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Fake Currency Detection using Logistic Regression

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ABSTRACT

The "Fake Currency Detection using Logistic Regression" project is a machine learning-based solution designed to identify counterfeit currency notes by leveraging logistic regression algorithms. Counterfeit currency poses a significant threat to financial systems and undermines trust in currency transactions. This project aims to address this issue by employing logistic regression, a supervised learning algorithm, to build a predictive model capable of distinguishing between genuine and fake currency notes based on various features extracted. The economy is impacted. Such fake money fuels evil intentions, typically involving terrorist actions. According to the research, this has had a highly negative effect on developing nations like India. This research suggests a method for viewing the fake currency through its image. Pre-processing should be used after choosing an image. The acquisition of images is completed at first during processing.

Keyword; Fake Currency, Machine Learning, Detection, Logistic algorithm.

1. INTRODUCTION

Duplicating money represents the unlawful replication of unique money; henceforth fake money is a phony cash that has not been approved by the administration. RBI is the main body which has sole duty to print cash notes in India. Consistently RBI faces the issue of fake money notes, once separated and flowed in the market. Counterfeit note discovery framework is created for perceiving counterfeit note from

the certifiable. The main arrangement that is by and by accessible for basic man

to recognize fake cash is Fake Note Detection Prediction Value Machine. This machine is for the most part accessible just in banks which aren't reachable each time by normal resident. Every one of these situations needs a sort of answer for average folks to pass judgment on a fashioned monetary certificate and to cease our money from losing its worth. The technique of picture preparing depends on the

extraction of the highlights of Indian banknotes. Pictures are handled by utilizing different procedures of picture preparing and assist different highlights are extricated from the pictures. The methodology comprises of various segments including picture handling, trademark extraction, looking at pictures. The essential thing of approach is that we extricate the highlights based on which we will arrange the phony note. Security highlights of money are basic for deciding genuine and phony cash. Regular security highlights incorporate watermarks, idle pictures, security string, and optically factor ink. In the study, a methodology for counterfeit moneyDetection Prediction value separates the general characteristics dormant pictures and ID mark from the picture of money. Extricating traits from pictures of money notes can get very mind boggling as it includes the extraction of some obvious and undetectable highlights of Indian cash.

2. LITERATURE SURVEY

Literature survey is the most important step in software development process. Before developing the tool it is necessary to determine the time factor, economy and company strength. Once these things are satisfied, then the next step is to determine which operating system and language can be used for developing the tool. Once the programmers start building the tool the

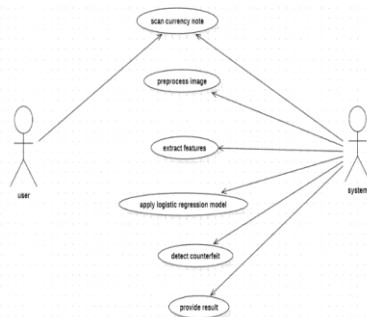
programmers need lot of external support. This support can be obtained from senior programmers, from book or from websites. Before building the system the above consideration are taken into account for developing the proposed system. The major part of the project development sector considers and fully survey all the required needs for developing the project. For every project Literature survey is the most important sector in software development process. Before developing the tools and the associated designing it is necessary to determine and survey the time factor, resource requirement, man power, economy, and company strength. Once these things are satisfied and fully surveyed, then the next step is to determine about the software specifications in the respective system such as what type of operating system the project would require, and what are all the necessary software are needed to proceed with the next step such as developing the tools, and the associated operations.

3. SYSTEM ANALYSIS

3.1 AIM

Creating a case study and prediction for apps aiming for the Google Play Store involves considering various factors such as market trends, user behavior, and technological advancements.

4.1 USE CASE DIAGRAM



3.2 EXISTING SYSTEM

The existing system contains the following drawbacks:

- All the segmentations are search based
- Difficult to gather the data and segment them accordingly
- The results are not really accurate as the clustering is not close enough to determine accurate centroids

