Project Report: Zombie Prediction App

1. Introduction:

The Zombie Prediction App is designed to predict the likelihood of a person turning into a zombie based on various factors such as age, location, household conditions, and the availability of essential resources like water, food, medication, tools, first aid, sanitation, clothing, and documents.

2. Objective:

The primary objective of this project is to create a predictive model that can classify individuals into two categories: Human or Zombie. The model is trained on a dataset containing information about individuals and their survival attributes during a zombie apocalypse.

3. Dataset Overview:

The dataset used for this project is sourced from a file named 'zombies.csv'. It includes the following attributes:

- age

- sex

- rurality

- household

- water

- food

- medication

- tools

- first aid

- sanitation

- clothing

- documents

- zombie (target variable)

4. Data Preprocessing:

- Handling missing values: Checked for missing values in the dataset and dealt with them appropriately.

- Encoding categorical variables: Converted categorical variables into numerical representations using one-hot encoding.

- Feature selection: Utilized the SelectKBest method with the F-statistic to select the most relevant features for the predictive model.

5. Model Building:

Three different machine learning models were employed for the prediction task:

- Logistic Regression

- Random Forest Classifier

- Support Vector Machine (SVM)

- Decision Tree Classifier

The model with the highest accuracy on the test set was selected for deployment.

6. Flask App Implementation:

The Flask web application was developed to provide a user-friendly interface for predicting whether an individual is a human or a zombie based on user-inputted information. The following features are considered in the prediction:

- age

- rurality

- household

- water

- food

- medication

- sanitation

The Flask app uses the trained model and associated mapping dictionaries to make predictions and display the results.

7. Mapping Dictionaries:

For categorical features, mapping dictionaries were created to convert categorical values into numerical representations. These dictionaries are saved using Pickle for later use in the Flask app.

8. Conclusion:

The Zombie Prediction App serves as an entertaining and interactive tool for users to assess their survival chances in a hypothetical zombie apocalypse. The underlying machine learning model, trained on a comprehensive dataset, provides predictions based on key survival attributes.

9. Future Enhancements:

- Integration of additional features for a more comprehensive prediction.

- Improving the model's accuracy through fine-tuning and additional data.- Enhancing the user interface and experience of the Flask app.

10. References:

- Flask Documentation: https://flask.palletsprojects.com/

- Scikit-learn Documentation: https://scikit-learn.org/

- Pandas Documentation: https://pandas.pydata.org/