CS 410: Text Information Systems
University of Illinois at Urbana-Champaign

Course Project Documentation

IMDb Movie Review Sentiment Analysis Chrome Extension

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1. Installation

1.1 Downloading the Extension

Using the provided github link through the CMT portal, clone the repository or download the repository as a ZIP file.

Using the terminal, access the directory where the repository is downloaded (the folder should have the name “movie-rating-extension”). When in the root directory, the structure should look like the following:

Project Root Directory

```
movie-rating-extension/
│
├── chrome_extension/
    └── flask/
    └── chrome.js
    └── manifest.json
    └── movie.png
    └── movie_rating.html
    └── popup.js
    └── style.css
└── course-project-proposal.pdf
└── progress-report.pdf
```

chrome_extension/flask/ Directory

```
chrome_extension/flask/
│
├── templates/
    └── index.html
└── app.py
└── Procfile
└── requirements.txt
└── sentiment_analysis.py
```

1.2 Installing Packages

From the root directory, navigate down to the "`chrome_extension/flask`" directory to access the backend. In this directory, execute the following code to set up the requirements for the backend Flask app:

```
pip install -r requirements.txt
```

**Assumption: This step assumes that pip is installed on the system.*

This step installs the necessary python packages to run the "`sentiment_analysis.py`" during the backend Flask app api call to receive useful information about the movie reviews.

In addition to this, for first time setup, it is required to run the main function at the bottom of the following file:

"`chrome_extension/flask/sentiment_analysis.py`"

1.3 Locally Running Backend Flask App

THIS STEP IS A CRUCIAL STEP TO THE CHROME EXTENSION WORKING PROPERLY.

For this chrome extension to work properly, the backend Flask app has to be running locally. To run the Flask backend, navigate to the "`movie-rating-extension/chrome_extension/flask`" folder and run the following command:

```
python app.py
```

If the Flask app runs properly, the following message will be displayed in the terminal:

```
 * Serving Flask app 'app'
 * Debug mode: off
WARNING: This is a development server. Do not use it in a production
deployment. Use a production WSGI server instead.
 * Running on http://127.0.0.1:5001
Press CTRL+C to quit
```

Assuming the Flask app properly runs, check that the url highlighted in green above matches the url listed under the variable of "`backend_url`" in the "`chrome_extension/popup.js`" file. If the urls are different, follow these next steps:

1. Change the following variables in the `manifest.json` file to match the url highlighted in green.

```
"permissions": [
    "tabs",
    "http://127.0.0.1:5001/",
    "http://127.0.0.1:5001/process_data"
```

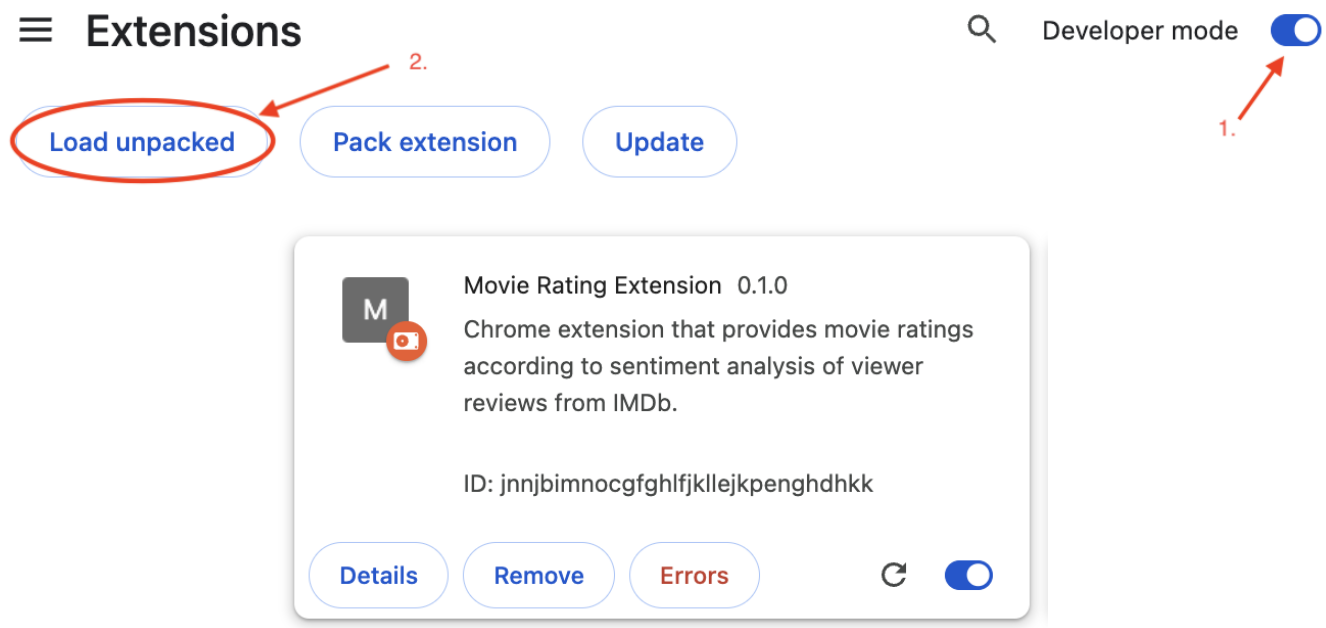
```
]
```

2. Change the `"backend_url"` in the `"chrome_extension/popup.js"` variable to match the url highlighted in green.

After following these steps, the backend Flask should be properly running to test the Chrome extension.

