Movie Review Analysis based on sentiment using Text-Processing API

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1 Introduction

1.1 overview

Movie review is a thought or an opinion given by a person based off a movie that the person has seen. The given review of the movie could be positive, negative or neutral. Moview veiwers expect the movie to be satsify their expectations, if it does not, the viewers may criticize the movie (Bestessays, n.d.).

The importance of movie review is that it it provides general information to audience regarding the movie. Based on the given movie review, the movie audience may decide, if they should watch movie or skip it (Sourceessay, 2018).

1.2 purpose

This purpose of this project is to learn the importance of the movie review as well as to accomplish a movie review program developed with the support of python and API. As a student, is looking forward to learn the the procedure of integrating API and developing web application that could solve probelms in the current scenario.

2 Literature survey

2.1 Existing problem

In the current scenario, the audience may find it difficult to determine the review of a movie, as the reviews contain complex writing and thoughts. The general movie audience may find it difficult to understand, whether the moview review is postive or negative, hence it is essential that solutions must be implemented to recognize, analyse movie review on the internet and provide the summary of it for the audience to understand.
As well as, i

There are few options where this can be solved, down below are them.

Provide movie review publically
Reviews can be posted publically on the blogs with summarized.

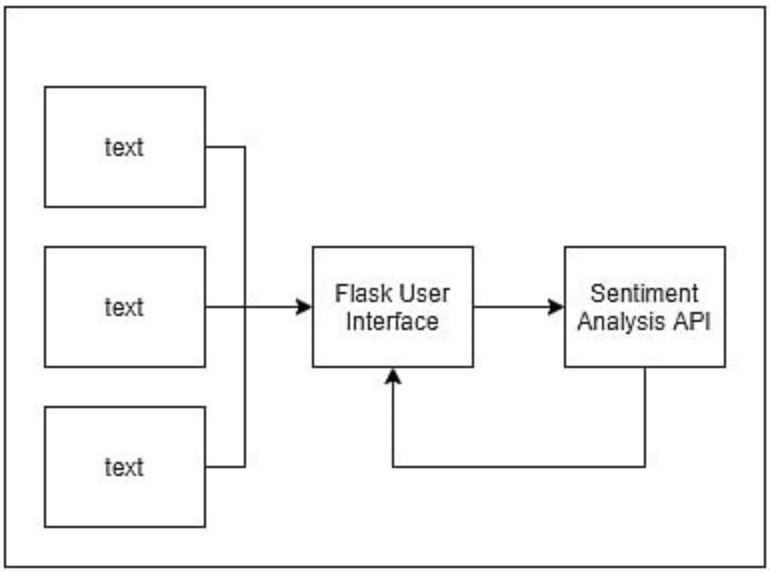
General opinion on social network.
The review of the movie can be given on social network sites

2.2 Proposed solution

The proposed solution for the program is to develop a web application where the users can insert the movie review to identify whether the movie review is postive. With this solution, audience can decide, if they should be watch the movie based on the given summarized movie review, as well as would be supportive for the users to write movie reviews in the future.

3 Theotrical analysis

3.1 Block diagram



3.2 Hardware/ Software designing

Hardware requirements:

Windows 7 or higher
4GB of RAM
5GB free Disk space
X86 64bit CPU (Intel/AMD architecture)
(March, 2020).

Software requirements:

Web browser
Python version 3
Python libraries
Flask web framwork

4 Experimental Investigation

API (Application Programming Interface)

API is a program that enables two different applications to communicate with each other. A user communicates with applications using User Interface; however, a software uses API send and retrieve data from another application. With the service of the API, the services of application have been improved.

For instance; if an application requires data, it communicates with the API of the other application, then the other application shares the data requested(Altexsoft, 2020; Red Hat, 2019).

API types:

Private API.

The API that works for a specific organizational environment is known as private API. Using private API application are developed only for the organization, cannot be used by external environment, for instance; management system that are built for an organization have used API for their purpose, as well as it is used by the user allowed by the API publisher and they have full control of it (Altexsoft, 2020).

Partner API.

API that are used by the audience that has contracted with the publisher are known as partner API. The API only can be used by under the shared contract. As well as, with the shared resources of the publisher, a revenue is gained. The API publisher is able to overview of how their shares resources are used by the partner and ensure the User Experience of the audience using the API (Altexsoft, 2020).

