

Calculating Family Expenses using Service Now

ServiceNow Virtual Internship - SmartBridge

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GitHub Link : <https://github.com/Arulkumar-L/Calculating-Family-Expenses-using-Service-Now/>

Abstract

This project implements a Family Expenses Calculation System on the ServiceNow platform. It enables families to record daily expenses, automatically aggregate totals per day, and provide a clear form-based UI for data entry. The system uses custom tables, business rules, and relationships to ensure that when daily expense records are inserted or updated, the corresponding aggregated family expense record is created or updated automatically. This reduces manual reconciliation and provides near real-time insights into household spending.

Problem Statement

Many households lack a centralized, low-effort way to record and aggregate daily expenses. Manual tracking is error-prone and time-consuming, often resulting in incomplete records and poor visibility into spending patterns. The goal is to provide a simple, maintainable system built on ServiceNow that enables easy recording of daily expenses and automated aggregation so families can monitor and manage their finances.

Objectives

- Provide a simple interface for recording daily family expenses.
- Automatically aggregate expenses by date to produce daily totals.
- Store descriptive comments and metadata (family member name, comments).
- Ensure the system is maintainable and extensible on the ServiceNow platform.

Methodology

The solution leverages ServiceNow's configuration capabilities: custom tables (Family Expenses and Daily Expenses), forms designed via the Form Designer, a Business Rule to perform aggregation logic on insert/update, and a Relationship / Related List to surface child daily expense records under their aggregated parent record. The development process included: requirements gathering, instance setup, table and field design, form configuration, scripting a server-side Business Rule, and testing.

Tables & Fields

Family Expenses (u_family_expenses)

Field	Type	Description
u_number	String	Auto-generated identifier, format prefix 'MFE' + padded number
u_date	Date	The date for which expenses are aggregated
u_amount	Integer	Total amount for the date
u_expense_details	String	Concatenated descriptions of daily expenses for quick review

Daily Expenses (u_daily_expenses)

Field	Type	Description
u_number	String	Auto-generated identifier
u_date	Date	Date of the expense
u_expense	Integer	Amount spent for the entry
u_family_member_name	Reference	Reference to a family member table or free text (max 800)
u_comments	String	Details or purpose of the expense

Form Design

Forms were created using ServiceNow's Form Designer. Key points:

- Number fields were set to read-only with dynamic default generation.
- Mandatory fields: Date and Amount for Family Expenses; Date and Family Member Name for Daily Expenses.
- Related List configuration allows Daily Expenses to be displayed within a Family Expenses record for easier navigation.

Business Rule

A server-side Business Rule named 'Family Expenses BR' runs on the Daily Expenses table for insert and update events. Its role is: when a daily expense is added or edited, find (or create) the Family Expenses record for the same date and update the aggregated total and expense details. This keeps the aggregate data consistent without manual intervention. The logic uses GlideRecord queries and handles both update and insert scenarios.

Business Rule Script

```
(function executeRule(current, previous /*null when async*/) { var FamilyExpenses = new GlideRecord('u_family_expenses'); FamilyExpenses.addQuery('u_date', current.u_date); FamilyExpenses.query(); if (FamilyExpenses.next()) { FamilyExpenses.u_amount += current.u_expense; FamilyExpenses.u_expense_details += ">" + current.u_comments + ":" + "Rs." + current.u_expense + "/-"; FamilyExpenses.update(); } else { var NewFamilyExpenses = new GlideRecord('u_family_expenses'); NewFamilyExpenses.u_date = current.u_date; NewFamilyExpenses.u_amount = current.u_expense; NewFamilyExpenses.u_expense_details += ">" + current.u_comments + ":" + "Rs." + current.u_expense + "/-"; NewFamilyExpenses.insert(); } }(current, previous);
```

Relationship

A Relationship was configured to link Daily Expenses records to Family Expenses aggregations using the date field as the connecting key. This allows the related list shown on the Family Expenses form to automatically display all Daily Expenses for that date. A refineQuery script example was used to add this matching logic.

