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**TITLE: CALCULATING FAMILY EXPENSES
USING SERVICENOW**

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1. Abstract

The project titled “**Calculating Family Expenses Using ServiceNow**” focuses on designing and implementing a digital, automated system for efficiently managing and analyzing household financial activities. Traditional methods of expense tracking — such as notebooks, spreadsheets, or mobile notes — often result in scattered data, manual errors, and limited analytical insight. These methods also make it difficult for families to identify spending patterns, control budgets, or make informed financial decisions.

To address these limitations, this project leverages the **ServiceNow platform**, a cloud-based low-code/no-code environment typically used for IT service management but capable of supporting custom application development. The goal is to demonstrate how ServiceNow can be repurposed as a personal finance management tool to automate expense tracking and provide real-time visibility into financial trends.

The system allows users to **record daily or monthly expenses** through a custom **Service Catalog form**, which stores data in a dedicated table. Each record captures essential details such as the date, category, amount, payment mode, and a brief description. Automated workflows and scripts validate entries, calculate totals, and generate summary reports for easy review. Dashboards and reports further enable the visualization of expenses by category, time period, or user.

This project not only streamlines the process of tracking expenses but also emphasizes the flexibility and adaptability of the ServiceNow platform beyond its conventional IT scope. Through automation, structured data storage, and reporting tools, families can make smarter budgeting decisions, reduce manual effort, and achieve better financial awareness. The project demonstrates the potential of **ServiceNow as a universal application platform**—capable of transforming routine, non-IT tasks into efficient digital workflows.

2. Introduction

Tracking family expenses is a vital part of financial planning and control. Without a structured method, individuals and families often lose track of where their money goes, leading to unnecessary expenditures and poor budgeting. In the digital age, while many mobile applications exist for this purpose, they often lack customization, data security, or integration with personal workflow systems.

Most families still depend on manual methods — such as maintaining notebooks or entering transactions in Excel sheets. These methods are **time-consuming, error-prone, and lack analytical power**. They provide no automation for categorizing or summarizing data and require manual effort to calculate totals or generate reports.

ServiceNow, on the other hand, offers a cloud-based platform that combines workflow automation, form creation, database management, and reporting — all in one environment. Although it is primarily used in enterprise IT service management, its **low-code/no-code** capabilities make it highly adaptable for non-IT applications like expense management.

By using ServiceNow for tracking family expenses, users can benefit from:

- Centralized and secure data storage.
- Automated workflows for recording and summarizing expenses.
- Real-time visibility through dashboards and reports.
- Role-based access (e.g., Admin and Family Members).
- Accessibility from any device, anywhere.

This background sets the foundation for exploring how ServiceNow can be effectively customized to meet the needs of personal financial management. It proves that enterprise-grade platforms can be repurposed to solve day-to-day household problems — providing automation, structure, and intelligence to simple tasks like expense tracking.

2.1 Why ServiceNow?

ServiceNow was chosen for this project due to its:

- **Low-code/no-code development environment** using ServiceNow Studio.
- **Strong workflow automation engine** for approval and data management.
- **Service Catalog and form design** for user interaction.
- **Reporting and dashboard tools** for data visualization.
- **Cloud-based accessibility**, ensuring secure and easy access from anywhere.

2.2 Objectives

- To design a custom application within ServiceNow to manage family expenses.
- To automate expense data entry, tracking, and reporting.
- To create user-friendly interfaces and forms for quick data input.
- To generate monthly and yearly analytical reports.
- To provide transparency into family spending patterns.

3. Problem Statement

Managing family expenses manually has always been a challenging task for households. Most families depend on traditional methods such as maintaining notebooks, using spreadsheets, or relying on memory to record their day-to-day expenses. These approaches are **time-consuming, prone to human error, and lack automation or analytical insights**. As a result, individuals often struggle to track spending accurately, identify unnecessary expenditures, or plan budgets effectively.

In today's digital world, the absence of a centralized system for managing personal finances leads to several issues, such as:

- Difficulty in maintaining **consistent and accurate expense records**.
- Lack of **real-time visibility** into how income is distributed across various categories (e.g., rent, groceries, utilities, transport, etc.).
- Inability to **analyze spending patterns** and generate reports for monthly or yearly comparisons.
- Manual effort required for **data entry, verification, and total calculations**.
- Limited options for **data sharing or collaborative expense management** among family members.

