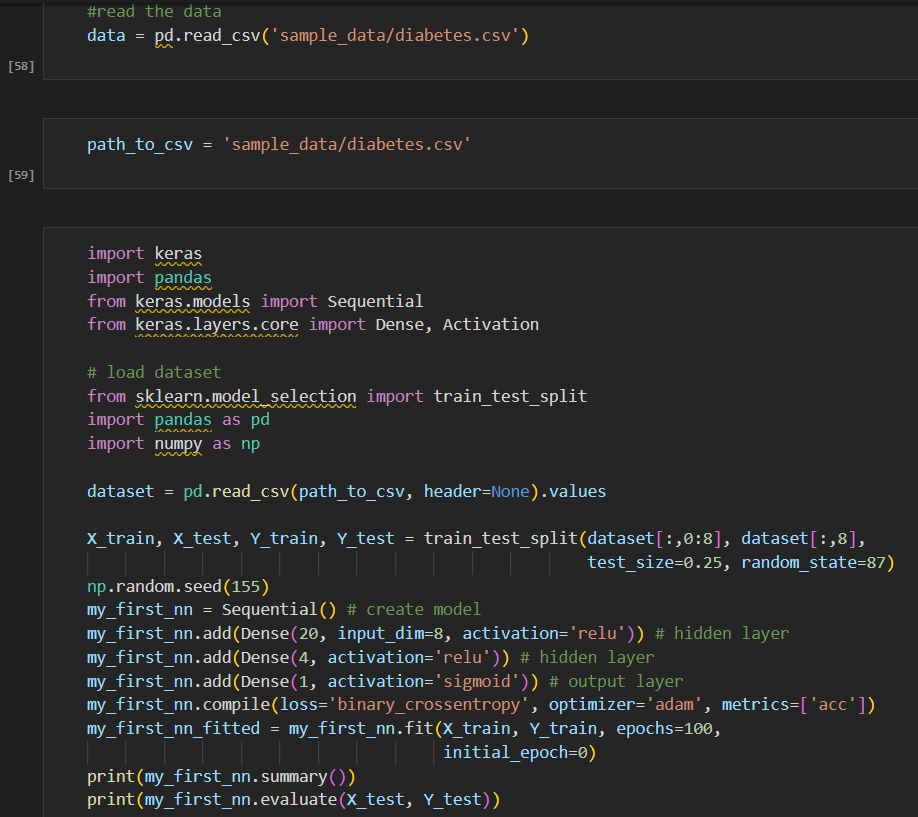
**SAI VARUN THABETI**

**700741122**

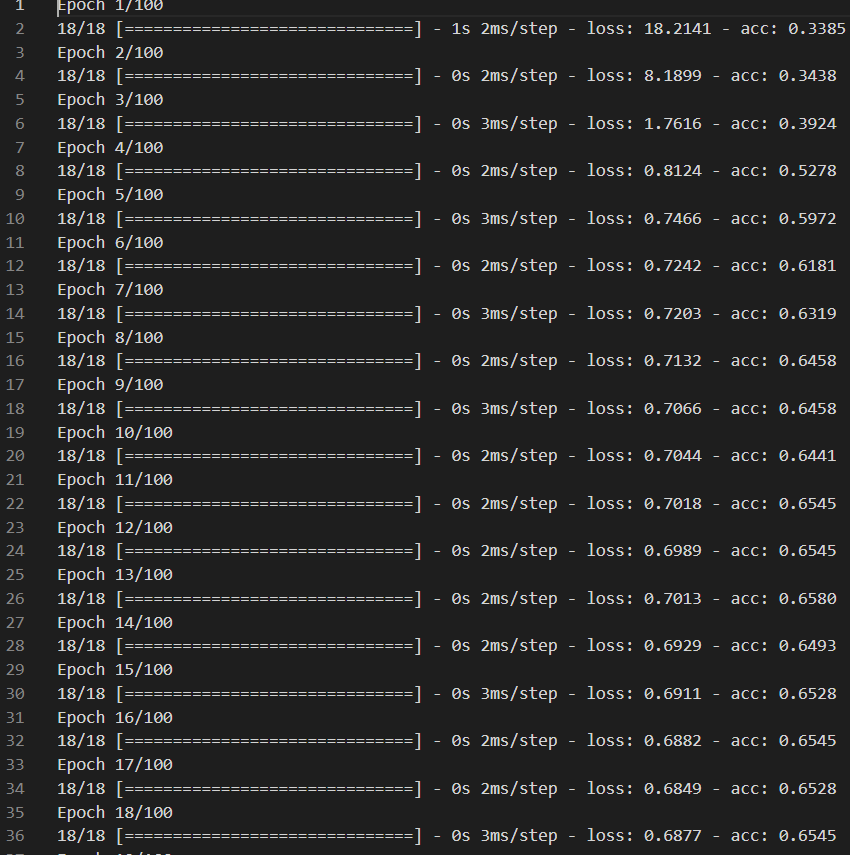
**ASSIGNMENT 6**

**NEURAL NETWORKS AND DEEP LEARNING**

1. Use the use case in the class: a. Add more Dense layers to the existing code and check how the accuracy changes.

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**Output:**

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**A picture containing text

Description automatically generated**

**A picture containing table

Description automatically generated**

