**Date: 2/9/2020**

**Team Name: Shack Shack**

**Team Members: Jiamin Tang, Yiwei Sang, Qinyun Wu**

**Work completed this week:**

* Overall: We have read through the project description and understood the purpose of the kaggle competition. In order to prepare for the next step, we filtered out two notebooks to obtain useful insights. We started exploring the csv files and looked into each dataset.
* Jiamin Tang: Downloaded data from Kaggle, created dataframe for future Exploratory Data Analysis
* Yiwei Sang: Downloaded data from Kaggle, visualized data of grapheme root and vowel diacritics
* Qinyun Wu: Downloaded data from Kaggle, specified training and testing dataset, visualized data of consonant diacritics

**Work planning for the next week:**

* Overall: Fully exploring the dataset, we plan to build up some basic CNN models and set up evaluation metrics.
* Jiamin Tang: Search for potential CNN models
* Yiwei Sang: Apply CNN models to the dataset
* Qinyun Wu: Consider potential improvements, including tuning parameter.

**Discussion:**

* <https://www.kaggle.com/gpreda/bengali-ai-handwritten-grapheme-getting-started/data>
* <https://www.kaggle.com/iafoss/image-preprocessing-128x128>

**Date: 2/16/2020**

**Team Name: Shack Shack**

**Team Members: Jiamin Tang, Yiwei Sang, Qinyun Wu**

**Work completed this week:**

* Overall: We took advantage of the textbook in order to get familiar with the structure and algorithm of building up the CNN models. After understanding the project description last week, We continued working on Exploratory Data Analysis and started fitting the baseline model.
* Jiamin Tang: Searched for potential CNN models and worked on preprocessing.
* Yiwei Sang: Applied the baseline CNN model to the dataset
* Qinyun Wu: Visualized the dataset by plotting histogram and Inspect grapheme images

**Work planning for the next week:**

* Overall: Think of possible approaches to elevate the performance of the baseline model. Apply an updated model on the dataset and compare the performance and the computational complexity with the baseline model. Decide on which hyper parameters to tune.
* Jiamin Tang: Try to figure out possible elevations and modify the model.
* Yiwei Sang: Try to figure out possible elevations and modify the model.
* Qinyun Wu: Train the model and tune hyper parameters.

**Discussion:**

* <https://www.kaggle.com/gpreda/bengali-ai-handwritten-grapheme-getting-started/data>
* <https://www.kaggle.com/kaushal2896/bengali-graphemes-starter-eda-multi-output-cnn>

**Date: 2/23/2020**

**Team Name: Shack Shack**

**Team Members: Jiamin Tang, Yiwei Sang, Qinyun Wu**

**Work completed this week:**

* Overall: We discussed how to improve the performance of the baseline model. We tried to tune hyperparameters and tried to add more layers to the baseline model and alter some of the existing layers.
* Jiamin Tang: Tried to improve performance of the baseline model by tuning hyperparameters for the CNN model.
* Yiwei Sang: Tried to improve performance of the baseline model by altering existing layers.
* Qinyun Wu: Tried to improve performance of the baseline model by adding more layers.

**Work planning for the next week:**

* Overall: Integrate individual efforts of trying to improve the baseline model. Train and compare elevated integrated model and compare its performance with the baseline model. Try to take advantage of pytorch techniques covered in lecture.
* Jiamin Tang: Try to integrate individual efforts into an integrated model.
* Yiwei Sang: Try to integrate individual efforts into an integrated model.
* Qinyun Wu: Try ro apply pytorch techniques to the model.

**Discussion:**

* <https://www.kaggle.com/rsmits/keras-efficientnet-b3-training-inference>
* <https://www.kaggle.com/h030162/version1-0-9696>

**Date: 3/1/2020**

**Team Name: Shack Shack**

**Team Members: Jiamin Tang, Yiwei Sang, Qinyun Wu**

**Work completed this week:**

* Overall: We continued the discussion of how to improve the performance of the baseline model. We tried to modify the activation function and the layers and worked on inception.
* Jiamin Tang: Tried to improve the performance of the baseline model by modifying different activation functions.
* Yiwei Sang: Tried to improve performance of the baseline model by altering existing layers.
* Qinyun Wu: Tried to improve performance of the baseline model by applying inception to CNN.

**Work planning for the next week:**

* Overall: Wrapping up with the completed model and finishing the blog post.
* Jiamin Tang: Try to integrate individual efforts into an integrated model and write blog post
* Yiwei Sang: Try to integrate individual efforts into an integrated model and write blog post.
* Qinyun Wu: Try to integrate individual efforts into an integrated model and write blog post.

**Discussion:**

* <https://www.analyticsvidhya.com/blog/2018/10/understanding-inception-network-from-scratch/>
* <https://machinelearningmastery.com/how-to-implement-major-architecture-innovations-for-convolutional-neural-networks/>