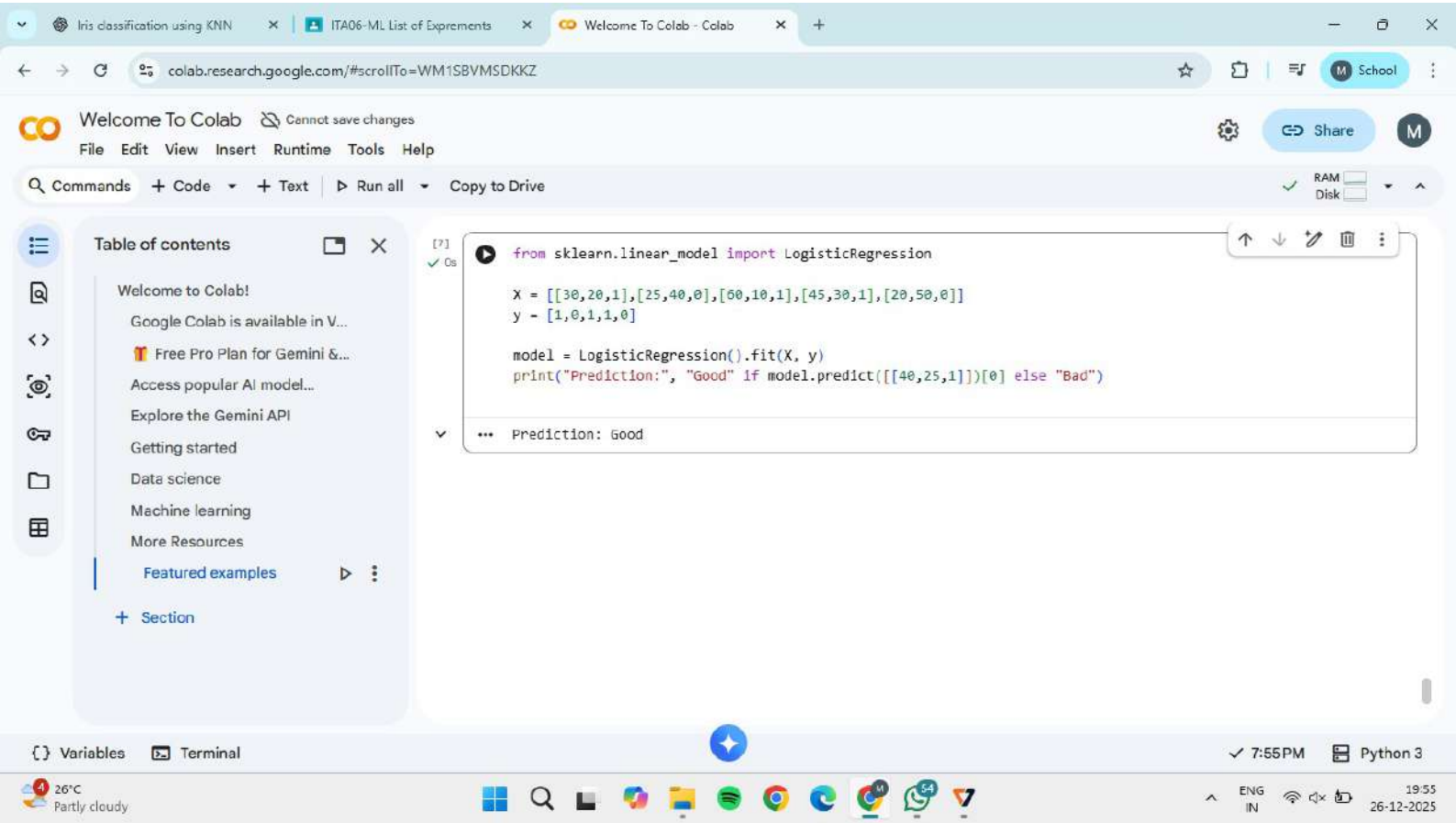
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[7]
0s
from sklearn.linear_model import LogisticRegression
X = [[30,20,1],[25,40,0],[60,10,1],[45,30,1],[20,50,0]]
y = [1,0,1,1,0]
model = LogisticRegression().fit(X, y)
print("Prediction:", "Good" if model.predict([[40,25,1]])[0] else "Bad")
Prediction: Good
Variables
Terminal
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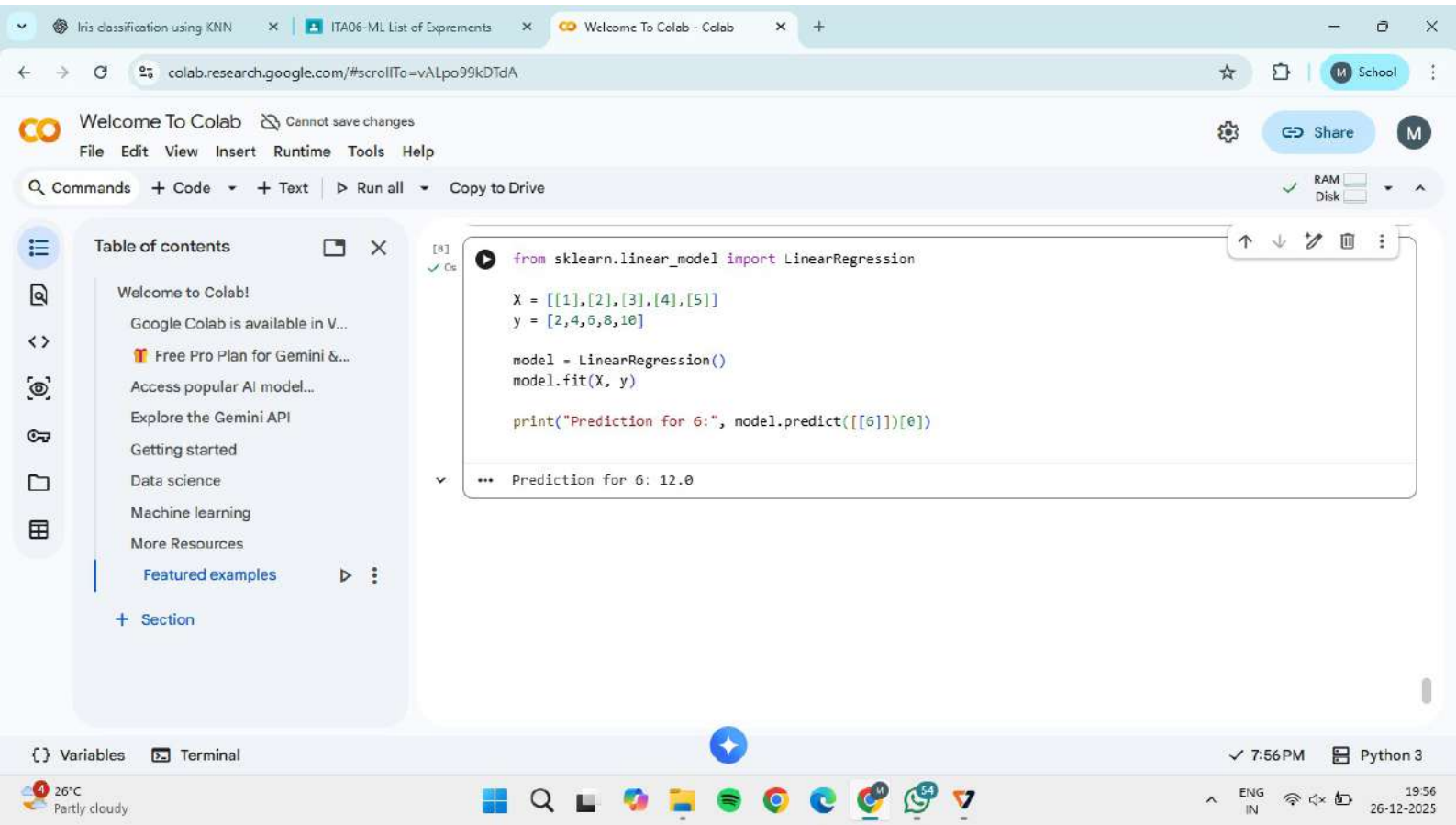
26-12-2025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[8]
from sklearn.linear_model import LinearRegression
X = [[1],[2],[3],[4],[5]]
y = [2,4,6,8,10]
model = LinearRegression()
model.fit(X, y)
print("Prediction for 6:", model.predict([[6]])[0])
Prediction for 6: 12.0
Variables
Terminal
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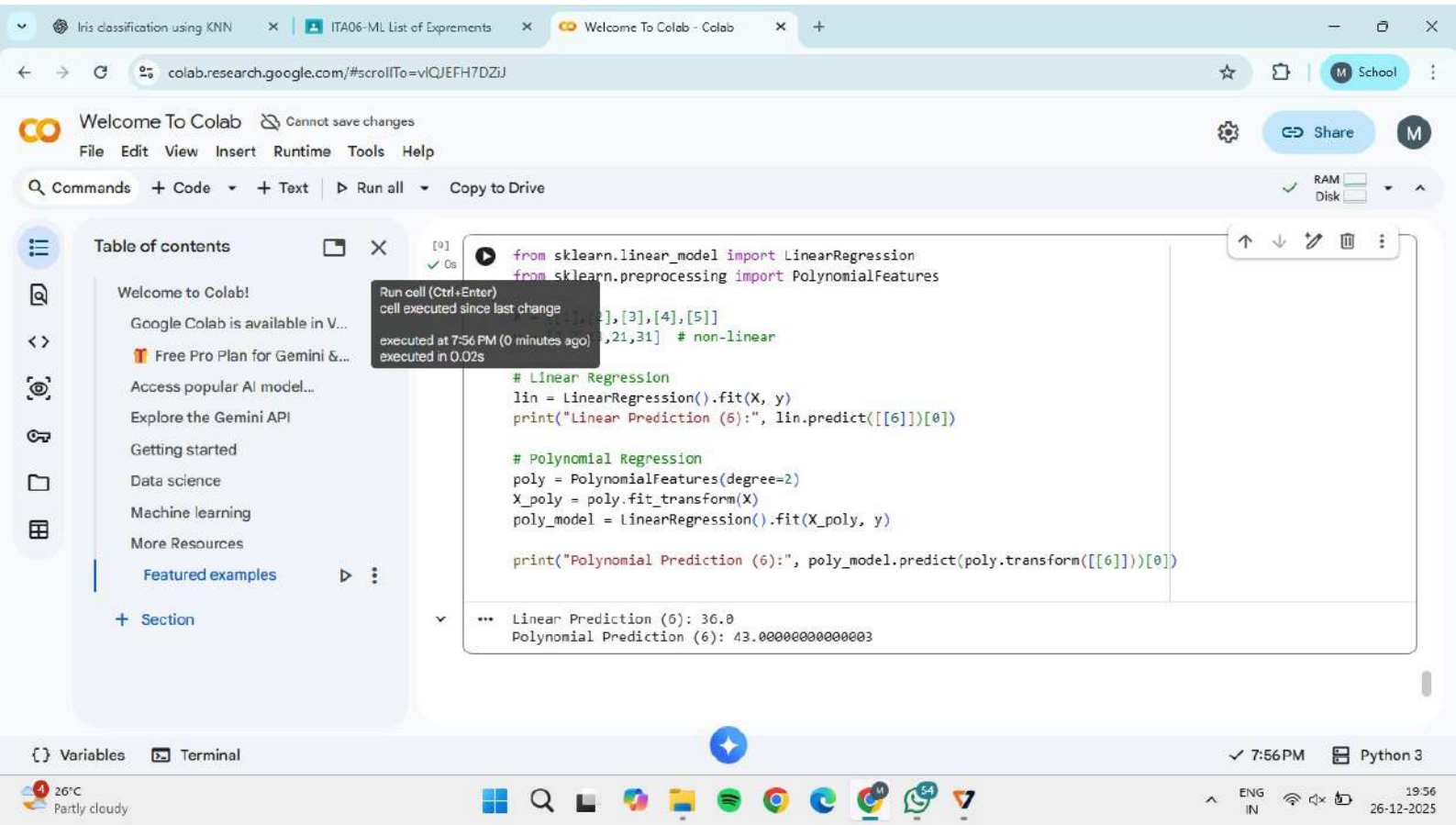
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executed in 0.02s