To overcome these challenges, there is a need for a **digital, automated, and user-friendly system** that can record, categorize, and analyze family expenses seamlessly. The proposed project — “**Calculating Family Expenses Using ServiceNow**” — aims to develop such a solution using the **ServiceNow platform**, which provides cloud-based automation, database management, and reporting tools.

This system will enable users to:

- Record expenses through a structured online form.
- Automatically store and categorize expense data.
- Generate visual reports and summaries for better financial insights.
- Reduce manual effort and ensure data accuracy.

Thus, the project addresses the core problem of inefficient manual expense tracking by leveraging ServiceNow's capabilities to create a **smart, automated, and reliable family expense management solution**.

4. Methodology / System Design

4.1 Design Approach

The system was designed using a modular and user-centric approach. The key modules include:

- **Service Catalog Form:** For entering expense data.
- **Custom Tables:** For storing all expense records with fields like date, category, amount, and description.
- **Workflow Engine:** For approving or processing expense entries automatically.
- **Reports and Dashboards:** For visualizing spending trends.
- **User Roles:** Such as *Admin* and *Family Members* with specific access permissions.

ServiceNow Features Used

- ServiceNow Studio
- Service Catalog
- Flow Designer
- Notifications and UI Policies
- Reporting & Performance Analytics

4.2 System Architecture

The architecture consists of the following layers:

Layer	Component	Description
Presentation	Service Catalog UI	Interface for entering expenses
Business Logic	Flow Designer	Automates approvals and notifications
Data Layer	Custom Tables	Stores expense data
Reporting	Dashboards	Displays analytics and trends

Integration (optional) Email/Excel Export For report sharing

The system follows a **client-server model**, where ServiceNow acts as a cloud-based server handling all business logic, while users interact via the web interface.

4.3 User Interface (UI) and User Experience (UX)

- **UI Design:**

The expense form includes fields for:

- Expense Date
- Category (Groceries, Rent, Utilities, etc.)
- Amount
- Payment Mode (Cash, Card, UPI)
- Description

- **UX Considerations:**

- Simple and intuitive form design.
- Dropdowns for category selection.
- Automated field population (e.g., current date).
- Confirmation message after saving data.

5. Implementation Details

5.1 Platform Setup

Steps followed:

1. Created a **Developer Instance** from the ServiceNow Developer portal.
 2. Configured user roles:
 - *admin* (full control)
 - *user* (family member).
 3. Created a new **Application: Family Expense Tracker** in ServiceNow Studio.
-

5.2 Development and Customization

Custom Tables

A table named `u_family_expense` was created with fields:

- `u_date`
- `u_category`
- `u_amount`
- `u_payment_mode`

- u_description
- u_created_by

Catalog Form

- Built a Service Catalog item named *Add Expense Entry*.
- Linked it to the u_family_expense table.
- Added UI policies for mandatory fields and dynamic visibility.

Scripting

- Used **Client Scripts** to validate that the amount entered is positive.
- Used **Business Rules** to automatically set the logged-in user in the u_created_by field.

Example script:

```
if (current.u_amount < 0) {
    gs.addErrorMessage('Amount cannot be negative');
    current.setAbortAction(true);
}
```

5.3 Workflow Implementation

Flow Designer

- Created a flow triggered on record creation in the u_family_expense table.
- Flow sends a confirmation email to the user.
- Updates a summary table to track total monthly expenses.

Notifications

Automatic notifications configured for:

- Expense entry creation.
- Monthly summary report.

Approvals (Optional)

- For shared family accounts, the admin can approve or reject high-value entries.
-

Results and Discussion

After implementation:

- Family members can add expenses via a single form.
- The system automatically records all details and calculates totals.
- Dashboards display total spending by category and month.
- Reports can be exported to Excel or viewed online.

Sample Output Reports

Month Total Expense (₹) Major Category

Jan 2025	52,000	Rent
Feb 2025	47,500	Groceries
Mar 2025	49,800	Education

These reports provide visibility into monthly trends and help identify overspending areas.

