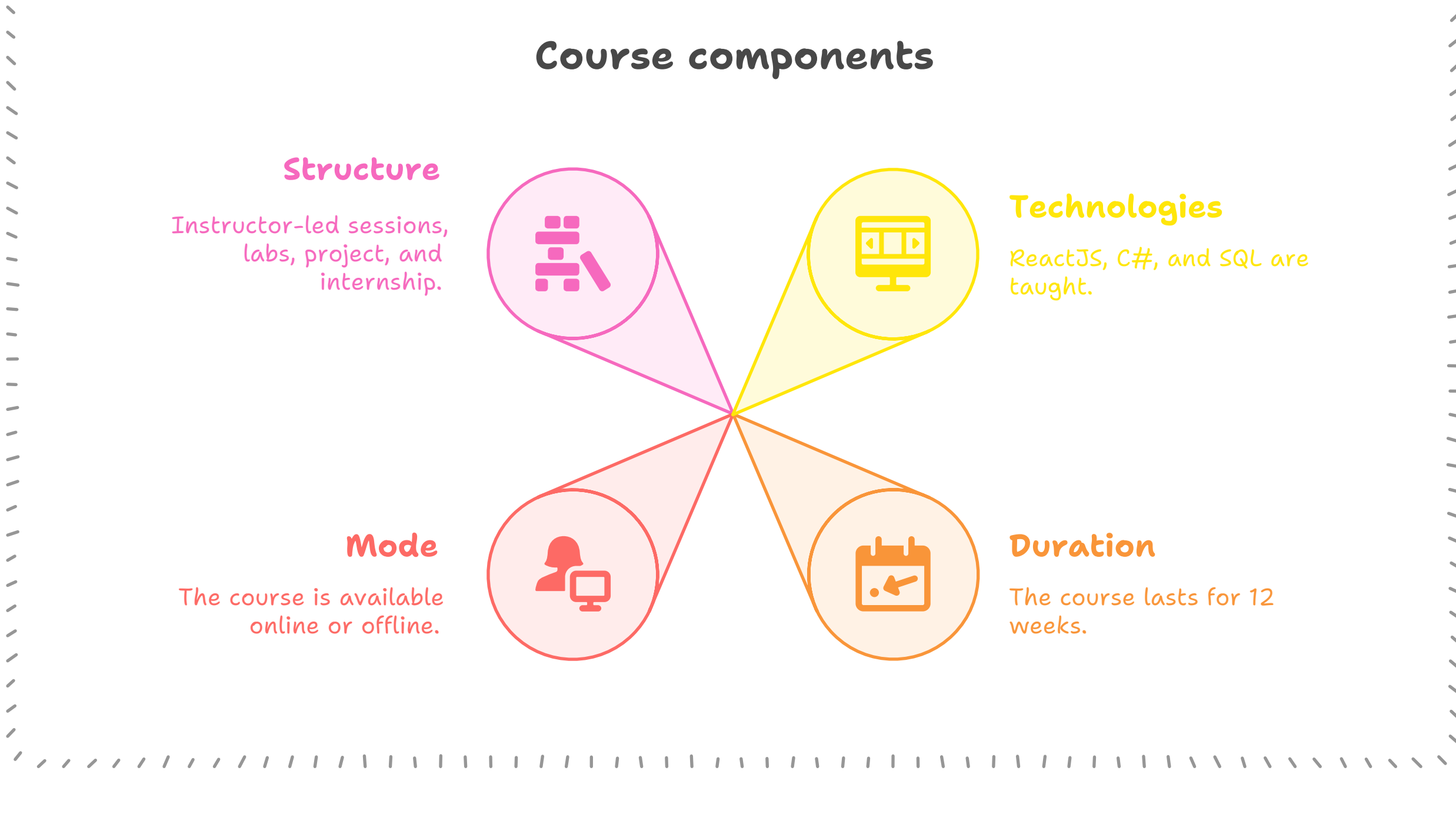
