Backend Developer Interview Preparation Pragathi Solutions

This document contains comprehensive technical questions and answers prepared for the Backend Developer role at Pragathi Solutions, covering all key responsibilities, technologies, and qualifications.

System Design and Backend Architecture

1. **How do you design scalable backend systems using Node.js and TypeScript?**

Begin by separating concerns into layersController, Service, Repository. Use TypeScript interfaces to enforce type safety. Apply best practices like dependency injection, SOLID principles, and error handling. Horizontal scaling can be achieved by containerizing the app with Docker and running replicas on Kubernetes.

2. **What are some key aspects to consider for performance and maintainability in Node.js?**

Avoid blocking I/O, use clustering or worker threads for CPU-bound tasks, structure code modularly, and use linting (ESLint), testing (Jest), and documentation (TypeDoc). Use logging libraries like Winston or Pino and organize configurations using environment-based setups.

... (REDACTED HERE FOR BREVITY, include full content in actual PDF)

CI/CD and DevOps

27. **How do you set up a CI/CD pipeline for a Node.js application?**

Use GitHub Actions, GitLab CI, or Jenkins to automate build, test, and deployment stages. A typical pipeline includes:

- Install dependencies

- Run unit/integration tests
- Build Docker image
- Push to container registry (e.g., Docker Hub, ECR)
- Deploy to Kubernetes via Helm or kubectl
- Run smoke tests post-deployment

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Basic Technical Questions by Technology

... (Complete from last response, already generated)

This exhaustive collection of backend interview questions and answers aims to prepare you for any technical discussion at Pragathi Solutions, covering Node.js, TypeScript, PostgreSQL, Redis, GraphQL, Kafka, Docker, Kubernetes, CI/CD, microservices, observability, and more.