GOOGLE MAPS FAKE REVIEW DETECTOR

TEEM MEMBERS

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INTRODUCTION

Google Maps allow users to share their experience and enable them to read and decide according to multiple opinions expressed value or reviews describing the user experience. Still, these reviews may be fake, and it has no credibility.

PROBLEM DEFINITION

GOOGLE MAPS FAKE REVIEW DETECTOR

- Most consumers prefer to read reviews before making any decision.
- Consumers and business owners are affected by fake reviews.
- Honest business owners may force to close because of their lower ratings than those businesses that use fake reviews.

PROJECT OBJECTIVES

GOOGLE MAPS FAKE REVIEW DETECTOR

BUILD

Web-based application to detect fake Arabic reviews on Google Maps

ANALYZE

Arabic reviews posted in Google Maps

CHECK

Compare ratings before and after detecting fake reviews

LITERATURE REVIEW

GOOGLE MAPS FAKE REVIEW DETECTOR

Author	Detection Language	Detection Technique Classifier	Platform	Datasets size
(Ding et al., 2008) 2008	English	Lexicon-based	Websites	445 reviews
(Alharbi et al., 2020) 2014	Arabic	• Naïve Bayesian • N-gram	Microsoft Hotmail, Google Gmail, and Yahoo Mail	9697 comments
(Saeed et al., 2022) **2019**	Arabic	• Rule-based • N-gram	Online marketing	1,600 reviews
(Martens & Maalej, 2019) 2019	English	• Multiple classification algorithms • Supervised classifier	App stores	30,000 reviews per app.
(Ziani et al., 2021)	Arabic	• Support Vector Machine classifier (SVM)	-	150 reviews
(Sadiq et al., 2021) **2021**	English	• Deep learning models	Google App	502, 658 records
(Alsubari et al., 2021) **2021**	English	• CNN-LSTM	hotel, restaurant, Amazon, and Yelp.	• Amazon: 21,000 reviews • Yelp: 9461 reviews • Restaurant: 110 reviews • Hotel:1600 reviews
(Saumya & Singh, 2022) **2021**	English	• LSTM	YouTube	• Psy: 350 reviews • KatyPerry: 350 reviews • LMFAO: 438 reviews • Eminem: 448 reviews • Shakira: 370 reviews
Proposed Model	Arabic	• Rule-based • LSTM	Google Maps	1021 reviews

LSTM DEEP NEURAL NETWORK

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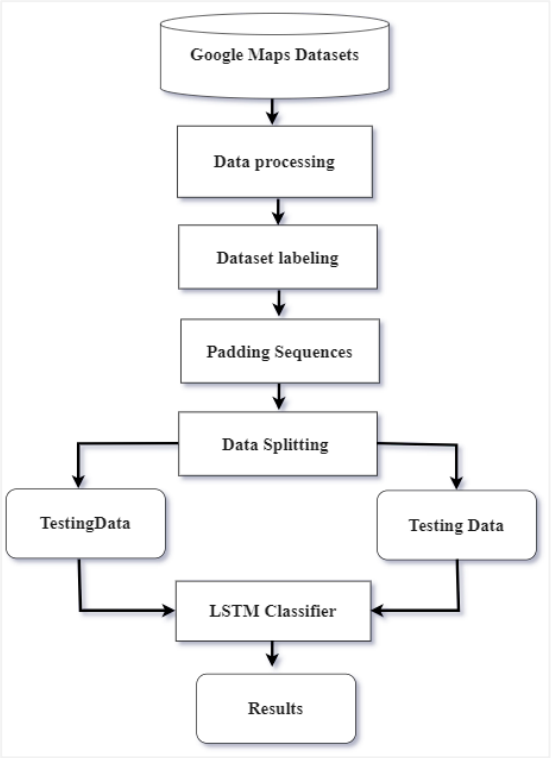
Long short-term memory (LSTM) was created as the solution to short-term memory in RNN. LSTM consists of an inputs layer, a hidden layer called memory blocks, and a final output layer. For detecting and identifying fake reviews, we used LSTM with sentiment analysis.

- Data Scraping : Outscraper API.
- Date Preprocessing.
- Rule-Based classifier for dataset Labeling.
  - ✓ Length of the review .
  - ✓ Review rating.
  - ✓ Sentiments percentage in the review.



