**Project Meeting Minutes #4 (Week 8 and Week 9)**

**GROUP 3 – DAB422-24W-001**

**Project Name: Crime Rate Analysis in Toronto, Canada**

|  |  |  |
| --- | --- | --- |
| **Date and Time** | **Location** | **Attendees** |
| 27th February and 5th 2024  8:00 AM– 10:00 AM | 1 Riverside Drive  R1012 | - Prof. Abiodun Sodiq Shofoluwe  - Srilakshmi Gummadidala  - Yen Nga Le  - Tehsin Shaikh |

**Agenda Items:**

1. Continue individual work on Crime Rate analysis, focusing on further feature importance evaluation and rebuilding the models.
2. Complete preparation for the Interim Report.
3. Provide suggestions for the next steps in our project.
4. Team member’s absenteeism

**Meeting Minutes:**

1. Each team member constructed various models and thoroughly evaluated their performance to determine which ones worked the best for our analysis. This involved rigorous testing and comparison to ensure the reliability and effectiveness of our modeling approach. Additionally, we acquired an understanding of overfitting, where models demonstrate excessively high performance on testing data. This insight prompted us to refine our modeling approach by implementing a strategy of selecting a set of Importance features. By addressing overfitting, we aimed to ensure that our models could reliably capture underlying patterns in the data and make accurate predictions on unseen instances.
2. The Interim Report has been prepared and submitted, with all team members contributing to meet the Week 8 deadline. It provides in-depth analysis of Toronto's crime rates using data science techniques. It details the process from defining the problem and identifying stakeholders to data collection, cleaning, and exploratory data analysis (EDA). This is followed by data modeling, where we employed machine learning algorithms like Random Forest Classifier, Logistic Regression, Neural Networks, and Time Series Analysis to predict future crime rates. It emphasizes the significance of these models in revealing patterns in crime rates and discusses the role of these insights in developing strategies for crime prevention and safety improvement.
3. During the meeting, the professor reviewed our feature importance assessments and modeling approaches. It was suggested to reconstruct the model using a select set of important features and to scale the feature & target variables, aiming to address potential generalization issues in our current models. Additionally, the use of Lazypredict methodology was recommended to streamline model evaluations. As we have a break in March, discussions also revolved around planning our next steps. The professor encouraged us to explore different deployment methods so that once we finalize our model, we can test and implement the most suitable one for our project.
4. We made sure to let the professor know that one of our team members, Vinod Soloman Santhakumar, has been absent since the Mid Term Interview due to personal matters.

**Key Resources and Repository:**

* Main dataset link – Crime rate:

[Major Crime Indicators Open Data | Major Crime Indicators Open Data | Toronto Police Service Public Safety Data Portal](https://data.torontopolice.on.ca/datasets/TorontoPS::major-crime-indicators-open-data/explore)

* Additional dataset link - Demographic:

[Police Annual Statistical Report - Arrested and Charged Persons - City of Toronto Open Data Portal](https://open.toronto.ca/dataset/police-annual-statistical-report-arrested-and-charged-persons/)

* GitHub link:

<https://github.com/VinodSolomon/Crime-Rate-Analysis-Toronto>

**Next Meeting date and time:** March 19, 2024, 8:00 AM - 10:00 AM