PROJECT: CALCULATING

## **FAMILY EXPENSES**

#### INTRODUCTION

#### **Project Overview:**

Calculating family expenses is the process of tracking, estimating, and planning for all the money a family spends over a given period —usually monthly or annually. It helps ensure financial stability, avoid debt, and prepare for future.

#### Purpose:

Calculating family expenses serves several essential purposes that help ensure financial health, stability, and long-term planning. main reasons of why it's important:

#### • Budgeting

Understanding where money is going gives the family control over spending and helps avoid overspending or falling into debt.

#### • Financial planning

It allows families to create a realistic monthly or annual budget, based on actual needs and priorities.

#### Goal Setting

Assists in planning for savings, investments, education, vacations, or emergencies.

#### **IDEATION PHAGE**

#### **Problem Statement:**

The project aims to develop a comprehensive expense calculation system using Service Now. This system will enable users to track and manage family expenses efficiently. It will include features such as expense categorization, budget setting, real-time tracking, and reporting capabilities. Utilizing Service Now's robust platform, the project will ensure seamless integration, user- interface, and scalability to accommodate varying family sizes and financial complexities. The end goal is to empower users with the tools they need to make informed financial decisions and promote well-being within the family unit.

# REQUIREMENT ANALYSIS

# **Solution Requirement:**

| Team ID      | LTVIP2025TrMID30893         |
|--------------|-----------------------------|
| Project name | Calculating Family Expenses |

# Functional requirements:

| FR NO | Functional         | Description  |
|-------|--------------------|--|
|       | requirements       |  |
| FR-1  | Setting Up Service | Sign up developer account and go to website and              |
|       | Now Instance       | navigate to the service now.                                 |
| FR-2  |                    | Search local update and enter the name and click on submit   |
|       | Creation of New    | OffSubffilt  |
|       |                    |  |
|       | Update Set         |  |
|       |                    |  |
| FR-3  |                    | Create the table family Expenses and add the                 |
|       | Creation of Table  | column label, name and max length. create number             |
|       | Creation of Table  | MFE table enter the number, date, amount and expense details |
| FR -4 |                    | Create the table daily expenses and insert the details       |
|       |                    | . create the table daily expenses DFE go for form            |
|       | Creation of        | design .   |
|       | Table(Daily        |  |
|       |                    |  |
|       | Expenses)          |  |
|       |                    |  |
|       |                    |  |
|       |                    |  |

| FR-5  |                      | Search relationship and enter details.  |
|-------|----------------------|---|
|       | Creation of          |   |
|       | Relationship         |   |
|       |                      |   |
|       |                      |   |
| FR-6  |                      | Open table family expenses go to header and right click then go configure select related list add daily |
|       | Configuring Related  | expenses area and save.   |
|       | List on Family       |   |
|       | Expenses             |   |
|       |                      |   |
|       |                      |   |
| FR-7  |                      | Open business rules and enter the details and check advance and write the code.                         |
|       | Creation of Business |   |
|       | Rules                |   |
|       |                      |   |
| FR-8  |                      | Search relationships in that open daily expenses  |
| 111-0 | G G 41               | relationship and write the query.   |
|       | Configure the        |   |
|       | Relationship         |   |
|       |                      |   |
|       |                      |   |

# Non-functional requirement:

| S. no | Non-functional | Description |
|-------|----------------|-------------|
|       | requirement    |             |

| NFR-1 | Usability   | The system shall have an intuitive and user-friendly interface suitable for all family members, including non-technical users.  Users shall be able to add, view, and edit expenses with no more than 3 clicks from the main screen. |
|-------|-------------|--|
| NFR-2 | Scalability | The system must support at least 10 users per household and 100,000 total expense records without slowing down.  |
| NFR-3 | Security    | User data shall be protected with password authentication and role-based access control. All sensitive data shall be encrypted at rest and in transit.   |

# **Data Flow Diagram:**

Generic A Data Flow Diagram (DFD) for a Service Now-based system (like a family expense tracking workflow) helps visualize how data moves between users, processes, and data stores within the platform. a breakdown of a generic DFD for a "Family Expense Tracking System" built in — this can be customized based on the level (Level 0, Level 1, etc.).

