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**🔍 Easy2Work CRM & Business Operations Platform - Comprehensive Analysis**

**1. 🧾 Business Requirements**

**Business Objective**

Easy2Work serves as a comprehensive multi-tenant SaaS CRM platform designed for business operations management, specifically targeting:

* **Advertising Agencies** (Baleen Media) - Lead management, quotation systems, order processing
* **Healthcare Facilities** (Grace Scans) - Queue management, appointment scheduling, patient flow optimization
* **Service Businesses** (Easy2Work) - General CRM and business process automation

**End Users & Stakeholders**

* **Customer Service Executives (CSEs)** - Lead management and client communication
* **Sales Teams** - Quote generation, order conversion, commission tracking
* **Finance Teams** - Transaction management, revenue tracking, expense management
* **Administrators** - User management, system configuration, reporting
* **Consultants** - Commission-based partners with performance tracking
* **Healthcare Staff** - Queue management, patient scheduling (Grace Scans specific)
* **Clients/Patients** - Self-service queue status, appointment booking

**Key Workflows & Purpose**

1. **Lead-to-Order Pipeline**: Lead capture → Assignment → Follow-up → Quotation → Order conversion
2. **Client Lifecycle Management**: Registration → KYC → Service delivery → Finance tracking
3. **Queue Management**: Token generation → Real-time tracking → Service completion
4. **Financial Operations**: Invoice generation → Payment tracking → Commission calculation
5. **Reporting & Analytics**: Performance dashboards → Revenue analysis → Lead analytics

**2. 💼 Business Modules & Functionality**

**1. Lead Management System**

**Purpose**: Complete lead lifecycle management from capture to conversion

* **Lead Sources**: JustDial, IndiaMart, Sulekha, Custom Forms, Email Integration
* **Lead Statuses**: New, Call Followup, Unreachable, Convert, Ready for Quote, Unqualified
* **Assignment Logic**: Auto-assignment to CSEs with workload balancing
* **Follow-Up Scheduling**: Time-based reminders with automated notifications
* **Lead Prioritization**: Smart sorting based on follow-up time, lead age, and status
* **Conversion Tracking**: Seamless transition from Lead → Quote → Order
* **Performance Analytics**: CSE-wise lead conversion metrics and Daily Sales Reports (DSR)

**2. Client Management System**

**Purpose**: Comprehensive client database with KYC and relationship management

* **Client Registration**: Full demographic capture with validation rules
* **KYC Compliance**: GST, PAN, contact verification with automatic PAN extraction from GST
* **Age-based Validation**: Title validation (Baby ≤3, Master 4-12) with gender inference
* **Smart Search**: Suggestive autocomplete for client names and contacts
* **Deduplication Logic**: Prevents duplicate client entries with conflict resolution
* **Interaction History**: Complete audit trail of client communications and transactions
* **Contact Management**: Multi-contact support with authorized person designation

**3. Quotation Management**

**Purpose**: Dynamic quote generation with rate management and approval workflow

* **Rate Card Integration**: Dynamic rate fetching based on medium, type, and category
* **Multi-item Quotes**: Cart-based system with quantity slabs and bulk pricing
* **Margin Calculation**: Automatic profit margin computation with discount handling
* **Campaign Duration**: Flexible duration settings with minimum campaign requirements
* **Status Tracking**: Valid, Invalid, Rejected, Follow-up, Converted
* **PDF Generation**: Branded quote documents with terms & conditions
* **Quote-to-Order**: One-click conversion with order number generation
* **Validity Management**: Auto-expiry with renewal notifications

**4. Order Management**

**Purpose**: End-to-end order processing and campaign execution

* **Order Lifecycle**: Quote confirmation → Vendor assignment → Campaign execution → Completion
* **Rate-wise Numbering**: Hierarchical order numbering system for tracking
* **Campaign Scheduling**: Multi-date release scheduling with calendar integration
* **Vendor Management**: Vendor assignment with performance tracking
* **Commission Calculation**: Automated consultant commission computation
* **Order Tracking**: Real-time status updates and milestone management
* **Client Communication**: Automated order confirmations and status updates

