**ASSIGNMENT - 5**

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**GitHub link:** [**https://github.com/SHAMEERSHAIK7/Machine-Learning-CS-5710**](https://github.com/SHAMEERSHAIK7/Machine-Learning-CS-5710)

**Video link:** [**https://vimeo.com/817155884/4e7f0eda30**](https://vimeo.com/817155884/4e7f0eda30)

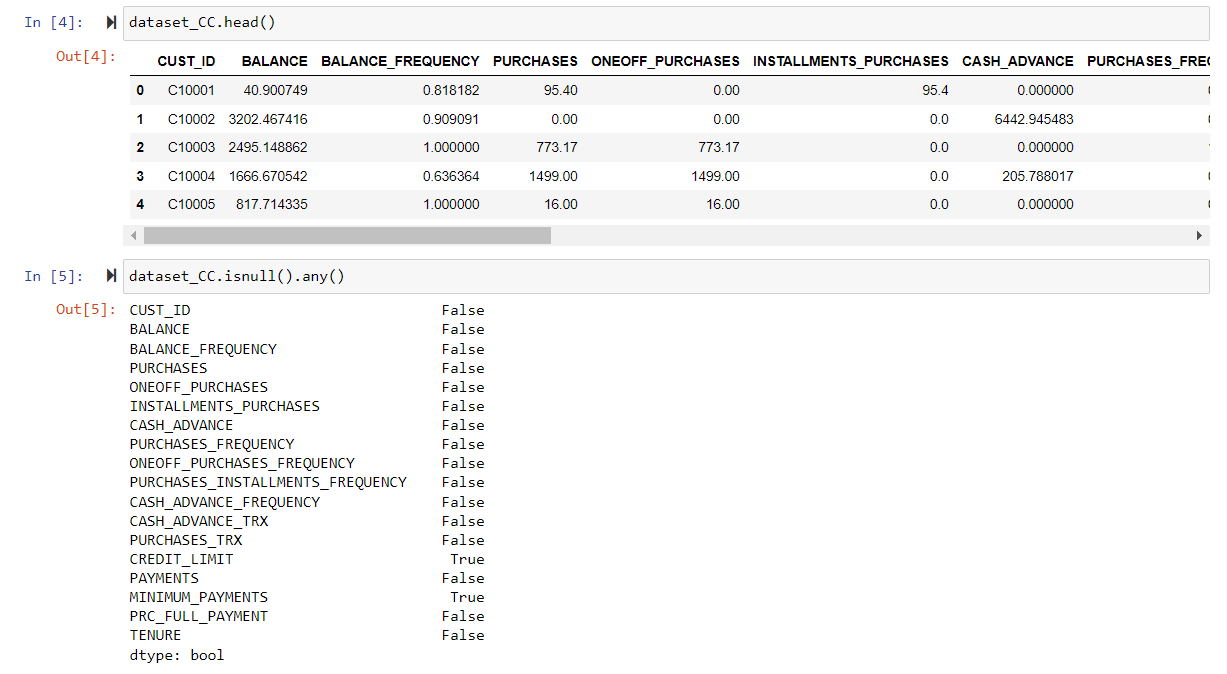
**Text

Description automatically generated**

**1)**

Graphical user interface, text, application

Description automatically generated

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**Graphical user interface, application, table

