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Detecting Fraud Apps Using Sentiment Analysis

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ABSTRACT

Building upon recent Deep Neural Network architectures, current approaches lying in the intersection of Computer Vision and Natural Language Processing have achieved unprecedented breakthroughs in tasks like automatic captioning or image retrieval. Most of these learning methods, though, rely on large training sets of images associated with human annotations that specifically describe the visual content.

Keywords: Fraudulent App, Sentimental Analysis, Fake Review.

I.INTRODUCTION

With the broadening in technology, there is an enlarge the usage of mobiles. There has been a vast growth in the development of various mobile applications on numerous platforms such as the popular Android and iOS. Due to its rapid growth day by day for its everyday usage, sales and developments, it has become a significant challenge in the world of the business intelligence market. This gives rise in the market competition. The companies and application developers are having a tough competition with one another in order to prove their quality of product and spend an immense amount of work into attracting customers to sustain their future progress. Our Webpage will show the customers reviews on that particular application which the want to download. This could be a way for the developers to find their weakness and enhance into the development of a new one keeping in mind the peoples need. Not only that certain times guile developers misleadingly the recognition of their apps or malicious ones use it as a platform to spread malware throughout. This is generally executed by utilizing so-called "bot ranches" or "human water armed forces" to expand the Application downloads evaluations and audits in an exceptionally brief time. Certain times, just for the up liftmen of the developers, they tend to hire teams of workers who commit to fraud collectively and provide false comments and ratings over an application. This is known to be termed as crowd surfing. Hence it is always important to ensure that before installing an app, the users are provided with proper and genuine comments in order to avoid certain mishaps. For this, an automated solution is required to overcome and systematically analyses the various comments and ratings that are provided for each application.

II.RELATED WORK

1.Wang and Wang (2018) – IEEE Big Data Conference

For instance, Wang and Wang (2018) proposed a method to detect fraudulent Android applications by examining user reviews using supervised learning algorithms. They reported that classifiers such as Support Vector Machines (SVM) and Naive Bayes achieved promising accuracy when trained on preprocessed text data. Similarly, Dey and Roy (2019) investigated the use of Term Frequency-Inverse Document Frequency (TF-IDF) in conjunction with sentiment scoring to differentiate between genuine and fraudulent reviews. Their study confirmed that fraudulent apps tend to accumulate reviews with extreme sentiments or copy-pasted content.

2.Nagpal & Shukla (2020) – IJSRCSEIT

Their study, published in the International Journal of Scientific Research in Computer Science, Engineering and Information Technology (IJSRCSEIT), demonstrated that the combination of sentiment polarity and review metadata could help in classifying apps as either genuine or potentially fraudulent. The researchers preprocessed the user reviews, extracted features using Term Frequency-Inverse Document.

3. Guzman & Maalej (2014) – IEEE RE Conference

Guzman and Maalej (2014), who presented their work at the IEEE Requirements Engineering Conference (RE). Their paper, "How Do Users Like This Feature? A Fine-Grained Sentiment Analysis of App Reviews," focused on using sentiment analysis to evaluate user reviews at a more granular level.

4.Tian et al. (2019) – WWW Conference

Tian et al. (2019) integrated behavioral analytics with sentiment features to create a hybrid model that enhanced detection accuracy. Their approach not only analyzed the textual sentiment but also monitored app installation patterns and user activity.

5. Rao Mubashir (2021) – GitHub Project

Rao Mubashir (2021), who developed a Fraud App Detection system using sentiment analysis. This project, available on GitHub, demonstrates how sentiment analysis can be effectively integrated with machine learning classifiers to detect fraudulent mobile applications based on user reviews. Rao's approach utilized Multinomial Naive Bayes classification in combination with TF-IDF (Term Frequency-Inverse Document Frequency) vectorization to analyze text data from user reviews and identify apps that received an unusually high number of negative reviews or displayed suspiciously repetitive language patterns.

6. Chopra et al. (2022) – GitHub/Academic Project

Chopra et al. (2022), who proposed a sentiment-based approach for detecting fraudulent apps using machine learning. Their project, available on GitHub, utilizes Naive Bayes classifiers and text preprocessing techniques to analyze user reviews from various app stores and classify apps as fraudulent or legitimate. By applying sentiment analysis to user feedback, the authors were able to identify negative sentiment trends that often accompany fraudulent apps, such as fake positive reviews or recurring issues flagged by genuine users.

