Instructions to use the code

December 12, 2022

- In the submission, there is a folder namely, Project 2.
- This folder has datasets and code files. Save the folder at the desired location.
- There is a sub-folder named Test_image. Put the test image in that file.
  Caution - Please make sure that there is no other image file apart from the ones you have uploaded. Also, you have to crop the image manually for better efficiency of the algorithm.
- There are 3 .py files and one .ipynb file. Open the .py files. In "Parameters.py", you can change the parameters of the Genetic Algorithm (GA). Inside it there is a variable named **save_path**, add the path of the folder "Project 2" in it. Also, don't forget to add a slash in the end as shown in the below example.
  Ex - save_path = 'C:/Users/himan/OneDrive/Desktop/IDC409/Project2/'
  (**Caution**: If working in **Windows**. don't forget to replace backslash (\) with forward slash (/) in the path).
- Change the Parameters of the GA according to your choice. (The role of each variable is being explained in the main report).
- Run the "Optimization.py".
- The output will be as shown below.

```
PS C:\Users\himan\OneDrive\Desktop\IDC409\Project2(1)> python Optimization.py
['Elephant', 'Fox', 'Horse', 'Lion', 'Squirrel', 'Tiger']
0
1
2
3
4
5
6
```

- Go to the folder "Project2". There is a subfolder "Results". Open it. You will see that a new directory has been created with the name of today's date and time.
- There is a subdirectory inside it. You will see a pdf file and bunch of csv files.
- In pdf file, you can see the live updation of the plots of optimization. The plots are getting updated after every 10 generations.
  Caution : To see the live updation, make sure that you open the pdf file in a viewer which does

not lock the pdf, otherwise the code may get stopped. We are using **Sumatra pdf viewer** for that. Adobe Acrobat Reader can't be used as it will lock the pdf.

- There are bunch of .csv files which have data for Fitness vs Population and Fitness vs generations for the post optimization analysis.

- To see the final prediction of the test image. Either you can see the final output of the interpreter or open the .csv file which is created at the end **"Prediction.csv"**. It displays the probability with which the animal is classified and the last row is the most probable class.

```
The predicted class of the given animal is :
Fox : 4.676392497216433 %
Tiger : 5.404402318211665 %
Lion : 5.438661603905558 %
Squirrel : 7.008878864875667 %
Elephant : 9.0530162446113 %
Horse : 68.41864847117938 %
The most probable class is: Horse
```

- Again for using different test image, you have to first delete the previous image from the folder "Test_image" and then upload the new one and run the "Optimization.py".