Description automatically generated**

**Graphical user interface, text

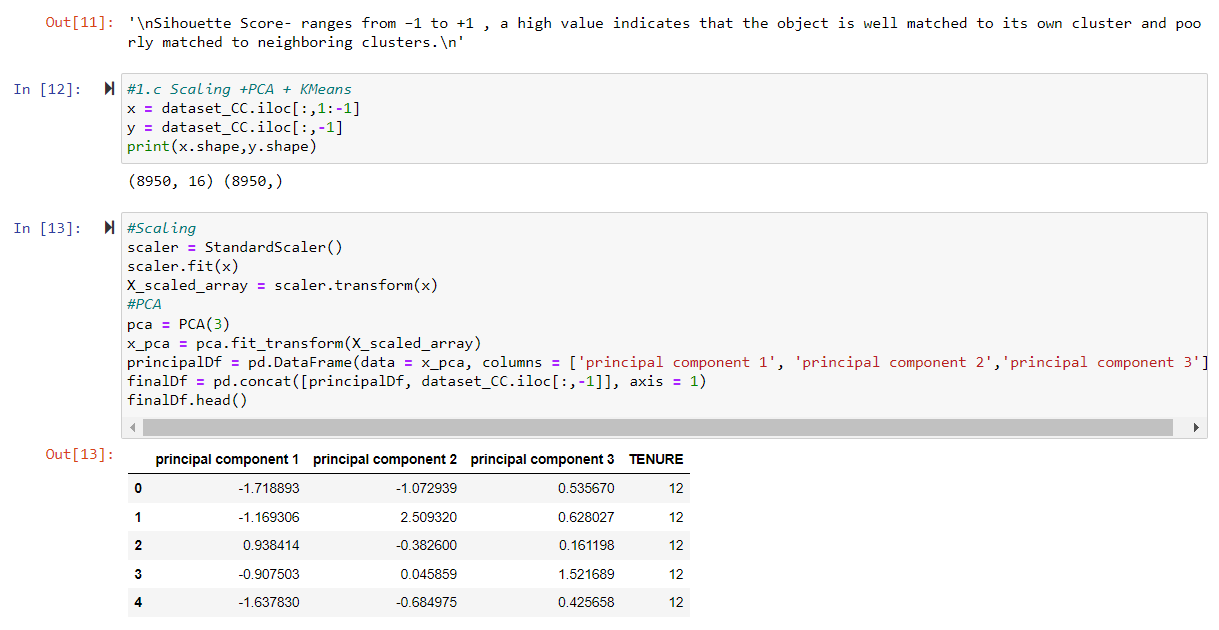
Description automatically generated with medium confidence**

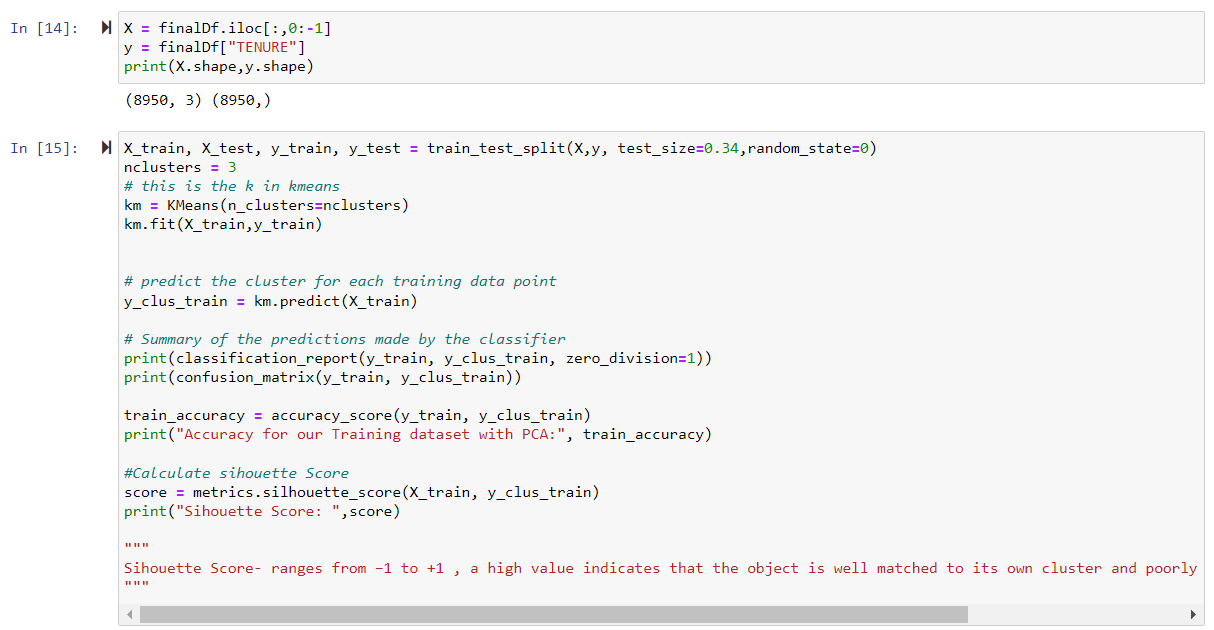
**Graphical user interface, text, application