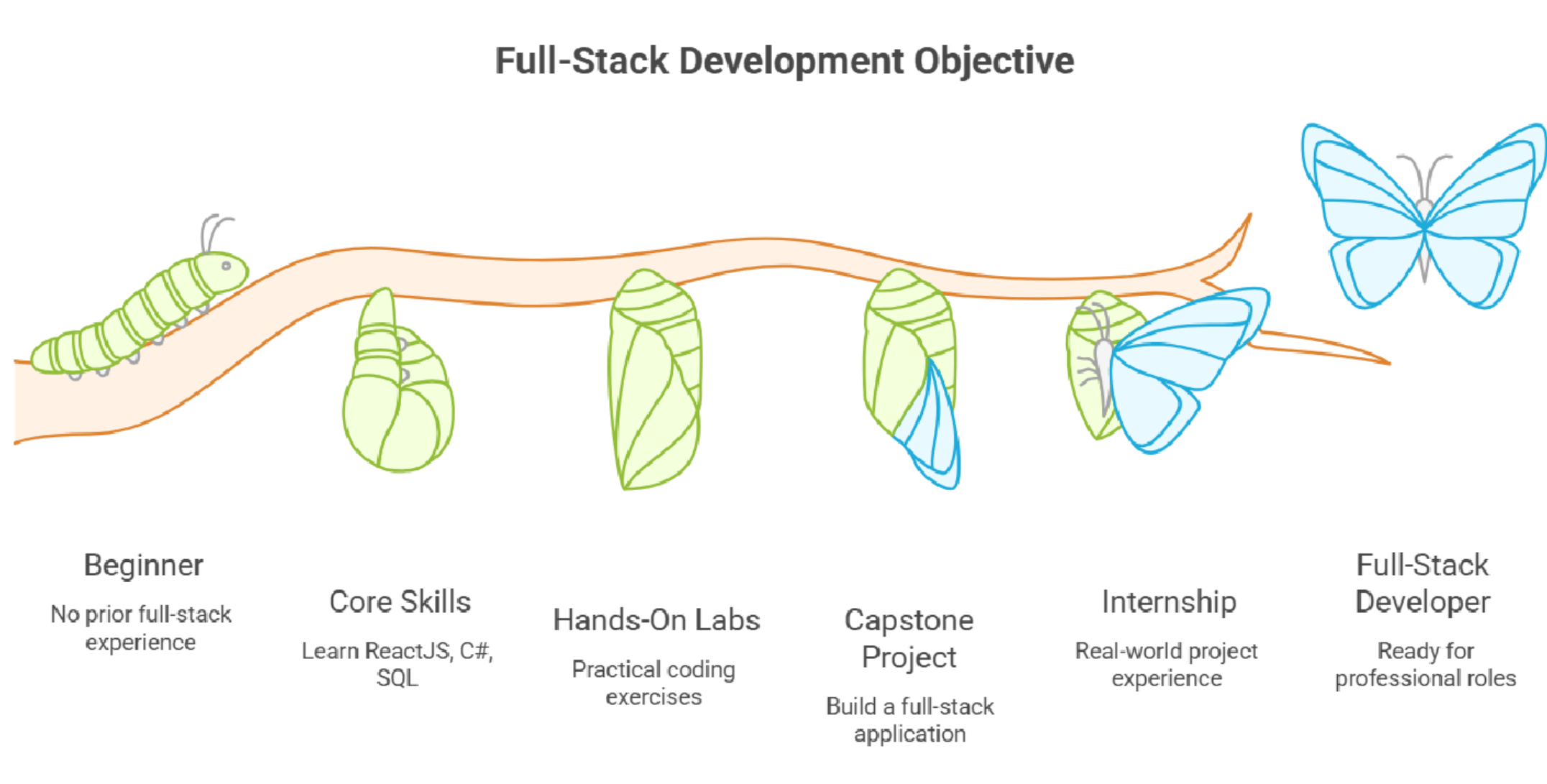
