IBM Hack Challenge 2018 - Ideation Document

Team Name: Jabberwocky

Problem Statement title: Gender Bias removal in Bollywood movie scripts

Role of each team member:

- N R Vinay - Extracting cast names and associating occupations with their names; Used Gensim Word2Vec to establish relevance of an occupation in the plot and further used the relevance score to deBias the occupation.
- Namitha Padmanabhan - Used nltk and spacy to perform necessary chunking and identifying certain aspects of associated descriptions of characters. Worked on removal of dependent introductions and replacement of biased adjectives in the plot.
- Ram Srinivas - Integrated code, created user interface, used Wikipedia Python API to determine gender of all cast members
- Rohan Simha - Used spacy to perform a crude SRL on the coreferenced plots of the movies to identify the adjectives associated with a character, and their introduction removal and later in filtering the biasing adjectives.

Scope of work and Technology used:

Gender bias has been part of our prevailingly patriarchal culture over the years and while there is progress being made as changing times bring awareness, it has become rooted to an extent, and hence is inherent to most Bollywood scripts that are written, even today. The aim of this project is to not only highlight those inherent biases but also to remove them, by generating a new script which aims to remain gender-neutral whilst also not losing the essence of the plot. We believe that such technology can be used to nip inherent biases in the bud, by being made aware of them in the larval stage of script-writing itself, and therein lies its utility and scope.

To implement this project, the following technologies were used:

- Python 3.7
  i) NLTK
  ii) SpaCy
  iii) Wikipedia API
  iv) Flask
  v) GenSim
- HTML
- CSS

Key Value Proposition:

Solutions to this very specific problem of bias in Bollywood movie scripts exist, but are somewhat limited. They focus on identifying male and female characters with the maximum centrality, and interchanging genders which reverses the scale of bias but does not *remove* it, although it does maintain plot coherency, easily.

In our solution, however, we aim to edit the script of the movie with respect to bias against women, according to three conditions:

- The way women are introduced
- The types of occupation-related roles women are cast in
- The adjectives used to characterize female members of the cast

Upon identifying bias in the aforementioned scenarios - which are the most common - we then replace the existing text with that, which is gender neutral and thus, removing bias.