REQUIREMENT ANALYSIS

1. Solution Requirements

Requirement Type	Parameter	Description
Functional Requirement	Expense Entry Module	Users can add, edit, and delete expenses under various categories.
Functional Requirement	Budget Management	Allows users to define and track monthly or annual budgets.
Functional Requirement	Expense Categorization	Automatically classifies expenses based on predefined tags.
Functional Requirement	Reporting & Dashboard	Provides real-time visual reports and analytics on expenses.
Functional Requirement	Notification System	Sends alerts for budget limits, due payments, or unusual expenses.
Functional Requirement	Multi-user Access	Supports multiple family members with role-based permissions.
Non-Functional Requirement	Performance	System must handle multiple concurrent users efficiently.
Non-Functional Requirement	Security	Implements authentication, data encryption, and role-based access control.
Non-Functional Requirement	Scalability	Architecture should support expanding data and user base without performance loss.
Non-Functional Requirement	Usability	The interface should be intuitive and accessible to non-technical users.
Non-Functional Requirement	Reliability	System must ensure accurate data storage and quick recovery in case of failure.
Technical Requirement	Platform	Built on ServiceNow using Flow Designer, Business Rules, and Service Portal.
Technical Requirement	Database	Uses ServiceNow Tables for structured data storage.
Technical Requirement	Integration	Allows external data import/export via REST APIs.

2. Data Flow Diagram (DFD – Level 1)

Description:

The Expense Calculation System DFD shows how data moves through the system to manage and track family expenses efficiently.

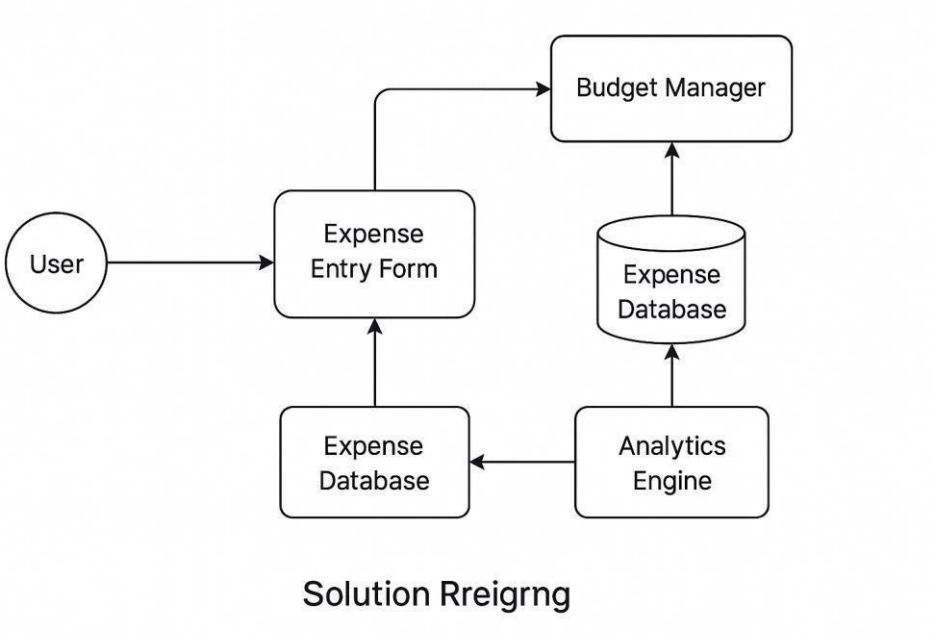
- **Users input expenses, set budgets, and view reports.**
- **Admin manages user accounts and system data.**

Main Processes:

1. **Expense Input – Users add expense details, which are validated and stored.**
2. **Budget Setting – Users define budgets; the system monitors and triggers alerts if limits are exceeded.**
3. **Categorization – Expenses are automatically grouped (e.g., food, bills, travel).**
4. **Report Generation – The system creates summaries and visual reports.**
5. **Notifications – Alerts users about budget status and spending trends.**

Data Stores:

- **User Database**
- **Expense Data**
- **Budget Records**
- **Report Repository**



3. Technology Stack

Layer / Category	Technology / Tool	Description / Purpose
Platform	**ServiceNow**	Core platform used for building, hosting, and managing the expense management application.
Frontend (User Interface)	**Service Portal / Now Experience UI Builder**	Provides a user-friendly interface for expense input, reports, and dashboards.
Backend (Logic Layer)	**Flow Designer, Business Rules, Script Includes**	Handles data processing, automation, and workflow logic for expense calculations.
Database	**ServiceNow Tables**	Stores user details, expense data, budgets, and reports securely.
Integration	**REST API / Import Sets**	Enables data import/export from external sources like bank statements or spreadsheets.
Reporting & Analytics	**Performance Analytics / Reporting Module**	Generates visual dashboards and analytical reports for tracking expenses.
Security	**Role-Based Access Control (RBAC)**	Ensures authorized access and data protection for all users.
Notifications	**Email Notifications / Flow Actions**	Sends budget alerts, reminders, and summaries to users automatically.
Development Tools	**ServiceNow Studio, JavaScript, Glide API**	Used to design and develop custom logic and automation within the platform.
Deployment & Governance	**Update Sets / Application Repository**	Manages deployment, version control, and governance across environments.