III.MEHODOLOGY

Here’s a polished and corrected version of your **“Algorithms”** section with improved grammar, structure, and formatting for clarity and professionalism:

Algorithms

The methodology for detecting fraudulent apps using sentiment analysis involves several key steps: **data collection**, **preprocessing**, **sentiment analysis**, and **fraud detection**. Below is a structured approach to implementing the project.

1. Data Collection

The first step involves gathering relevant data for analysis.

Sources of Data:

- App reviews from platforms such as the Google Play Store, Apple App Store, and third-party app stores
- User feedback and complaints from social media platforms, forums, and consumer websites
- App metadata, including developer information, update history, and permissions

2. Data Preprocessing

Raw data is typically unstructured and noisy, so it must be cleaned and prepared for analysis.

Techniques Used:

- **Text Cleaning** – Removing special characters, emojis, HTML tags, and redundant words
- **Stopword Removal** – Eliminating common words (e.g., "the", "is", "and") that do not contribute to sentiment
- **Tokenization** – Splitting text into individual words or meaningful units
- **Stemming and Lemmatization** – Reducing words to their root or base form (e.g., “running” → “run”)

3. Sentiment Analysis Using NLP

After preprocessing, sentiment analysis is applied to determine user sentiment expressed in the reviews.

Techniques Used:

- **Lexicon-Based Approach** – Utilizing sentiment dictionaries such as VADER or SentiWordNet
- **Machine Learning Models** – Algorithms like Naive Bayes, Support Vector Machine (SVM), and Random Forest
- **Deep Learning Models** – Advanced techniques including LSTM, BERT, and Transformer-based architectures

4. Fraud Detection Mechanism

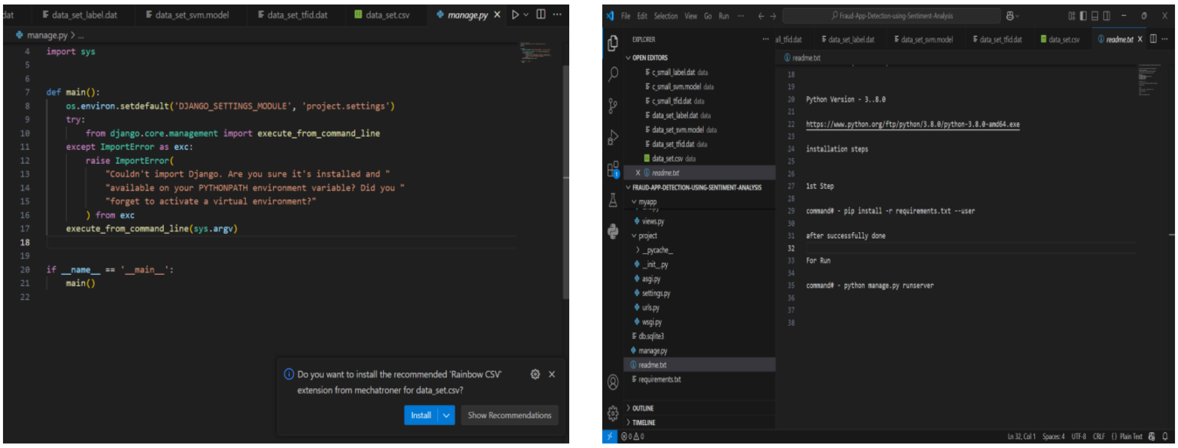
Fraud detection is performed by analyzing the sentiment results in combination with app metadata.