**5. Finance & Accounting**

**Purpose**: Complete financial transaction management with compliance

* **Transaction Types**: Income, Operational Expenses (Project/Non-Project categories)
* **Payment Modes**: Cash, Cheque, UPI, Bank Transfer, Credit Card
* **Multi-currency Support**: GST calculation with tax compliance reporting
* **Client Balances**: Credit tracking, outstanding dues, refund management
* **Commission Management**: Consultant earnings with automated calculations
* **Expense Categorization**: Project-wise expense allocation and tracking
* **Bill Management**: Digital bill uploads with OCR capabilities
* **Financial Reports**: Cash flow, P&L, revenue analysis, expense reports

**6. Consultant Management**

**Purpose**: Partner relationship management with performance tracking

* **Consultant Database**: Complete profile management with contact details
* **Commission Structure**: Performance-based earnings with tier management
* **SMS Integration**: Automated notifications for new leads and payments
* **IC Requirements**: Incentive compatibility tracking and validation
* **Performance Analytics**: Lead conversion rates, revenue generation metrics
* **Validity Management**: Consultant status tracking with renewal alerts
* **Territory Management**: Location-based consultant assignment

**7. Appointment Scheduling**

**Purpose**: Calendar-based appointment management with client integration

* **Calendar Integration**: Multi-view calendar with availability management
* **Client Linking**: Direct integration with client database
* **Appointment Types**: Service categorization with duration estimation
* **Reminder System**: Automated SMS/email reminders
* **Status Tracking**: Scheduled, Confirmed, Completed, Cancelled, Rescheduled
* **Resource Allocation**: Staff and equipment assignment
* **Conflict Resolution**: Automatic double-booking prevention

**8. Queue Management System (Grace Scans)**

**Purpose**: Real-time healthcare queue management with patient experience optimization

* **Equipment-based Queues**: Separate queues for USG, CT Scan, X-Ray, MRI
* **Token Management**: Digital token generation with QR code integration
* **Real-time Status**: Live queue position and estimated wait times
* **Patient Notifications**: FCM push notifications for queue updates
* **Auto-login System**: Encrypted token-based access for queue terminals
* **Time Tracking**: Queue-in, procedure start, completion timestamps
* **Efficiency Analytics**: Average wait times, procedure duration analysis
* **Remote Registration**: Phone-based queue registration with OTP verification

**9. Reporting & Analytics**

**Purpose**: Business intelligence with actionable insights and compliance reporting

* **Daily Sales Reports**: Lead conversion, revenue, CSE performance
* **Financial Analytics**: Income/expense analysis, profit margins, cash flow
* **Lead Analytics**: Source-wise performance, conversion funnels, lead scoring
* **Client Analytics**: Lifetime value, retention rates, service utilization
* **Consultant Reports**: Commission tracking, performance rankings
* **Queue Analytics**: Wait time optimization, equipment utilization
* **Custom Reports**: Date-range filtering, multi-parameter analysis
* **Export Capabilities**: Excel, CSV, PDF generation with branded templates

**10. User Management & RBAC**

**Purpose**: Secure access control with role-based permissions

* **Multi-step Registration**: General details, proof documents, roles, login credentials
* **Role Definitions**: Administrator, Finance, General, Queue System, Leadership
* **Permission Matrix**: Feature-level access control with conditional rendering
* **Employee Onboarding**: Complete HR workflow with document management
* **Session Management**: Secure login/logout with session timeout
* **Audit Trail**: User activity logging for compliance and security

**3. 🔧 Technical Architecture**

**Frontend Stack**

* **Framework**: Next.js 14 (React 18) with App Router
* **Styling**: Tailwind CSS, Material-UI (MUI), PrimeReact, NextUI
* **State Management**: Redux Toolkit + Redux Persist (localStorage)
* **PWA**: Next-PWA with offline capabilities, push notifications via FCM
* **UI Libraries**: FontAwesome, Heroicons, Lucide React, React Icons
* **Data Visualization**: Chart.js, Recharts
* **PDF Generation**: jsPDF with jsPDF-AutoTable
* **Excel/CSV**: ExcelJS for export functionality