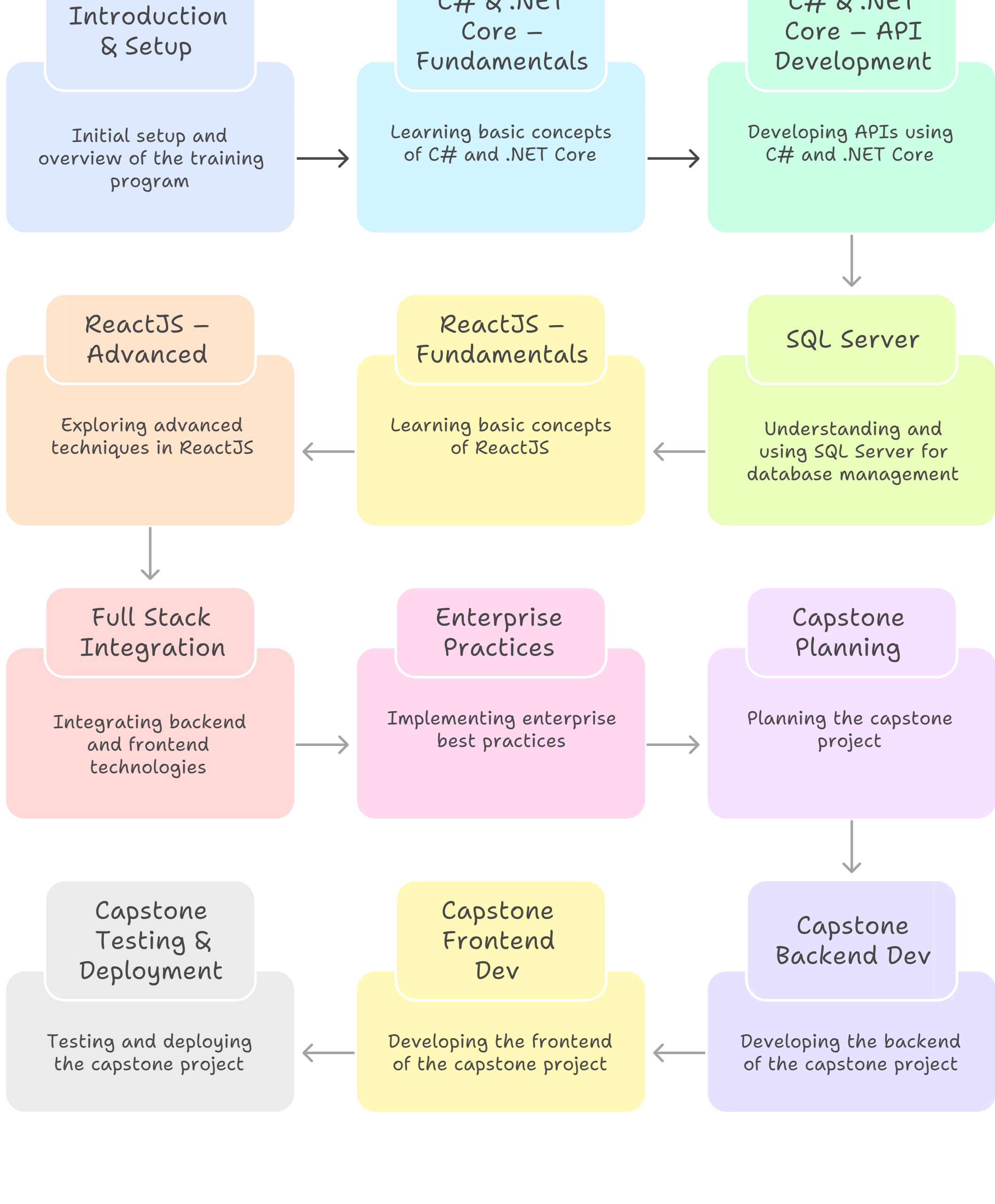