from sklearn.linear_model import LinearRegression
from sklearn.preprocessing import PolynomialFeatures
,21,31] # non-linear
# Linear Regression
lin = LinearRegression().fit(X, y)
print("Linear Prediction (6):", lin.predict([[6]])[0])
# Polynomial Regression
poly = PolynomialFeatures(degree=2)
X_poly = poly.fit_transform(X)
poly_model = LinearRegression().fit(X_poly, y)
print("Polynomial Prediction (6):", poly_model.predict(poly.transform([[6]]))[0])
Linear Prediction (6): 36.0
Polynomial Prediction (6): 43.00000000000003
Variables
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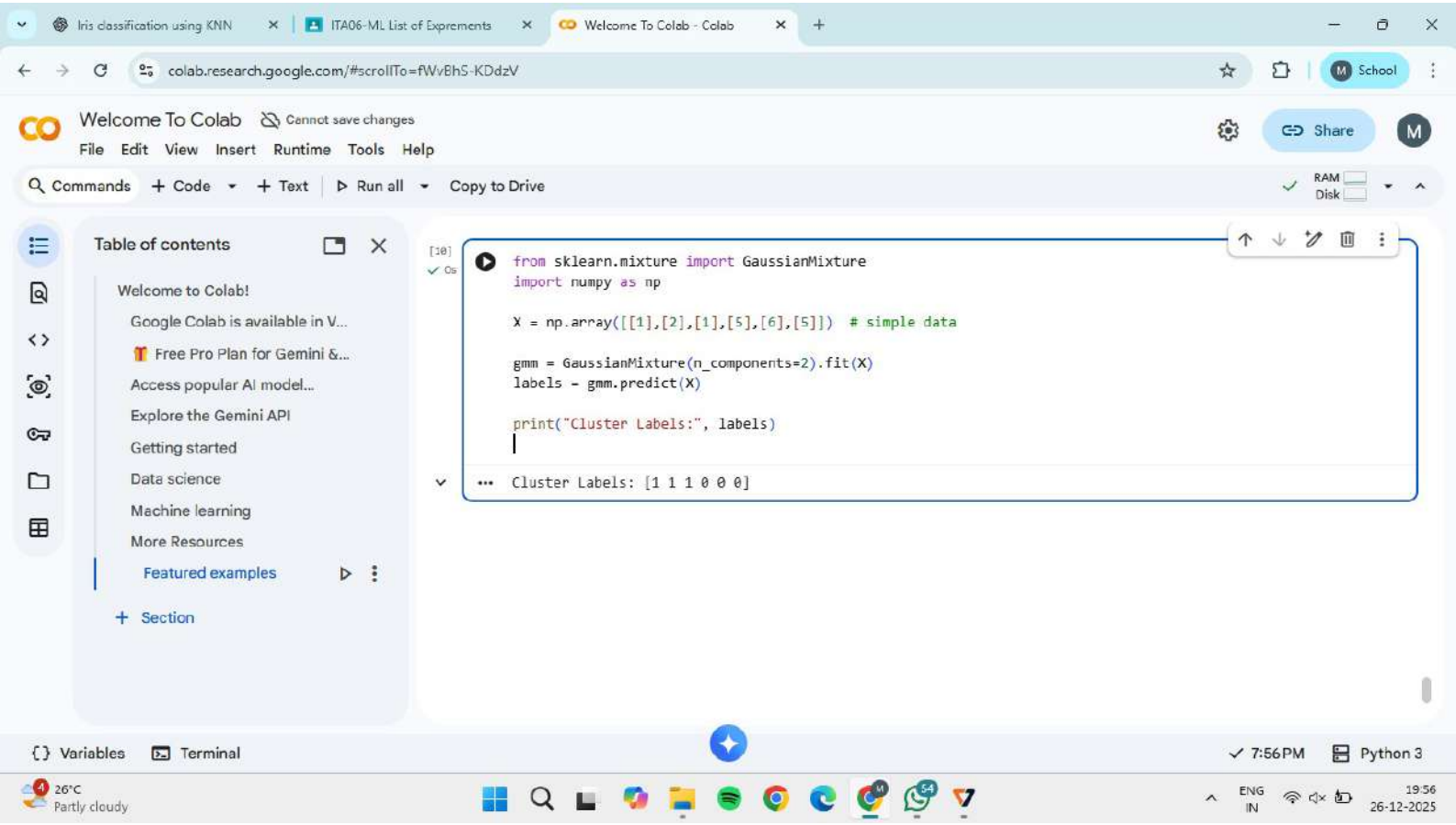
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[10]
0s
from sklearn.mixture import GaussianMixture
import numpy as np
X = np.array([[1],[2],[1],[5],[6],[5]]) # simple data
gmm = GaussianMixture(n_components=2).fit(X)
labels = gmm.predict(X)
