Assignment 5: No one can be told what the Ranktrix is. You have to see it for yourself.

CS/INFO 4300 Language and Information

Due by 11:59PM on Wednesday March 4th

You must completely this assignment **individually.**

In this assignment we will explore evaluation of an information retrevial system where both queries and results are movies. Ever wanted to know what the most similar movie to "The Matrix" is, in terms of language? Now is your chance! You take the blue pill - the story ends, you wake up in your dorm on West Campus and believe whatever you want to believe. You take the red pill - you stay in CS/INFO 4300 and we show you how deep the rabbit-hole goes.

Instructions

Follow the instructions below to get the necessary packages installed and set up your Python environment, then open the attached Jupyter notebook.

Run the notebook and complete the tasks contained in it, then upload the completed notebook and an HTML copy of it to CMS.

Double check that your files were correctly uploaded (by re-downloading them). If you have technical issues with CMS, send the files to the grad TAs and to the instructor via email **before** the assignment deadline, explaining what prevented you from submitting on CMS. As stated in the syllabus, we can not accept late submissions.

Learning Objectives

This project aims to help you get comfortable working with the following tools / technologies / concepts:

- TF-IDF vectorization using sklearn
- Similarity matrices
- Precision & Recall
- Cosine similarity vs Jaccard similarity
- Rocchio Algorithm

Academic Integrity and Collaboration

Note that these projects should be completed individually. As a result, all University-standard academic integrity guidelines must be followed.

Setting up your environment

System Configuration

Perform the following steps in order:

1. Check your Version of Python (should be 3.7.6)

You can check via:

```
> python3 --version
Python 3.7.6
```

If your version differs, then download `3.7.6` `here`.

2. Check that Pip is Installed and Up-to-date.

You should already have pip installed if you have Python downloaded from python.org. Make sure that yours is up-to-date.

Upgrade pip :

```
> python3 -m pip install -U pip
```

If not, install it following instructions. (also found `here`)

```
> curl https://bootstrap.pypa.io/get-pip.py -o get-pip.py

> python3 get-pip.py
```

3. Install Virtualenv via Pip

`Virtualenv` helps establish an isolated `Python` environment. The environment allows you to separate project-specific dependencies and their versions from the `Python` modules installed locally on your computer.

Once you have `virtualenv`, run the following:

```
> virtualenv -p python3 venv
```

This creates a virtual environment called `venv`.

In order to enter than virtual environment run the following:

Linux or MacOS:

```
> source venv/bin/activate
```

Windows:

```
> venv\Scripts\activate
```

The following command line prompt will indicate that you're in the virtual environment:

```
(venv) >
```

To deactivate the virtual environment, run the following:

```
(venv) > deactivate
>
```

Whenever you work with this project, you should **always** be in your virtual environment. Without this isolation, we might run into module versioning issues and other problems when trying to run your project, which creates administrative overhead.

4. Install Dependencies

At the root of directory of the project skeleton code, run the following:

```
(venv) > pip install -r requirements.txt
```

This installs within your virtual environment all the necessary modules that are required at the beginning of the project.

5. Setup Jupyter Notebook

To use your virtualenv as the kernel for your Jupyter Notebook you run the following:

```
(venv) > python3 -m ipykernel install --user --name=venv
```

6. Open Jupyter Notebook and start working

Open the Jupyter Notebook in your virtual enviroment and complete the assignment.

Linux or Mac:

```
> source venv/bin/activate
(venv) > jupyter notebook
```

Windows:

```
> venv\Scripts\activate
(venv) > jupyter notebook
```

In your Jupyter Notebook, make sure to set your kernel to your virtualenv. To change kernels, go to `Kernel` > `Change Kernel` and click `venv` as the option.