APPENDIX 1

MOVIE REVIEW SENTIMENT ANALYSIS

END TERM REPORT

By:

Name	Roll No.	Reg No.	Section
Arvind Kumar	02	11810214	K18SJ
Priyansh Rawat	11	11803937	K18SJ
Tanmay Behera	15	11813503	K18SJ
Rittike Ghosh	28	11810568	K18SJ

Department of Intelligent Systems

School of Computer Science Engineering

Lovely Professional University, Jalandhar

2019-20

APPENDIX 2

STUDENT DECLARATION

This is to declare that this report has been written by us. No part of the report is copied from other sources. All information included from other sources have been duly acknowledged. We aver that if any part of the report is found to be copied, we shall take full responsibility for it.

Arvind Kumar
Roll number: 02

Priyansh Rawat
Roll number: 11

Tanmay Behera
Roll number: 15

Rittike Ghosh
Roll number: 28

Date: 13/04/2020

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BONAFIDE CERTIFICATE

Certified that this project report "**MOVIE REVIEW SENTIMENT ANALYSIS**" is the bonafide work of "Arvind Kumar, Priyansh Rawat, Tanmay Behera, Rittike Ghosh" who carried out the project work under my supervision.

Dipen Saini
(Assistant Professor)
ID: 23681
Department of Intelligent Systems

1. BACKGROUND AND OBJECTIVES

1.1 BACKGROUND

Sentiment analysis refers to understanding the emotions of a text by processing and analysing it. There are a lot of ways to express a sentence in a particular language. Sometimes different sentences may look exactly the same but have contrasting meanings. Being the creators of the language it is simpler for a human to understand it by analysing the emotions, structure and context of the sentence. Unfortunately though, computers aren't naturally gifted to understand human sentiments. Luckily enough this is not a dead end as computers can be taught to predict the nature of a piece of text. Using a programming language, a good training algorithm and ample amount of data pre-classified as positive, negative or neutral, a computer can recognise the patterns forming in different sentences having different sentiments and can then be used to predict the nature of any piece of text provided to it. These aids come to the programmers in the form of machine learning techniques and natural language processing. Sentiment analysis is an extremely useful concept as it can help a company analyse hundreds and thousands of reviews and opinions of their audience without spending too much time or manpower on it.

1.2 MOTIVATION

This project is being done as a part of our academic studies in the field of Artificial Intelligence. Being aspirants of a job in the field of machine learning, a program on sentiment analysis gives us the perfect start to head towards our field of interest. Learning to create a model that has the ability to figure out the sentiment of a text opens up a scope for a number of projects of similar kind. It can also be taken a step further and used to understand the sentiment of songs and other modes of conversation. Most importantly the project gives us the time to learn and understand where our true interest lies and where we stand with respect to it.

1.3 CONCRETE GOALS AND OUTCOME

The project has given us the opportunity to explore a new field and create a project that has taught us to use Natural Language Processing. Apart from the module using NLTK, we also gained experience of using Django as a framework. It gave us an idea on how web development can be combined with machine learning.

The program correctly analyses the sentiment of the text that is provided to it. This is accomplished using naive bayes classifiers as the learning model for the project. To make the project look more attractive, web pages with various features have been integrated with the python package.

