



Data Science Specialization - Capstone Project

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Coursera Course

This App can do English next words prediction

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Version 1.0

About this Project

- This project is part of the 10th course of the Coursera Data Science Specialization, **Data Science Capstone**.
- The deliverable focuses on analyzing a large corpus of text documents to discover the structure in the data.
- Also to figure out how words are put together to build a predictive text model.
- The Project Major Tasks:
 - 1 **Text data analysis**: analysis of the corpus to understand the relationship of words and word pairs
 - 2 **Predictive modeling**: build basic n-gram models and develop algorithms to facilitate text prediction
 - 3 **Shiny app development**: To build up a web-based Shiny app service, which is able to predict next words

Relevant Activities

- **Getting and cleaning the data:** profanity was first removed and words tokenized
- **Exploratory data analysis:** the frequencies of words and word pairs were calculated
- **Modeling:** 2-7 gram models were built to facilitate word prediction
- **Prediction model:**
 - 1 Katz's back-off model was used to predict the next word
 - 2 The model iterates from 7-gram to 2-gram to find matches in the last $n-1$ words
 - 3 In the case of unseen n -gram, the most frequent word, 'the', is returned
 - 4 To improve efficiency, word pairs that appear less than 5 times in the corpus were removed

Shiny app Function Intro.

- Click **here** to open “Next Words Prediction” Shiny App
 - The app takes in the following inputs:
 - ① Select how many number of next words to predict.
 - ② Typing English Words in textbox
 - The predicted next word text will keep changing to show up by sequence of most used to less frequently used
- ===== **HAPPY PLAY !!** =====

Relevant Resources Linkage

- This course is part of the **Coursera Data Science Specialization**
- The **Quanteda** package was used for data analysis and n-gram generation
- Read more about **Katz's back-off model**