Requirement Analysis Phase

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Maximum Marks	4 Marks

The Requirement Analysis Phase is pivotal to ensuring the Family Expense Management System is both robust and tailored to user needs. This stage focuses on systematically identifying, categorizing, and refining both functional and non-functional requirements. It ensures that development efforts align precisely with user expectations and platform capabilities, particularly within the context of the ServiceNow ecosystem.

In this phase, requirements are not only gathered but are also evaluated for feasibility, consistency, and completeness. The objective is to build a clear and actionable foundation that supports successful system design, development, and deployment.

1. User Setup
A key initial requirement is enabling users—especially those with limited technical backgrounds—to set up their own ServiceNow developer instances. The system must support:

- Self-registration with guided instructions or automated scripts.
- A user-friendly configuration process requiring minimal manual intervention.
- Environment setup that includes the essential modules, access rights, and data separation by user for privacy.

This ensures broader accessibility and scalability across different users or households.

2. Data Structure Definition
To handle financial data efficiently, two main data structures (tables) are required:

- Family Expenses Table: Manages high-level, aggregated expenses categorized by type (e.g., Rent, Utilities, Education).
- Daily Expenses Table: Captures day-to-day transactions and expense records at a granular level.

This dual-table setup enables both micro and macro-level data analysis and reporting, allowing for detailed financial tracking and strategic planning.

3. Core Feature Requirements

The Family Expense Management System must support a set of core features that enhance automation, accuracy, and usability. These include:

- Auto-generated Expense IDs: For unique identification of every entry.
- Automatic Date Stamping: Ensures timely and traceable logging of each record.
- Manual & Automated Expense Recording: Users can input expenses manually or import from integrated sources (if expanded in future phases).
- Expense Categorization: Customizable fields for tagging transactions (e.g., Groceries, Medical, Transportation).

These features make the system intuitive while reducing the risk of data duplication or errors.

4. Table Integration and Relational Design

A seamless relationship must be established between the Family Expenses and Daily Expenses tables. This ensures synchronized data flow, where updates in one table reflect appropriately in the other. Specifically:

- One-to-many mapping: One family record can relate to multiple daily transactions.
- Parent-child referencing: Expense summaries in the Family Expenses table are auto-updated based on Daily Expenses data.
- Integrity checks: Prevent orphaned records and maintain relational consistency.

This integration enables aggregated insights while preserving detailed records.

5. Business Logic Automation

Automated workflows and business rules play a crucial role in maintaining data accuracy and reducing manual effort. Key requirements include:

- Dynamic Field Calculations: Automatically update totals in the Family Expenses table as new daily records are added or modified.
- Validation Rules: Ensure only valid data types and value ranges are accepted.
- Scheduled Jobs or Script Includes (Optional): For periodic cleanup, recalculations, or notifications.

This automation minimizes user input errors and streamlines the data lifecycle.

6. Field Constraints and Validation

To ensure reliable and meaningful data collection, specific field-level requirements are defined:

- Mandatory Fields: Fields such as Date, User Name, Amount, and Category must be required during data entry.
- Read-only Fields: System-generated values (e.g., Record ID, Created On) should be locked from

user modification.
- Data Format Enforcement: Apply constraints on currency, date, and string fields to prevent invalid input.

These constraints maintain data consistency and enhance user trust in the system.

7. Expense Reporting and Visualization
A critical requirement for usability is the ability to analyze and visualize expense data. The system should provide:

- Custom Reports: Users can filter data by date ranges, family members, or categories.
- Graphical Dashboards: Pie charts, bar graphs, and line charts for intuitive trend analysis.
- Export Options: PDF or Excel outputs for offline review or sharing.

This empowers users to make informed financial decisions and identify spending patterns.

Conclusion
The Requirement Analysis Phase defines the scope, goals, and system behavior of the Family Expense Management System. By capturing detailed requirements—ranging from user setup to automation, reporting, and validations—this phase lays a structured foundation for design and implementation. A well-documented requirement analysis reduces project risks, accelerates development, and ensures that the final solution meets both technical standards and user expectations within the ServiceNow environment.