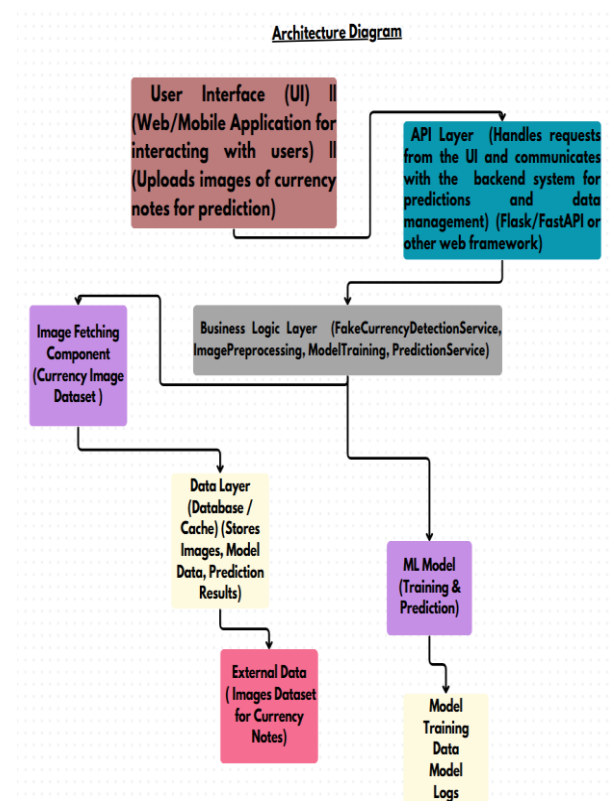
3.3 PROPOSED SYSTEM

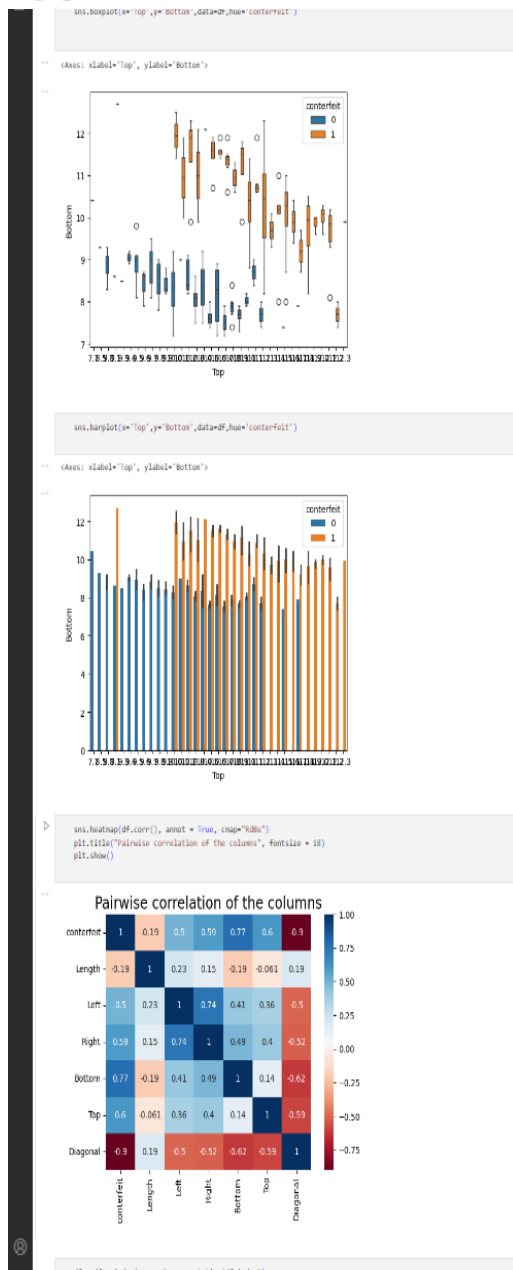
Our proposed system has the following features:

- Develop the system to get easy visualization techniques
- Increase the data set to accommodate many data points so that results will be more accurate
- Segment the products directly according to the customer group
- Use different methods to collect the customer data instead of physical forms

4. SYSTEM DESIGN

4.2 ARCHITECTURE DIAGRAM





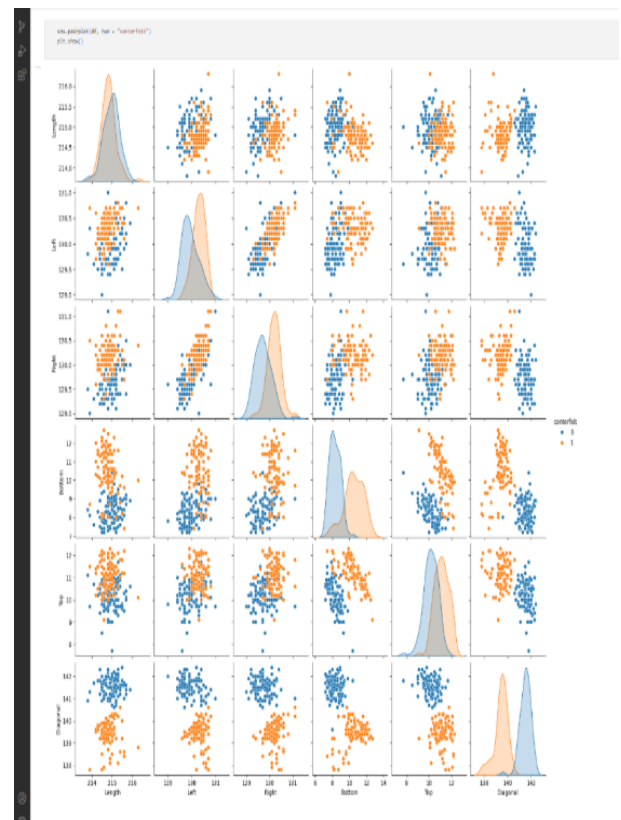
5. OUTPUT SCREENS

6. CONCLUSION

The project on fake currency detection using logistic regression serves as a testament to the power and practicality of machine learning in addressing real-world challenges. With the increasing sophistication of counterfeiters and the growing volume of transactions in modern economies, developing robust mechanisms

to detect fake currency has become a pressing necessity. This project demonstrates how logistic regression, a widely used classification algorithm, can effectively distinguish between genuine and counterfeit currency notes.

Throughout the project, we leveraged a structured dataset containing key features such as variance, skewness, curtosis, and entropy of currency note images. By preprocessing the data, splitting it into training and testing sets, and training a logistic regression model, we achieved a high level of accuracy in detecting fake notes. The simplicity and interpretability of logistic regression make it an excellent choice for this problem, especially in



scenarios where transparency in decision-making is critical.

One of the key takeaways from this project is the importance of feature engineering and data preprocessing. The results underscore that carefully selected features and properly cleaned data significantly enhance the performance of machine learning models. Additionally, the use of evaluation metrics such as accuracy, precision, recall, and the confusion matrix provided a comprehensive understanding of the model's effectiveness.

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