**A picture containing table

Description automatically generated**

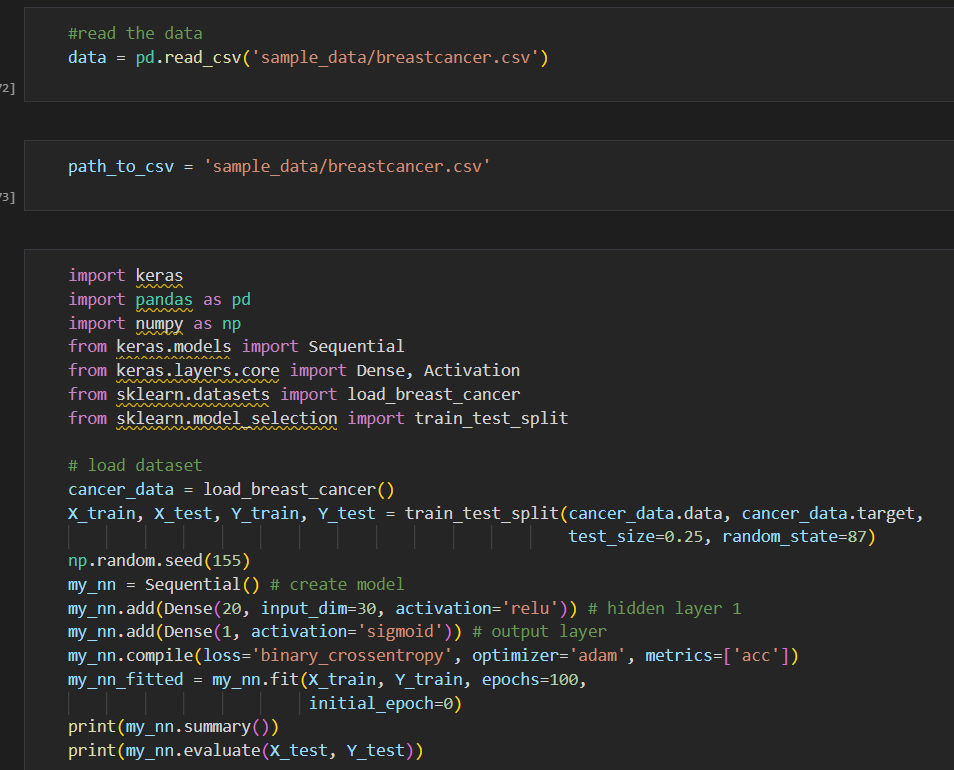
**A picture containing table

Description automatically generated**

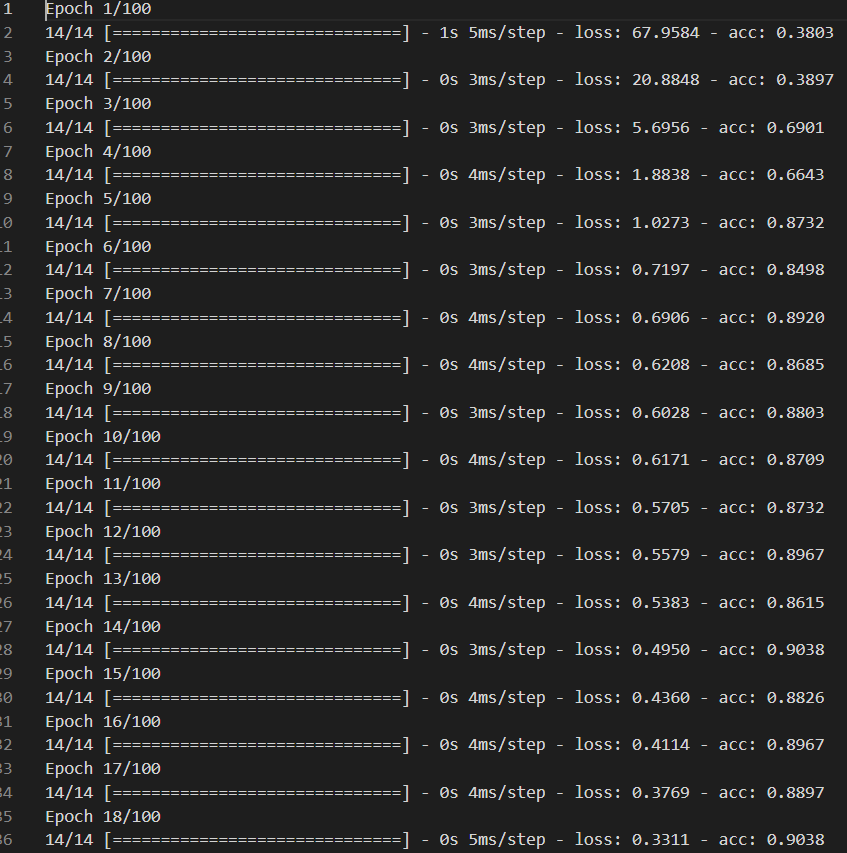
**Text

Description automatically generated with medium confidence**

1. Change the data source to Breast Cancer dataset \* available in the source code folder and make required changes. Report accuracy of the model

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**Output:**

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**A picture containing table

