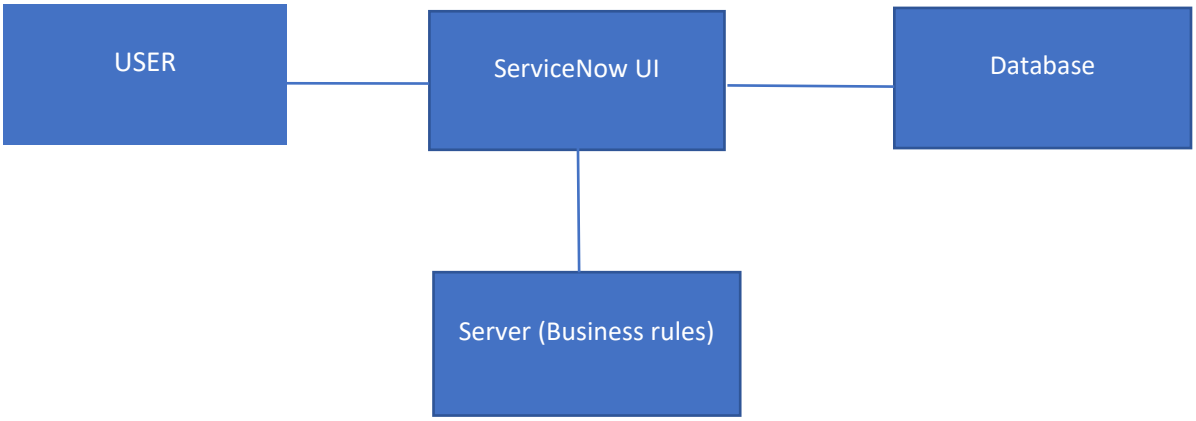
PROJECT DESIGN PHASE

DATE	07 NOVEMBER 2025
TEAM ID	NM2025TMID09183
PROJECT NAME	Calculating Family Expenses using ServiceNow

3.1 Introduction:

System design defines the architecture, data flow, UI flow, and relationships between different components of the Family Expense Management System built using ServiceNow. This phase ensures the application is structured, scalable, and easy to understand.

3.2 System Architecture Diagram Description:



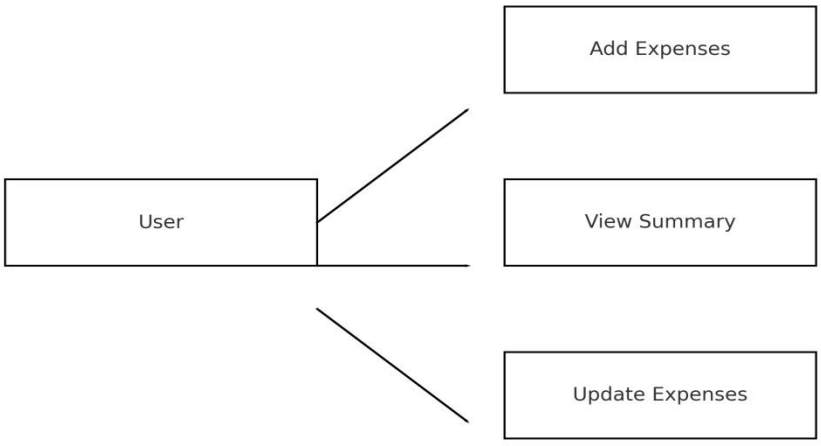
The system follows a **3-tier architecture**:

Layer	Description
User Interface Layer	ServiceNow Forms for entering expenses
Business Logic Layer	Business Rules (Server-Side Script)
Data Layer	ServiceNow Tables (Family Expenses & Daily Expenses)

Working Flow:

- User enters daily expenses → Daily Expenses Table
- Business Rule triggers → Calculates & updates total
- Family Expenses Table updates & displays consolidated total

3.3 Use Case Diagram Description:



Actor	Use Case
User	Enter daily expenses
System	Save daily expense record
Business Rule	Update total expenses automatically
User	View total expenses