print("Cluster Labels:", labels)
Cluster Labels: [1 1 1 0 0 0]
Variables
Terminal
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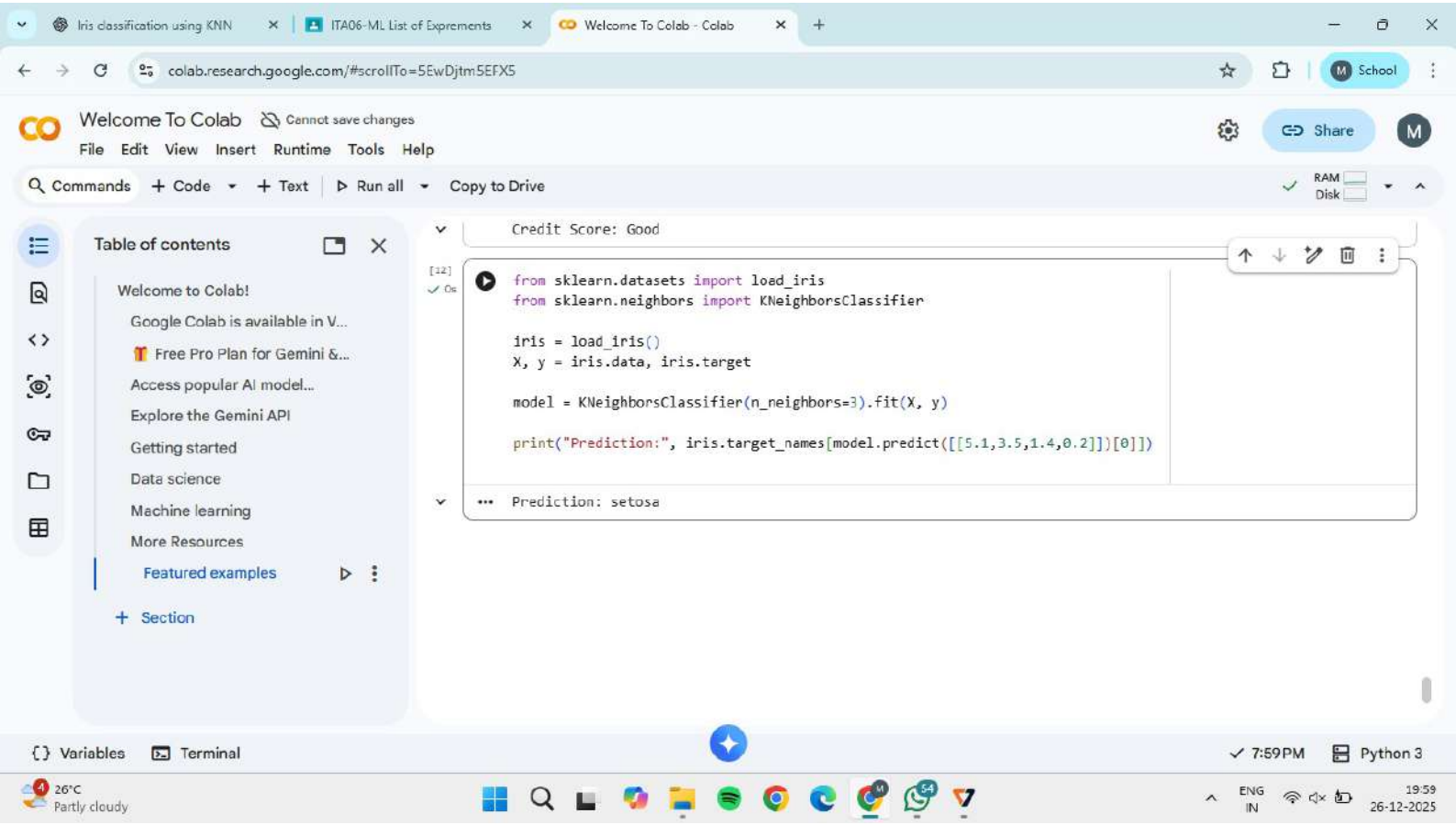
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Credit Score: Good
[12]
0s
from sklearn.datasets import load_iris
from sklearn.neighbors import KNeighborsClassifier
iris = load_iris()
X, y = iris.data, iris.target
model = KNeighborsClassifier(n_neighbors=3).fit(X, y)
print("Prediction:", iris.target_names[model.predict([[5.1,3.5,1.4,0.2]])[0]])
Prediction: setosa
Variables
Terminal
7:59PM
Python 3
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ENG
IN
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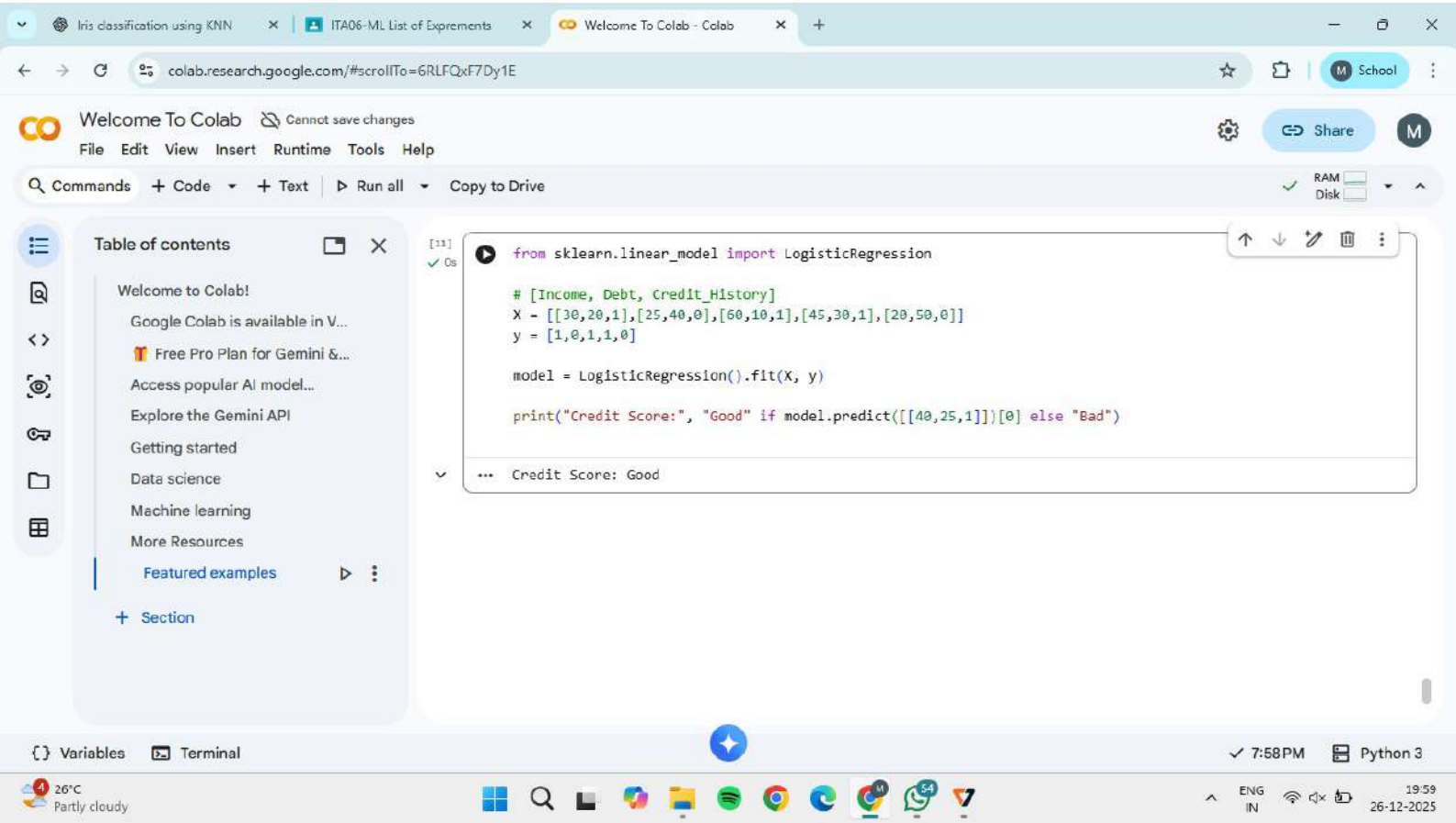
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[11]
0s
from sklearn.linear_model import LogisticRegression