Testing

Test Scenarios

Test Case Description		Expected Result	Status
TC01	Submit expense form	Record saved successfully	Passed
TC02	Enter negative amount	Error message displayed	Passed
TC03	Generate monthly report	Report generated accurately	Passed
TC04	Email notification	User receives confirmation	Passed

User Feedback

Family members found the application easy to use and appreciated the automated reports.

Advantages

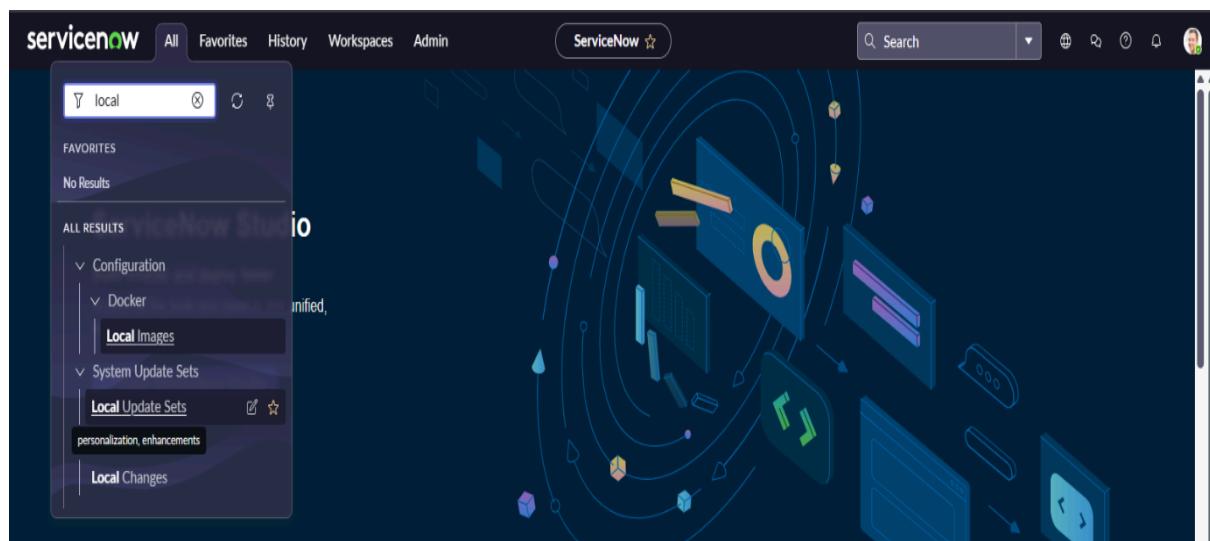
- Automation of manual data entry.
- Easy access and management of data.
- Real-time analytical dashboards.
- Secure and role-based access.
- Cloud-based solution requiring no installation.

Limitations

- Internet connection required.
- Limited to ServiceNow platform users.
- Graphical reports can be enhanced with integration tools like Power BI.

Future Scope

- Integration with Google Sheets or bank APIs for automatic expense import.
- Adding AI-based prediction of future expenses.
- Mobile-friendly UI through ServiceNow Mobile App.
- Voice input for quick expense logging.



GO FURTHER

Power your workflow applications



The ServiceNow Update Set - Create New Update Set form is displayed. The title bar says "Update Set - Create New Update Set". The form fields include:

- * Name: Family Expenses
- State: In progress
- Parent: (empty)
- Release date: (empty)
- Description: (empty)

Buttons at the bottom include "Submit" and "Submit and Make Current". The application is set to "Global".

servicenow All Favorites History Workspaces Admin Update Sets

Search Actions on selected rows... New

All

Name	Application	State	Installed from	Created	Created by	Parent	Batch Base
Default	Security Center	In progress		2025-08-22 01:09:18	system	(empty)	(empty)
Default	Pipeline	In progress		2025-10-29 20:00:01	admin	(empty)	(empty)
Default	Global	In progress		2025-08-21 23:00:25	system	(empty)	(empty)
Family Expenses	Global	In progress		2025-10-29 21:25:29	admin	(empty)	(empty)

Related Links

[Merge Update Sets](#)

1 to 4 of 4

servicenow All Favorites History Workspaces Admin Table - New Record

Table = Table
New record

ServiceNow recommends creating custom tables in scoped applications. To learn more about creating scoped applications, click [here](#).