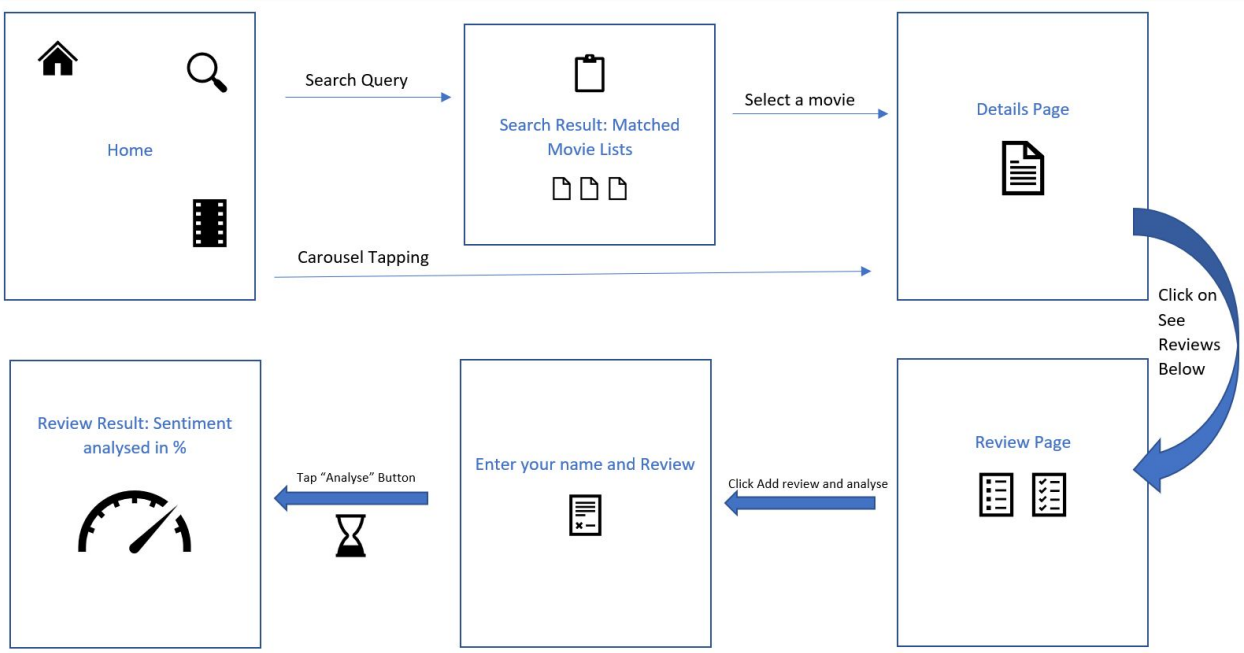
2. DESCRIPTION OF PROJECT

2.1. Module Description

1. **Home Page:** This is the opening page of our project that the user visits. This page, designed in an eye-catching manner has a logo, a search bar and a list of recent and top rated movies. Users have the privilege to either directly see the details of the top rated movies from the carousel or search for their favourite movies with the help of search bar.
   Users can then see and access all the details of the latest, trending and top-rated movies.
2. **Search Module:** As it is inconvenient to display all the movies in a single page, it is easier for the user if they can search the movie they are interested in. The user can find out the plot, reviews and rating of the movie they are interested in by simply searching for the movie in the search bar. The data entered in the search bar is sent to the server, then the server sends a request for the search query to the API server. On successful response the response text is processed and the search page is rendered with the data received from the API request and displays the search result as the movie posters list. On clicking any of the given output, the user will be redirected to the details of the movie where the user can find out more about the movie.

3. **Movie Details Module:** Users are directed to this page after selecting a movie from the search result or from the carousel. With an eye-catching poster of the movie chosen, this page shows various details such as *movie title, year of release, plot, rating and* the *reviews* shared by other users.
4. **Review Module:** This module fetches all the reviews of a specific movie, and sends it to the details module to display the reviews there. This module also provides additional features such as adding new reviews by the users, After the review has been submitted, the emotions depicted by the review are predicted in terms of percentage using the Sentiment Analyser module. A higher percentage implies that the user has provided a positive feedback for the movie and a low percentage tells the opposite ie. a negative review.
5. **Sentimental Analyser module :** This module is the core of the project which takes the reviews provided by the user and computes the review score and also its emotion. It uses the **Naive Bayes Classifier** to predict the emotion of the review as positive or negative. The classifier is trained with nltk.corpus movie review dataset and its result is stored in a file to improve the efficiency of the module since it overcomes the time taken to train the classifier again and again. The module uses the **Vader** package to calculate the review score which is shown as percentage in the front-end.

