

# Action Plan for Credit Card Fraud Detection Project

## Project Timeline (4-Week Implementation)

### Week 1: Foundation and Data Understanding

- Days 1-2: Environment setup and dataset acquisition
- Days 3-4: Initial exploratory data analysis
- Days 5-7: Comprehensive data preprocessing

### Week 2: Model Development

- Days 8-10: Implementation of Isolation Forest and One-Class SVM
- Days 11-12: Autoencoder architecture design and training
- Days 13-14: Initial model evaluation and hyperparameter tuning

### Week 3: Advanced Modeling and Evaluation

- Days 15-16: Ensemble methods and model comparison
- Days 17-18: Cross-validation and performance analysis
- Days 19-21: Threshold optimization and final model selection

### Week 4: Deployment and Documentation

- Days 22-23: Web application development (optional)
- Days 24-25: Comprehensive documentation
- Days 26-28: Final testing and project wrap-up

## Resource Requirements

- Hardware: Standard laptop/desktop with 8GB+ RAM
- Software: Python 3.8+, Jupyter Notebook, required libraries
- Data: Kaggle Credit Card Fraud Detection Dataset
- Tools: GitHub for version control

## Risk Mitigation

- Data quality issues: Implement robust preprocessing
- Model overfitting: Use cross-validation and regularization
- Computational constraints: Optimize code and use sampling techniques