Description automatically generated**

**A picture containing calendar

Description automatically generated**

**Table

Description automatically generated with low confidence**

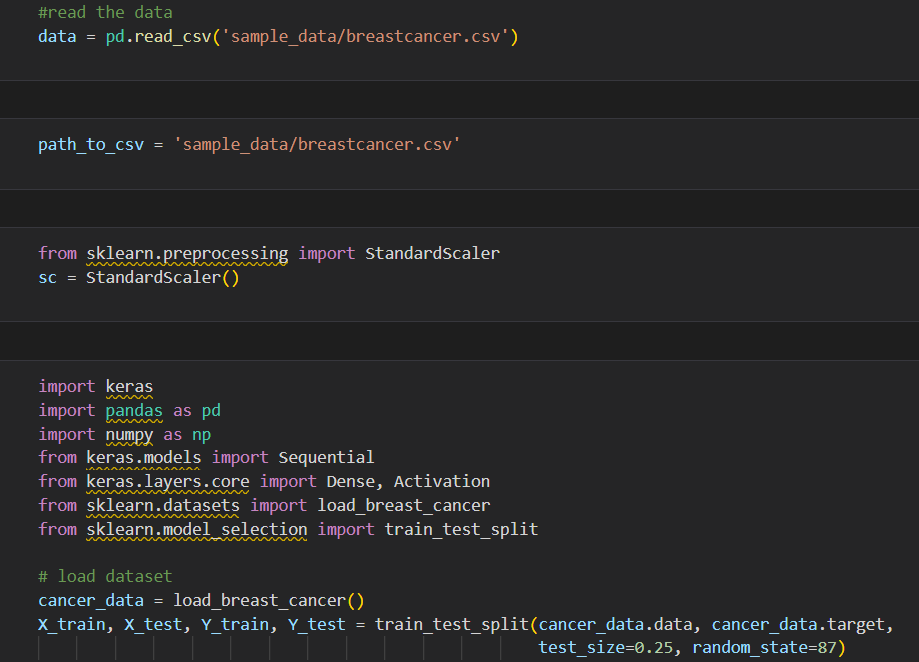
**A picture containing table

Description automatically generated**

**Text

Description automatically generated**

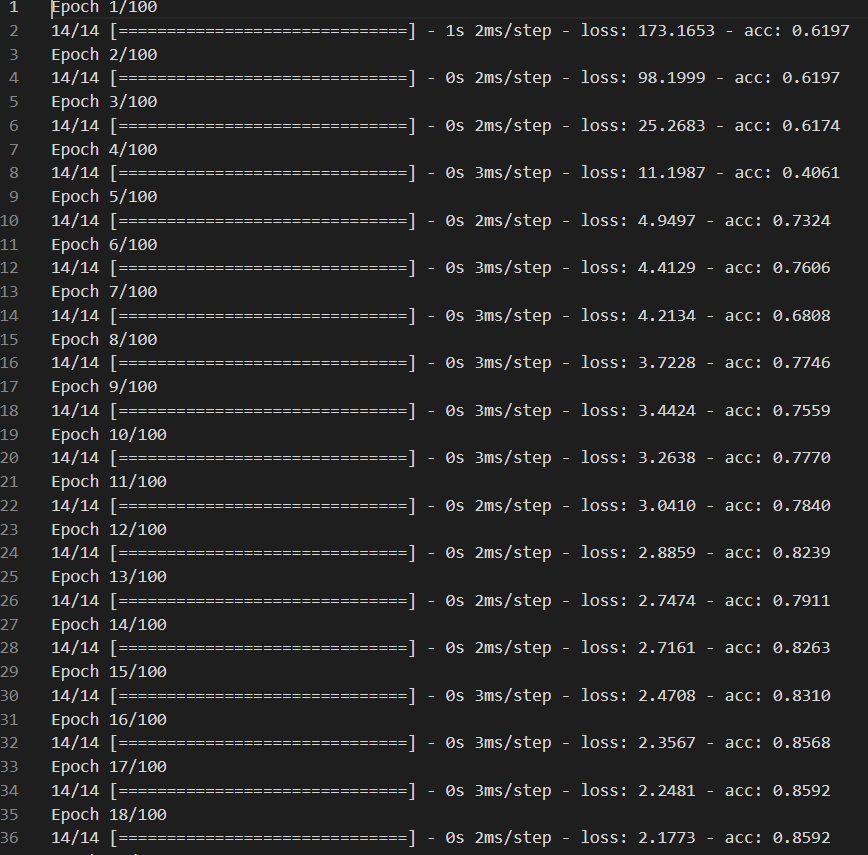