1.4 Loading Extension

Access the "Manage Extensions" under extensions in the Chrome browser settings and turn on "Developer Mode". Once developer mode is active, click the option to "Load Unpacked" and select the `"chrome_extension"` folder in the root directory. When the Chrome extension is loaded, it should show up on the page.



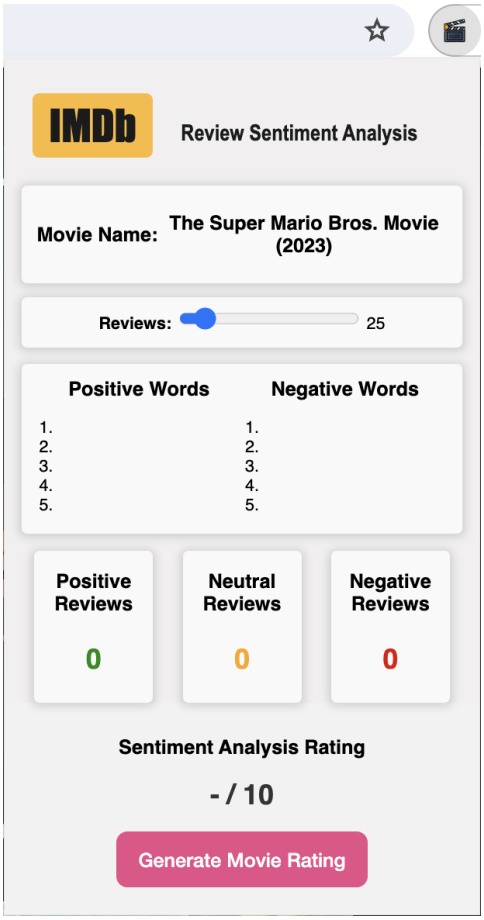
2. Getting Started

2.1 Accessing the Extension

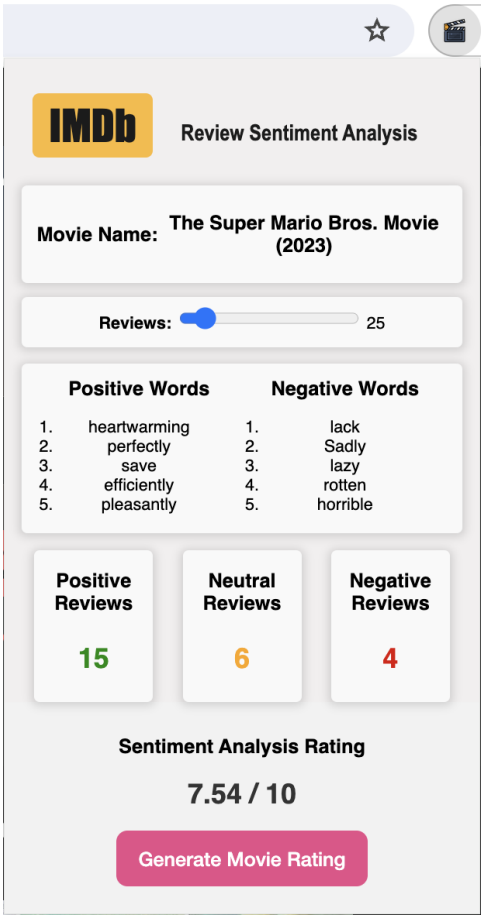
To use this extension, the user must be on an IMDb website for a movie. Example url can be "https://www.imdb.com/title/tt6718170/". When on this website, click on the extension button on the top right of the browser and click on this icon for this extension 🎬 .

2.2 User Interface Overview

On Load



Generated



When the chrome extension is loaded on an IMDb website, the movie name will be displayed automatically. Users, then, can change the number of reviews the sentiment analysis will be based on to get results based on a larger dataset. After the "Generate Movie Rating" button is clicked, the Top 5 positive and negative words in the reviews will be displayed in the third section. Below it will show the number of positive, neutral, and negative reviews the analysis marked. Finally, the sentiment score rounded to the second decimal will be displayed at the bottom.

3. Troubleshooting

3.1 Common Issues and Solutions

1. A common issue that can occur is if the necessary NLTK components aren't installed onto the system during set up. If there are errors that come up during the "1.1.3 Locally Running Backend Flask App" about NLTK components, make sure that the sentiment_analysis.py file has these lines underneath the NLTK package import:

   ```
   nltk.download('stopwords')
   nltk.download('names')
   nltk.download('vader_lexicon')
   nltk.download('averaged_perceptron_tagger')
   ```

   If these are not present then add these and re-run the `python app.py` command.