**Social Media Trend Prediction – Project Report**

**Title: Social Media Trend Prediction using Machine Learning**

**👨‍💻 Submitted by**

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* **Year:** 3rd Year

**🧠 1. Abstract:**

This project aims to analyze Twitter data to identify and forecast trending topics using Machine Learning techniques. With the rise of social media, predicting what becomes "viral" can provide valuable insights for brands, marketers, and the general public. This system collects tweets, processes them, extracts features such as hashtags and frequency, and uses models like LSTM and Prophet to predict future trends.

**🛠️ 2. Tools & Technologies Used:**

* **Programming Language:** Python
* **Libraries:** Pandas, NumPy, Matplotlib, NLTK, TensorFlow, Prophet, Joblib
* **Platform:** Jupyter Notebook
* **Version Control:** GitHub
* **Dataset:** Twitter data (sample or real-time)

**📊 3. Project Workflow:**

1. **Data Collection:**
   * Twitter API (or sample CSV with tweets)
2. **Preprocessing:**
   * Removal of mentions, hashtags, emojis, stopwords
   * Tokenization, lowercase conversion
3. **Feature Extraction:**
   * Frequency of hashtags
   * Timestamp-based trends
   * Sentiment analysis (optional)
4. **Modeling:**
   * LSTM / Prophet model for time-series trend prediction
   * Predicts hashtag frequency over next few days
5. **Evaluation:**
   * Visualization using graphs
   * Comparison of predicted vs actual trends

**📁 4. Folder Structure:**

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├── project ← Jupyter Notebook (main logic)

├── data/sample\_tweets.csv ← Input data (sample tweets)

├── model ← Trained model (optional)

└── README.md ← Project summary

**📈 5. Results:**

* Predicted trending hashtags using time-series forecast
* Visual graphs for trend movement
* High potential to integrate into social media dashboards

**🧩 6. Future Enhancement:**

* Live Twitter API integration for real-time data
* Sentiment-based trend scoring
* Streamlit or Flask-based web dashboard

**✅ 7. Conclusion:**

This project demonstrates how Machine Learning models can analyze social media data and provide trend predictions. It is a small step towards making intelligent tools that track and forecast viral content, especially useful in marketing, news, and social media platforms.

**🔗 8. GitHub Link:**

https://github.com/vishnukrishnamoorthi