Public API.

The API that are on the market for the public or third-party use are known as public API. Public API allows third parties to develop software applications, however the API could be free to use or paid. Using free API, known as open API, the users are allowed to use the API for development purposes without the requirement of agreeing for payments. The paid APIU, known as commercial API are have to purchased from the API publisher

(Altexsoft, 2020).

Python.

Python is an interpred, object-oriented popular programming langauge used for web development, server-side scripting, mathematics. As well as, this programming language is used for managing data structured and development of coomplex software applications (Opensource, n.d.; w3Schools, 2019).

Flask web framwork.

Flaks is a python web framwork that supports web development. With the use of this framwork, developers can develop their web application easily. The benfit of Flask is that it is a lightweight framework that assists debugging. The debugger mode is helpful for the developers to change code and relaod the pages immediately (Analyticsvidhya, 2021; Pythonbasics, n.d.).

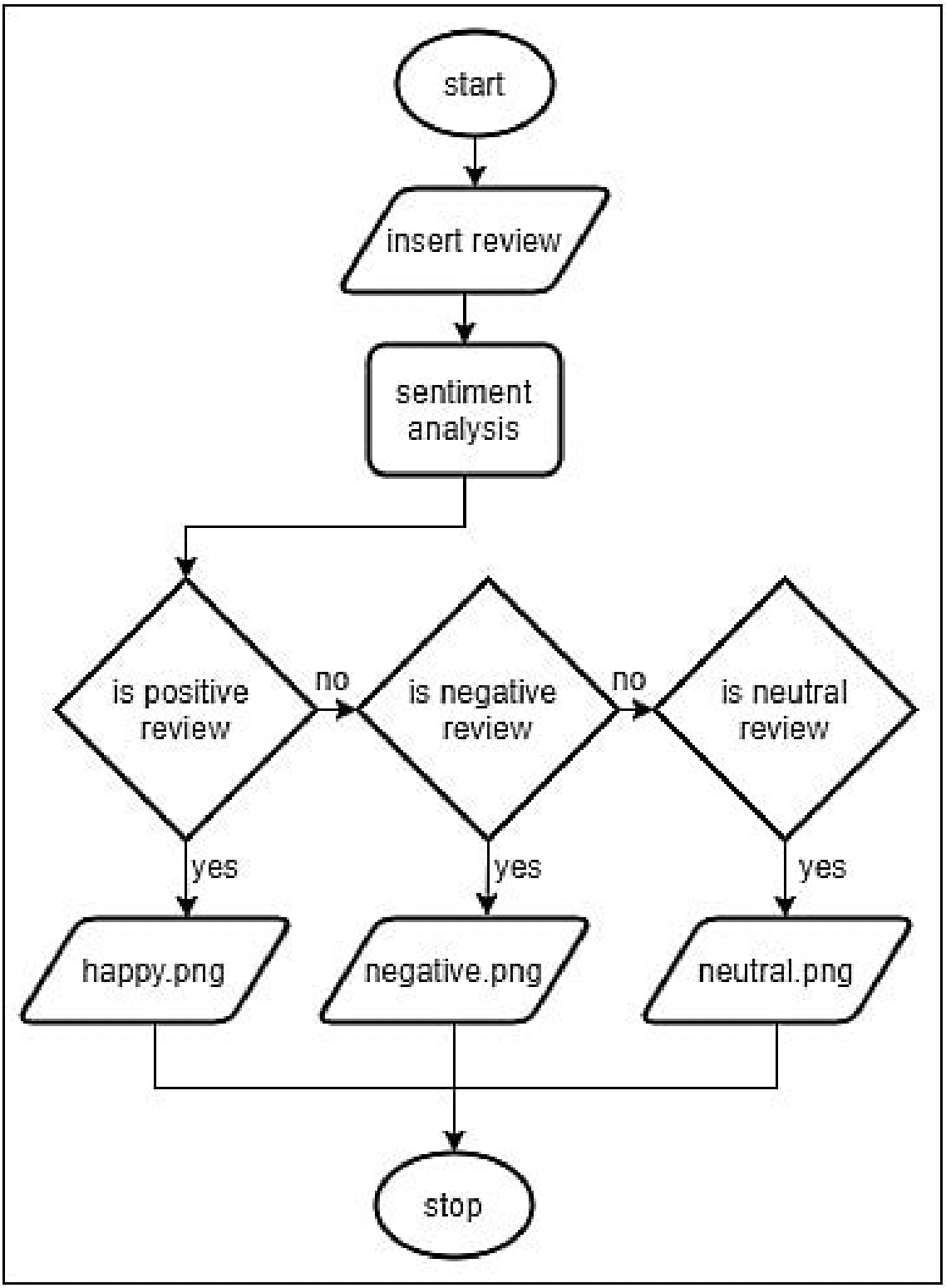
RapidAPI

RapidAPI provides APIs for developers to support the application development. RapidAPI provides SDK, testing features as well as can upload own API as well (Brighttalk, n.d.).