# [Income, Debt, Credit_History]
X = [[30,20,1],[25,40,0],[60,10,1],[45,30,1],[20,50,0]]
y = [1,0,1,1,0]
model = LogisticRegression().fit(X, y)
print("Credit Score:", "Good" if model.predict([[40,25,1]])[0] else "Bad")
Credit Score: Good
Variables
Terminal
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Python 3
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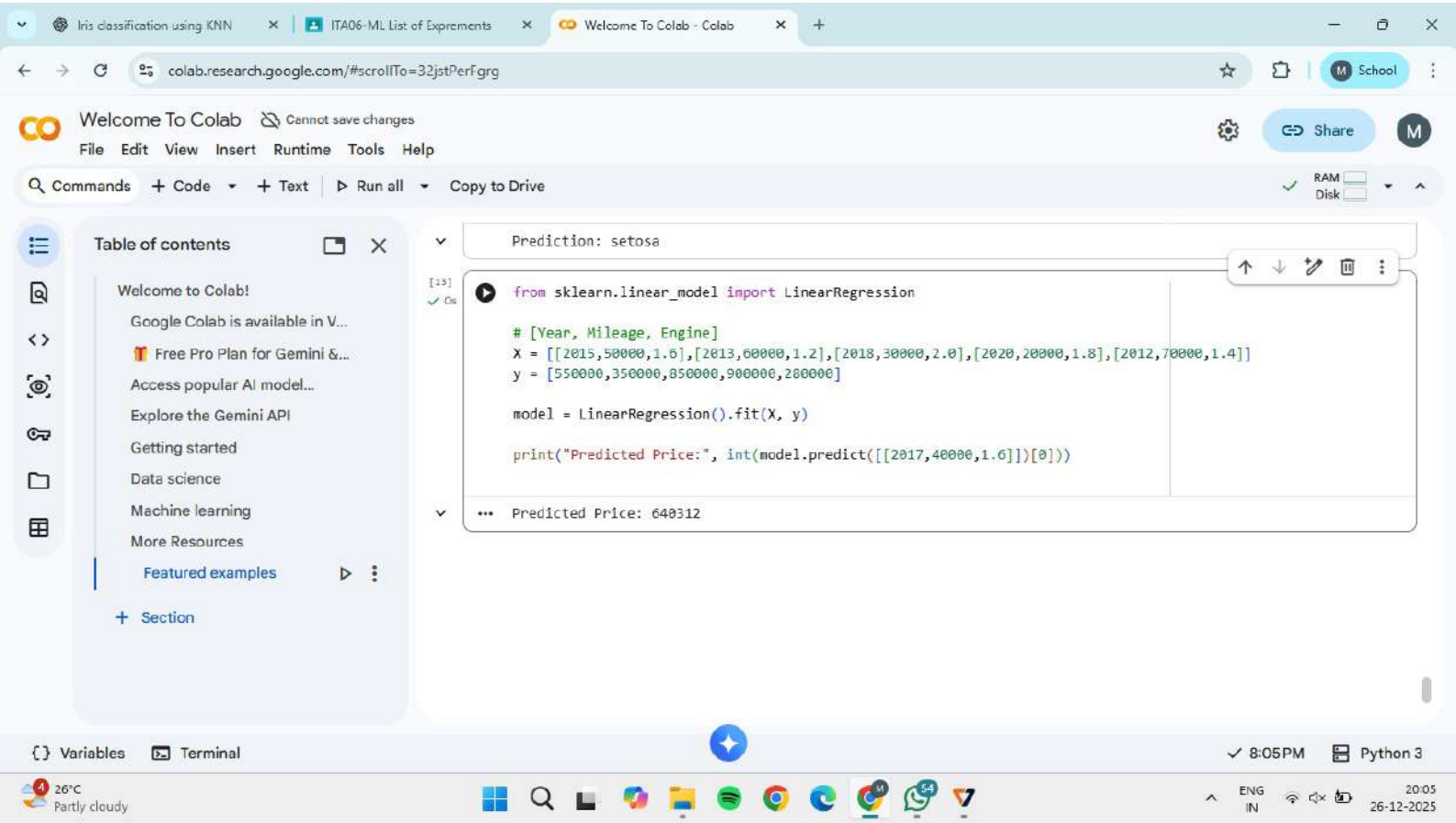
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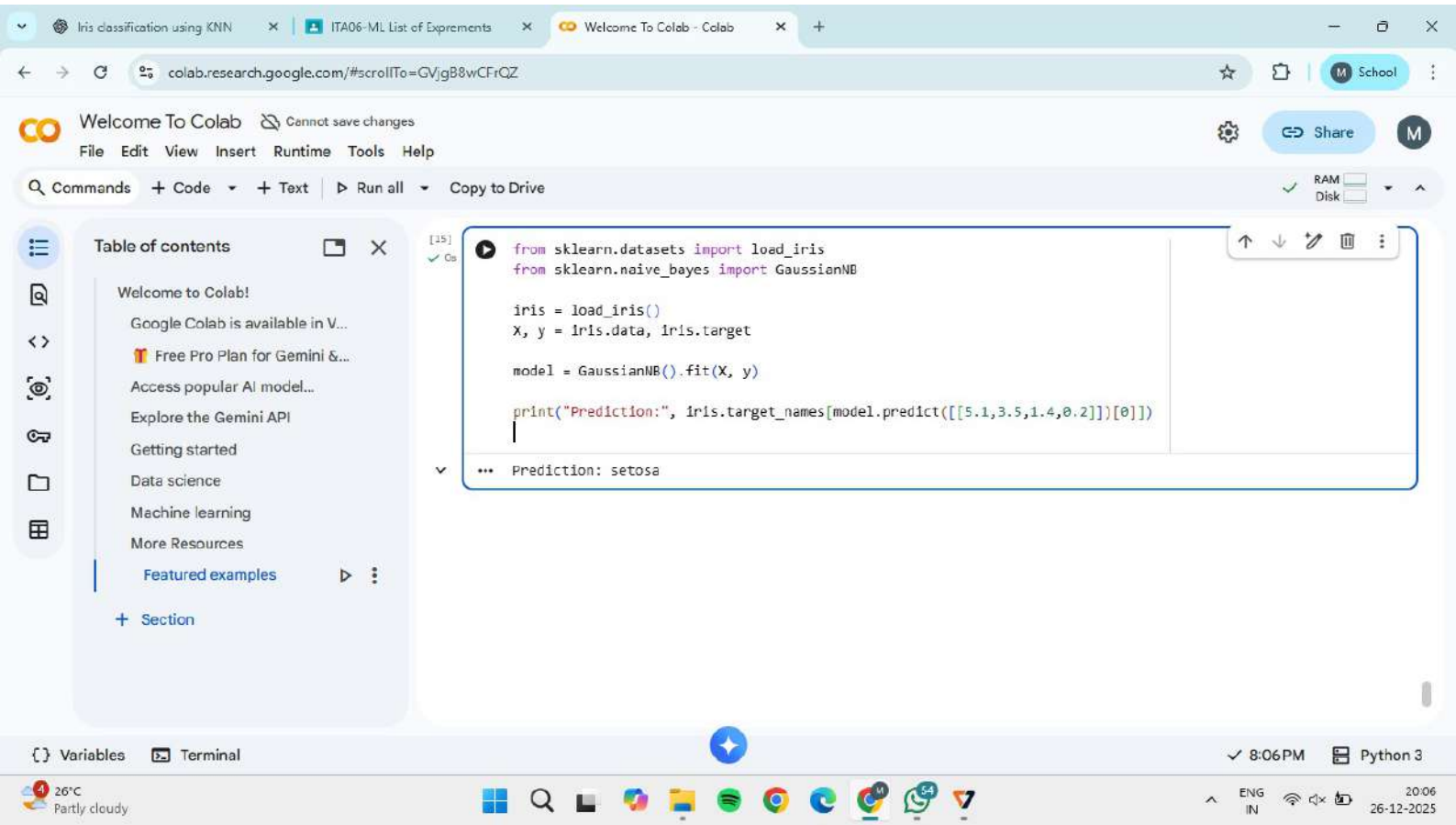
Prediction: setosa
[13]
0s
from sklearn.linear_model import LinearRegression
# [Year, Mileage, Engine]
X = [[2015,50000,1.6],[2013,60000,1.2],[2018,30000,2.0],[2020,20000,1.8],[2012,70000,1.4]]
y = [550000,350000,850000,900000,280000]
model = LinearRegression().fit(X, y)
print("Predicted Price:", int(model.predict([[2017,40000,1.6]])[0]))
Predicted Price: 640312
Variables
Terminal
8:05PM
Python 3
26°C
Partly cloudy
ENG
IN
20:05