1. Normalize the data before feeding the data to the model and check how the normalization change your accuracy (code given below). from sklearn.preprocessing import StandardScaler sc = StandardScaler() Breast Cancer dataset is designated to predict if a patient has Malignant (M) or Benign = B cancer

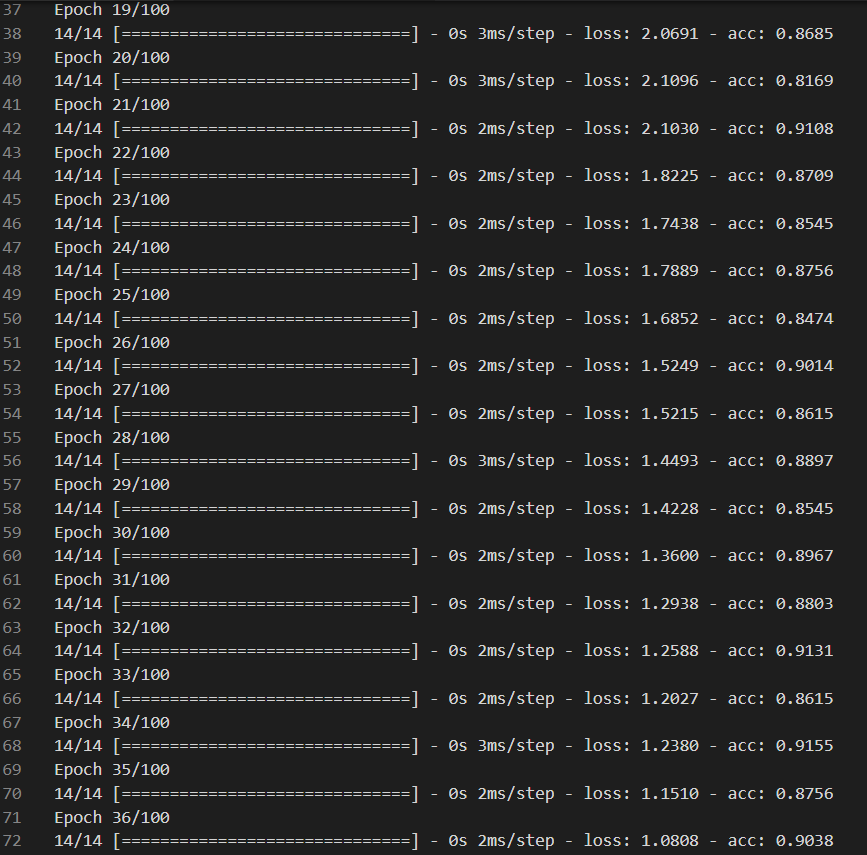
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**Text

