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EK381 Homework 5

<div align="center">Problem 5.6</div>

Part A.

Scatter Plot of Benign & Malignant Datasets
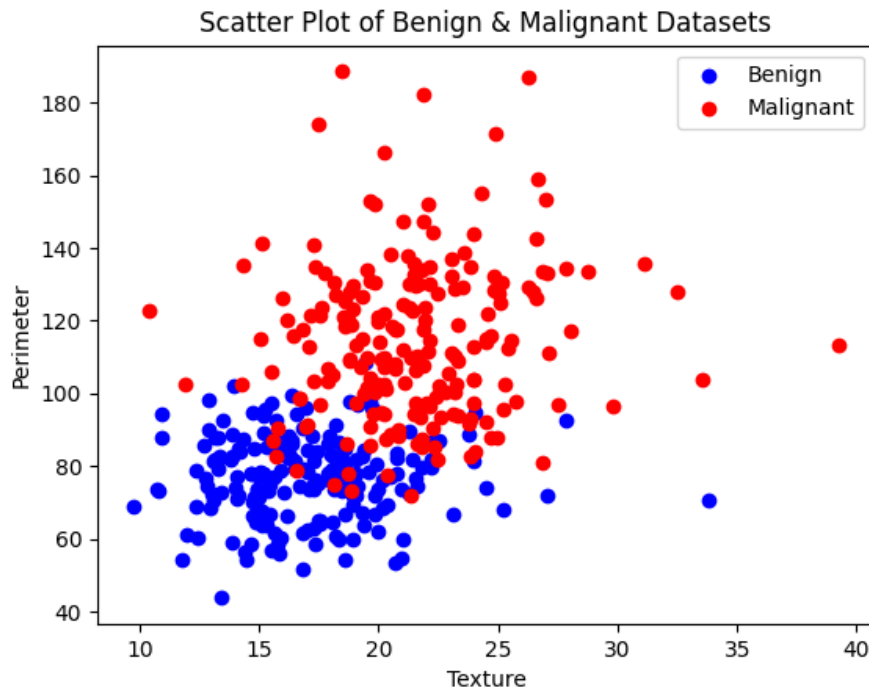
Part B.

```python
#part b: Compute the average vector for the benign data, and for the malignant data.  In addition,
compute the covariance matrix for the benign data, and the covariance matrix for the malignant data
benign_avg = np.mean(benign, axis=0)
malignant_avg = np.mean(malignant,axis=0)
benign_cov = np.cov(benign,rowvar=False)
malignant_cov = np.cov(malignant,rowvar=False)

print('Benign average vector: ' + str(benign_avg))
print('Malignant average vector: ' + str(malignant_avg))
print('Benign covariance matrix: ')
print(benign_cov)
print('Malignant covariance matrix: ')
print(malignant_cov)
```

[13] ✓ 0.0s   Python

```
Benign average vector: [17.1157  76.96375]
Malignant average vector: [ 21.4498  114.53195]
Benign covariance matrix:
[[ 11.27652514    1.24857148]
 [  1.24857148 127.96211401]]
Malignant covariance matrix:
[[ 13.89054569    8.66647627]
 [  8.66647627 472.34102382]]
```

Part C.

Gaussian Contour of Benign Dataset

Gaussian Contour of Malignant Dataset