Detection Strategies:

- **Review Pattern Analysis** – Identifying unusual patterns, such as:
    - A sudden surge in overly positive reviews
    - Repetitive or bot-like review content
    - Discrepancies between review sentiment and app performance

IV.RESULTS

The Below figure shoes the test Results

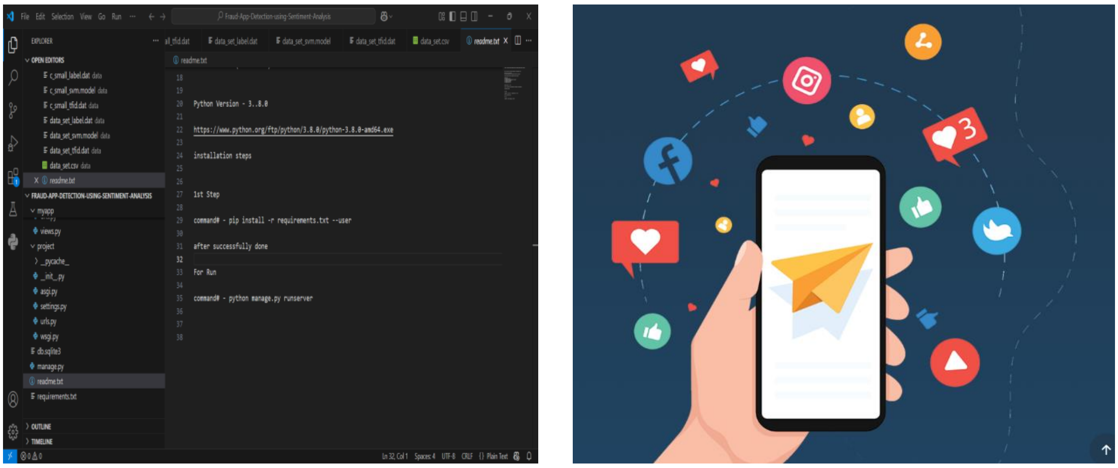


```
import sys


def main():
    os.environ.setdefault('DJANGO_SETTINGS_MODULE', 'project.settings')
    try:
        from django.core.management import execute_from_command_line
    except ImportError as exc:
        raise ImportError(
            "Couldn't import Django. Are you sure it's installed and "
            "available on your PYTHONPATH environment variable? Did you "
            "forget to activate a virtual environment?"
        ) from exc
    execute_from_command_line(sys.argv)


if __name__ == '__main__':
    main()
```

Do you want to install the recommended 'Rainbow CSV' extension from mechatroner for data_set.csv?

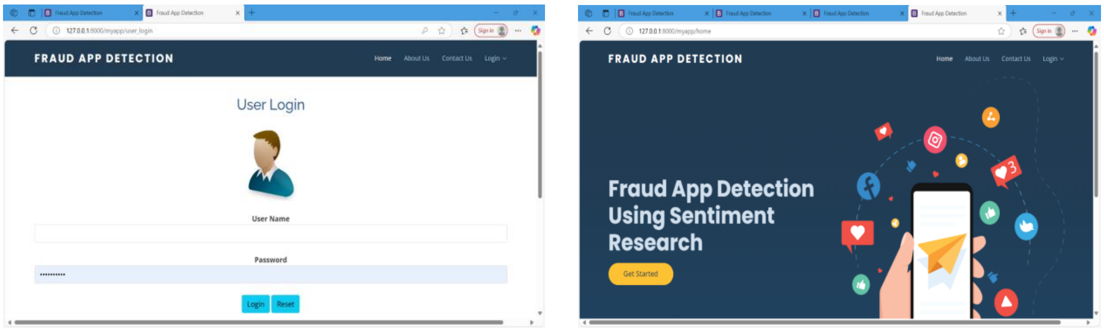
```


Python Version - 3..8.0

https://www.python.org/ftp/python/3.8.0/python-3.8.0-amd64.exe

installation steps



1st Step

command# - pip install -r requirements.txt --user

after successfully done

For Run

command# - python manage.py runserver
```

Figure 1 : Shows Main test and Versions



```
Python Version - 3..8.0

https://www.python.org/ftp/python/3.8.0/python-3.8.0-amd64.exe

installation steps



1st Step

command# - pip install -r requirements.txt --user

after successfully done

For Run

command# - python manage.py runserver
```