# **SETTING UP SERVICENOW**



**CREATION OF NEW UPDATE SET** 





# **CREATION OF TABLE(DAILY EXPENSES**



# **CREATION OF RELATIONSHIP**



# CONFIGURING RELATED LIST ON FAMILY EXPENSES



# **CREATION OF BUSINESS RULES**



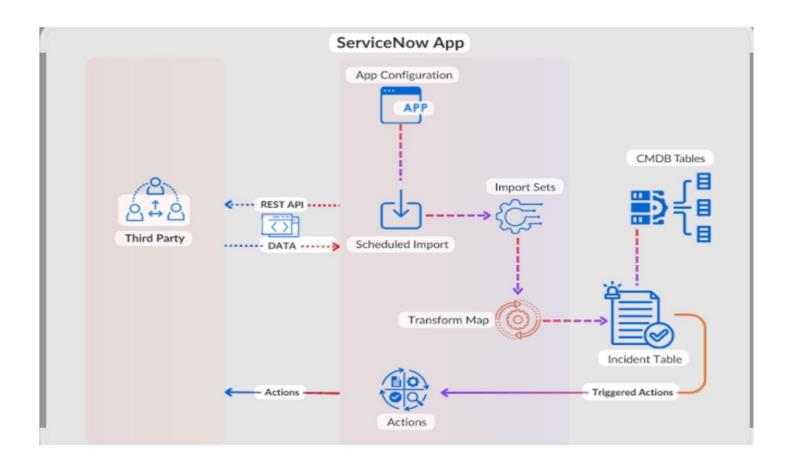
**CONFIGURE THE RELATIONSHIP** 



CONCLUSION

# **Technology Stack:**

- Cloud-Based Platform Entirely hosted in the cloud (SaaS model). Accessible via web browser with no local installation.
- Multi-Tenant Architecture Multiple customers share the same infrastructure. Data is logically separated to ensure privacy and security.
- Application Layer Provides core business applications (e.g., ITSM, HR, CSM). Custom applications can also be developed using App Engine.
- Platform Layer (Now Platform) Core engine that powers workflows, data handling, and app development.



#### **Architecture Of Service Now**

# **Project Design:**

# Proposed solution

This approach allows quick setup without the need for coding or complex systems.

# **Calculating Family Expenses**

Milestone 1: Setting up ServiceNow

**Activity 1:** Setting up ServiceNow

#### Purpose:

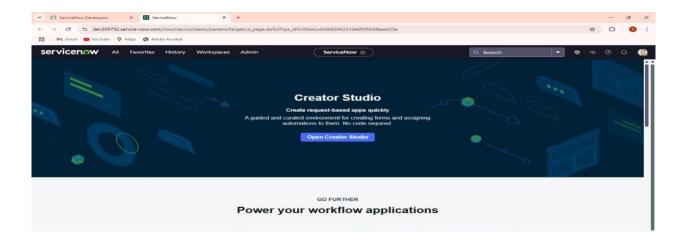
Service Now is traditionally used for ITSM, HR workflows, and enterprise processes, it can be customized to track personal or family expenses using the App Engine and low-code tools like Tables, Forms, and Flow Designer.

#### Use:

Setting up a ServiceNow instance is a crucial step for organizations looking to leverage ServiceNow for IT Service Management (ITSM), HR, Customer Service, or other business workflows

## Steps:

- 1. Sign up for a developer account on the ServiceNow Developer site "https://developer.servicenow.com".
- 2. Once logged in, navigate to the "Personal Developer Instance" section.
- 3. Click on "Request Instance" to create a new ServiceNow instance.
- 4. Fill out the required information and submit the request.
- 5. You'll receive an email with the instance details once it's ready.
- 6. Log in to your ServiceNow instance using provided credentials.
- 7. Now you will navigate to the ServiceNow.



Milestone 2: Creation of New Update Set Activity 1: Creation of New Update Set

Purpose:

An update set is a way to track and package customizations or changes . made to an instance so that they can be moved between environments (like from development to production).

#### Use:

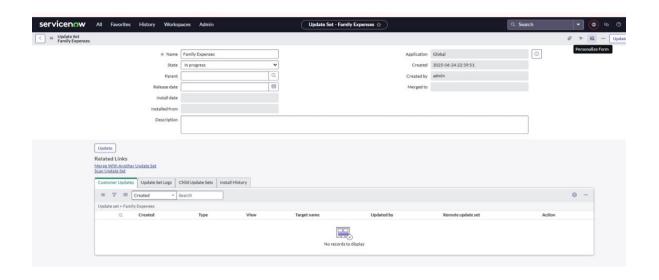
The use of creating a new update set in calculating family expenses (within ServiceNow) is to track, manage, and migrate all the changes or customizations you make while building your Family Expense Calculator application.

## Steps:

- 1. Go to All >> In the filter search for Local Update set > click on New.
- 2. Enter the Details as:

Name: Family Expenses

3. Then click on Submit and Make current.



# Milestone 3: Creation of Table

Activity 1: Creation of Family Expenses Table

#### Purpose:

The purpose of creating a Family Expenses table in ServiceNow is to store, manage, and analyze financial data related to household spending in a structured and automated way.

## Use:

Creating a Family Expenses table in ServiceNow (or any structured system) is essential for the accurate, automated, and organized calculation of total family expenses.