A table is a collection of records in the database. Each record corresponds to a row in a table, and each field on a record corresponds to a column on that table. Applications use tables and records to manage data and processes. [More Info](#)

* Label: Family Expenses	Application: Global
* Name: u_family_expenses	Create module: <input checked="" type="checkbox"/>
Extends table:	Create mobile module: <input checked="" type="checkbox"/>
	Add module to menu: -- Create new --
	New menu name: Family Expenditure

Columns Controls Application Access

Table Columns: for text Search

Dictionary Entries

Column label	Type	Reference	Max length	Default value	Display
Number	String			false	
Date	Date			false	
Amount	Integer			false	
Expense Details	String		800	false	

ServiceNow All Favorites History Workspaces Admin Table - New Record ⭐

Save record and remain here

Custom tables in scoped applications. To learn more about creating scoped applications, click [here](#).

Configure >

Export >

Create Favorite

Copy URL

Copy sys_id

Reload form

Label: Family Expenses

Name: u_family_expenses

Application: Global

Create module:

Create mobile module:

Add module to menu: -- Create new --

New menu name: Family Expenditure

Extends table:

Columns Controls Application Access

Table Columns: for text

Dictionary Entries

	Column label	Type	Reference	Max length	Default value	Display
X	Number	String			false	
X	Date	Date			false	
X	Amount	Integer			false	
X	Expense Details	String		800	false	
+	Insert a new row...					

ServiceNow All Favorites History Workspaces Admin Table - Family Expenses ⭐

Table is a collection of records in the database. Each record corresponds to a row in a table, and each field on a record corresponds to a column on that table. Applications use tables and records to manage data and processes. [More Info](#)

* Label: Family Expenses

* Name: u_family_expenses

Application: Global

Columns Controls Application Access

Table Columns: for text

Dictionary Entries

	Column label	Type	Reference	Max length	Default value	Display
	Sys ID	Sys ID (GUID)	(empty)	32	false	
	Created by	String	(empty)	40	false	
	Created	Date/Time	(empty)	40	false	
X	Amount	Integer	(empty)	40	false	
X	Number	String	(empty)	40	false	
X	Expense Details	String	(empty)	800	false	
	Updated by	String	(empty)	40	false	
	Updates	Integer	(empty)	40	false	
	Updated	Date/Time	(empty)	40	false	

servicenow All Favorites History Workspaces Admin **Dictionary Entry - Number** ⭐

Dictionary Entry
Number View:Advanced

Alters the behavior of a field or functionality that depends on the field. [More Info](#)

Attributes

Choice List Specification Calculated Value **Default Value**

The Default value specifies what value the field has when first displayed.

Use dynamic default

Dynamic default value [Search](#) [0](#)

Delete Column Update

Related Links

- Show Table
- Run Point Scan
- Default view

Access Controls Choices Attributes Labels (1)

Name Search

Access Controls

Name	Decision Type	Operation	Type	Active	Updated by	Updated
------	---------------	-----------	------	--------	------------	---------

servicenow All Favorites History Workspaces Admin **Table - Family Expenses** ⭐

Table Maintenance [X](#)

FAVORITES No Results

ALL RESULTS System Definition Number Maintenance [Manage automation of sequential numbering of records in tables](#)

Application Global [0](#)

Columns Controls Application Access

Table Columns for text Search

Dictionary Entries

Column label	Type	Reference	Max length	Default value	Display
Sys ID	Sys ID (GUID)	{empty}	32		false
Created by	String	{empty}	40		false
Created	Date/Time	{empty}	40		false
Amount	Integer	{empty}	40		false
Number	String	{empty}	40	javascript:getNextObjNumberPadded();	false
Expense Details	String	{empty}	800		false
Updated by	String	{empty}	40		false
Updates	Integer	{empty}	40		false
Updated	Date/Time	{empty}	40		false

https://dev279787.service-now.com/sys_number_list.do?sysparm_userpref_module=10e86ef3c61122750035cf9c7f4d0dc&sysparm_clear_stack=true

servicenow All Favorites History Workspaces Admin Number - New Record 

Number     

  Number
New record 

* Table	Family Expenses	 
Prefix	MFE	
* Number	1,000	
Application	Global	
Number of digits	7	