Relationship refineQuery Script

```
(function refineQuery(current, parent) { current.addQuery('u_date', parent.u_date); current.query(); })(current, parent);
```

Outputs & Test Cases

Example test cases executed:

- 1) Insert a Daily Expense for 2025-12-01 of Rs. 150 with comment 'Grocery' -> Family Expenses record for 2025-12-01 created with total 150.
- 2) Insert another Daily Expense for the same date of Rs. 50 with comment 'Snacks' -> Family Expenses u_amount updated to 200 and u_expense_details appended.
- 3) Update an existing Daily Expense amount -> Family Expenses aggregation logic adjusts totals accordingly (additional logic can be added to handle subtraction on update).

The provided screenshots show table definitions, sample records, number maintenance configuration, relationship setup, and business rule evidence.

Screen Shots :

Daily Expenses number maintainence

This screenshot shows the 'Number DFE' configuration page in ServiceNow. The page includes fields for 'Table' (Daily Expenses), 'Prefix' (DFE), 'Number' (1,000), 'Application' (Global), and 'Number of digits' (7). There are 'Update' and 'Delete' buttons at the bottom left. The top navigation bar shows 'Number - DFE' and a search bar. The bottom status bar shows the user's name '532281' and the date '09-12-2025'.

ServiceNow Developers | DFE | Number | ServiceNow | Family Expenses | ServiceNow | MFE0001010 | Family Expenses | Daily Expenses | ServiceNow | +

https://dev181362.service-now.com/now/nav/ui/classic/params/target/sys_number.do%3Fsys_id%3D3a2712488335b2101ce3c1b6feaad... Search

servicenow All Favorites History Workspaces : Number - DFE Search Update Delete

* Table: Daily Expenses
Prefix: DFE
* Number: 1,000
Application: Global
Number of digits: 7

Update Delete

Related Links
[Show Counter](#)

532281 1.16% Search ENG IN 10:34 09-12-2025

Daily Expenses record

This screenshot shows the 'Daily Expenses' list view in ServiceNow. The table displays four records with columns for Number, Comments, Date, Expense, and Family Member Name. The top navigation bar shows 'Daily Expenses' and a search bar. The bottom status bar shows '1 to 4 of 4' and the date '09-12-2025'.

ServiceNow Developers | Family Expenses BR | Business | Family Expenses | ServiceNow | MFE0001010 | Family Expenses | Daily Expenses | ServiceNow | +

https://dev181362.service-now.com/now/nav/ui/classic/params/target/u_daily_expenses_list.do%3Fsysparm_userpref_module%3D16f452848... Search

servicenow All Favorites History Admin : Daily Expenses Search Actions on selected rows... New

	Number	Comments	Date	Expense	Family Member Name
<input type="checkbox"/>	DFE0001010	Tuition Fees	2025-12-08	2,000	Adela Cervantsz
<input type="checkbox"/>	DFE0001012	Groceries	2025-12-08	500	Andrew Och
<input type="checkbox"/>	DFE0001009	Fuel for bike	2025-12-08	500	Andrew Och
<input type="checkbox"/>	DFE0001011	Electricity Bill	2025-12-08	1,000	Andrew Och

1 to 4 of 4

24°C Sunny Search ENG IN 10:30 09-12-2025

Daily Expenses table

ServiceNow DevelopersFamily Expenses BR | BusinessMFE0001010 | Family ExpensesCreate DFE0001013 | Daily Expenses

https://dev181362.service-now.com/now/nav/ui/classic/params/target/u_daily_expenses.do%3Fsys_id%3D-1%26sys_is_list%3Dtrue%26sys_ta...

servicenowAllFavoritesHistoryDaily Expenses - Create DFE0001013Search

Daily ExpensesNew record

NumberDFE0001013

* Family Member Name

* Date

Expense

Comments

Submit

Family expenses output

ServiceNow DevelopersFamily Expenses BR | BusinessMFE0001010 | Family ExpensesMFE0001010 | Family ExpensesServiceNow

https://dev181362.service-now.com/u_family_expenses.do?sysparm_record_list=&sysparm_record_rows=1&sysparm_record_row=1&sys...

