Software Testing Report

Project Title: AI-Driven Project Scheduling and Optimization

1. Introduction

This document provides the software testing report for the project AI-Driven Project Scheduling and Optimization. The goal of the project is to utilize artificial intelligence to enhance task scheduling and resource optimization in project management.

2. Objective of Testing

- To verify the functional and non-functional requirements of the system.
- To ensure the system performs optimally under various scenarios.
- To identify and document any defects or areas of improvement.

3. Scope of Testing

- Functional Testing
- Integration Testing
- System Testing
- Performance Testing
- Usability Testing

4. Testing Environment

- Platform: Web-based application
- Backend: Python (Django)
- Frontend: ReactJS
- Database: PostgreSQL
- AI Framework: TensorFlow, Scikit-learn
- Testing Tools: Selenium, Postman, JMeter

5. Test Strategy

- Black-box Testing was used for functional testing.

- White-box Testing was used for unit and integration tests.

- Automated Testing scripts were created using Selenium for regression.

- Manual Testing was carried out for exploratory and UI testing.

6. Test Cases Summary

Test Case ID	Description	Expected Result	Status
TC_01	User Login Authentication	Login Successful	Pass
TC_02	Task Assignment to AI Scheduler	Task assigned & scheduled	Pass
TC_03	Resource Allocation Optimization	Optimal resource utilization	Pass
TC_04	Generate Gantt Chart	Gantt Chart displays	Pass
TC_05	AI-based Prediction for Project Delays	Accurate delay prediction	Pass
TC_06	Load Testing with 1000 concurrent users	Response < 3 sec	Pass
TC_07	API Endpoint `/schedule/optimize`	200 OK, Correct response	Pass

7. Defects Found

Defect ID	Description	Severity	Status
D_001	UI alignment issue on Dashboard	Low	Resolved
D_002	Scheduler timeout for large inputs	High	Resolved
D_003	Prediction model misclassification error	Medium	Resolved

8. Performance Metrics

Metric	Result
Average Response Time	2.4 seconds
Peak Memory Usage	512 MB
System Uptime	99.8%
Test Coverage	93%

9. Conclusion

The system has successfully passed all critical functional and performance test cases. Minor defects were identified and addressed. The application is stable, scalable, and meets the expected quality standards.