Related Links
[Show Counter](#) 

servicenow

All Favorites History Workspaces Admin Numbers ☆

Family Expenses

FAVORITES
No Results

ALL RESULTS
Family Expenditure
Family Expenses

Number of digits Table Updated

Number of digits	Table	Updated
0	Email Watermark	2008-12-04 17:48:49
0	MID Deployment Request	2021-09-13 08:41:40
0	Scan Result	2019-07-12 15:26:02
0	MID Server Profile	2021-09-14 17:37:21
0	Guided Tour	2019-08-12 02:58:31
0	Indicator	2016-07-25 05:14:42
0	MID K8s Deployment Request	2021-09-20 01:09:58
0	Text Index	2011-10-12 12:17:02
0	Breakdown	2016-07-26 04:14:35
0	MID Server	2021-09-22 15:32:12
0	SLA Repair Log	2015-02-24 07:31:34
1	A/B Testing Evaluation Execution	2023-02-02 13:19:26
1	Template	2005-09-16 14:12:42
1	Interaction	2018-01-23 22:52:22
1	A/B Testing Evaluation	2023-02-19 13:36:43
1,000	Execution Context for Scheduled Import	2021-02-19 10:01:14
1,000	Service Category	2013-11-09 07:30:37
1,000	Scriptable Order Guide Failures	2013-12-05 12:21:58

https://dev279787.service-now.com/u_family_expenses_list.do?sysparm_userpref_module=f1e02813c33832104d519dc050131ac&sysparm_clear_stack=true

Family Expenses [u_family]

Default view

Form Design

Undo Save

Fields Field Types

Filter

Fields

- Created
- Created by
- Updated
- Updated by
- Updates

Formatters

- Activities (filtered)
- Contextual Search Results
- Ratings

Family Expenses [u_family_expenses]

Number Date

Amount

Expense Details

servicenow All Favorites History Workspaces Admin Table - New Record ⚡

Save record and remain here
Save custom tables in scoped applications. To learn more about creating scoped applications, click [here](#).

Configure >
Export >

Create Favorite
Copy URL
Copy sys_id
Reload form

Label Daily Expenses
Name u_daily_expenses

Application Global
Create module
Create mobile module

Add module to menu Family Expenditure

Columns Controls Application Access

Table Columns for text Search

Dictionary Entries

Q	Column label	Type	Reference	Max length	Default value	Display
X	Number	String				false
X	Date	Date				false
X	Expense	Integer				false
X	Family Member Name	Reference		800		false
X	Comments	String		800		false
+	Insert a new row...					

servicenow All Favorites History Workspaces Admin Dictionary Entry - Number ⚡

Dictionary Entry
Number View:Advanced

A dictionary entry manages how ServiceNow stores data in tables and fields (columns). For new dictionary entries, select a Table and the field Type of the new column. Also enter a column label, which becomes the field label, and the column name. If necessary, set a Max length for text String type fields, make the field Mandatory to save a record, and make the field a Display Value for reference fields so it appears on records that reference this table. [More Info](#)

* Table Daily Expenses [u_daily_expenses]
* Type String
* Column label Number
* Column name u_number
* Max length 40

Application Global
Active
Function field
Read only
Mandatory
Display

Alters the behavior of a field or functionality that depends on the field. [More Info](#)

Attributes

Choice List Specification Calculated Value Default Value

The Default value specifies what value the field has when first displayed.

Use dynamic default
Dynamic default value Get Next Padded Number

servicenow All Favorites History Workspaces Admin Number - New Record ⚡

Number New record

* Table Daily Expenses

Prefix DFE

* Number

Application Global

Number of digits

Submit

Related Links
[Show Counter](#)

Daily Expenses [u_daily_expense] Default view Form Design Undo Save

Fields Field Types Filter

Fields

- Created
- Created by
- Updated
- Updated by
- Updates

Formatters

- Activities (filtered)
- Contextual Search Results
- Ratings

Form Design

2 Column

1 Daily Expenses [u_daily_expenses]

Number Date

Expense

Comments

1 Column

Business Rule - New Record

Name: Family Expenses BR Application: Global [Edit](#) [Delete](#)

Table: Daily Expenses [u_daily_expenses] Active: Advanced:

When to run

Specify whether the business rule should run on Insert or Update. Use Filter Conditions to specify under which conditions the business rule should run.