**Backend Architecture**

* **API Layer**: PHP REST APIs with custom routing
* **Database**: MySQL with dynamic multi-tenant switching
* **Authentication**: Session-based login with role-based access control
* **File Handling**: Multer for uploads, cloud storage integration
* **Push Notifications**: Firebase Cloud Messaging (FCM)
* **Security**: HTTPS/SSL, input validation, tenant data isolation

**Multi-Tenancy Implementation**

// ConnectionManager handles dynamic DB switching

class ConnectionManager {

private static $connections = [];

public static function connect($dbName) {

$dbConfig = include '../../DBConfig.php';

// Creates tenant-specific connections

}

}

**Tenant Configuration** (DBConfig.php):

* Grace Scans → baleeed5\_gracescans
* Baleen Media → baleeed5\_live
* Easy2Work → baleeed5\_easy2work
* Dynamic switching based on companyName parameter

**Core Database Tables**

1. **client\_table** - Client demographics, KYC data
2. **leads\_tracking\_table** - Lead lifecycle management
3. **quote\_table** - Quotation details and status
4. **order\_table** - Order processing and tracking
5. **financial\_transaction\_table** - Payment and expense records
6. **rate\_table** - Service pricing and rate cards
7. **consultant\_table** - Partner management
8. **employee\_table** - User management with RBAC
9. **queue\_table** - Real-time queue management
10. **fcm\_token\_table** - Push notification tokens

**4. 🧠 Application Logic**

**Authentication & Authorization Flow**

// Multi-step auth process

1. User selects company → Sets dbName in Redux

2. Login API validates against tenant-specific employee\_table

3. appRights determine feature access (Admin, Finance, General, etc.)

4. Session persistence via Redux Persist

**Lead Management Logic**

// Lead prioritization algorithm

const sortLeads = (a, b) => {

// Priority: Followup time → Lead date → Status priority

// Today's leads with followup time ≤ current time get top priority

const statusPriority = { "Call Followup": 2, "New": 1, "Unreachable": 3 };

}

**Quotation Workflow**

1. **Rate Selection**: Dynamic rate fetching based on medium/type
2. **Cart Management**: Redux-based cart with quantity slabs
3. **PDF Generation**: Branded quote documents with client details
4. **Status Tracking**: Valid → Follow-up → Converted/Rejected

**Queue Management (Grace Scans)**

// Real-time queue updates

const QueueDashboard = ({ selectedEquipment }) => {

// Optimistic UI updates with backend reconciliation

const optimisticQueue = getQueue(newAllClients);

const backendQueue = getQueue(apiClients);

// Auto-sync discrepancies

}

**Financial Transaction Logic**

* **Transaction Types**: Income, Operational Expense (with Project subcategory)
* **Multi-mode Payments**: Cash, Cheque, UPI, Bank Transfer
* **Commission Calculation**: Automated based on consultant performance
* **GST Integration**: Automatic tax calculations with compliance reporting

**5. 📂 Folder/Module Structure Analysis**

**app (Next.js App Router)**

* **page.jsx** - Client registration and management (main entry)
* **/adDetails** - Quotation generation and cart management
* **/Create-Order** - Order creation and campaign scheduling
* **/FinanceEntry** - Transaction management and bill processing
* **/LeadManager** - Comprehensive lead lifecycle management
* **/QueueSystem** & **/QueueDashboard** - Healthcare queue management
* **/Report** - Analytics dashboards and data export
* **/Employee** - Multi-step user registration workflow
* **/ConsultantManager** - Partner management system

**redux (State Management)**

// Slice-based architecture

- auth-slice.js // User session and tenant context

- client-slice.js // Client data persistence

- quote-slice.js // Quotation state management

- cart-slice.js // Shopping cart functionality

- order-slice.js // Order processing state

- queue-slice.js // Real-time queue management

**api (Backend PHP)**

* **/API/Media/** - REST endpoints for all operations
* **ConnectionManager.php** - Multi-tenant DB connection handling
* **DBConfig.php** - Tenant database configuration
* **AutoLogin.php** - Queue system auto-authentication

**Utility Modules**

* **firebase-config.js** - FCM and admin SDK setup
* **/generatePDF/** - Document generation utilities
* **hooks** - Custom React hooks for FCM tokens
* **components** - Reusable UI components

