

# Personal Finance Dashboard - Progress Summary

## Project Overview




**Objective:** Create a local Flask web application for comprehensive personal finance management with debt tracking, business expense monitoring, and interactive visualizations.

**Status:**  **Phase 1 & 2A Complete** - Foundation and core features operational

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## Database Foundation ( **COMPLETED** )

### Database Setup & Import






-  **SQLite Database Created** (`personal_finance.db`)
-  **Excel Data Imported** (5,800+ transactions from 2022-2025)
-  **Data Cleaning Completed**
  - Standardized column names
  - Date format conversion
  - Business transaction identification (Girasoul)
  - Handled missing values and duplicates

### Database Schema

#### Tables Created:

-  `transactions` - Main financial data (account\_name, date, description, amount, category, sub\_category, type, owner, is\_business)
-  `debt_accounts` - Credit cards, loans, mortgages
-  `debt_payments` - Payment tracking with balance updates
-  `business_revenue` - Girasoul income tracking

#### Data Quality:

-  **5,800+ transactions** successfully imported
  -  **22 unique categories** (Living Expenses, Travel, Discretionary, etc.)
  -  **3 owners** (Cata, Suricata, Cacas)
  -  **5 account types** (Cata, Venture, Cacas, Capital One, Truliant)
  -  **Business transactions identified** (342 Girasoul-related)
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## Flask Application ( **COMPLETED** )

## Core Framework

- ☒ **Flask App Structure** with SQLAlchemy
- ☒ **Database Models** matching schema
- ☒ **Bootstrap 5 Styling** with custom CSS
- ☒ **Responsive Design** for desktop/mobile
- ☒ **Navigation System** with active page indicators

## Application Features

- ☒ **Error Handling** with flash messages
  - ☒ **Debug Logging** for troubleshooting
  - ☒ **Chart Integration** with Plotly.js
  - ☒ **API Endpoints** for dynamic data
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## Dashboard System ( ☒ COMPLETED)

### Main Dashboard ( (/ ))

#### Key Metrics Cards:

- ☒ Monthly spending total
- ☒ Total debt amount
- ☒ Business revenue (current month)
- ☒ Business profit calculation

#### Interactive Charts:

- ☒ **Monthly Spending by Type** (Pie chart - Needs/Wants/Savings/Business)
- ☒ **Top 5 Categories** (Bar chart with amounts)
- ☒ **Category Spending Analysis** (Bar/Pie toggle)
- ☒ **12-Month Spending Trends** (Line chart with multiple series)

#### Advanced Filtering:

- ☒ **Owner Filter** (Cata/Suricata/Cacas/All)
- ☒ **Date Range Filter** (30 days, 3 months, 6 months, 1 year, all time)
- ☒ **Business Toggle** (Include/Exclude/Only business transactions)
- ☒ **Chart Type Toggle** (Bar chart vs Pie chart)
- ☒ **Real-time Updates** without page refresh

# Dashboard Troubleshooting Resolution

- ☒ **Fixed SQLAlchemy Query Issues** - Switched to raw SQL with pandas for reliability
  - ☒ **Resolved Date Filtering** - Used SQLite-native `strftime()` functions
  - ☒ **Data Type Conversion** - Explicit `float()` conversions for template compatibility
  - ☒ **Error Handling** - Graceful degradation with debug logging
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## Debt Management System (☒ COMPLETED)

### Debt Accounts (`/debts`)

#### Overview Dashboard:

- ☒ **Summary Cards** - Total debt, monthly minimums, active accounts
- ☒ **Debt Accounts Table** with:
  - Account name and last 4 digits
  - Debt type, owner, current balance
  - Minimum payment, interest rate, due date
  - **Progress bars** showing payoff percentage
  - Action buttons (payment/edit/history - placeholders)

#### Visual Analytics:

- ☒ **Debt by Type Chart** (Pie chart)
- ☒ **Debt by Owner Chart** (Bar chart)
- ☒ **Smart Insights** - Highest balance, lowest/highest interest rates
- ☒ **Recommendations** - Payment strategy suggestions

### Add Debt Account (`/add_debt`)

#### Comprehensive Form:

- ☒ **Basic Information** - Name, type, owner, account number
- ☒ **Financial Details** - Original/current balance, interest rate, minimum payment
- ☒ **Payment Settings** - Due date, expense category linkage
- ☒ **Form Validation** - Balance checks, required fields
- ☒ **Smart Defaults** - Auto-suggest categories based on debt type
- ☒ **Help Section** - Tips and explanations

#### Debt Types Supported:

- ☒ Credit Card, Car Loan, Student Loan, Personal Loan, Mortgage, Other
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## Transaction Management ( ☒ COMPLETED)





### Transaction List (</transactions>)

#### Features:

- ☒ **Paginated Table** (50 transactions per page)
- ☒ **Recent Transactions** sorted by date (newest first)
- ☒ **Color-coded Types** - Needs (red), Wants (yellow), Savings (green), Business (blue)
- ☒ **Business Transaction Badges** for easy identification
- ☒ **Responsive Design** with horizontal scrolling on mobile

### Add Transaction ([/add\\_transaction](/add_transaction))

#### Smart Entry Form:






- ☒ **Auto-complete Dropdowns** populated from existing database data
- ☒ **Smart Suggestions** based on description patterns:
  - "Walmart" → Living Expenses + Groceries
  - "Gas" → Transport + Gas
  - "Girasoul" → Business + Discretionary
- ☒ **Quick Action Buttons** for common expenses:
  -  Groceries,  Gas Station,  Dining Out,  Business
- ☒ **Business Detection** - Auto-toggle based on keywords
- ☒ **Form Validation** - Amount validation, description length
- ☒ **Category Management** - Add new categories/subcategories on-the-fly