Description automatically generated**

**Output:**

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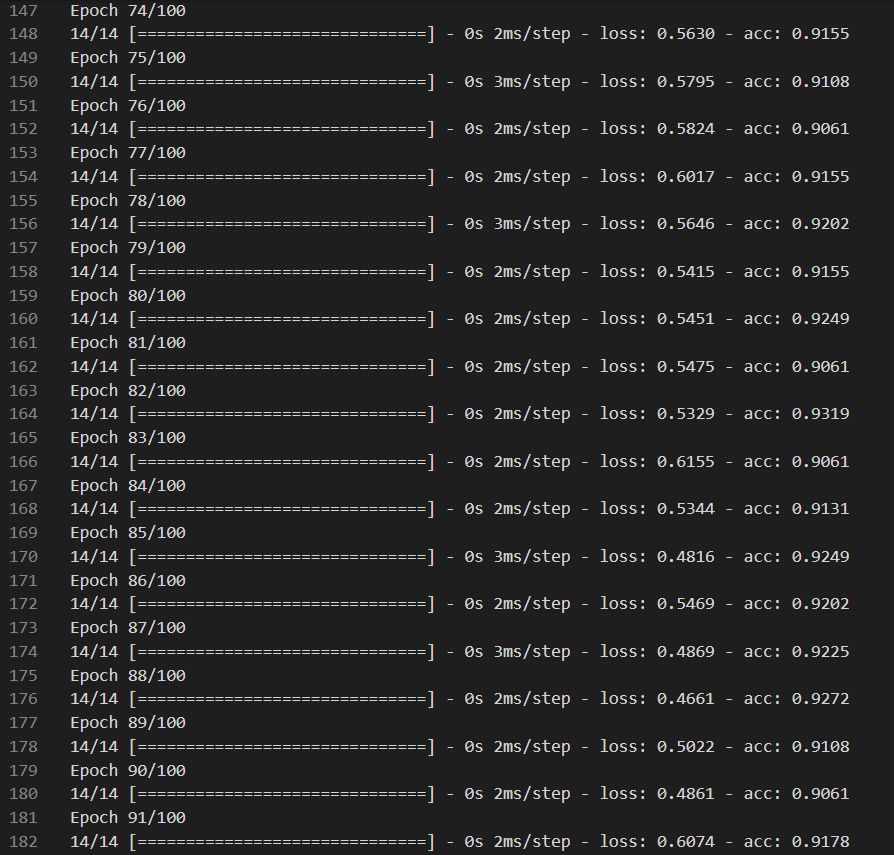
****