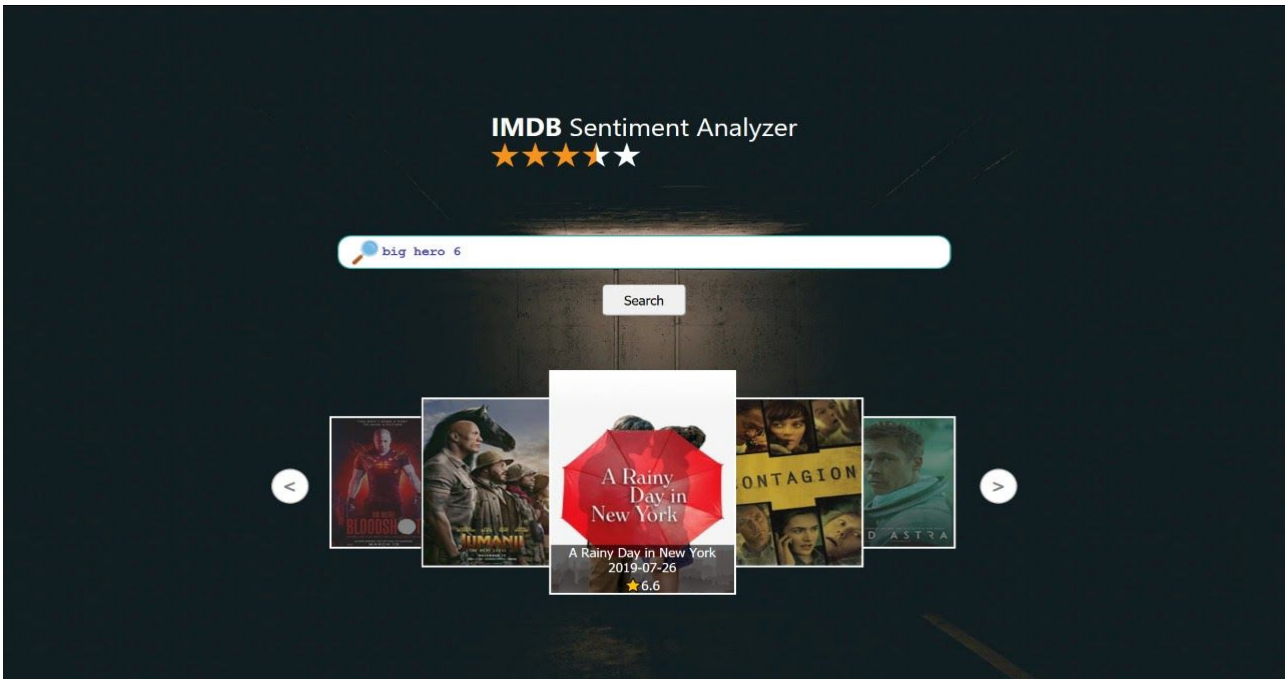
2.2. Flow Diagram



3. DESCRIPTION OF WORK DIVISION

Name	Roll no.	Reg No.	Modules
Arvind Kumar	02	11810214	**1, 2, 3**
Priyansh Rawat	11	11803937	**1, 5**
Tanmay Behera	15	11813503	**4, 5**
Rittike Ghosh	28	11810568	**2, 3, 4**