When: before Insert:
Order: 100 Update:
Delete:
Query:

Filter Conditions: [Add Filter Condition](#) [Add "OR" Clause](#)

-- choose field -- -- oper -- -- value --

Role conditions: [Edit](#)

Relationship - New Record

Save record and remain here: Daily Expenses Application: Global [Edit](#) [Delete](#)

Export: [Create Favorite](#) [Advanced](#)

Creates to table: Family Expenses [u_family_expenses] Queries from table: Daily Expenses [u_daily_expenses]

This script: [View](#) [Edit](#) [Run](#) [Copy](#) [Delete](#)

Current will populate the related list. For more information about it, its parameters and control variables, see [the documentation](#). See also the article about the [recommended form of the script](#).

Query with: Turn on ECMAScript 2021 (ES12) mode [Edit](#)

```

1 (function refineQuery(current, parent) {
2
3     // Add your code here, such as current.addQuery(field, value);
4
5 })(current, parent);

```

Submit

The screenshot shows the ServiceNow interface with the following elements:

- Header:** The top navigation bar includes the ServiceNow logo, a search bar with a dropdown arrow, and user profile icons.
- Breadcrumbs:** Below the header, the breadcrumb trail reads "Configuring related lists on Family Expenses form".
- Form Fields:** A "View name:" field is set to "Default view".
- Related List Configuration:** This is the central feature, showing two lists:
 - Available:** Contains "Attachments" and "Daily Expenses".
 - Selected:** Contains "Daily Expenses".Between the lists are arrows for moving items between them: a right-pointing arrow between Available and Selected, and up and down arrows within the Selected list.
- Buttons:** At the bottom are "Cancel" and "Save" buttons.

A business rule is a server-side script that runs when a record is displayed, inserted, deleted, or when a table is queried. Use business rules to automatically change values in form fields when the specified conditions are met. [More Info](#)

Name: Family Expenses BR

Table: Daily Expenses [u_daily_expenses]

Application: Global

Active:

Advanced:

When to run Actions Advanced

Condition: Turn on ECMAScript 2021 (ES12) mode

Script:

```
1 (function executeRule(current, previous /*null when async*/) {
2
3     var FamilyExpenses = new GlideRecord('u_family_expenses');
4     FamilyExpenses.addQuery("u_date",current.u_date);
5     FamilyExpenses.query();
6     if(FamilyExpenses.next())
7     {
8         FamilyExpenses.u_amount += current.u_expense;
9         FamilyExpenses.u_expense_details += ">" + current.u_comments + ":" + "Rs." + current.u_expense + "-";
10        FamilyExpenses.update();
11    }
12    else
13    {
```

Servicenow All Favorites History Workspaces Admin Relationship - Daily Expenses ⚡

Name Daily Expenses Application Global

Advanced Applies to table Family Expenses [u_family_expenses]

Queries from table Daily Expenses [u_daily_expenses]

This script refines the query in current that will populate the related list. For more information about it, its parameters and control variables, see [the documentation](#). See also the article about the [recommended form of the script](#).

Query with Turn on ECMAScript 2021 (ES12) mode ⓘ

```
1 (function refineQuery(current, parent) {  
2 // Add your code here, such as current.addQuery(field, value);  
3 current.addQuery("u_date", parent.u_date);  
4 current.query();  
5  
6 })(current, parent);
```

Update Delete

Related Links

[Run Point Scan](#)

Conclusion

This project successfully demonstrates how ServiceNow can be used beyond ITSM — as a platform for personal finance automation. The *Family Expense Tracker* automates recording, categorization, and reporting of expenses, improving transparency and saving time. The project not only enhances productivity but also showcases ServiceNow's flexibility as a rapid application development tool for daily life use cases.