

VIIT FCL Project Overview

Problem Statement / Project Overview – Currently there is no robust data base, tracking mechanism & performance dashboard for sales enquiries being worked upon in FCL. Objective is to create robust database (Excel based) with centralised info for all market segments & product groups to ensure data consistency and access based data protection. Create dashboards to provide insights related to key performance indicators (KPIs) to drive data based decisions during reviews.

Project Type : PoC or Application

Project Category & Duration : Mini Project with Max. 6 month duration.

Intended Users : Sr. Management team, Team members from Sales/Marketing and Design teams

Understanding the Project Requirements

Current State:

- The company currently uses separate Excel files for tracking sales enquiries and NPD (New Product Development) projects
- Data is scattered across multiple product lines with inconsistent formats
- Manual tracking leads to inefficiencies and limited analytics capabilities

Requirements:

Database Consolidation

- Unified sales enquiry database across all product lines (including historical data)
- Unified NPD project log database across all product lines (including historical data)

Data Standardization

- Redesign data structure for consistency across product lines
- Enable addition/deletion of columns as business needs evolve
- Standardize data entry processes

Access Control System

- Implement role-based access (read/write permissions)
- Multi-department user management

Business Intelligence

- Performance dashboards with KPIs
- Analytics leveraging consolidated databases

Next Steps:

- Joint walkthrough meeting (scheduled for Friday or early next week)
- Student involvement in the project
- Detailed requirement clarification session

Project Implementation Guide

Technology Stack Recommendation

Backend Technologies

- **Database:** MongoDB
- **Server:** Node.js with Express.js framework
- **ORM:** Prisma or Sequelize for database operations
- **Authentication:** JWT tokens with role-based access control
- **File Upload:** Multer for Excel file processing

Frontend Technologies

- **Framework:** React.js
- **UI Library:** Material-UI or Ant Design for professional interface
- **Charts:** Chart.js or Recharts for dashboard visualizations
- **State Management:** Redux or Context API
- **Excel Processing:** SheetJS for reading/writing Excel files

Additional Tools

- **Cloud Platform:** AWS or Google Cloud for hosting
- **Database Hosting:** AWS RDS or Google Cloud SQL
- **File Storage:** AWS S3 for document storage **API**
- **Documentation:** Swagger/OpenAPI
- **Version Control:** Git with GitHub/GitLab

Project Architecture

```
Frontend (React.js)
  ├── Dashboard Module
  ├── Sales Enquiry Management
  ├── NPD Project Tracking
  ├── User Management
  └── Reports & Analytics
```

```
Backend (Node.js/Express)
  ├── Authentication Service
  ├── Sales Enquiry API
  ├── NPD Project API
  ├── User Management API
  ├── File Processing Service
  └── Analytics Service
```

```
Database (PostgreSQL)
  ├── Users & Roles
  ├── Sales Enquiries
  ├── NPD Projects
  ├── Product Lines
  └── Audit Logs
```

Database Design Overview

Core Tables

Users Table

user_id, username, email, password_hash, role, department, created_at

Sales_Enquiries Table

- enquiry_id, enquiry_number, export_domestic, po_number date_received,
- date_submitted, drawing_required, costing_required rd_assigned,
- sales_assigned, status, activity, manufacturing_type product_type,
- days_to_complete, remarks, product_line_id

NPD_Projects Table

- project_id, project_name, project_code, start_date, end_date status,
- priority, assigned_team, budget, product_line_id progress_percentage,
-

Product_Lines Table

- product_line_id, name, description, manager, created_at

Development Phases

Phase 1 Foundation Weeks 1 2

- Set up development environment
- Design database schema
- Create basic authentication system Develop user
- management module

Phase 2 Core Features Weeks 3 5

- Implement Sales Enquiry CRUD operations
- Develop NPD Project tracking system
- Create Excel import/export functionality
- Build basic dashboard interface

Phase 3 Advanced Features Weeks 6 7

- Implement role-based access control
- Develop analytics and KPI dashboards
- Add search and filtering capabilities Create report
- generation features

Phase 4 Testing & Deployment Week 8

- Comprehensive testing
- Performance optimization
- User acceptance testing Production
- deployment

Key Features to Implement

Sales Enquiry Management

- Add, edit, delete enquiries
- Track enquiry lifecycle
- Assign R&D and sales personnel
- Monitor response times
- Generate quotation reports

NPD Project Tracking

- Project creation and management
- Timeline tracking
- Resource allocation
- Progress monitoring
- Milestone management

Dashboard & Analytics

- KPI metrics visualization
- Response time analysis
- Product line performance
- Export vs domestic trends
- Team productivity metrics

User Management

- Role-based access Admin, Manager, User)
- Department-wise permissions
- Activity logging and audit trails

Expected Deliverables

Technical Documentation

- System architecture document
- API documentation
- Database schema documentation
- User manual

Software Components

- Web application with responsive design
- Database with sample data
- Admin panel for system management
- Excel import/export functionality

Analytics & Reports

- Performance dashboards
- Custom report generation
- KPI monitoring system
- Data visualization components

Success Metrics

- **Data Consolidation:** Successfully migrate all existing Excel data
- **User Adoption:** Train users across multiple departments
- **Performance:** Reduce enquiry processing time by 30% **Analytics:** Provide real-time KPI monitoring
- **Scalability:** Support addition of new product lines and users

Timeline

- **Total Duration:** 8 weeks
- **Team Size:** 4 students + 1 mentor
- **Delivery:** Fully functional web application with documentation