4. IMPLEMENTATION OF PROJECT

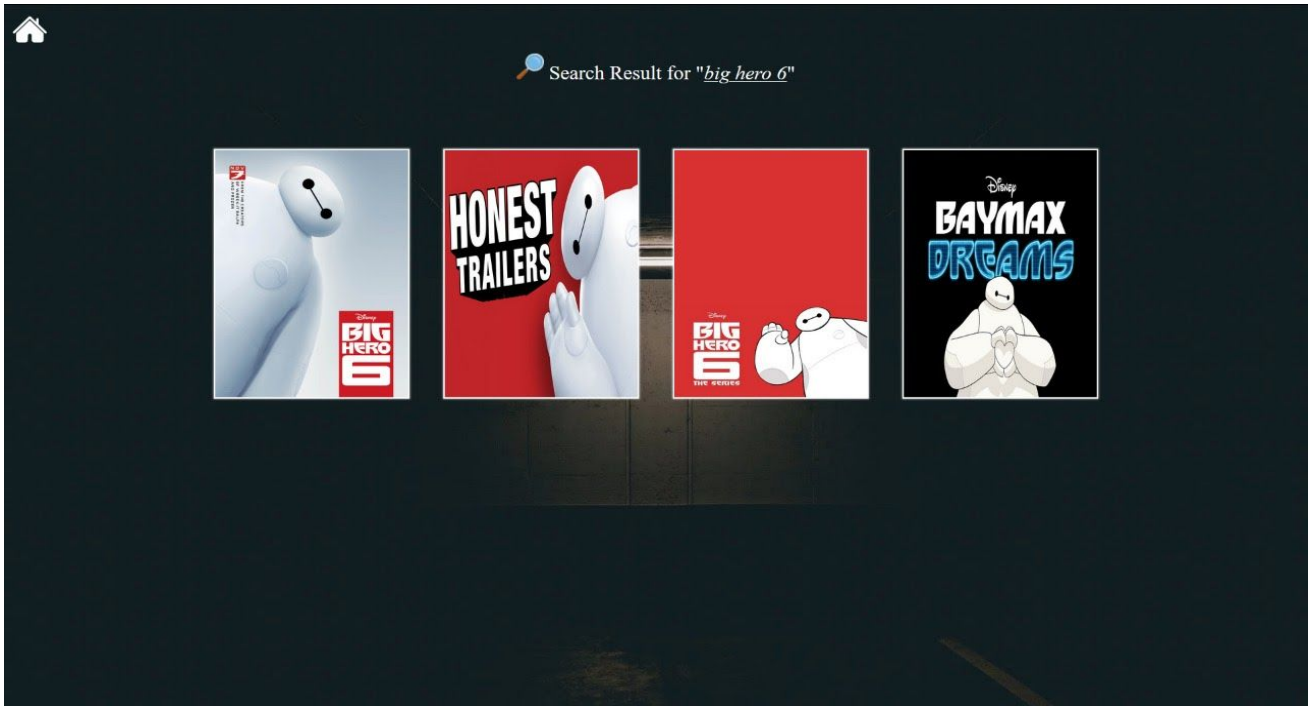


Home Page of the Sentiment Analysing System. The main page is having a Search Bar and a Carousel. The Search Bar is to find a movie with its details and reviews analysis. Carousel is for displaying top trending movies as per IDMB. After searching a movie it will redirect to the search result page. When

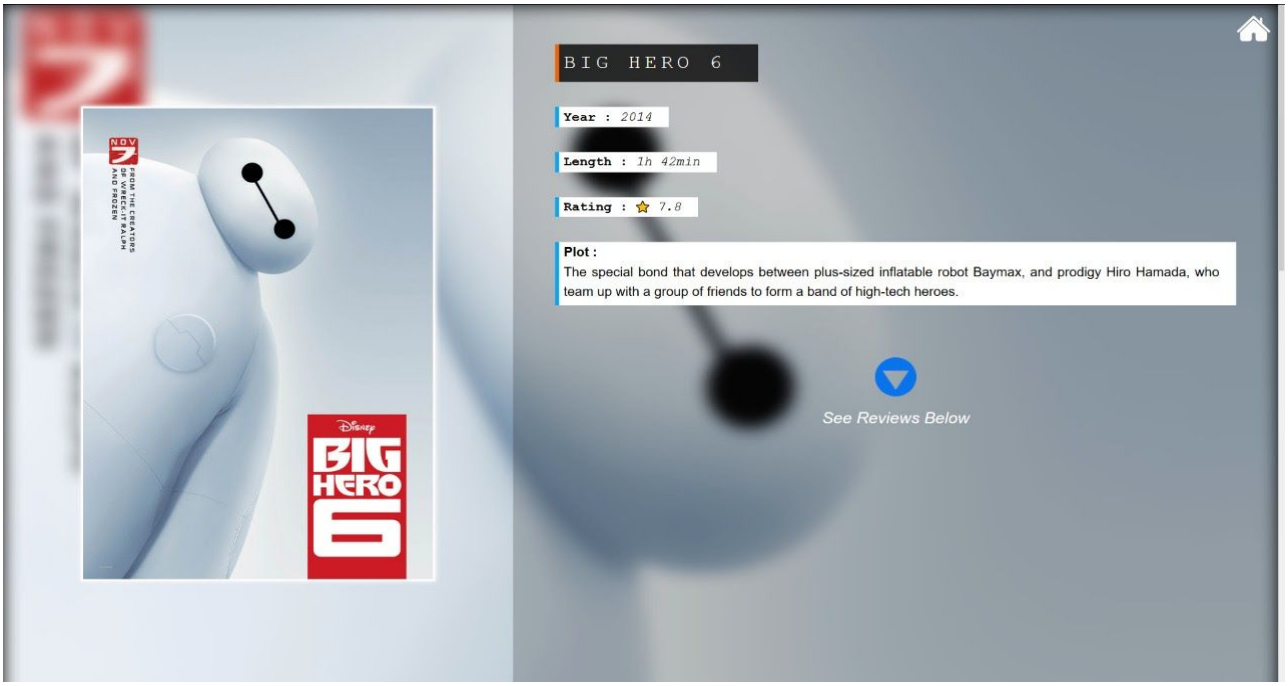
you click on any of the movies from Carousel displaying will direct you to the details page where you will find reviews also.