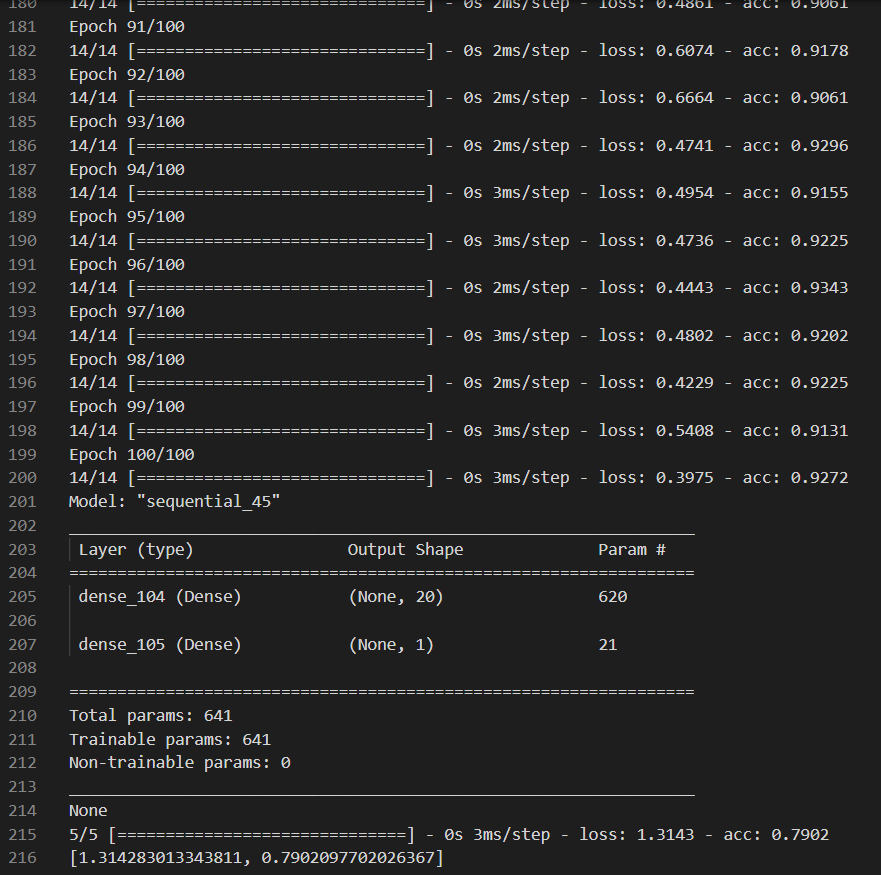
**A picture containing text

Description automatically generated**

**A picture containing table

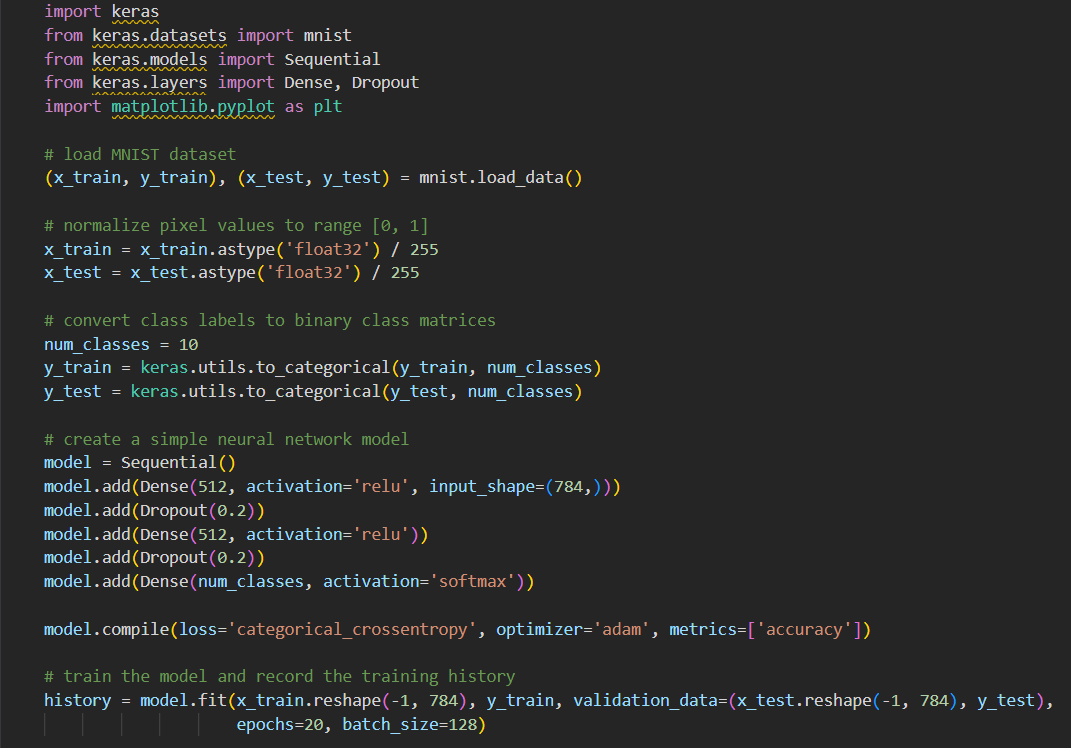
Description automatically generated**

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Use Image Classification on the hand written digits data set (mnist)

