ML Final Project - Hindi Character Classification

Groups

- The ML project **is individual in nature**. Your work and submissions are your own.
- The final project is not trivial and we recommend you start working on it at the earliest

Dataset and Setup

- Download the train dataset of 1966 images (about 50mb) from the link here.
- The test dataset will **not** be provided
- The image name is of the format : "page*number_linenumber_characternumber_**[list of character unicode integers separated by underscore]***.png**"**. Take a look at python's split function.
- Please refer https://unicode.org/charts/PDF/U0900.pdf
- We recommend using Keras in case you want to go in for deep learning models. Download Keras here.

Task

- Given a test set image you should be able to predict the characters and *matras* present in the image
- You will be graded based on the number of such correct predictions your model can perform on the test dataset
- If an image has one character as well as one *matra* and you are able to correctly predict one out of the two, you will be given half the marks for that image
- If you predict more than the visible number of characters or *matras* your grade will be penalized accordingly

Deadline and Weightage

- The last date of submission is **27th of November**. Delays in submission will cause penalties in terms of marks.
- The final project corresponds to 15 % of your grade for the ML course, i.e, 15 marks

API to be FOLLOWED

- An API (Application Program Interface) makes it easier for us to perform automated grading on your submitted model.
- For this project you will have to train a model, save it to disk and submit along with that a python script that provides an "API" to your model.
- The script must be named "**modelapi.py**" and must have a function called "**predict**".
- The function must take one input parameter : **the image as a numpy array.** The format of the input will be the same **as when read using matplotlib.pyplot.imread().**
- The preprocessing part should all be part of the predict function
- The predict function must **return a python list of unicode integers** that are present in the input image
- For example : Input an image with "KA" character as well as "EE" matra and the output must be : [2325, 2368]