For example you search for a movie title “big hero 6”, After tapping on the search button below the search bar or hitting Enter will redirect you to the Search Result Page, kindly refer to the next screenshot for the same

Search Result Page for movie title “big hero 6”. When you tap on any of the displaying movies found,



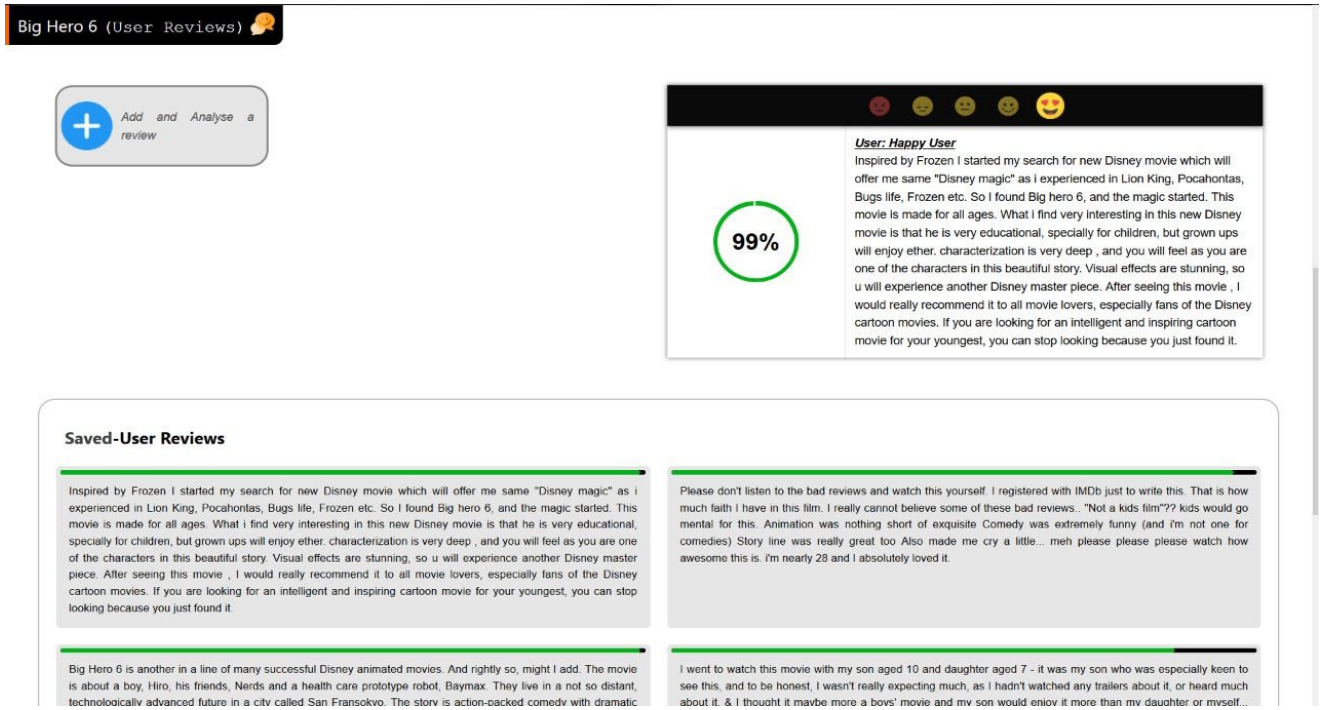
Next you will be redirected to the details page.