LSTM DEEP NEURAL NETWORK

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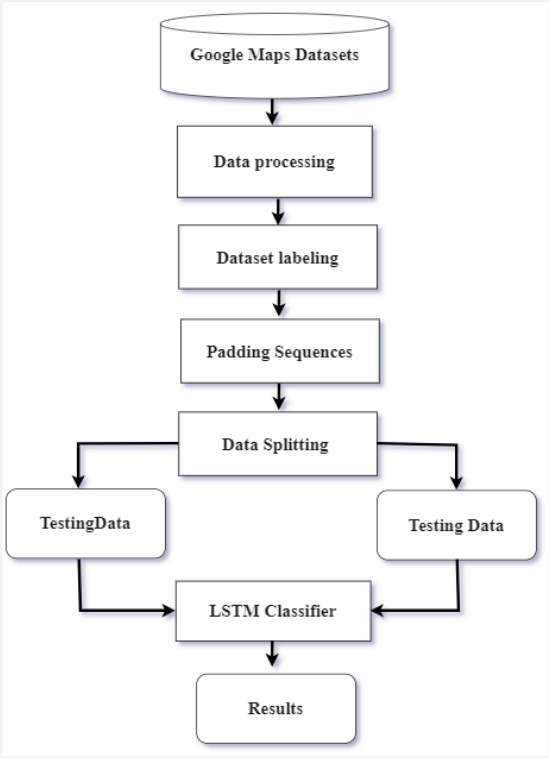
- Padding Sequences :converts reviews to sequences.
  - ✓ 150 words will used as the maximum length.
- Split the dataset into a training dataset and a test dataset .
  - ✓ 70% as a training set and 20% as a testing set.
- Train and build the LSTM model.
- Evaluate the performance of the classifier using accuracy.



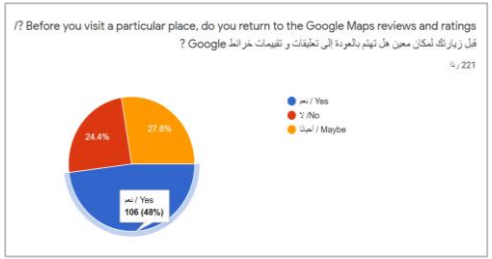
TOOL USED

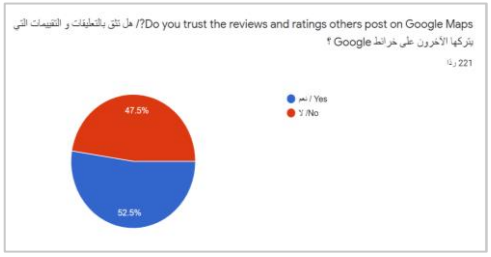
- Visual studio.
  - ✓ C# Programming Language using ASP.net.
  - ✓ JavaScript scripting language.
- Microsoft SQL Server.
- Outscraper API.
- Python Programming Language.
  - ✓ Pandas
  - ✓ NLTK
  - ✓ Numpy
  - ✓ Keras

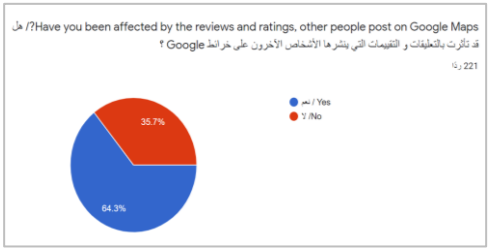
DATA COLLECTION AND ANALYSIS

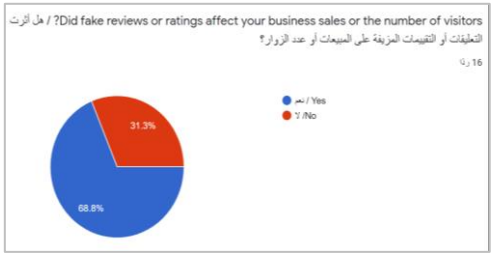
GOOGLE MAPS FAKE REVIEW DETECTOR

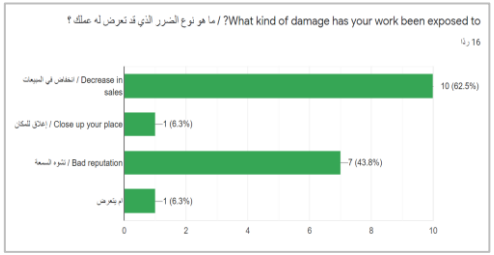
The questionnaire conducted on (221) people (16) of whom were business owners.









