Here’s a **complete list of all implemented backend features** in our website , categorized by functionality:

**1. Core Infrastructure**

1. **Multi-process Architecture**
   * Cluster mode for CPU core utilization
   * Round-robin load balancing
   * Worker process monitoring
   * Automatic crash recovery
2. **Database System**
   * MongoDB connection pooling
   * Optimized query performance
   * Automatic reconnection logic
   * Graceful shutdown handling
3. **Security**
   * Environment variable configuration
   * CORS policy management
   * HTTPS-ready configuration
   * Rate limiting protection

**2. Authentication & User Management**

1. **User Authentication**
   * JWT-based auth with 7-day expiry
   * HttpOnly cookies with SameSite policy
   * Role-based access control (Admin/User)
   * Google OAuth 2.0 integration
2. **Password Management**
   * Secure password reset flow
   * OTP verification via email
   * Password update capability
   * Account lockout prevention
3. **Session Management**
   * Persistent login sessions
   * Cross-device session control
   * Automatic token refresh
   * Logout functionality

**3. Content Management**

1. **Blog System**
   * Create/Edit/Delete blog.
   * Markdown/HTML content support
   * Featured/latest posts
   * Admin moderation
2. **Course Management**
   * Course creation wizard.
   * Update/Delete Course .
3. **Student Showcase**
   * Success story submissions
   * Testimonial management
   * Achievement highlights

**4. Communication Systems**

1. **Email Engine**
   * Multi-provider SMTP support (Mailtrap/Gmail/Hostinger)
   * Transactional email templates:
     + OTP verification
     + Password reset
     + MBBS interest alerts
     + Counseling confirmations
   * Dynamic content insertion
2. **Real-time Chat (partial)**
   * Hybrid chatbot + live support
   * Realtime-Support ticket system
   * Queue management
   * Operational hour controls (10AM-6PM)
   * Inactivity timeouts for room closer
3. **WhatsApp Integration (partial)**
   * Message broadcasting
   * Chatbot responses
   * Send different types of messages

**5. Campaign & Lead Management**

1. **MBBS Campaign**
   * Lead capture forms
   * Google Sheets integration
   * Automated follow-ups Mail
2. **General Enquiries**
   * Contact form processing

**6. Admin Dashboard**

1. **User Management**
   * Bulk user operations
   * Role assignment
   * Update and Delete User
2. **System Controls**
   * Email configuration
   * API key management

**7. Integration Ecosystem**

1. **Google Services**
   * Sheets API integration
   * OAuth authentication
   * Data synchronization

**8. Monitoring & Reliability**

1. **Health Checks**
   * Endpoint monitoring
   * Worker status reporting
   * Resource utilization
2. **Error Handling**
   * Global exception catcher
   * Unhandled rejection tracking
   * Automated alerts
3. **Performance**
   * Connection pooling
   * Caching strategies
   * Query optimization

**9. Frontend Support Features**

1. **SSE Notifications**
   * Real-time updates
   * Support request alerts
   * System messages
2. **API Endpoints**
   * RESTful design
   * Pagination support
   * Filtering capabilities
3. **WebSocket Events**
   * Live chat updates
   * Room status changes
   * User presence tracking

**10. Specialized Modules**

1. **AI Chatbot** *(Partially implemented)*
   * Contextual responses
   * FAQ automation
   * Conversation history
2. **Excel Reporting**
   * Data export functionality
   * Automated spreadsheet updates
   * Report generation

**System-Wide Capabilities**

* **Automated Cleanup Routines**
* **Graceful Shutdown Procedures**
* **Horizontal Scaling Ready**
* **CI/CD Pipeline Integration Points**
* **Comprehensive Logging System**