**SYSTEM STUDY**

**FEASIBILITY STUDY:**

The feasibility study is one of the most important stages in the software development life cycle. Before the development of any system, it is crucial to determine whether the proposed solution is viable in terms of cost, technology, and user acceptance. The Credit Card Fraud Detection Using Hybrid Classification Models project was analyzed for its feasibility across three major dimensions: economical, technical, and social feasibility. The study ensures that the system can be effectively developed, implemented, and maintained within available resources.

**ECONOMICAL FEASIBILITY:**

Economic feasibility evaluates the financial aspects of the system, focusing on the cost–benefit ratio and long-term sustainability. The proposed hybrid machine learning framework for credit card fraud detection is economically feasible because it primarily uses open-source technologies, including Python, Flask, Scikit-learn, and XGBoost, all of which are freely available. The dataset used for model training was sourced from public repositories such as Kaggle, thus avoiding licensing or data-acquisition costs.

The project’s implementation does not require specialized hardware or costly computational resources. With a standard workstation configuration, the training and testing processes can be performed efficiently. The overall expenditure for system development remains minimal, as most tools and libraries are community-supported and open-source. Therefore, the system achieves high analytical performance at a significantly low implementation cost, making it economically practical for academic and organizational use.

**TECHNICAL FEASIBILITY:**

Technical feasibility assesses whether the system can be developed using the available technology, skills, and resources. The proposed system is technically feasible as it leverages well-established machine learning frameworks and modern web technologies. The model is implemented using Python (version 3.10.9), with support from libraries such as NumPy, Pandas, Matplotlib, and Scikit-learn for data processing and model training.

The hybrid ensemble model integrates multiple classifiers—Logistic Regression, Random Forest, SVM, and XGBoost—which are computationally efficient and compatible with Python’s ecosystem. The Flask micro web framework enables the seamless integration of the trained model into a user-friendly web interface. Furthermore, the entire system can be deployed on standard platforms like Windows or Linux without any specialized hardware requirements.

Since the technologies used are widely supported, portable, and scalable, the proposed system is technically sound and sustainable for long-term use. It can easily be extended to accommodate larger datasets or updated with new algorithms as required.

**SOCIAL FEASIBILITY:**

Social feasibility focuses on how well the proposed system will be accepted by users and stakeholders. The Credit Card Fraud Detection system is designed to be user-friendly and intuitive, minimizing the need for extensive technical training. The web-based interface allows users—such as banking personnel, financial analysts, and fraud-monitoring teams—to easily upload transaction datasets and view prediction results.

The project’s deployment aims to enhance the trust and security of online transactions by providing a reliable fraud detection mechanism. As financial institutions increasingly adopt AI-based fraud prevention systems, this solution aligns with the broader goal of promoting safer digital payments. The simplicity of operation, combined with high detection accuracy, ensures a positive user experience and encourages wide acceptance of the system.

**CONCLUSION OF FEASIBILITY STUDY:**

The feasibility study confirms that the proposed system is economically efficient, technically robust, and socially acceptable. With minimal cost, readily available open-source tools, and strong user adaptability, the Credit Card Fraud DetectionUsing Hybrid Classification Models project satisfies all major feasibility criteria and is ready for successful implementation.