**6. ⚙️ API Interaction**

**Primary API Base URL**

const api = axios.create({

baseURL: "https://orders.baleenmedia.com/API/Media/"

});

**Key API Endpoints**

**Authentication & User Management**

* Login.php - Multi-tenant user authentication
* AutoLogin.php - Queue system automatic login
* EmployeeUserManager.php - User registration and management

**Client & Lead Operations**

* FetchClientDetails.php - Client data retrieval
* SearchRatesTest.php - Rate and pricing searches
* FetchExistingLeads.php - Lead data management
* InsertOrUpdateLeads.php - Lead CRUD operations

**Business Operations**

* FetchClientDetailsFromOrderTable.php - Order-client linking
* AddOrUpdateConsultant.php - Consultant management
* FinanceList.php - Financial transaction reporting
* FetchQueueClientData.php - Real-time queue status

**Multi-tenant Pattern**

// All APIs accept JsonDBName parameter

$dbName = isset($\_GET['JsonDBName']) ? $\_GET['JsonDBName'] : 'Baleen Media';

ConnectionManager::connect($dbName);

**7. 🧪 Edge Case Handling**

**Data Validation**

* **Age-based title validation**: Baby (≤3), Master (4–12), automatic gender inference
* **Contact deduplication**: Prevents duplicate client registration
* **GST-PAN correlation**: Auto-extracts PAN from GST numbers
* **Username availability**: Real-time validation during registration

**Error Handling & Fallbacks**

// Graceful API error handling

try {

const response = await api.get(endpoint);

return response.data;

} catch (error) {

console.error("API Error:", error);

// Toast notifications for user feedback

showToast("Operation failed. Please try again.", "error");

}

**User Feedback Mechanisms**

* **Toast Notifications**: React-Toastify for non-blocking messages
* **Success Alerts**: Confirmation for successful operations
* **Loading States**: Skeleton screens and progress indicators
* **Validation Feedback**: Real-time form validation with error highlighting

**Offline Capability**

* **PWA Implementation**: Service worker for offline functionality
* **Local Storage**: Critical data cached via Redux Persist
* **Queue Management**: Optimistic UI updates with backend reconciliation

**8. 🔐 Security & Authentication**

**Authentication Mechanism**

* **Session-based**: Server-side session management
* **Multi-tenant isolation**: Database-level tenant separation
* **Auto-login**: Encrypted token-based access for queue systems

**Role-Based Access Control (RBAC)**

// AppRights-based feature access

const appRights = useAppSelector(state => state.authSlice.appRights);

// Conditional rendering based on permissions

{(appRights.includes('Administrator') || appRights.includes('Finance')) && (

<FinanceReportButton />

)}

**Permission Levels**:

* **Administrator**: Full system access
* **Finance**: Financial operations and reporting
* **General**: Basic CRM operations
* **Queue System**: Healthcare queue management only
* **Leadership**: Analytics and reporting access

**Data Security**

* **Input Sanitization**: PDO prepared statements prevent SQL injection
* **CORS Configuration**: Cross-origin request handling
* **Data Encryption**: Client-side encryption for sensitive data
* **Tenant Isolation**: Database-level separation ensures data privacy

**9. 🌍 Multi-Tenant Support**

**Database Architecture**

// Dynamic connection management

$dbConfig = [

'Grace Scans' => ['dbname' => 'baleeed5\_gracescans'],

'Baleen Media' => ['dbname' => 'baleeed5\_live'],

'Easy2Work' => ['dbname' => 'baleeed5\_easy2work']

];

**UI Customization per Tenant**

// Company-specific feature sets

const sources = companyName === 'Grace Scans' ? gsSources : bmSources;

// Conditional component rendering

{companyName === 'Grace Scans' && <QueueManagement />}

{companyName !== 'Grace Scans' && <AdvertisingModule />}

**API Environment Switching**

* **Automatic tenant detection**: Based on companyName parameter
* **Connection pooling**: Efficient database connection management
* **Data isolation**: Complete separation of tenant data
* **Configuration management**: Tenant-specific settings and preferences