Plan of Action (POA) - Backend Project: Internship Management Portal

# 1. Introduction

The purpose of this project is to design and implement a backend system for managing internship-related data at the college level. This system will ensure compliance with NBA/NAAC documentation requirements while providing essential CRUD functionalities and REST API endpoints for managing student records, document uploads, template downloads, and monthly reporting.

# 2. Objectives

The main objectives of the Internship Management Portal backend system are:  
- Develop CRUD operations (Create, Read, Update, Delete) for student internship records.  
- Provide API endpoints for uploading essential internship documents.  
- Allow downloading of predefined templates for NOC and LOR.  
- Generate monthly reports based on filters (month, branch, company).

# 3. Scope of Work

The project will be implemented as a REST API backend with structured endpoints to support internship record management, document storage, and report generation. The APIs will be designed for scalability and compliance with standard backend development practices.

# 4. Plan of Action

The implementation plan consists of the following phases:

## Phase 1: Requirement Analysis & Design

- Finalize the required data fields: Name, Roll No, Branch, Company Name, Duration, Stipend, etc.  
- Identify document types: Offer Letter, NOC, Completion Certificate.  
- Design the system architecture and database schema.  
- Define REST API endpoints for CRUD operations, file uploads, template downloads, and report generation.

## Phase 2: Environment Setup

- Select technology stack (e.g., Node.js with Express, MongoDB/MySQL/PostgreSQL).  
- Configure development environment (VS Code, Postman, Git).  
- Set up database connections and API testing tools.  
- Create a version-controlled repository.

## Phase 3: Implementation

- Develop CRUD APIs for Student Record Management.  
- Implement file upload functionality using storage (local/cloud).  
- Add download functionality for NOC and LOR templates.  
- Implement filtering and reporting functionality.  
- Ensure compliance with NBA/NAAC requirements.

## Phase 4: Testing & Validation

- Perform unit testing for individual APIs.  
- Conduct integration testing to validate API interactions.  
- Use Postman to test endpoints.  
- Validate reporting logic and file upload/download operations.  
- Ensure all required data fields are covered.

## Phase 5: Deployment & Documentation

- Deploy backend to a server (Heroku/AWS/Azure).  
- Provide API documentation using Swagger or Postman Collections.  
- Prepare final project documentation for submission.  
- Ensure proper error handling and security measures.

# 5. Deliverables

- Functional backend system with CRUD operations.  
- API endpoints for document upload and template download.  
- Monthly report generation feature.  
- Deployment on a test server.  
- Project documentation (POA, API Docs, Deployment Guide).

# 6. Timeline (Tentative)

- Week 1: Requirement Analysis & Design  
- Week 2: Environment Setup  
- Week 3-4: Implementation of APIs  
- Week 5: Testing & Validation  
- Week 6: Deployment & Documentation

# 7. Conclusion

This plan of action outlines the structured approach for building the Internship Management Portal backend. By following these phases, the project aims to deliver a robust, scalable, and compliant system that effectively addresses the needs of internship data management and reporting.