26-12-2025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[15]
from sklearn.datasets import load_iris
from sklearn.naive_bayes import GaussianNB
iris = load_iris()
X, y = iris.data, iris.target
model = GaussianNB().fit(X, y)
print("Prediction:", iris.target_names[model.predict([[5.1,3.5,1.4,0.2]])[0]])
Prediction: setosa
Variables
Terminal
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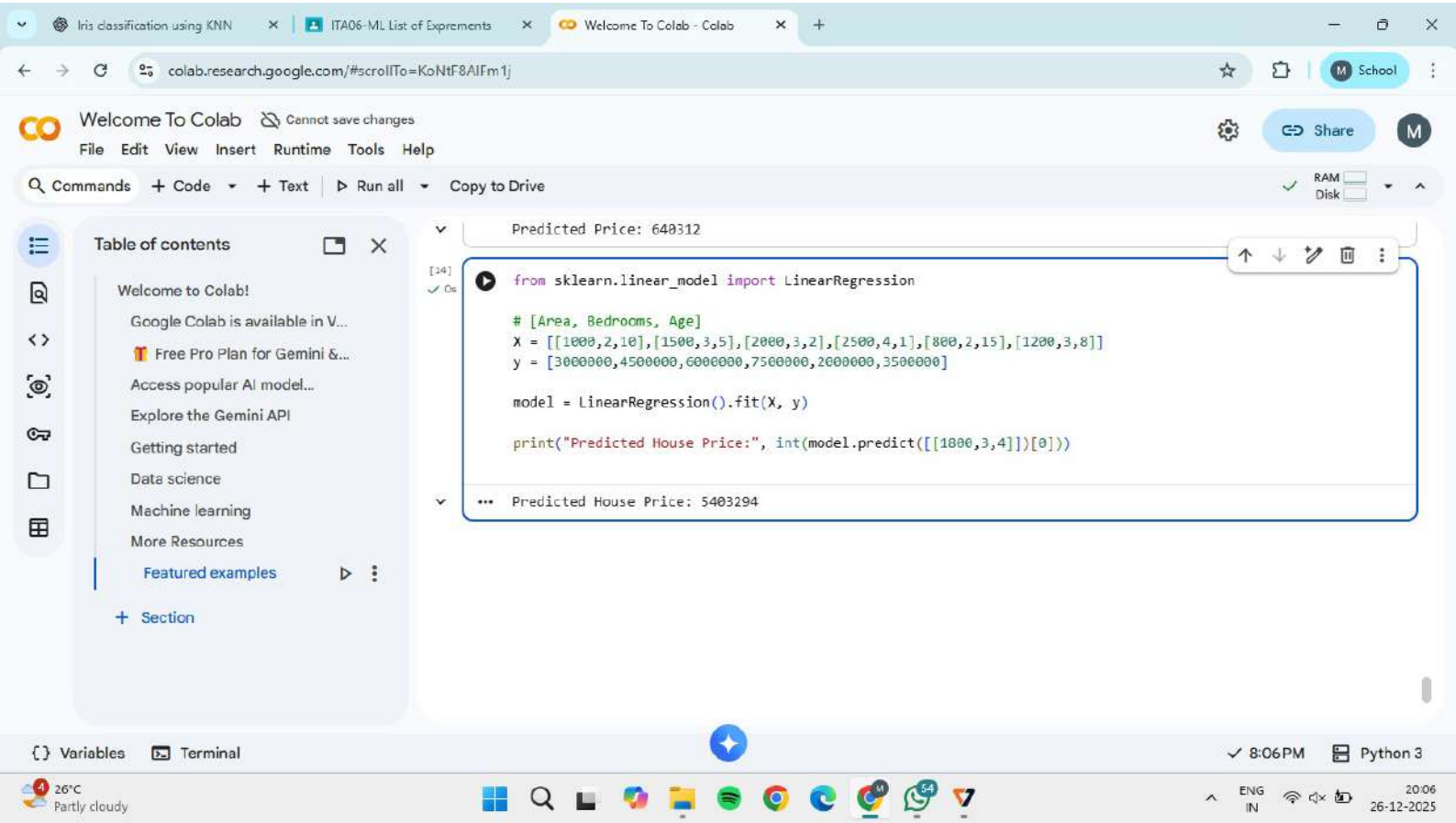
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Predicted Price: 648312
[34]
0s
from sklearn.linear_model import LinearRegression
# [Area, Bedrooms, Age]
X = [[1000,2,10],[1500,3,5],[2000,3,2],[2500,4,1],[800,2,15],[1200,3,8]]
y = [3000000,4500000,6000000,7500000,2000000,3500000]
model = LinearRegression().fit(X, y)
print("Predicted House Price:", int(model.predict([[1800,3,4]])[0]))
Predicted House Price: 5403294
Variables
Terminal
