Project Design Phase

Date	27 June 2025
Team ID	LTVIP2025TMID31086
Project Name	calculating family expenses using service now
Maximum Marks	4 Marks

The Project Design Phase marked a crucial step in translating the ideation concepts into a tangible system blueprint. It involved converting the vision and requirements identified during the planning stage into a structured and efficient data model, supported by a user-friendly interface. At this phase, the system's architecture, core components, and user interactions were clearly defined to ensure both backend functionality and frontend usability.

A strong emphasis was placed on data structuring, field behavior, workflow automation, and interface customization. These elements were essential in developing a cohesive platform that meets household financial tracking needs while remaining scalable and easy to use.

Key Design Objectives
The goals during this phase were to:

Create a logical and maintainable data structure that supports both detail-level and summary-level financial information.
Establish robust field configurations to maintain data accuracy and consistency.
Leverage the capabilities of the ServiceNow platform to implement intelligent business logic and seamless data flows.
Design an interface that simplifies user interaction and encourages consistent usage.

Core Design Elements
1. Table Structure and Data Segmentation
Two primary tables were created:
- Daily Expenses Table: This table serves as the entry point for all daily transactions. It records granular financial activities such as individual purchases, bill payments, or other expenditures.
- Family Expenses Table: This higher-level table summarizes total spending per family member. It aggregates data from the Daily Expenses table and presents it in a consolidated view.
The relational link between these tables ensures that daily updates are automatically reflected at the family level, promoting real-time visibility into household spending trends.

2. Field Configuration and Validation

Each table was populated with carefully designed fields that support both functional requirements and ease of use. Key fields included:
- Date: Configured with a date picker to ensure consistent formatting.
- Amount: Set with currency data type and input validation to prevent negative or invalid values.
- Expense Details: A free-text field to capture descriptive information about the transaction.
- Family Member Name: Configured as a reference field to a predefined list of household members.

Validation rules were added to enforce input accuracy and guide users in form completion. For instance, fields such as Date and Amount were marked mandatory, while auto-generated identifiers were protected as read-only.

3. Business Rules and Automation Logic

To ensure automation and reduce manual effort, server-side business rules were introduced. The main rule listens for insert or update actions on the Daily Expenses table and then performs the following:
- Automatically calculates new totals in the Family Expenses table.
- Assigns default values to fields like currency or date, if not provided.
- Generates unique record identifiers using a custom scripting method.

This approach not only reduced user input errors but also streamlined the data flow, ensuring real-time accuracy between linked records.

4. User Interface Customization

The system's usability was enhanced through thoughtful UI design. Key aspects included:
- Form Customization: Streamlined forms with grouped sections, clear labels, and field-level instructions were implemented to simplify data entry.
- Mandatory and Read-only Fields: Mandatory inputs like Amount and Date help ensure completeness, while auto-generated fields (such as record ID) are restricted from user edits to preserve data integrity.
- Related Lists: Family member forms were designed to include related lists of their associated expenses, offering an instant snapshot of financial activity.

This ensured a user-centric interface that could be adopted comfortably by non-technical users.

5. Reference Field Design and Data Integrity

To promote relational consistency, the Family Member Name field in the Daily Expenses table was configured as a reference field. It links to a controlled list of registered family members, preventing typos, duplicate names, or unrelated entries.

This approach allowed for:
- Accurate tracking of individual member spending.
- Reliable data aggregation in the Family Expenses table.
- Simplified reporting and chart generation in the analytics phase.

Conclusion

The design phase established a well-organized and intuitive framework for the household financial management system. By strategically using ServiceNow's capabilities—such as reference fields, automated business rules, and customizable forms—the team was able to build a strong foundation for future development, analytics, and expansion.

This phase not only addressed the technical structure but also ensured that users would find the system accessible, secure, and relevant to their everyday financial routines. With the design solidified, the next steps involve implementing workflows, building dashboards, and conducting functional testing.