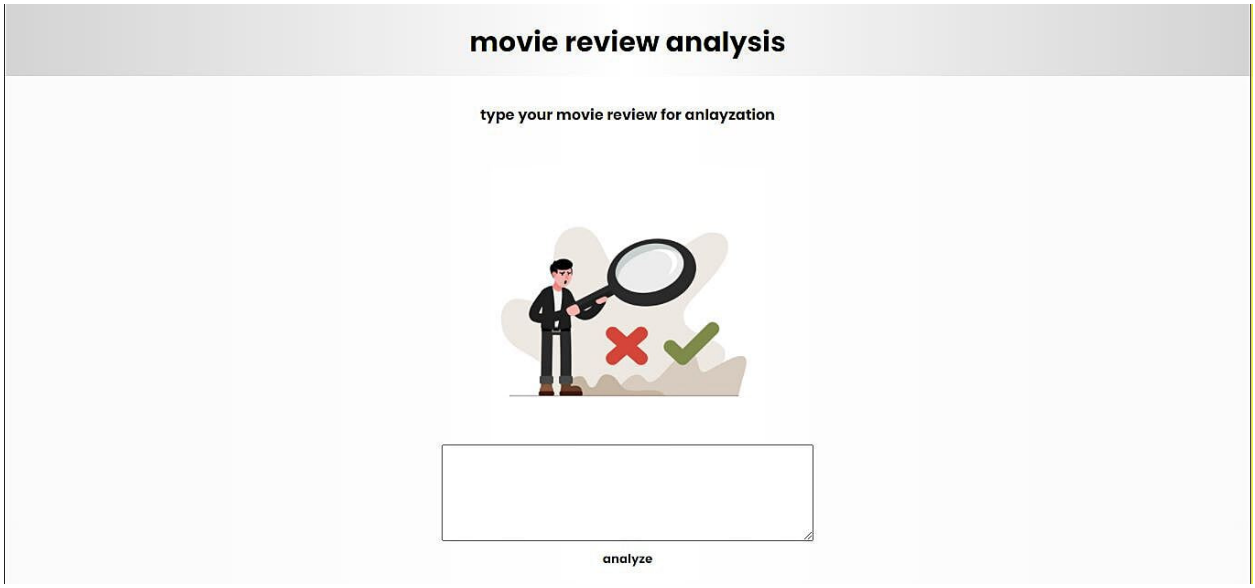
Sentiment analysis.

Sentiment analysis is the process of mining the emotional factor of a text. This can be used to recognize the thoughts of users on different products, situations etc. Sentiment analysis is high-effective, when a large quantity of text needs to be mined, for instance; if a large review is provided, sentiment analysis would be an assitance to identify the summary of the text (Techtarget, 2019).

5 Flow chart


start
insert review
sentiment analysis
is positive review
no
is negative review
no
is neutral review
yes
yes
yes
happy.png
negative.png
neutral.png
stop

6 Result



analysed review

Positive review

7 Advantages and disadvantages

Advantages:

Summarized review.

Pleasant UI.

Disadvantage:

Difficulty of identifying neutral review

8 Applications

Areas to apply the solution:

Movie review platforms.

Organizations that look forward for opinion mining

Moview ticket booking applications

9 Conclusion

The project was about learning on API and sentiment anysis which was used to develop a small web application with the support of the Python flask web framework. With the given opportunity by SmartInternz, the student was able to learn Python Flask as well as Installation processes of Python libraries and Spyder.