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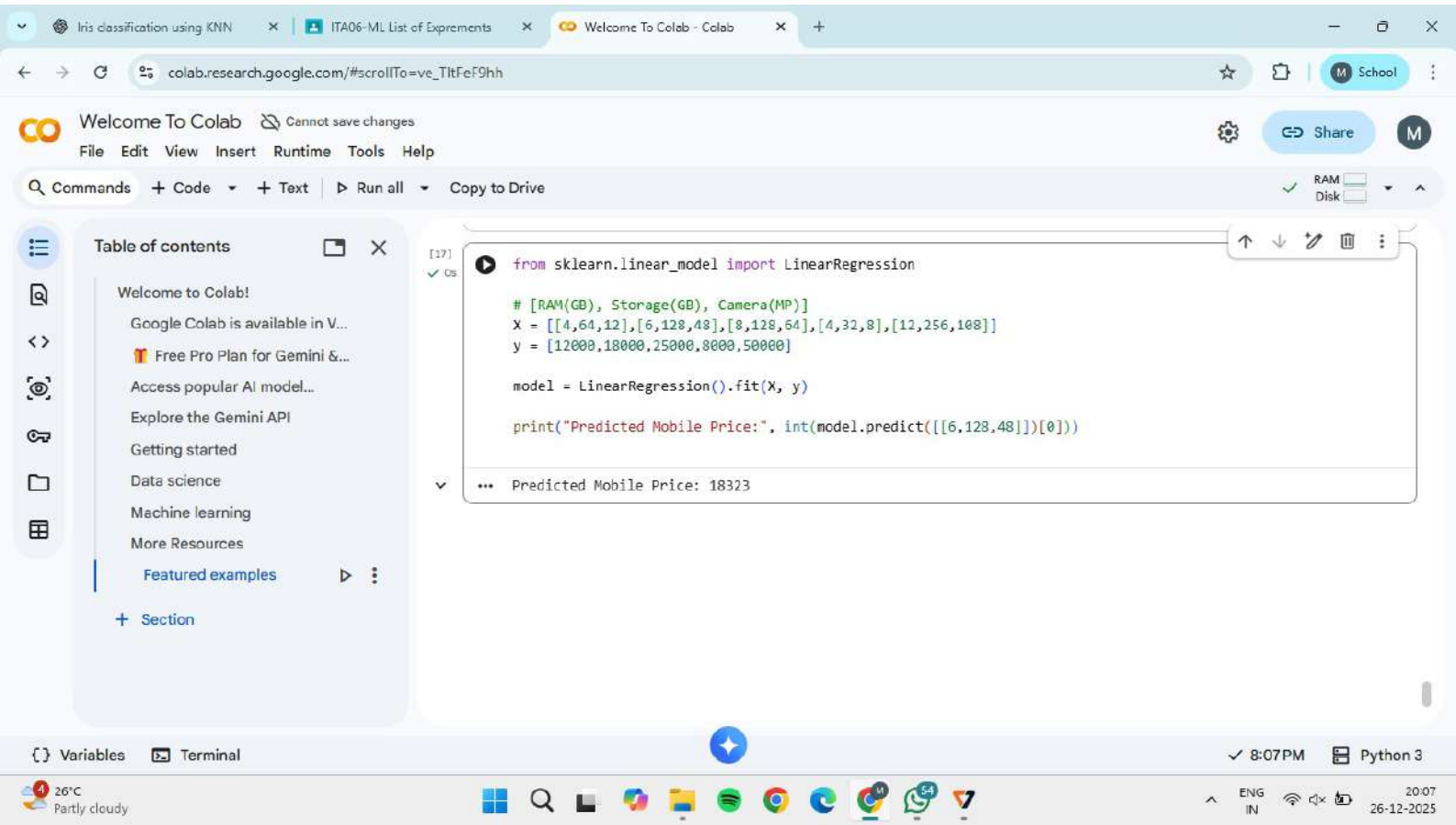
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[17]
0s
from sklearn.linear_model import LinearRegression
# [RAM(GB), Storage(GB), Camera(MP)]
X = [[4,64,12],[6,128,48],[8,128,64],[4,32,8],[12,256,108]]
y = [12000,18000,25000,8000,50000]
model = LinearRegression().fit(X, y)
print("Predicted Mobile Price:", int(model.predict([[6,128,48]])[0]))
Predicted Mobile Price: 18323
Variables
Terminal
8:07PM
Python 3
26°C
Partly cloudy
ENG
IN
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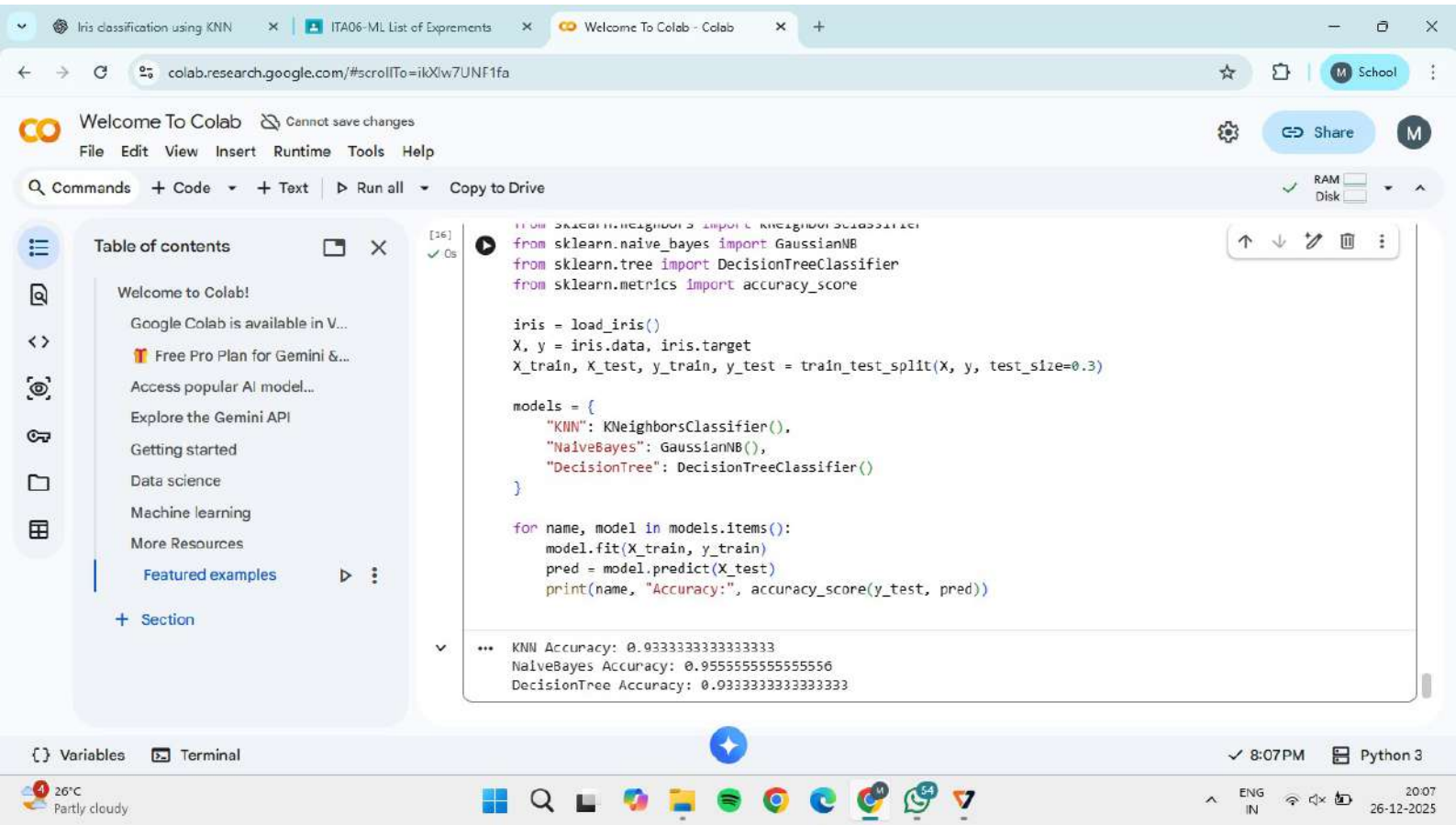
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[16]
0s
from sklearn.naive_bayes import GaussianNB
from sklearn.tree import DecisionTreeClassifier
from sklearn.metrics import accuracy_score
iris = load_iris()
X, y = iris.data, iris.target
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.3)