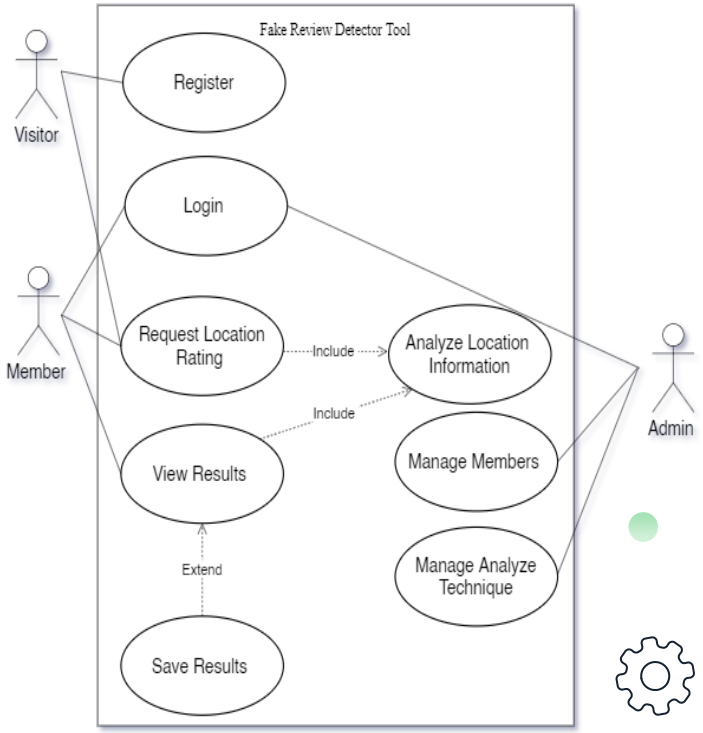


95% said it is better to have a tool that helps detect fake reviews.

FUNCTIONAL REQUIREMENT

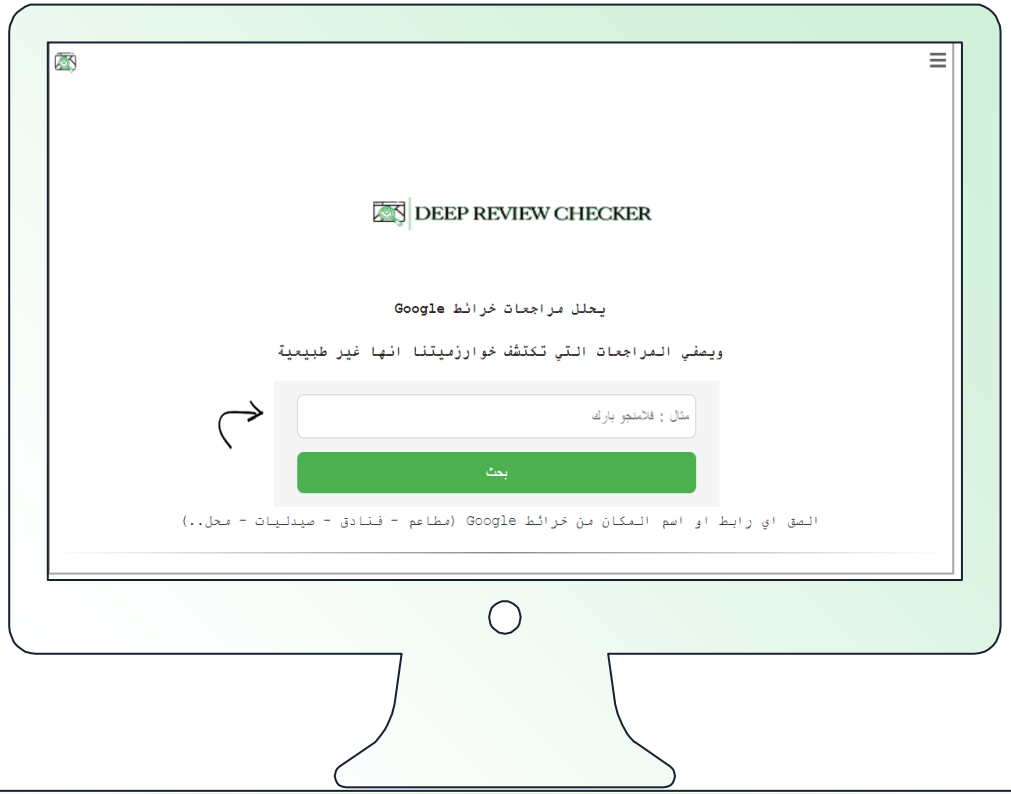
GOOGLE MAPS FAKE REVIEW DETECTOR

- Register to the system
- Log in to the system
- Request Location Rating
- Analyze Location Information
- Show Results
- Save Resalt
- Manage Members
- Manage Technique



