iNeuron

PHISHING DOMAIN DETECTION (Machine Learning)

LOW LEVEL DESIGN

Project Members:

1. Abhishek Meena

iNeuron.ai
FEB 2024

INTRODUCTION

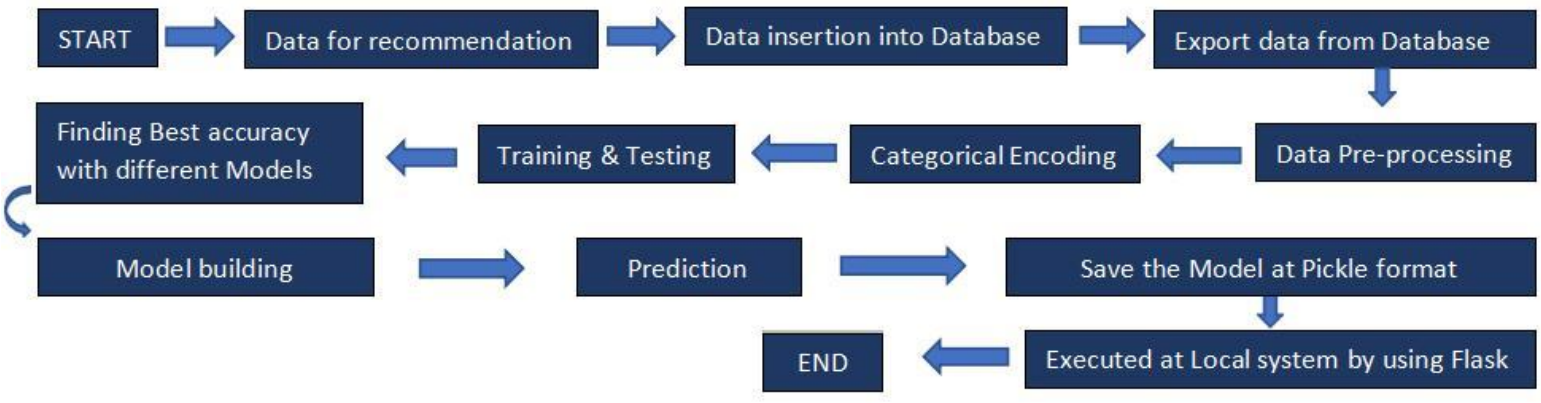
What is Low-Level design -

The goal of LLD or a low-level design document (LLD) is to give the internal design of the actual program code for Mushroom classification. LLD describes the diagrams with the methods and relation between features and level column. describes the modules so that the programmer can directly code the program from document

SCOPE -

Low-level design (LLD) is a component -level design process that follows a step-by-refinement process. This process can be used for designing data structures, software architecture, source code and ultimately, performance algorithms. the data organization may be defined during requirements analysis and then during data design

ARCHITECTURE -



ARCHITECTURE DESCRIPTION -

1. DATA

These data consist of a collection of legitimate as well as phishing website

Each website is represented by the set of features which denote, whether website legitimate or not. Data can serve as an input for machine learning

The dataset had two variants of the Phishing Dataset are presented.

Full variant -

- Short description of the full variant dataset:
- Total number of instances: 88,647
- Number of legitimate website instances (labeled as 0): 58,000
- Number of phishing website instances (labeled as 1): 30,647
- Total number of features: 111

Small variant -

- Short description of the small variant dataset:
- Total number of instances: 58,645
- Number of legitimate website instances (labeled as 0): 27,998
- Number of phishing website instances (labeled as 1): 30,647
- Total number of features: 111

2. DATA INSERTION INTO DATABASE

a) Database creation and connection-Create a database with name passed. If database is already created, open the connection to the

b) Table creation in the

c) Insertion of files in the

3. EXPORT DATA FROM DATABASE

Data export from database-The data in a stored database is exported as a CSV file be used for data Pre-Processing and model training.

4. DATA PRE-PROCESSING

Convert the domain names to a structured format: The domain names in the dataset can be converted to a structured format that can be easily used by the machine learning model. For example, the domain names can be split into subdomains and the top-level domain (TLD) using the dot symbol.

Feature engineering: Create new features that may be relevant for detecting phishing domains. For example, the number of subdomains, the length of the domain name, the presence of certain characters such as hyphens and underscores, and the TLD can all be potential features.

Standardization: If the features have different scales or units, standardization can be applied to make them comparable. For example, the number of subdomains can be standardized by dividing by the maximum number of subdomains in the dataset.

Encoding: Convert categorical features such as the TLD into numerical values using techniques such as one-hot encoding.

Splitting the dataset: Finally, the dataset can be split into a training set and a test set for model training and evaluation.

5. ML ALGORITHM

All the ML algorithm is used to do classification and found the best model from that.

6. CATEGORICAL ENCODING

All the datasets available on dataset was not on numerical, so that has convertedon terms, which will be easy to do model building

7. TRAINING AND TESTING DATASET

As here 80 % of dataset has been trained and 20% of dataset has been

8. FINDING ACCURACY WITH DIFFERENT MODEL

All the supervised machine learning algorithm were used to classify the output such Decision tree, Random forest,XGBoost,Multilayer perceptrons ,Autoencoder Neural network found accuracy with every models.

9. MODEL BUILDING

After comparing accuracy with different models, model building was created with best accuracy and saved the model in pickle format.

10. WEB FRAMEWORK

By using flask API on the local system it been tested.

Conclusion -

This is a web-based application. We have used Flask for the user interface. We domain name and check if the link entered is safe to use or is malicious.