**Technical Architecture for La Capitolare Fundraising AI**

**Backend (.NET Core)**

* **API Layer (.NET Core Web API)**
  + RESTful endpoints for all fundraising operations
  + JWT authentication for secure access
  + Role-based authorization for staff/admin functions
* **Business Logic Layer (.NET Core Class Libraries)**
  + Donor intelligence service
  + Campaign optimization engine
  + Personalization algorithms
  + ML.NET integration for prediction models
* **Data Access Layer (Entity Framework Core)**
  + Repository pattern implementation
  + Database migrations management
  + Efficient query optimization

**Frontend (Angular)**

* **Admin Dashboard**
  + Angular Material components for consistent UI
  + NgRx for state management
  + Interactive visualizations using D3.js or Chart.js
  + Responsive design for all device types
* **Donor Mapping Module**
  + Interactive maps using Angular Google Maps or Leaflet
  + Dynamic filtering capabilities
  + Real-time data updates
* **Campaign Performance Simulator**
  + Angular reactive forms for scenario inputs
  + Real-time projection calculations
  + Visual comparison tools

**Database (SQL Server)**

* **Core Schema**
  + Donors (profiles, history, preferences)
  + Campaigns (configurations, performance metrics)
  + Manuscripts (details, preservation needs, stories)
  + Interactions (touchpoints, responses, engagement metrics)
* **Analytics Store**
  + Denormalized tables optimized for reporting
  + Historical performance data
  + Temporal tables for trend analysis

**Integration Points**

* **AI/ML Services**
  + ML.NET for core prediction algorithms
  + Azure Cognitive Services for sentiment analysis and content optimization
  + Integration with OpenAI API for content generation
* **External Data Sources**
  + REST API connectors to public donation databases
  + Social media integration for prospect research
  + Cultural events calendars for campaign timing

**Implementation Approach**

1. **Database Design & Setup (2 weeks)**
   * Design SQL Server schema
   * Implement Entity Framework Core models
   * Set up initial migrations
2. **.NET Core API Development (4-6 weeks)**
   * Build core API endpoints
   * Implement business logic
   * Create ML.NET prediction models
   * Develop integration services
3. **Angular Frontend Development (4-6 weeks)**
   * Create dashboard components
   * Build visualization modules
   * Implement responsive design
   * Connect to backend APIs
4. **AI Integration (3-4 weeks)**
   * Implement donor scoring algorithms
   * Build campaign optimization engine
   * Develop content personalization features
5. **Testing & Refinement (2-3 weeks)**
   * Unit and integration testing
   * Performance optimization
   * User acceptance testing