□ Project Design Phase – II

Technology Stack (Architecture & Stack)

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Project Name: Calculating the Family Expenses in ServiceNow

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1. Introduction

The **Technology Stack** defines the tools, frameworks, and architecture layers used to design, develop, and deploy the *Calculating the Family Expenses in ServiceNow* project.
This project leverages **ServiceNow's platform capabilities** for automation, rule management, data storage, and reporting to provide a seamless, efficient, and secure financial tracking system for families.

The stack is designed to ensure **scalability, accuracy, and performance**, enabling the system to process financial data, apply business rules, and generate analytical dashboards effectively.

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2. System Architecture Overview

The **architecture** for the *Calculating the Family Expenses* system follows a **three-tiered model**:

2.1 Presentation Layer

- The **user interface** (UI) is built using ServiceNow's **UI Pages, Forms, and Catalog Items**.
- Users (family members or administrators) interact with the system through ServiceNow's web portal.
- It provides data input screens, dashboards, and reports with user-friendly navigation and responsive layouts.

2.2 Application Layer

- This layer handles **business logic, automation, and validation** through ServiceNow's scripting engine.
- Core components include:
    - **Business Rules:** Enforce validation and prevent deletion of linked expenses.
    - **Workflows:** Automate monthly total calculations and report generation.
    - **Script Includes:** Manage server-side logic and reusable functions.
    - **Notifications:** Send alerts for budget limits or report availability.

2.3 Data Layer

- All expense and user data are stored in **ServiceNow tables**.
- Key tables include:
  - **Expense Table (custom):** Stores transaction details.
  - **Family Member Table:** Records member information and roles.
  - **Report Table:** Maintains summary and monthly reports.
- ServiceNow ensures **data consistency, integrity, and security** using Access Control Lists (ACLs).

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3. Technology Stack Components

Category	Technology Used	Purpose
Platform	ServiceNow	Core development and workflow management
Frontend	HTML5, CSS3, Service Portal Widgets	User interface design and interactivity
Backend	JavaScript (Glide API, Script Includes)	Business logic and data processing
Database	ServiceNow CMDB & Custom Tables	Storage and management of expense data
Automation	Business Rules, Workflows, Flow Designer	Validation, reporting, and auto-calculation
Analytics & Reports	Performance Analytics, Dashboards	Visual representation of expense data
Security	ACLs, Role-based Access Control	Ensures data confidentiality and safe access

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4. Integration & Scalability

- The system supports **integration** with third-party analytics tools like **Power BI** or **Excel Online** for extended financial insights.
- It can later incorporate **AI-based forecasting models** to predict future expenses and savings.
- The ServiceNow platform provides built-in scalability for handling large datasets, multi-user access, and real-time data synchronization.

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5. Conclusion

The **Technology Stack and Architecture** for *Calculating the Family Expenses in ServiceNow* combine ServiceNow's powerful automation tools, scripting capabilities, and

secure data model to create a **robust, scalable, and maintainable solution**.
This architecture ensures a smooth user experience, consistent performance, and flexibility for future enhancements such as predictive analytics and multi-device access.