WALKTHROUGH THE SYSTEM

GOOGLE MAPS FAKE REVIEW DETECTOR



DEEP REVIEW CHECKER

يحلل مراجعات خرائط Google

ويصفي المراجعات التي تكتشف خوارزميتنا انها غير طبيعية

مثال : فلامنجو بارك

بحث

الصق اي رابط او اسم المكان من خرائط Google (مطاعم - فنادق - صيدليات - محل..)

TESTING

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TEST GOAL

The user expects to register to the system or log in and request a location rating; it also can show results and save results.

Test information	Full name	Sidra	
	User Type	Visitor	
Testing task	Task	Result	
		Pass	Not pass
	Open the system without logging	√	
	Puts the link in the search box and directs to the report display page.	√	
	Show report	√	

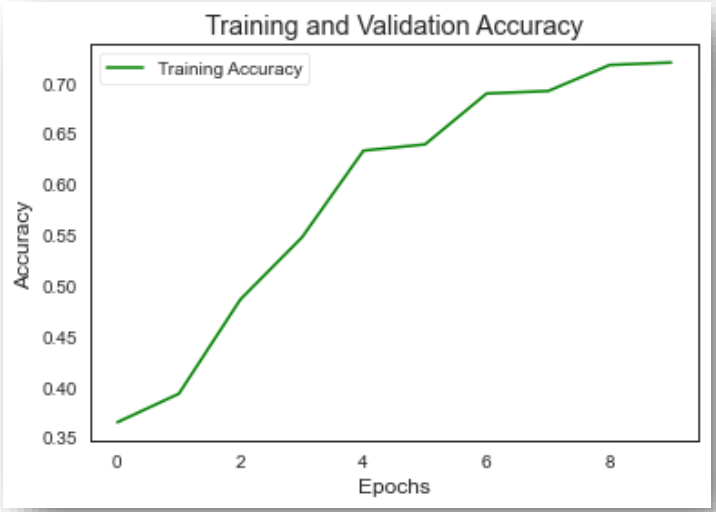
USER TASKS

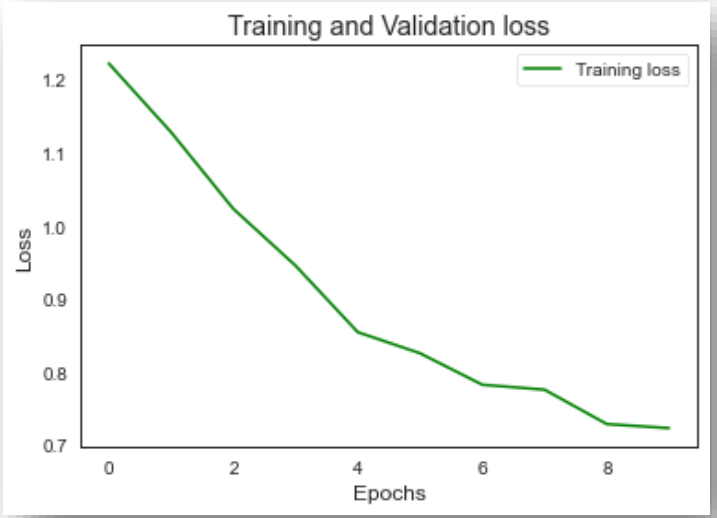
- Create a new account.
- Search for the place actual rating.
- Search without login and view the report.
- View details about the place.

Test information	Full name	Amal	
	User Type	Member	
Testing task	Task	Result	
		Pass	Not pass
	create a new account	√	
	Puts the link in the search box and directs to the report display page.	√	
	Saved reports	√	

TESTING

GOOGLE MAPS FAKE REVIEW DETECTOR





- The final Test Accuracy that the model presented was **77%.**

CONCLUSION

CHALLENGES

- Available dataset containing Arabic Google Map reviews.
- Dataset labeling.
- Deep learning techniques.
- Time

FUTURE WORKS

- Improve the performance of the model.
- Speed up the outputs on the website.
- Using a larger database to help in producing more accurate results.

THANKS!

DO YOU HAVE ANY QUESTIONS?