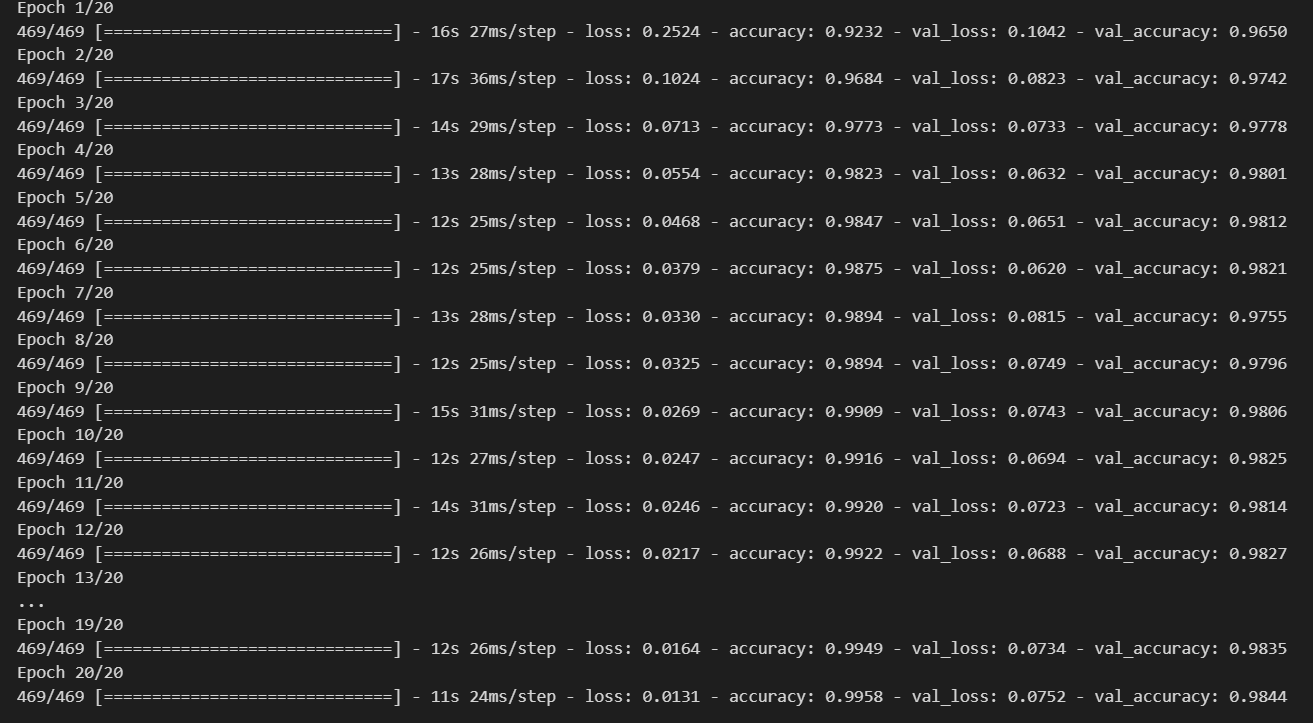
1. Plot the loss and accuracy for both training data and validation data using the history object in the source code.

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**Text

Description automatically generated**

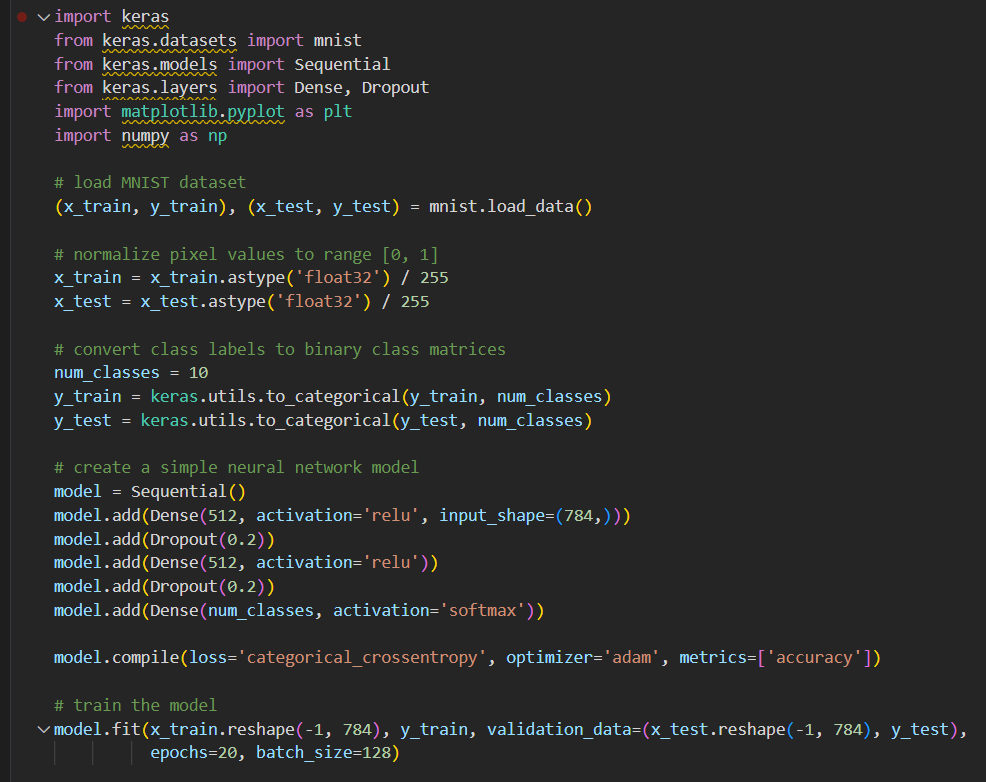
**Output:**

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**Graphical user interface

Description automatically generated with medium confidence**

1. Plot one of the images in the test data, and then do inferencing to check what is the prediction of the model on that single image.