models = {
"KNN": KNeighborsClassifier(),
"NaiveBayes": GaussianNB(),
"DecisionTree": DecisionTreeClassifier()
}
for name, model in models.items():
model.fit(X_train, y_train)
pred = model.predict(X_test)
print(name, "Accuracy:", accuracy_score(y_test, pred))
KNN Accuracy: 0.9333333333333333
NaiveBayes Accuracy: 0.9555555555555556
DecisionTree Accuracy: 0.9333333333333333
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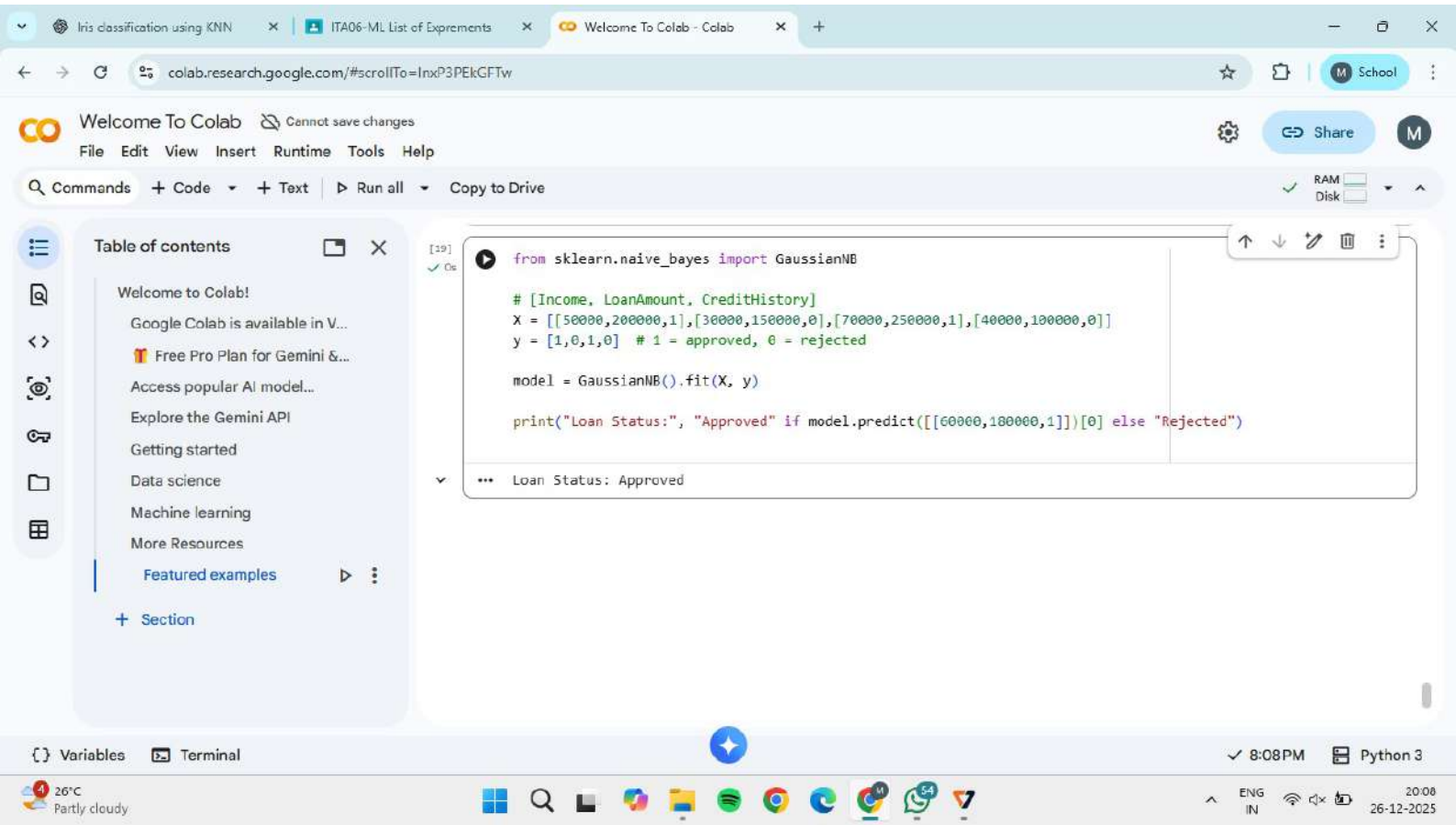
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[19]
from sklearn.naive_bayes import GaussianNB
# [Income, LoanAmount, CreditHistory]
X = [[50000,200000,1],[30000,150000,0],[70000,250000,1],[40000,100000,0]]
y = [1,0,1,0] # 1 = approved, 0 = rejected
model = GaussianNB().fit(X, y)
print("Loan Status:", "Approved" if model.predict([[60000,180000,1]])[0] else "Rejected")
Loan Status: Approved
