Internship Final Report

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University: SR University
Major: Computer Science
Internship Duration: July 1st ,2025 – July 31st ,2025
Company: Shadow Fox
Domain: AI/ML
Mentor: Mr. Hariharan
Coordinator: Mr.Aakash

Objectives

My primary objectives for this internship were to :

- Develop hands-on experience in machine learning, deep learning, and NLP through real-world projects.
- Build and deploy predictive models using appropriate algorithms and evaluation metrics.
- Strengthen understanding of AI/ML workflows including data preprocessing, model training, validation, and deployment.
- Gain practical exposure to modern AI tools, libraries, and cloud platforms.

Tasks and Responsibilities

During my internship, I was involved in the following key tasks :

Task 1: Boston House Price Prediction App

Developed an interactive web application using Streamlit to predict housing prices based on user input.
Trained a Random Forest Regressor using the Boston Housing dataset.
Implemented data preprocessing techniques including mean imputation for missing values.
Deployed the model with a live web UI hosted on Streamlit Cloud.

Task 2: Loan Approval Prediction Using XGBoost

Built a machine learning pipeline to predict loan approvals using an XGBoost Classifier.
Performed extensive data preprocessing, including handling missing values, label encoding, and feature scaling.
Evaluated the model using cross-validation techniques like StratifiedKFold and multiple performance metrics.

Task 3: Language Model Analysis with GPT-2

Conducted an in-depth exploration of GPT-2 using Hugging Face’s transformers library.
Tested GPT-2's ability to generate coherent and creative responses across different prompts.
Manually evaluated responses using a custom rubric.

Learning Outcomes

- Proficient in implementing end-to-end ML and NLP projects.
- Improved understanding of model deployment and evaluation.
- Developed skills in evaluating models beyond accuracy using advanced metrics.
- Documented projects with clarity through notebooks and visual reports.
- Ensured responsible usage of large language models.

Challenges and Solutions

- Handling Model Overfitting: Used cross-validation and regularization techniques.
- Dealing with Incomplete or Noisy Data: Applied robust imputation and scaling strategies.
- Evaluating Language Models: Created a manual rubric for subjective evaluation.

Conclusion

My internship at Shadow Fox has been an enriching experience. The task-based structure allowed me to apply academic knowledge to real-world AI/ML projects. It has strengthened my skills, sparked deeper interest in artificial intelligence, and prepared me for future opportunities in the field.

Acknowledgments

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