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**Text

Description automatically generated**

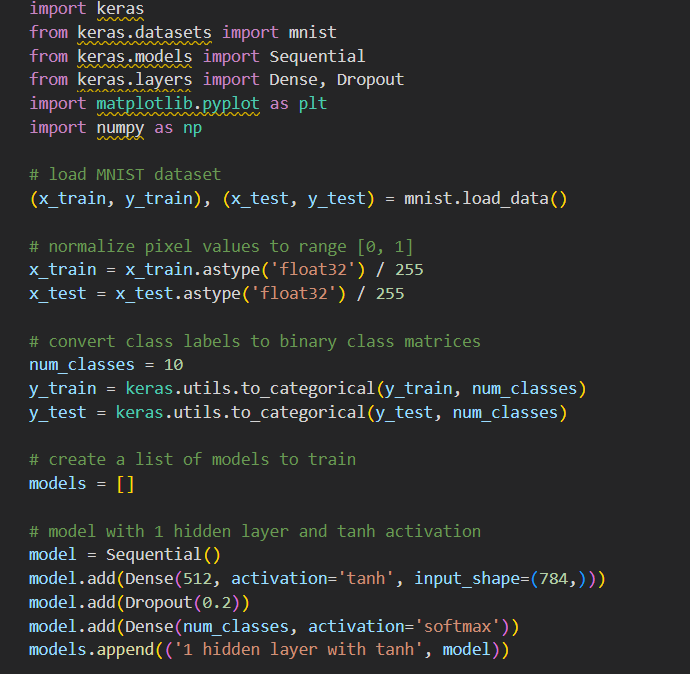
**Output:**

**Text

Description automatically generated**

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**3.** We had used 2 hidden layers and Relu activation. Try to change the number of hidden layer and the activation to tanh or sigmoid and see what happens.

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**Text

Description automatically generated**

**Graphical user interface, text

Description automatically generated**

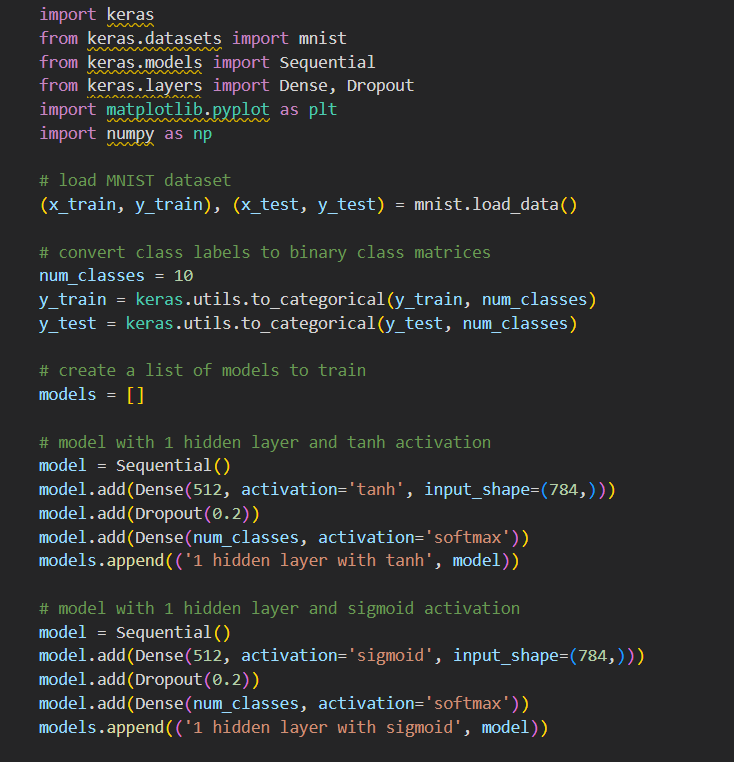
**Graphical user interface, application

Description automatically generated**

**Graphical user interface, text

Description automatically generated**

1. Run the same code without scaling the images and check the performance?

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**Text

Description automatically generated**

**Graphical user interface, text

Description automatically generated**

**Graphical user interface, application

Description automatically generated**

**Graphical user interface, text

Description automatically generated**