12-Week Full-Stack Development Training Roadmap



Week 1: Introduction & Setup

- **Module:** Introduction & Setup
- **Topics & Activities:**
 - Software Development Life Cycle (SDLC)
 - Git/GitHub version control basics
 - Agile & Scrum methodologies overview
 - Environment setup: VS Code, SQL Server, Postman installation and configuration
- **Project / Deliverable:** Personal GitHub Repository Setup

Week 2: C# & .NET Core – Fundamentals

- **Module:** C# & .NET Core – Fundamentals
- **Topics & Activities:**
 - C# syntax and data types
 - Object-Oriented Programming (OOP) principles: Encapsulation, Inheritance, Polymorphism
 - Exception handling mechanisms
 - Collections and Generics
 - Language Integrated Query (LINQ)
 - Asynchronous programming with Async/Await
 - Dependency Injection (DI) concepts
- **Project / Deliverable:** Console Mini Project (e.g., a simple calculator or text-based game)

Week 3: C# & .NET Core – API Development

- **Module:** C# & .NET Core – API Development
- **Topics & Activities:**
 - REST API design principles
 - Entity Framework Core (EF Core) for database interaction
 - Repository Pattern implementation
 - Middleware usage in .NET Core
 - Swagger documentation generation
 - Unit Testing with xUnit or similar framework
- **Project / Deliverable:** CRUD API with SQL Integration (e.g., managing a list of products or books)

Week 4: SQL Server

- **Module:** SQL Server
- **Topics & Activities:**
 - Data Definition Language (DDL): CREATE, ALTER, DROP
 - Data Manipulation Language (DML): SELECT, INSERT, UPDATE, DELETE
 - Joins: INNER, LEFT, RIGHT, FULL
 - Views creation and usage
 - Stored Procedures development
 - Functions: Scalar and Table-Valued
 - Transactions and ACID properties
 - Query Optimization techniques
- **Project / Deliverable:** Normalized Database Schema (design a database schema for a specific application)

Week 5: ReactJS – Fundamentals

- **Module:** ReactJS – Fundamentals
- **Topics & Activities:**
 - JSX syntax
 - Components: Functional and Class-based
 - Props & State management
 - Hooks: useState, useEffect, useContext
 - Context API for global state management
 - React Router for navigation
 - Forms handling
- **Project / Deliverable:** React Mini-Project (To-Do App)

Week 6: ReactJS – Advanced

- **Module:** ReactJS – Advanced
- **Topics & Activities:**
 - Redux Toolkit for state management
 - API Integration using Axios/Fetch
 - Error Handling in React
 - JWT Authentication implementation
 - Reusable Components creation
- **Project / Deliverable:** React + API Integration Project (e.g., displaying data from a public API)

Week 7: Full Stack Integration

- **Module:** Full Stack Integration
- **Topics & Activities:**
 - Connecting ReactJS Frontend with .NET Core APIs and SQL Backend
 - Authentication & Authorization implementation
 - Role-based Access Control (RBAC)
- **Project / Deliverable:** Basic Full Stack Application (e.g., a simple blog or e-commerce platform)

Week 8: Enterprise Practices

- **Module:** Enterprise Practices
- **Topics & Activities:**
 - Logging with Serilog
 - Exception Handling strategies
 - Environment Configurations management
 - Continuous Integration/Continuous Deployment (CI/CD) Overview
 - Agile sprint simulation
- **Project / Deliverable:** Project Deployment on Local Server

Week 9: Capstone Planning

- **Module:** Capstone Planning
- **Topics & Activities:**
 - Requirements gathering
 - Database design
 - API contract definition
 - UI Wireframing
- **Project / Deliverable:** Project Blueprint & Architecture

Week 10: Capstone Backend Dev

- **Module:** Capstone Backend Dev
- **Topics & Activities:**
 - Backend API development with clean architecture
 - EF Core optimizations
 - Unit Testing
- **Project / Deliverable:** Completed Backend Services

Week 11: Capstone Frontend Dev

- **Module:** Capstone Frontend Dev
- **Topics & Activities:**
 - Frontend UI development
 - API integration
 - Redux state management
 - Validation & Error handling
- **Project / Deliverable:** Completed Frontend UI

Week 12: Capstone Testing & Deployment

- **Module:** Capstone Testing & Deployment
- **Topics & Activities:**
 - Integration testing
 - Bug fixes
 - Docker basics
 - Deployment walkthrough
- **Project / Deliverable:** Final Deployment & Presentation

Advanced Add-On Modules (For High Performers)

- Microservices Architecture with .NET
- React Progressive Web Apps (PWA) with offline support
- Cloud Deployment basics (Azure or AWS)
- Integration with Enterprise Monitoring & Logging (Elastic APM, SignalR, Firebase)