

## Project Design Phase

### Solution Architecture

Date	2 November 2025
Team ID	NM2025TMID02001
Project Name	Calculating Family Expenses Using Service Now
Maximum Marks	2 Marks

#### Solution Architecture:

##### Goals of the Architecture:

- Build an automated family expense tracking system using ServiceNow's workflow platform.
- Enable seamless data flow between Daily Expenses *and* Family Expenses modules.
- Maintain financial data accuracy and consistency through business rules and relationships.
- Provide real-time reporting and visibility into family spending patterns.
- Ensure scalability and easy maintenance for expanding data and family records.

##### Key Components:

- **Daily Expenses Table (u\_daily\_expenses):** Stores individual expense records, including date, amount, comments, and family member name.
- **Family Expenses Table (u\_family\_expenses):** Consolidates all daily expenses, showing total amount and detailed expense summary for each date.
- **Business Rule (on u\_daily\_expenses):** Automatically updates the Family Expenses record when a new Daily Expense is inserted or modified.
- **Relationships:** A one-to-many relationship between Family Expenses and Daily Expenses ensures linked data.
- **Forms & UI Configuration:** Custom forms for easy data entry, with read-only and mandatory field settings for data integrity.
- **Reports & Dashboards:** Visual summaries for monthly, daily, and member-wise analysis.

## Development Phases:

- **Setup Instance** – Create a ServiceNow Developer Account and request a new instance.
- **Create Tables** – Make two tables: Family Expenses and Daily Expenses.
- **Add Fields** – Add columns like Date, Amount, Expense Details, and Member Name.
- **Set Auto-Number** – Use Number Maintenance to give each record a unique number (e.g., MFE001).
- **Design Forms** – Make user-friendly forms for data entry; set important fields as mandatory.
- **Link Tables** – Connect Daily Expenses to Family Expenses using relationships.
- **Add Business Rule** – Write a rule to update Family Expenses automatically when a Daily Expense is added.
- **Test the System** – Enter sample data to check if totals and updates are working correctly.
- **Create Reports** – Design reports and dashboards to view expense summaries.
- **Deploy and Monitor** – Finalize the system, use it for real data, and improve it based on feedback.

## Solution Architecture Description:

The solution architecture for Calculating Family Expenses using ServiceNow is designed to automate and centralize the process of tracking daily and cumulative expenses within a family. The architecture consists of two core modules — Family Expenses and Daily Expenses — that communicate through a relational link.

When a family member logs a new expense in the Daily Expenses table, a Business Rule automatically updates or creates a corresponding entry in the Family Expenses table for that date. This ensures real-time data aggregation and accuracy without manual calculations.

The architecture also includes number maintenance for easy record identification, form-level validations for data consistency, and reporting tools for visual insights. Together, these components form a robust and scalable solution that promotes transparency, simplifies expense management, and empowers families to make informed financial decisions.

## Example - Solution Architecture Diagram:

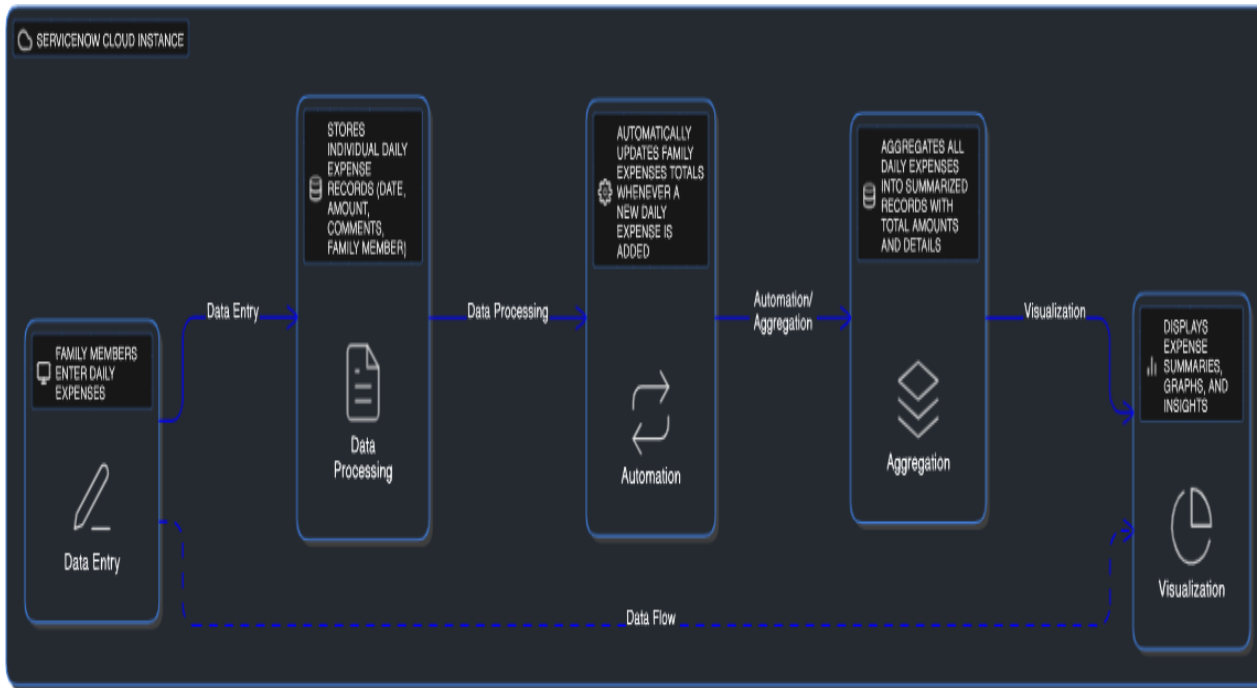


Figure 1: Architecture and data flow of the Calculating Family Expenses Application using ServiceNow.