**FAKE ACCOUNT DETECTION USING MACHINE LEARNING ALGORITHMS**

* **Introduction:**

Addressing the growing threat of fake accounts on social media platforms, this project employs machine learning algorithms, including Random Forest, Neural Network, and Support Vector Machines, for the detection of malicious accounts. By pre-processing a relevant dataset, the project aims to safeguard users from misinformation and biased agendas propagated by deceptive entities. The evaluation of classification performance underscores the significance of robust algorithms in preserving the integrity of online social networks.

* **Requirements:**

Python.

Jupyter Notebook- Anaconda Navigator.

* **Implementation of Code:**

Step 1: Upload the required dataset into the Jupyter Notebook environment.

Step 2: Use the necessary Machine Learning Algorithms to obtain the accuracy rate.

Step 3: The accuracy rates obtained in each algorithm are compared.

Step 4: The algorithm with the highest accuracy is found and is noted to be the efficient algorithm for the dataset used.

* **Results:**
* **RANDOM FOREST**

A screen shot of a graph

Description automatically generated

***Fig. x.y: Accuracy Using Random Forest Algorithm***

* **SUPPORT VECTOR MACHINE**

A screen shot of a screen

Description automatically generated

***Fig. x.y: Accuracy Using Support Vector Machine Algorithm***

* **NEURAL NETWORK**

A graph of a triangle

Description automatically generated

***Fig. x.y: Accuracy Using Neural Network Algorithm***

* **Conclusion**
* **Model - RANDOM FOREST ALGORITHM**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Random Forest** | **Precision** | **Recall** | **F1- Score** | **Accuracy** |
| Fake | 0.90 | 1.00 | 0.95 | 0.95  (95%) |
| Genuine | 1.00 | 0.90 | 0.95 |

* **Model - SUPPORT VECTOR MACHINE ALGORITHM**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Support Vector** | **Precision** | **Recall** | **F1- Score** | **Accuracy** |
| Fake | 0.83 | 0.99 | 0.90 | 0.90  (90%) |
| Genuine | 0.98 | 0.82 | 0.90 |

* **Model - NEURAL NETWORKS ALGORITHM**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Neural Networks** | **Precision** | **Recall** | **F1- Score** | **Accuracy** |
| Fake | 0.88 | 0.98 | 0.93 | 0.94  (94%) |
| Genuine | 0.99 | 0.90 | 0.94 |

Our evaluation using Support Vector Machine, Random Forest and Neural Networks showed strong performance, and the comparison of the accuracy of prediction seemed to be higher using Support Vector Machine for the given dataset. The Accuracy of detecting fake accounts is found to be higher using Random Forest Algorithm followed by Neural Networks Algorithm for a given dataset.