Primary Actor: User

System: ServiceNow platform

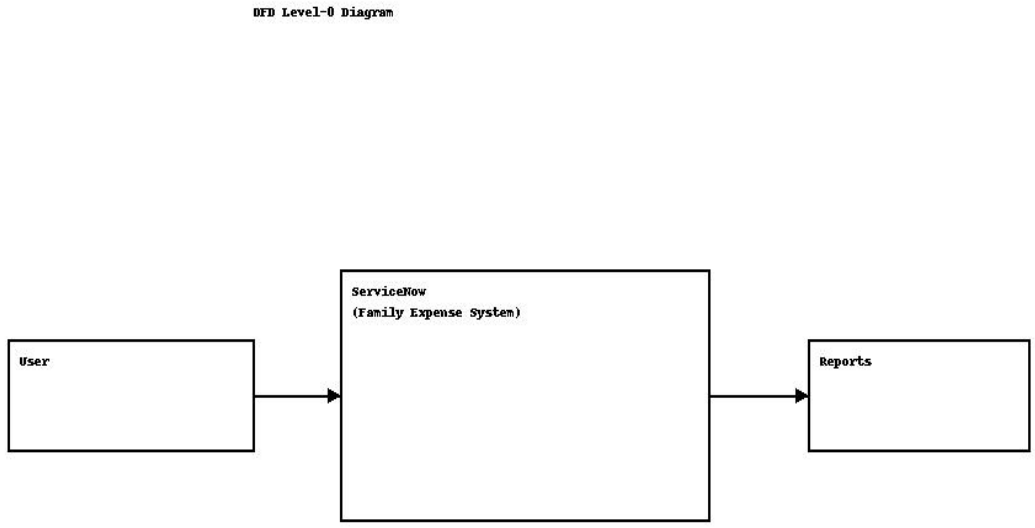
3.4 ER (Entity-Relationship) Diagram:

Table	Fields	Relation
Family Expenses	Number, Expense Details, Total Amount	**1**-to-**Many**
Daily Expenses	Date, Amount, Expense Details, Reference to Family Expense	**Many records** belong to **one family record**

Relationship:

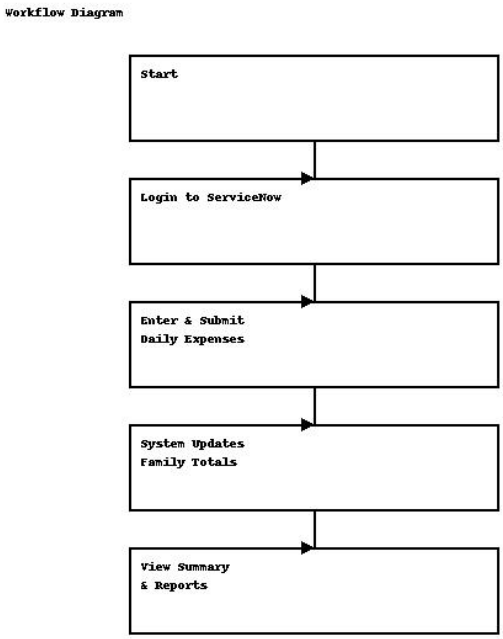
Family Expenses (PK) ← Daily Expenses (FK)

3.5 Data Flow Diagram (DFD – Level-0):



Step	Action
1	User enters daily expense
2	Data stored in Daily Expenses Table
3	Business Rule calculates totals
4	Update Family Expenses Table
5	User views updated expense summary

3.6 Workflow Diagram Description:



1. Start
2. Enter daily expense
3. Submit form
4. Service script triggers
5. Fetching existing total
6. Add new expense
7. Update family expense record
8. Display updated total
9. End

3.7 Summary:

This design allows smooth data flow, automation, and easy monitoring of family expenses without any manual calculations.

The architecture ensures:

- Accurate expense tracking
- Data consistency
- Automated updates
- Scalability on ServiceNow platform