Family ExpensesMFE0001010UpdateDelete

NumberMFE0001010

* Date2025-12-08

* Amount4,000

Expense Details

UpdateDelete

Daily Expenses

	Number	Comments	Date	Expense	Family Member Name
<input type="checkbox"/>	DFE0001010	Tuition Fees	2025-12-08	2,000	Adela Cervantsz
<input type="checkbox"/>	DFE0001012	Groceries	2025-12-08	500	Andrew Och
<input type="checkbox"/>	DFE0001009	Fuel for bike	2025-12-08	500	Andrew Och
<input type="checkbox"/>	DFE0001011	Electricity Bill	2025-12-08	1,000	Andrew Och

Family expenses record

ServiceNow DevelopersFamily Expenses BR | Business Family Expenses | ServiceNowMFE0001010 | Family ExpensesServiceNow

https://dev181362.service-now.com/u_family_expenses_list.do

Family ExpensesNumberSearch

Actions on selected rows...New

All

Number	Amount	Date	Expense Details
MFE0001010	4,000	2025-12-08	>Fuel for bike: Rs.500/->Tuition Fees...

1 to 1 of 1

24°C Sunny

Search

ENG IN10:28 09-12-2025

Family expenses table

ServiceNow DevelopersFamily Expenses BR | BusinessCreate MFE0001011 | Family ExpensesMFE0001010 | Family ExpensesServiceNow

https://dev181362.service-now.com/u_family_expenses.do?sys_id=-1&sys_is_list=true&sys_target=u_family_expenses&sysparm_checked...

Family ExpensesNew record

Submit

NumberMFE0001011

* Date

* Amount

Expense Details

Submit

24°C Sunny

Search

ENG IN10:29 09-12-2025

Business rule

The screenshot shows the ServiceNow Business Rule editor for a rule named 'Family Expenses BR'. The 'Advanced' tab is selected, showing a script that uses GlideRecord to manage family expenses. The script logic is as follows:

```
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
7     var line = "\n>" + current.u_comments + ": Rs." + current.u_expense + "/-";
8
9     if (FamilyExpenses.next()) {
10         FamilyExpenses.u_amount += current.u_expense;
11         FamilyExpenses.u_expense_details += line;
12         FamilyExpenses.update();
13     } else {
14         var NewFamilyExpenses = new GlideRecord('u_family_expenses');
15         NewFamilyExpenses.u_date = current.u_date;
16         NewFamilyExpenses.u_amount = current.u_expense;
17         NewFamilyExpenses.u_expense_details = line; // initialize instead of +=
18         NewFamilyExpenses.insert();
19     }
20
21 })(current, previous);
22
```

The interface includes tabs for 'When to run', 'Actions', and 'Advanced'. The 'Update' and 'Delete' buttons are visible in the top right corner.

family expenses number maintenance

The screenshot shows the ServiceNow Number Maintenance page for the 'Family Expenses' table. The configuration is as follows:

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

Buttons for 'Update' and 'Delete' are located below the configuration fields. A 'Related Links' section with a 'Show Counter' link is also present.

Relationship

ServiceNow Developers | Daily Expenses | Relationship | Family Expenses | ServiceNow | MFE0001010 | Family Expenses | Daily Expenses | ServiceNow

https://dev181362.service-now.com/now/nav/ui/classic/params/target/sys_relationship.do%3Fsys_id%3D7758d6888335b2101ce3c1b6fe...

servicenow All Favorites History Workspaces Relationship - Daily Expenses Search

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
3 // Add your code here, such as current.addQuery(field, value);
4 current.addQuery('u_date', parent.u_date);
5 current.query();
6
7 })(current, parent);
```

Update Delete

Related Links

[Run Point Scan](#)

Conclusion

The Family Expenses Calculation System demonstrates how ServiceNow can be extended beyond ITSM to deliver simple, practical business applications. It reduces manual work, provides a single source of truth for daily household spending, and is suitable for further enhancements such as user authentication, family member catalog, detailed reporting, and dashboards.

Future Scope

Potential improvements:

- Add transaction-level edit tracking to adjust aggregated totals correctly on update/delete.
- Implement a Family Members table and reference field to enforce data integrity.
- Create scheduled reports and Performance Analytics widgets for visualization.
- Integrate export options (CSV/PDF) and notifications for budget thresholds.
- Add validation rules and UI Policies to improve data quality.

