System Deployment & Integration

Technology Stack

The Hospital ERP System is built using a modern and scalable technology stack:

- Backend:
  • ASP.NET Core 8.0 MVC
  • Entity Framework Core (Code-First / Database-First)
  • ASP.NET Identity for Authentication and Authorization

- Frontend:
  • Razor Pages (MVC Views)
  • HTML5, CSS3, JavaScript
  • Bootstrap (Responsive UI)

- Database:
  • Microsoft SQL Server (MSSQL)
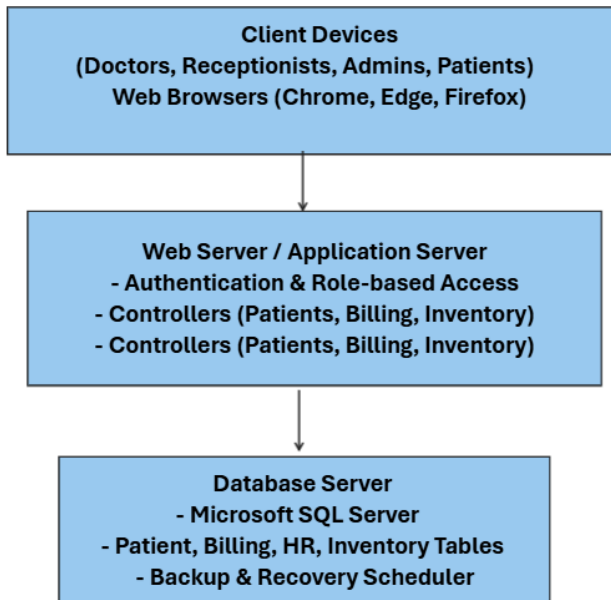 • Stored Procedures, Views, Foreign Key Constraints

- Reporting & Analytics:
  • RDLC / FastReport.NET / Razor Reports

- Hosting & Deployment:
  • IIS (On-Premises) or Azure App Service (Cloud Hosting)

Deployment Diagram

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┌─────────────────────────────────────────────────────┐
│                  Client Devices                       │
│    (Doctors, Receptionists, Admins, Patients)         │
│      Web Browsers (Chrome, Edge, Firefox)             │
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┌─────────────────────────────────────────────────────┐
│           Web Server / Application Server             │
│        - Authentication & Role-based Access           │
│        - Controllers (Patients, Billing, Inventory)   │
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┌─────────────────────────────────────────────────────┐
│                  Database Server                      │
│              - Microsoft SQL Server                   │
│        - Patient, Billing, HR, Inventory Tables       │
│          - Backup & Recovery Scheduler                │
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Component Diagram

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│          Presentation Layer (UI)          │
│        - Razor Pages / MVC Views           │
│        - Bootstrap (Responsive Layout)     │
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│        Controllers (Business Logic)        │
│             - PatientController            │
│           - AppointmentController          │
│             - BillingController            │
│            - InventoryController           │
│            - EmployeeController            │
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│                Service Layer               │
│   - Authentication Service (ASP.NET Identity) │
│    - Reporting Service (RDLC/FastReport)   │
│   - Notification Service (Email/SMS, Optional) │
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│             Data Access Layer              │
│   - Entity Framework Core (LINQ, Repositories) │
│     - Database Context (DbContext)         │
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│           Database (MSSQL Server)          │
│    - Patients, Employees, Appointments     │
│    - Invoices, Inventory, Medications      │
│    - Roles, Departments, Reports           │
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