#### Form Fields:





- ☒ Date (defaults to today)
  - ☒ Amount with currency formatting
  - ☒ Description with auto-suggestions
  - ☒ Category/Sub-category (from existing data)
  - ☒ Type (Needs/Wants/Savings/Business)
  - ☒ Business transaction checkbox
  - ☒ Account and Owner selection
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## Technical Implementation





### Technology Stack

-  **Backend:** Flask 2.3.2 + SQLAlchemy 3.0.5
-  **Database:** SQLite with optimized indexes
-  **Frontend:** HTML5 + Bootstrap 5 + JavaScript
-  **Charts:** Plotly.js for interactive visualizations
-  **Data Processing:** Pandas 2.0.3 for data manipulation

### Performance Optimizations

-  **Database Indexes** on date, category, owner, business fields
-  **Efficient Queries** with proper filtering and aggregation
-  **Pagination** for large transaction lists
-  **Client-side Filtering** for responsive chart updates





### Development Workflow

-  **Jupyter Notebook** for database setup and testing
  -  **Modular Code Structure** with clear separation of concerns
  -  **Error Handling** throughout application
  -  **Debug Logging** for troubleshooting
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## Current Project Status

### COMPLETED FEATURES

#### Phase 1: Foundation Setup




-  Flask application structure
-  Database connection and models
-  Base template with navigation
-  Bootstrap styling and responsive design

#### Phase 2A: Core Functionality





-  Dashboard with interactive charts and filters
-  Debt account management (add/view)
-  Transaction management (add/view/list)
-  Business expense identification

## IN PROGRESS / NEXT PRIORITIES

### Phase 2B: Debt Payment System




-  **Debt Payment Entry Form**
  - Payment amount with principal/interest breakdown
  - Auto-update debt balances
  - Auto-create corresponding expense transactions
-  **Payment History Tracking**
-  **Payment Due Date Alerts**

### Phase 3: Advanced Features





-  **Business Revenue Management**
  -  **Advanced Transaction Filtering**
  -  **Budget Planning & Tracking**
  -  **Financial Reports & Export**
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## Key Achievements


### Data Management

-  **Successfully migrated** 5,800+ transactions from Excel to structured database
-  **Automated business transaction detection** (342 Girasoul transactions identified)
-  **Clean data structure** with consistent categorization

### User Experience

-  **Intuitive interface** with responsive design
-  **Interactive charts** with real-time filtering
-  **Smart form inputs** with auto-suggestions and validation
-  **Quick actions** for common tasks

### Technical Excellence

-  **Robust error handling** with graceful degradation
  -  **Performance optimization** with indexed queries
  -  **Scalable architecture** ready for additional features
  -  **Local deployment** for privacy and control
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## Database Statistics

## Current Data Volume

- **5,800+ transactions** (Jan 2022 - May 2025)
- **\$350,000+** total transaction value
- **22 spending categories** with 94+ subcategories
- **3 users** (Cata, Suricata, Cacas)
- **5 financial accounts** tracked

## Top Spending Categories

1. **Living Expenses:** \$149,591.75 (1,063 transactions)
  2. **Travel:** \$32,725.60 (822 transactions)
  3. **Discretionary:** \$30,258.83 (915 transactions)
  4. **Debt:** \$25,508.08 (100 transactions)
  5. **Transport:** \$25,258.52 (307 transactions)
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## Technical Lessons Learned

### Database Integration

- **SQLAlchemy ORM limitations** with complex aggregations in SQLite
- **Raw SQL + pandas approach** more reliable for financial calculations
- **Date handling** requires SQLite-specific functions (`strftime()`)

### Frontend Development

- **Plotly.js integration** excellent for interactive financial charts
- **Bootstrap 5** provides solid responsive foundation
- **Client-side filtering** improves user experience significantly

### Development Process

- **Jupyter notebooks** invaluable for data exploration and testing
  - **Step-by-step debugging** essential for database troubleshooting
  - **Modular templates** make maintenance easier
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## Next Sprint Planning

### Immediate Priorities (Next 1-2 weeks)

1. **Complete Debt Payment System**

- Payment entry form with balance updates
- Payment history and tracking
- Integration with transaction system

## 2. Business Revenue Management

- Add business revenue entry
- Revenue vs expense analysis
- ROI calculations

## Medium-term Goals (Next month)

### 3. Advanced Analytics

- Spending trend analysis
- Budget vs actual tracking
- Seasonal pattern identification

### 4. User Experience Improvements

- Transaction search and filtering
- Bulk transaction operations
- Data export capabilities



## Future Enhancement Ideas

### Advanced Features

- **Automated categorization** using machine learning
- **Financial goal tracking** with progress monitoring
- **Multi-currency support** for international transactions
- **Bank integration** (if desired for automatic imports)

### Analytics & Reporting





- **Predictive spending models**
- **Investment portfolio tracking**
- **Tax preparation reports**
- **Financial health scoring**







## Project Success Metrics

### Functional Success







-  **Complete data migration** without loss
-  **Real-time financial insights** with interactive charts
-  **Streamlined data entry** with smart forms
-  **Comprehensive debt tracking** ready for payment management

## Technical Success

-  **Stable local application** with reliable database
-  **Responsive design** working across devices
-  **Performance optimization** handling 5,800+ records smoothly
-  **Extensible architecture** ready for additional features

## User Experience Success

-  **Intuitive navigation** with clear information hierarchy
-  **Fast, interactive charts** with multiple filter options
-  **Smart data entry** reducing manual work
-  **Visual insights** making financial patterns clear

The Personal Finance Dashboard has successfully evolved from raw Excel data to a comprehensive, interactive web application that provides real-time insights into spending patterns, debt management, and business performance. The foundation is solid and ready for continued enhancement with advanced features.