AI PROJECT REPORT - YASIN YUSUFU

MASTERING THE AI TOOLKIT

PART 1: THEORETICAL UNDERSTANDING

• Successfully explained differences between TensorFlow and PyTorch

• Described practical use cases for Jupyter Notebooks in AI development

• Analyzed advantages of spaCy over basic Python string operations

PART 2: PRACTICAL IMPLEMENTATION

TASK 1: SCIKIT-LEARN WITH IRIS DATASET

• Implemented Decision Tree Classifier

• Achieved 100% accuracy in species prediction

• Demonstrated data preprocessing and model evaluation

TASK 2: TENSORFLOW WITH MNIST DATASET

• Built Neural Network model for digit classification

• Achieved 97.70% test accuracy (exceeding 95% target)

• Visualized model predictions on sample images

TASK 3: NLP WITH SPACY

• Performed Named Entity Recognition on Amazon reviews

• Extracted product names and brands successfully

• Implemented rule-based sentiment analysis

PART 3: ETHICS & OPTIMIZATION

• Identified potential biases in training datasets

• Proposed mitigation strategies using fairness tools

• Discussed ethical AI development principles

TECHNICAL SKILLS DEMONSTRATED

• Python Programming

• Scikit-learn for classical machine learning

• TensorFlow for deep learning

• spaCy for natural language processing

• Data preprocessing and model evaluation

CONCLUSION

All project objectives were completed successfully. The project demonstrates comprehensive understanding and practical proficiency in essential AI tools and frameworks, achieving excellent results across all tasks.

DEVELOPER: YASIN YUSUFU

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SUBMISSION: AI Tools PROJECT