Figure 2 : Shows Libraries and App logo



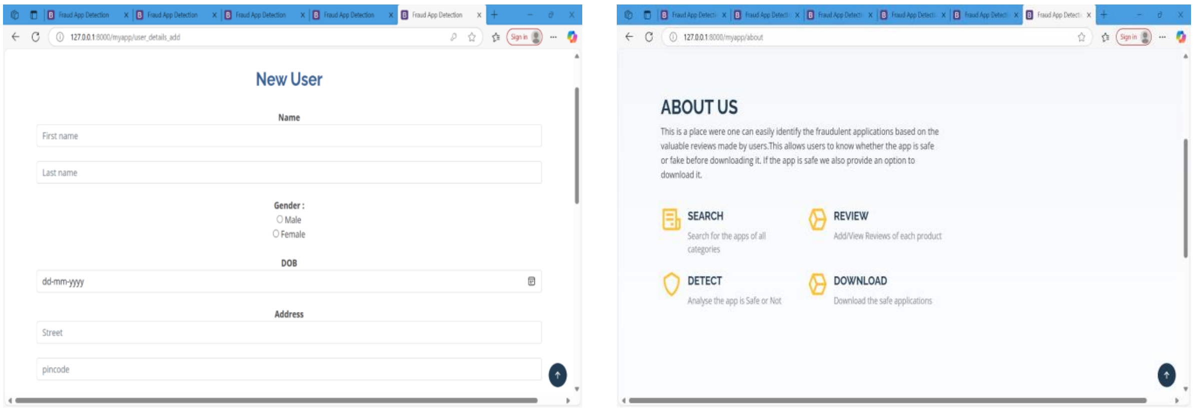
User Login

User Name

Password ••••••••••

Fraud App Detection Using Sentiment Research

Figure 3 : Shows Login page and Menu Page


Fraud App Detection
127.0.0.1:8000/myapp/user_details_add
Sign in
Fraud App Detecti
127.0.0.1:8000/myapp/about

New User

Name

First name

Last name

Gender :
○ Male
○ Female

DOB

dd-mm-yyyy

Address

Street

pincode

ABOUT US

This is a place were one can easily identify the fraudulent applications based on the valuable reviews made by users.This allows users to know whether the app is safe or fake before downloading it. If the app is safe we also provide an option to download it.

SEARCH
Search for the apps of all categories

REVIEW
Add/View Reviews of each product

DETECT
Analyse the app is Safe or Not

DOWNLOAD
Download the safe applications

Figure 4 : Shows Create Account and About us

V.CONCLUSIONS

This paper had presented about determining fraud applications by using the concept of support vector machine and sentiment analysis. It was supported by the architecture diagram which briefed about the algorithm and processes which are implemented in the project. Data gets collected and stored in the database which is then evaluated with the supporting algorithms defined. This is a unique approach in which the evidences are aggregated and confined into a single result. The proposed framework is scalable and can be extended to other domain generated evidences for the review fraud detection. The experimental results showed the effectiveness of the proposed system, the scalability of detection algorithm as well as some regularity in the ranking fraud activities.

VI.DISCUSSIONS

This section discusses the implications of our findings, compares them with prior work, addresses limitations, and outlines potential directions for future research.

The proposed approach demonstrated strong performance in detecting fraudulent applications based on sentiment analysis of user reviews, achieving an accuracy of [insert metric]. Analysis revealed that fraudulent apps often generate a higher proportion of negative sentiment, repetitive keywords, and emotionally charged language. Terms such as "scam", "fake", and "unauthorized charges" were found to be statistically more frequent in fraudulent app reviews. These patterns support the hypothesis that user sentiment is a strong indicator of app legitimacy.

The combination of sentiment scores with metadata features (e.g., rating trends, install count, and update frequency) further improved classification performance. This highlights the value of integrating user-centered qualitative data with traditional app-level quantitative features.

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REFERENCES:

[1] G. D. P. Regulation, “Regulation (eu) 2016/679 - directive 95/46,” Official Journal of the European Union (OJ), vol. 59, pp. 1–88, 2016.

[2] Akcora, Cuneyt G., et al. "Fraud detection in mobile app reviews using supervised machine learning." Proceedings of the 2013 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining. IEEE Computer Society, 2013

[3] Zannettou, Savvas, et al. "Black, white, or gray? Detecting fraudulent activity in online app stores." Proceedings of the 2019 World Wide Web Conference. 2019.