Description automatically generated**

**Table

Description automatically generated**

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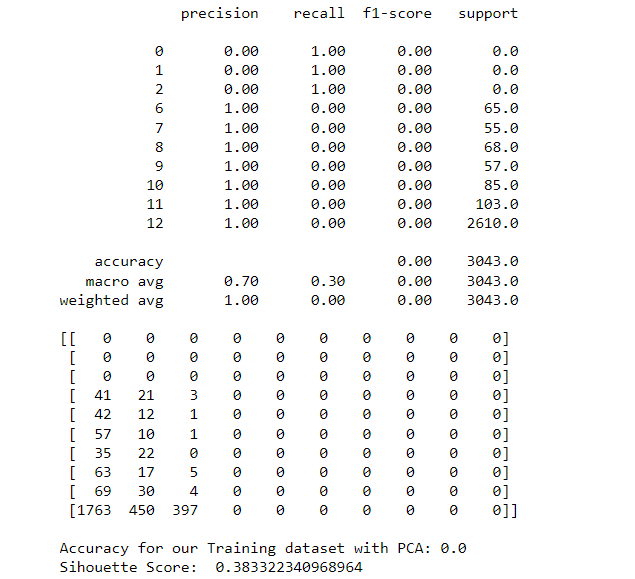
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**Table

Description automatically generated**

**Graphical user interface, text, application

Description automatically generated**

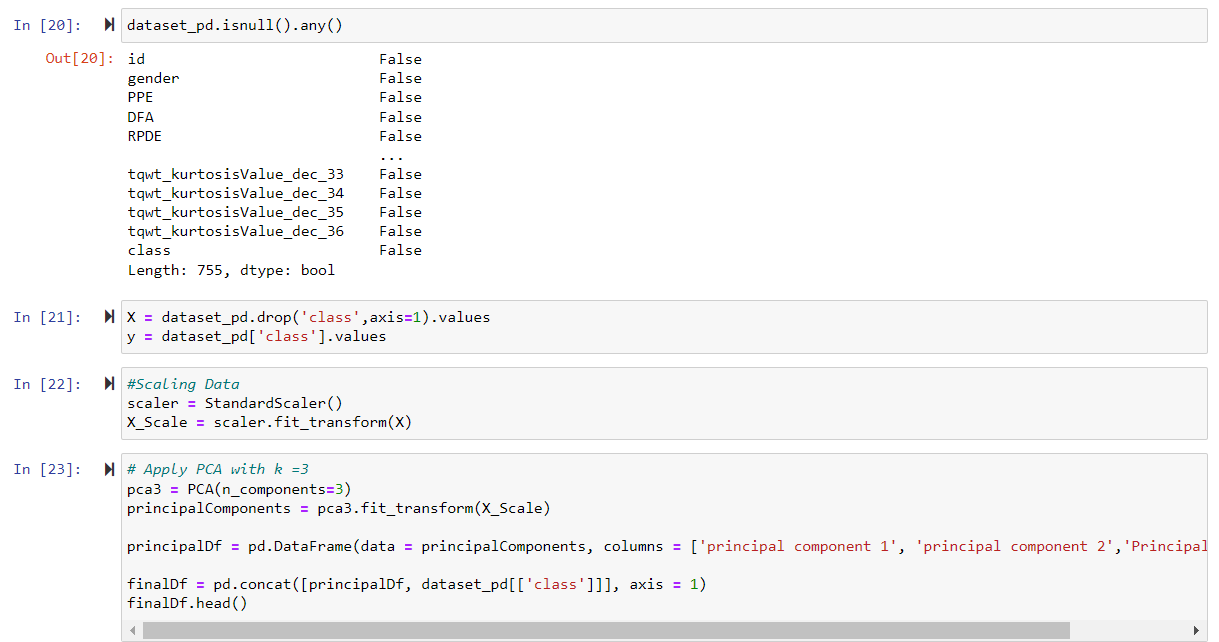
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**2)**

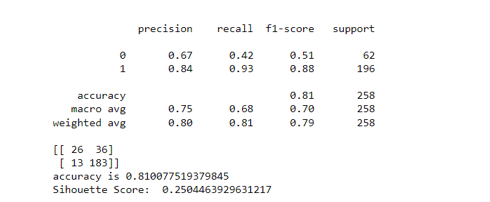
**Graphical user interface

Description automatically generated with medium confidence**

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**Graphical user interface, text, application, email

Description automatically generated**

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**3)**

**Graphical user interface, text, application

Description automatically generated**

**Graphical user interface, text, application

Description automatically generated**

**4)**

**Graphical user interface, application

Description automatically generated**

"The goals of LDA and PCA are the same: to maximize variance in a lower dimension via linear transformations. Unlike LDA, which uses supervised learning, PCA uses unsupervised learning. Accordingly, LDA identifies pathways of maximum class separability while PCA finds directions of maximum variance regardless of class labels.

Principal components, which are linear fusions of the original variables, are used to condense the characteristics into a more manageable group of orthogonal variables. The data's greatest variability is captured by the first component, followed by the second and third, and so on.

To "maximize the variance between the different categories while minimizing the variance within the class," LDA "finds the linear discriminants."