Details Page for the movie title “big hero 6”. Click on see reviews to get reviews of the movie along with their sentiment analysis result.

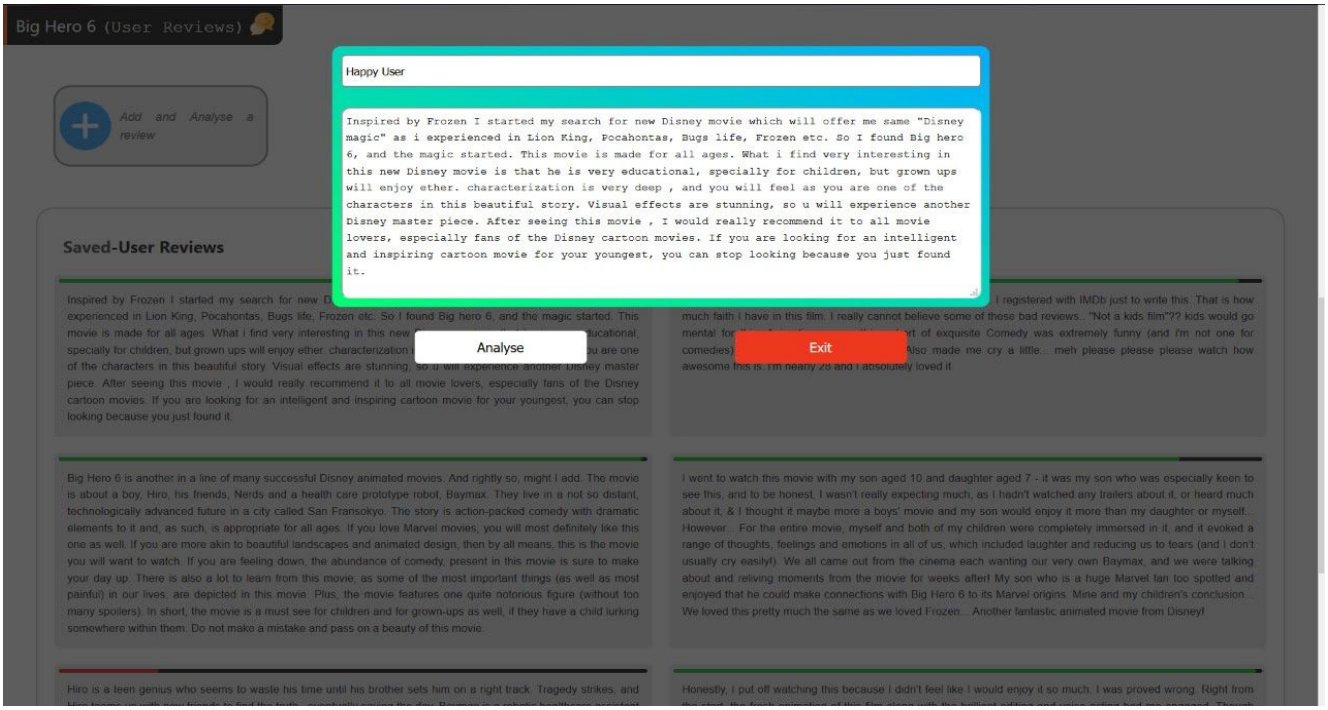
As you tap on “See Reviews Below” , you will get movie reviews with their previous feedback stored and their result also. Here you get an option for adding your own review.

After clicking on “See Reviews below” you will see the results of previously available reviews. You can submit your own reviews too here.So, what are you waiting for to add the review to to get a result.



Once you hit the “ Add and Analyse a review” you will be prompted to enter your name and review. Next is our task to process your entered review to analyse and produce results accordingly in real time.

