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6th SEM 'A'sec

knn

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```
[ ]: import numpy as np
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.neighbors import KNeighborsClassifier # import_
sKNeighborsClassifier from sklearn.neighbors
from sklearn.metrics import accuracy_score
from matplotlib import pyplot as plt

[ ]: data = {
    'BP': [120, 130, 140, 150, 160, 170, 180, 190, 200, 210],
    'Cholesterol': [200, 220, 240, 260, 280, 300, 320, 340, 360, 380],
    'HeartRisk': [0, 0, 0, 0, 1, 1, 1, 1, 1, 1] # Added a value to make it the same_
slength
}
df = pd.DataFrame(data)

[ ]: x = df[['BP', 'Cholesterol']]
y = df['HeartRisk']

[ ]: k = 3
knn = KNeighborsClassifier(n_neighbors=k)
knn.fit(x, y)

[ ]: KNeighborsClassifier(n_neighbors=3)

[ ]: new_data = np.array([[100, 200]])
prediction = knn.predict(new_data)

if prediction == 0: # Removed extra space before 'if'
    print('No Risk')
else:
    print('At Risk')
```

No Risk

/usr/local/lib/python3.10/dist-packages/sklearn/base.py:439: UserWarning: X does not have valid feature names, but KNeighborsClassifier was fitted with feature

```
names
warnings.warn(
```

```
[ ]: import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression
from sklearn.metrics import mean_squared_error
# Assuming 'x' and 'y' are already defined from your previous code

# Create and train a LinearRegression model
model = LinearRegression() # Create a LinearRegression model instance
model.fit(x, y) # Train the model using your data 'x' and 'y'

# Example prediction for new data
new_data = np.array([[173, 82]])
prediction = model.predict(new_data)[0]
print("Prediction for new data:", prediction)
```

Prediction for new data: -0.5869090909090904

```
/usr/local/lib/python3.10/dist-packages/sklearn/base.py:439: UserWarning: X does
not have valid feature names, but LinearRegression was fitted with feature names
warnings.warn(
```