Dear All,

For the given mini project your task is to implement the K-means clustering algorithm for clustering the images that have three classes. The classes include Zebra, Lion, and Fish.  You will have to add the codes in place of the comments made in the following notebook: [Miniproject 1.ipynb](https://bits-pilani.instructure.com/courses/341/files/69128/download?wrap=1" \o "Miniproject 1.ipynb)

Dataset Download Link: [dataset.zip](https://bits-pilani.instructure.com/courses/341/files/69126/download?wrap=1)

**Submission:**

1) You will have to make changes in the given Jupyter notebook and upload it.

2) Zip and Upload the cluster folders (Zebra, Lion , Fish) which you got after performing the clustering on the test dataset only.

For any query you can contact me on my email: [chinesh.doshi@wilp.bits-pilani.ac.in](mailto:chinesh.doshi@wilp.bits-pilani.ac.in)

Rubric

**Some Rubric**

| Some Rubric | | |
| --- | --- | --- |
| **Criteria** | **Ratings** | **Pts** |
| This criterion is linked to a Learning OutcomeImport Kmeans library | |  |  | | --- | --- | | **1.0 pts**  **Full Marks** | **0.0 pts**  **No Marks** | | 1.0 pts |
| This criterion is linked to a Learning OutcomeCode: import VGG feature extraction from keras application as VGG16 | |  |  | | --- | --- | | **1.0 pts**  **Full Marks** | **0.0 pts**  **No Marks** | | 1.0 pts |
| This criterion is linked to a Learning OutcomeCode: Specify path of the random image from the training dataset. | |  |  | | --- | --- | | **1.0 pts**  **Full Marks** | **0.0 pts**  **No Marks** | | 1.0 pts |
| This criterion is linked to a Learning OutcomeCode: print the shape of the vgg16\_feature | |  |  | | --- | --- | | **1.0 pts**  **Full Marks** | **0.0 pts**  **No Marks** | | 1.0 pts |
| This criterion is linked to a Learning Outcomecreate the kmeans object and initialize it with the number\_of\_clusters = 3 | |  |  | | --- | --- | | **2.0 pts**  **Full Marks** | **0.0 pts**  **No Marks** | | 2.0 pts |
| This criterion is linked to a Learning Outcomecreate a test vector using extract\_feature function. | |  |  | | --- | --- | | **1.0 pts**  **Full Marks** | **0.0 pts**  **No Marks** | | 1.0 pts |
| This criterion is linked to a Learning OutcomeCode: print the shape of the test vector | |  |  | | --- | --- | | **1.0 pts**  **Full Marks** | **0.0 pts**  **No Marks** | | 1.0 pts |
| This criterion is linked to a Learning OutcomeCode: use the kmeans model to predict the labels for the test vector | |  |  | | --- | --- | | **2.0 pts**  **Full Marks** | **0.0 pts**  **No Marks** | | 2.0 pts |
| This criterion is linked to a Learning OutcomeCode: Using the labels you got from clustering and the images, save the test images in the different folders in respective clusters. | |  |  | | --- | --- | | **2.0 pts**  **Full Marks** | **0.0 pts**  **No Marks** | | 2.0 pts |
| Total Points: 12.0 | | |

**Submission**

**Submitted!**

Apr 21 at 8:30pm

[Submission Details](https://bits-pilani.instructure.com/courses/341/assignments/1578/submissions/2397)

[Download MiniProjectUnsupervisedLearning.ipynb](https://bits-pilani.instructure.com/courses/341/assignments/1578/submissions/2397?download=70345)

[Download outputFoldersLionZebraFish.zip](https://bits-pilani.instructure.com/courses/341/assignments/1578/submissions/2397?download=70346)

Grade: 12 (12 pts possible)

Graded Anonymously: no

**Comments:**

No Comm