At the end, the student was successful to complete the project and have the output with the integrated sentiment analysis API.

10 Future scope

Future enhancement for the program:

Responsive web application that supports mobile UI width.

Web application with more web pages.

Application where users can post their movie review under different movie topics.

11 Bibilography

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Appendix

a. Source code

App1.py

```
from flask import Flask, request, render_template

import re
import requests
import json

app = Flask(__name__)

def check(output):
   url = "https://japerk-text-processing.p.rapidapi.com/sentiment/"
   payload = {"text": output}
   print (payload)
   headers = {
      'content-type': "application/x-www-form-urlencoded",
      'x-rapidapi-key': "cacdd5537cmsh3a068dea4423103p117046jsn9c12a735a265",
      'x-rapidapi-host': "japerk-text-processing.p.rapidapi.com"
      }
   response = requests.request("POST", url, data=payload, headers=headers)
   print(response.text)
   value = response.text
   output = json.loads(value)
   return response.json()

@app.route('/')
def summarizer():
   return render_template('summarizer.html')

@app.route('/summarize', methods = ['POST'])
def summarize():
   output = request.form['output']
   output = re.sub("[^a-zA-Z.,]"," ",output)
```

```
    print(output)
    essay = check(output)
    print(type(essay['label']))
    if essay['label'] == "pos":
        output="Positive review"
    elif essay['label'] == "neg":
        output="Negative review"
    else:
        output = "Neutral Review"

                                    return          render_template('summary.html',essay=essay,
prediction_text='{}'.format(output))

if __name__ == "__main__":
    app.run(debug = True)
```

Summarizer.html

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>movie review</title>
    <style>
        body
        {
            box-sizing: border-box;
            margin: 0;
            background-image: linear-gradient(to right, #fafafa, #ffffff 50%, #fafafa);
        }
        header
        {
            float: left;
            background-image: linear-gradient(to right, #d3d3d3, #ffffff 50%, #d3d3d3);
            width: 100%;
```

```
    height: 80px;
}
h1
{
    font-family: poppins;
    text-align: center;
    font-size: 30px;
}
.top
{
    float: left;
    width: 100%;
    text-align: center;
    height: 70px;
    margin-top: 30px;
    font-family: poppins;
}
.mainform
{
    float: left;
    width: 100%;
    height: 90px;
    text-align: center;
    text-decoration: none;
}
.input
{
    width: 400px;
    height: 100px;
}
.button
{
    font-family: poppins;
    text-align: center;
    background-color: white;
    text-decoration: none;
    padding: 6px 15px;
```

```
            border-radius: 20px;
            text-decoration: none;
            border: none;
            cursor: pointer;
        }
        .button:hover
        {
            background-color: white;
            border-radius: 20px;
            box-shadow:0px 0px 6px 1px #7e7e7ed0;
            color: blue;
            text-decoration: none;
            cursor: pointer;
        }
        .image
        {
            float: left;
            width: 100%;
            text-align: center;
        }
        .start
        {
            width: 300px;
        }
    </style>
</head>
<body>
    <header>
        <h1>movie review analysis</h1>
    </header>
    <div class="top">
        type your movie review for anlayzation
    </div>
    <div class="image">
        <img class="start" src="../static/images/start.png">
    </div>
    <div class="mainform">
```

```
    <form action="/summarize" method="post">
      <textarea class="input" name="output" required></textarea>
      <br>
      <input class="button" type="submit" value="analyze">
    </form>
  </div>

</body>
</html>
```

Summary.html

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>summary</title>
</head>
<body>
  <h1 style="font-family: poppins;">analysed review</h1>
  <div style="text-align: center;">
    {% if essay["label"]=="pos" %}
      {{prediction_text}}
      <img src="static/images/happy.png" width="300" height="300">
    {% elif essay["label"]=="neg" %}
      {{prediction_text}}
      <img src="/static/images/negativee.png" width="300" height="300">
    {% else %}
      {{prediction_text}}
      <img src="static/images/neutral.png" width="300" height="300">
    {% endif %}
  </div>
</body>
</html>
```