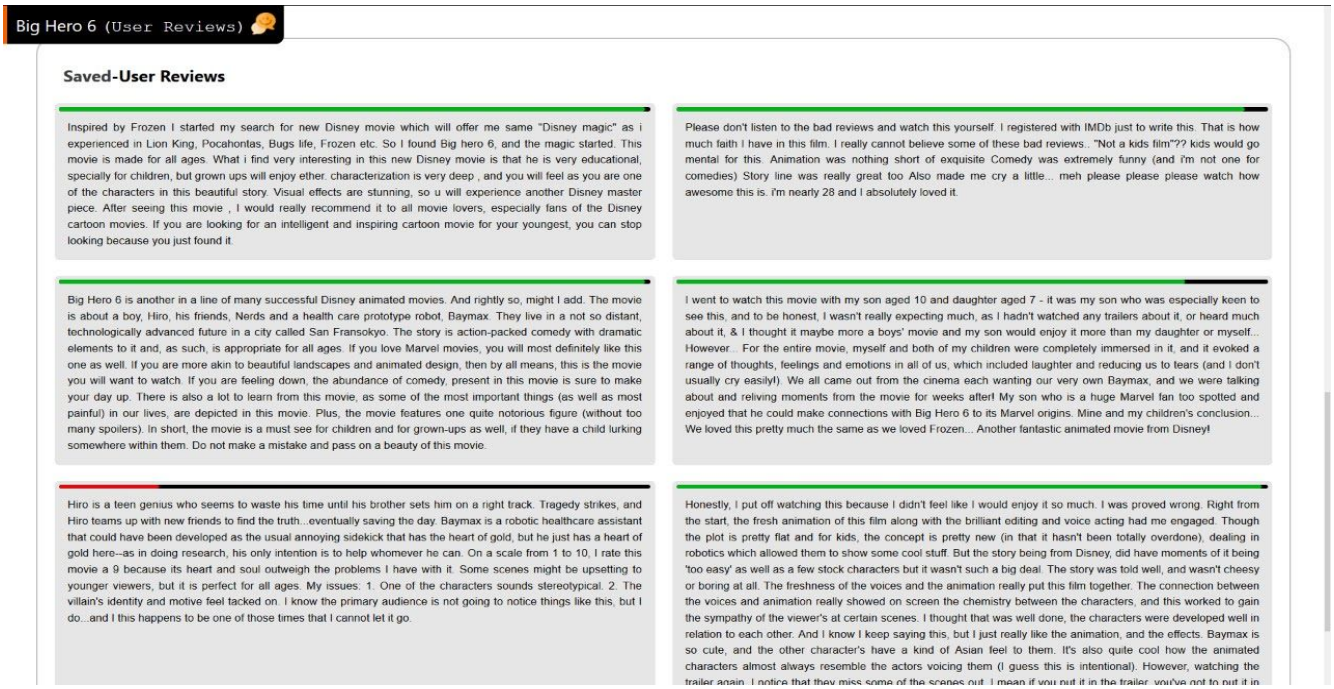
Enter your name and review as of your choice. When you are done hit the analyze button to see the result of your review or Exit button to cancel.



Hit the Analyze button when you are done to see the produced result.

As you hit the Analyze Button. We process the entered review from our system, analyse them and produce the result with a "%" graph to show the positivity of the review.

Greater is the percentage value, greater is the positive emotion present in the review.



5. TECHNOLOGIES AND FRAMEWORK USED

Frameworks used: **Django**, **nltk**

Dataset used: **nltk.corpus**

Technologies used in Backend: **Python & API**

Technologies used in Frontend: **HTML, CSS, Javascript**

6. SWOT ANALYSIS

Strengths: The system is well built to analyse medium sized reviews that contain commonly used keywords to depict positive and negative emotions. These kind reviews can be analysed with average accuracy of 83%.

Weaknesses: Since the dataset is not of much bigger size hence the Naive Bayes classifier may show exceptions. Also, if reviews with negation of positive keywords are provided then also it may show an exception.

Opportunities: We can collect data from the many users giving reviews at the website and create our own dataset to train the classifier time to time.

Threats: As the website is not using any security standards so there may be some security threats that can be manipulated to gather useful and sensitive data.