

SYSTEM DESIGN DOCUMENT

Client Payment Tracking System (Excel-Based)

1. System Overview

The Client Payment Tracking System is an Excel-based solution designed to help personal trainers and small service-based businesses efficiently track client payments. The system supports multiple payment models including online subscriptions, in-person packages, and pay-as-you-go payments. It automates calculations and presents financial insights through a clear and interactive dashboard.

2. Objectives

The objectives of this system are:

- To accurately record and track client payments
- To categorize payments by type (Online or In-Person)
- To automatically calculate total and monthly income
- To provide a visual dashboard for quick financial analysis
- To minimize manual errors through data validation and automated formulas

3. System Users

Primary users of the system are personal trainers and small business owners with basic or no advanced Excel knowledge. The system is designed for daily data entry and monthly performance review.

4. System Architecture

The system is structured into three main layers:

Data Layer:

- Client Payments sheet
- Stores client name, payment date, payment type, amount paid, and auto-generated month

Processing Layer:

- Uses Excel formulas such as SUMIFS, COUNT, COUNTA, and IF statements
- Handles income aggregation, monthly summaries, and client counting

Presentation Layer:

- Dashboard sheet
- Displays key metrics, bar charts for monthly income, and pie charts for income breakdown

5. Data Flow Design

- User enters payment data into the Client Payments sheet
- Excel formulas process the data automatically
- Monthly income and category totals are calculated
- Dashboard visuals update in real time based on entered data

6. Error Handling and Validation

- Data validation restricts incorrect input formats
- Conditional formulas prevent division-by-zero errors
- Empty datasets return zero values instead of error messages

7. Assumptions and Constraints

Assumptions:

- Users enter data in the correct predefined format
- Excel-recognized date formats are used

Constraints:

- The system operates entirely within Excel
- No external database or programming language integration

8. Tools and Technologies

- Microsoft Excel (Web and Desktop versions)
- Built-in Excel formulas and charting tools

9. Future Enhancements

- Integration with Google Sheets
- Advanced analytics using Python or Power BI
- Automated reporting and notifications
- Role-based access control for multi-user environments

10. Conclusion

The Client Payment Tracking System provides a simple yet powerful solution for managing client payments. It demonstrates strong spreadsheet design, automation, data analysis, and dashboard visualization skills, making it a solid portfolio project and a practical business tool.