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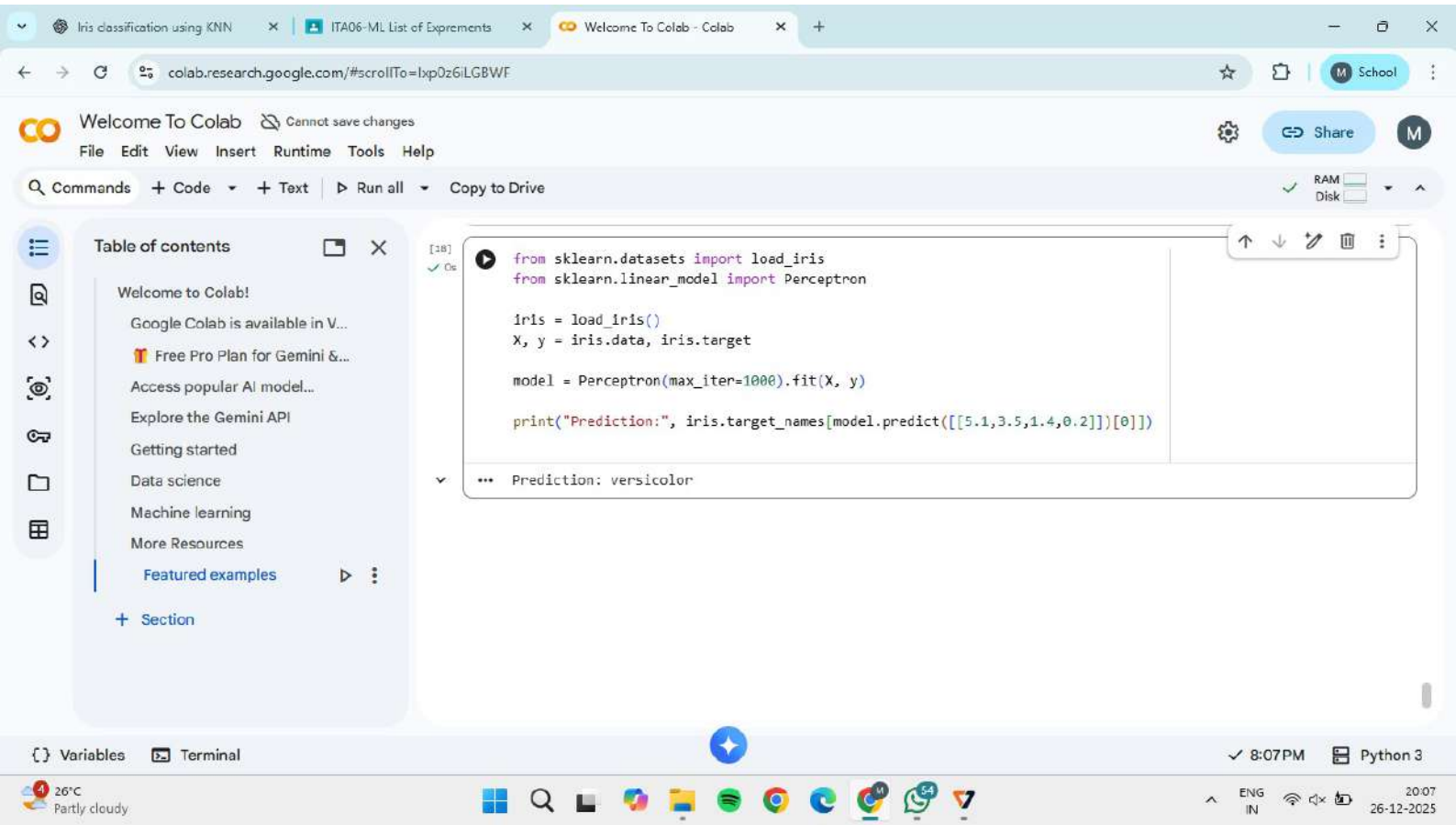
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[18]
from sklearn.datasets import load_iris
from sklearn.linear_model import Perceptron
iris = load_iris()
X, y = iris.data, iris.target
model = Perceptron(max_iter=1000).fit(X, y)
print("Prediction:", iris.target_names[model.predict([[5.1,3.5,1.4,0.2]])[0]])
Prediction: versicolor
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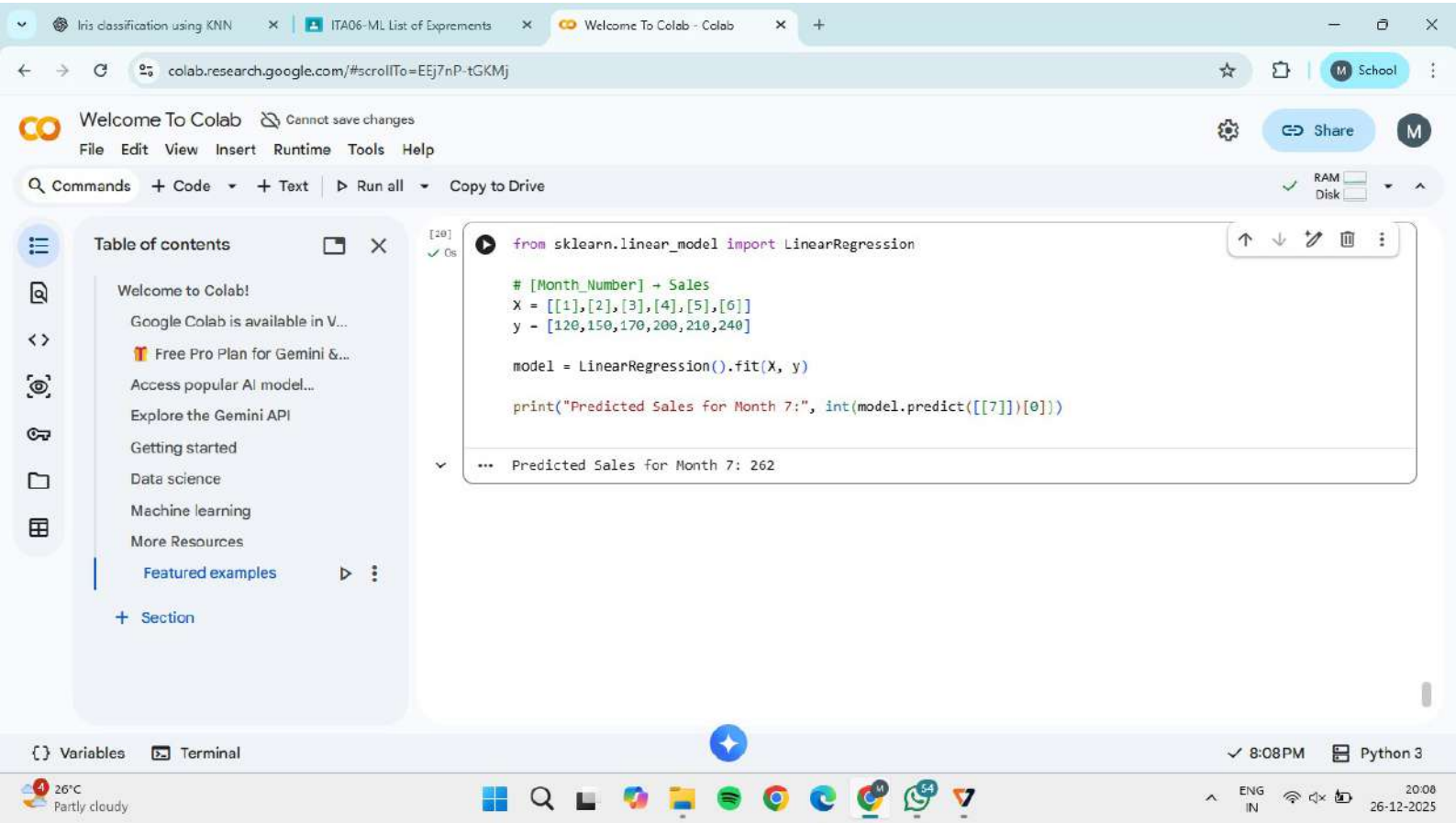
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[20]
0s
from sklearn.linear_model import LinearRegression
# [Month_Number] → Sales
X = [[1],[2],[3],[4],[5],[6]]
y = [120,150,170,200,210,240]
model = LinearRegression().fit(X, y)
print("Predicted Sales for Month 7:", int(model.predict([[7]])[0]))
Predicted Sales for Month 7: 262
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