

Internship Final Report – AI/ML Domain

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University: SRMIST Ramapuram

Course: B.Tech in Information Technology

Internship Duration: July 1 – July 31, 2025

Company: ShadowFox

Domain: AI/ML

Mentor: Mr. Hariharan

Coordinator: Mr. Aakash

Objectives

- Develop a working knowledge of AI/ML techniques and tools.
- Implement machine learning workflows on real-world tasks.
- Gain hands-on experience in image classification, loan prediction, and language models.
- Strengthen skills in model evaluation, data preprocessing, and Jupyter-based experimentation.

Tasks and Responsibilities

During the internship, I actively contributed to multiple tasks across various complexity levels:

• Beginner Task – Image Tagging Using ML:

Trained a basic image classification model using TensorFlow/Keras to classify images into categories like "cat", "dog", "car", etc.

- Worked with data augmentation, preprocessing, and CNN architecture
- Used confusion matrix and accuracy score for performance evaluation

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- **Intermediate Task – Loan Approval Prediction:**

Built a machine learning model using Python and scikit-learn to predict loan approval status based on applicant data.

- Applied logistic regression and decision trees
- Optimized using GridSearchCV
- Evaluated with accuracy, precision, recall, and F1-score
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- **Advanced Task – Language Model Deployment & Analysis:**

Implemented and evaluated a language model using HuggingFace Transformers.

- Explored GPT2 and BERT models
- Conducted performance tests with various prompts
- Visualized results and attention layers
- Reflected on applications in text generation and NLP
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Learning Outcomes

- Gained practical experience with TensorFlow, scikit-learn, HuggingFace, and Jupyter Notebook
- Understood the end-to-end ML pipeline: data cleaning, training, tuning, evaluation
- Improved problem-solving, model explainability, and AI ethics awareness
- Developed the ability to communicate technical outcomes visually and textually
- Strengthened professional soft skills like time management, documentation, and public presentation

Challenges and Solutions

- **Model Overfitting:** Initially overfitting in image classification was addressed using dropout and data augmentation.
- **Imbalanced Data:** In loan prediction, class imbalance was handled using resampling and class weighting.

Conclusion

This internship at ShadowFox allowed me to grow from foundational AI applications to advanced NLP experiments. It helped solidify my understanding of ML frameworks and how they apply to real-world challenges. The opportunity to implement, test, and reflect on diverse AI use cases has been transformative for my learning journey.

Acknowledgments

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