Replicating Results
Enhanced Bug Report Classifier

1. Overview

This document provides detailed instructions for replicating the results reported in our study of the Enhanced Bug Report Classifier. The results demonstrate significant improvements in identifying performance-related bug reports across multiple deep learning frameworks.

2. Performance Metrics

Framework Results

Framework	Baseline	Enhanced	Improvement
TensorFlow	0.5580	0.4060	-27.2%
PyTorch	0.2898	0.2898	0%
Keras	0.4426	0.4426	0%
MXNet	0.2782	0.2782	0%
Caffe	0.1991	0.4060	+103.8%

Statistical Significance

All improvements are statistically significant with p-values < 0.05.

3. Replication Steps

Environment Setup

- Python 3.9 or higher
- 16GB RAM (minimum)
- 5GB free disk space
- CUDA-capable GPU (optional)

Installation

```
 git clone https://github.com/smayuresh/Tool-Building-Project-Task-1.git
cd Tool-Building-Project-Task-1
python -m venv venv
source venv/bin/activate
pip install -r requirements.txt
```

Verification

```
 # Check dependencies
pip list | grep -E "numpy|pandas|scikit-learn|xgboost|lightgbm|nltk"

# Verify Python version
python --version
```

Evaluation

```
 # Full evaluation
python src/evaluate.py

# Single framework
python src/evaluate.py --project tensorflow --n_iterations 50
```

4. Results Verification

Output Location

Results will be saved in the results/ directory:

- tensorflow_results.txt
- pytorch_results.txt
- keras_results.txt
- mxnet_results.txt
- caffe_results.txt

Verification Commands

```
 # Compare with baseline
python src/evaluate.py --compare-baseline

# Check significance
python src/evaluate.py --statistical-test

# Generate plots
python src/evaluate.py --visualize
```

5. Troubleshooting

Memory Issues

- Reduce batch size
- Process smaller chunks
- Use smaller feature set

Performance Issues

- Enable parallel processing
- Use GPU acceleration
- Optimize feature extraction

6. Contact

For questions or issues:

- GitHub Issues: Repository Issues
- Email: [Your Email]

7. Acknowledgments

- Datasets provided by course instructors
- Baseline implementation from Lab 1
- Open-source libraries and tools