FULL-STACK WEB DEVELOPMENT: FRONT-END AND BACK-END TECHNOLOGIES TRAINING COURSE

Introduction

This programme equips participants with the technical skills required to design, develop, test and deploy modern web applications. It covers front-end development, back-end programming, database integration, application architecture, responsive design, authentication, security and deployment. Participants learn how to build interactive user interfaces using HTML, CSS and JavaScript, work with modern front-end frameworks, develop server-side applications, connect applications to databases and create application programming interfaces (APIs). The course introduces version control, debugging, testing and deployment practices that support maintainable web applications. Practical projects guide participants through the development of complete web solutions, from requirements analysis and interface design to back-end implementation and production deployment. Applications may include business websites, management portals, e-commerce platforms and internal organizational systems.

Course Objectives

- Explain web development architecture and the roles of front-end and back-end technologies.
- Build responsive web interfaces using HTML, CSS and JavaScript.
- Develop interactive applications using a modern front-end framework.
- Create server-side applications and integrate relational databases.
- Develop and consume RESTful APIs.
- Apply version control, testing, security and debugging practices.
- Deploy and maintain a functional full-stack web application.

Course Modules

P.O Box 7254- 01000
www.trustgatecorporateskills.co.ke
Location Thika & Nairobi

> Module 1: Web Development Fundamentals and Architecture
- Web technologies, internet protocols and client-server communication.
- Front-end, back-end and full-stack development responsibilities.
- Web application architecture and request-response workflows.
- Development environments, browsers, developer tools and project setup.

> Module 2: HTML and Modern Web Page Structure
- HTML document structure and semantic elements.
- Forms, tables, links, lists and multimedia integration.
- Accessibility principles and semantic markup.
- Form validation and structured content organization.

> Module 3: CSS and Responsive Interface Design
- CSS selectors, properties, inheritance and cascading rules.
- Layout design using Flexbox and CSS Grid.
- Responsive design, media queries and mobile-first development.
- Typography, visual hierarchy, reusable styles and interface consistency.

> Module 4: JavaScript and Interactive Web Development
- Variables, data types, operators and control structures.
- Functions, arrays, objects and modular programming.
- DOM manipulation, events and form interactions.
- Asynchronous JavaScript, promises, fetch and error handling.

> Module 5: Front-End Frameworks and Component Development
- Component-based architecture and reusable interface elements.
- State management, properties and event handling.
- Routing, forms and client-side application navigation.
- Front-end API integration and interface testing.

> Module 6: Back-End Development and Server-Side Programming
- Server-side programming concepts and application frameworks.
- Routing, controllers, middleware and request handling.
- Business logic, input validation and error management.
- Environment variables, configuration and application logging.

> Module 7: Database Design and Application Integration
- Relational database concepts and data modelling.

- SQL queries, tables, relationships and constraints.
- Database connectivity and application data access.
- Data validation, transactions and database error handling.

> Module 8: APIs, Authentication and Application Security

- RESTful API principles, HTTP methods and status codes.
- JSON data exchange and API request handling.
- Authentication, authorization and session management.
- Secure input handling, access controls and common web vulnerabilities.

> Module 9: Testing, Version Control and Deployment

- Git fundamentals, repositories, branching and collaboration.
- Unit testing, integration testing and debugging.
- Environment configuration, build processes and deployment.
- Application monitoring, maintenance and performance optimization

> Module 10: Full-Stack Application Development Project

- Requirements analysis, feature planning and interface prototyping.
- Developing front-end components and server-side functionality.
- Integrating databases, APIs and user authentication.
- Testing, deploying and presenting a complete web application.

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