Image Caption Generator
User Manual

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1   Introduction

This document discusses three issues.

- How to download the project and set up the environment to run the project.

- How to predict the caption of any given image.

- How to reproduce the results.

2   Setting Up the Project and Environment

Download the folder named **COCO** from this link https://drive.google.com/drive/folders/1_wFsGMCK1iFXylgnvsiRorQFvapqDO5v?usp=sharing. Now the project folder will contain e folder named **COCO** which will contain the folders **features, models, output** and **text**.

For creating virtual environment we have used Anaconda. First download and install anaconda (Python 3.7 version) from https://www.anaconda.com/download/. Then navigate to the folder **Image Caption Generator** and run the file script.sh located inside the folder using the command (only in Linux)
./script.sh

Finally, activate the new environment created by the script.sh file by using the command
conda activate caption_generator

To install everything in Windows, follow these steps:

- Open anaconda prompt and create a conda virtual environment using the following command
  conda create -n caption_generator python=3.6

- Activate the new environment
  conda activate caption_generator

- Install all the dependencies using these commands
  1. *conda install -c anaconda scikit-learn*
  2. *conda install -c conda-forge matplotlib*
  3. *conda install -c anaconda pillow*
  4. *conda install -c anaconda nltk*
  5. *conda install -c anaconda pydot*
  6. *conda install -c anaconda tensorflow-gpu*
  7. *conda install -c anaconda keras-gpu*

- To use the cpu instead of gpu, install the first five dependencies listed above and then install the normal version of tensorflow and keras using the following commands
  1. *conda install -c anaconda tensorflow*
  2. *conda install -c anaconda keras*

To check if everything has been installed correctly, navigate to the downloaded directory named **Image Caption Generator** and run the command
python version.py

3   Generating Caption of an Image

To generate caption of any image:

- Put the image in the **Image Caption Generator/Generator** directory.

- Run the command **python Generate_Caption.py**

- When input is prompted write the image file's name *(say example.jpg)* as input.

- The image will be shown with the generated caption on top. You can save the image with caption from here. The caption will also be printed in the command prompt.

4 Reproducing The Results

All required image and text data has already been pre-processed. To reproduce
the result you need to train the model using the command
python Train.py
To evaluate the trained model on test data, run the command
python Evaluate_Model.py

5 Results

All the results and generated captions are available in the folder named **Results**.