**Hierarchical Clustering**

**Instruction on how to run my code:**

Please run this project on Google Collab and use the file named “**Hierarchial\_clustering\_Uttam.ipynb**”. Go to Runtime and click on Run all and you will see the result. Before you run this code, please upload the file name “<Mall_Customers.csv>” in the root folder of Google Collab. If not, just upload the file and manually change the file location in the code.

**Result:**

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| **Information about the dataset** |
| The number of features is: 200  The number of examples in our dataset: 5  CustomerID Gender Age Annual Income (k$) Spending Score (1-100)  0 1 Male 19 15 39  1 2 Male 21 15 81  2 3 Female 20 16 6  3 4 Female 23 16 77  4 5 Female 31 17 40 |
| **Describing the aggregate statistics** |
| CustomerID Age Annual Income (k$) Spending Score (1-100)  count 200.000000 200.000000 200.000000 200.000000  mean 100.500000 38.850000 60.560000 50.200000  std 57.879185 13.969007 26.264721 25.823522  min 1.000000 18.000000 15.000000 1.000000  25% 50.750000 28.750000 41.500000 34.750000  50% 100.500000 36.000000 61.500000 50.000000  75% 150.250000 49.000000 78.000000 73.000000  max 200.000000 70.000000 137.000000 99.000000 |
| Chart, histogram  Description automatically generated |
|  |
| **Hierarchical Clusters** |
| Chart, scatter chart  Description automatically generated |