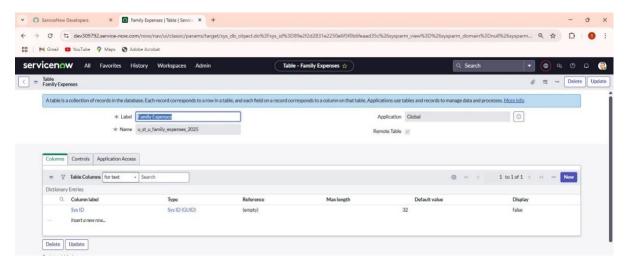
#### Steps:

1. Enter the Details:

Label : Family Expenses Name : Auto-Populated

New menu name: Family Expenditure

2.Go to the Header and right click there>> click on Save.



Activity 2: Creation of Columns(Fields)

# Purpose:

Family Expenses table, columns (fields) are created to capture specific details about each expense. These columns make it possible to calculate, categorize, and analyze expenses accurately. Family Expenses table, columns (fields) are created to capture specific details about each expense. These columns make it possible to calculate, categorize, and analyze expenses accurately.

#### Use:

Creating columns in a Family Expenses table is essential for organizing and analyzing financial data. Each column stores a specific type of information that is used to calculate total, categorized, and time-based expenses effectively.

# Steps:

- 1. Near Columns Double click near insert a new row.
- 2. Give the details as:

Column label: Number

Type: String

3.Double click on insert a new row again

4. Give the details as:

Column label: Date

Type: Date

5.Double click on insert a new row again

6. Give the details as:

Column label: Amount

Type: Integer

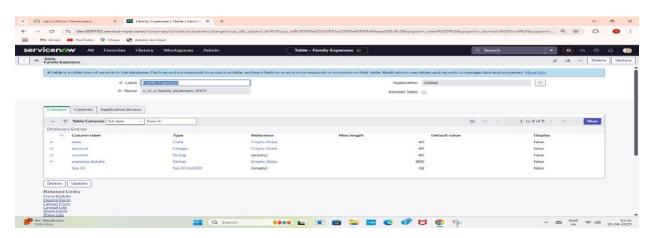
6.Double click on insert a new row again

7. Give the details as:

Column label: Expense Details

Type: String Max length: 800

8.Go to the Header and right click there>> click on Save.



Activity 3: Making Number Field an Auto-Number

## Purpose:

Creating daily expenses entries is essential for accurately tracking, calculating, and managing family finances on a day-to-day basis. It gives a detailed view of how money is being spent every day, helping in budgeting, analysis, and financial control.

#### Use:

Creating daily expense entries plays a critical role in effectively calculating and managing overall family expenses. Each daily record contributes to building a full picture of where, when, and how money is being spent.

# Steps:

- 1. Go down and double click on Advanced view
- 2. In Default Value

Use dynamic default : check the box

Dynamic default value: Get Next Padded Number

- 3. Click on Update.
- 4.Go to All >> In the filter search for Number Maintenance >> select Number Maintenance
- 5.Click on New.
- 6..Enter the below Details:

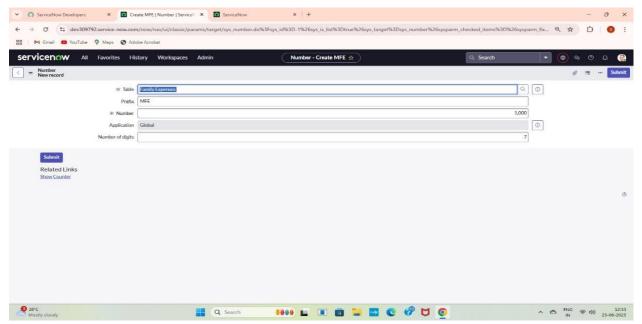
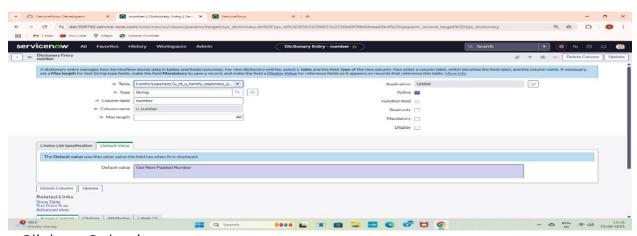


Table: Family Expenses

Prefix: MFE



8.Click on Submit.

# Activity 4: Configure the Form

# Purpose:

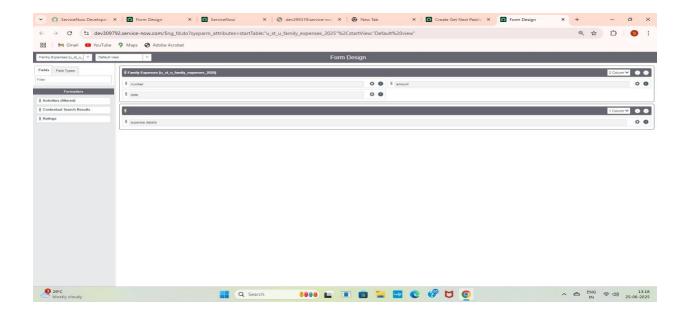
Configuring a form in ServiceNow means customizing how data is entered, displayed, and interacted with on a record (such as a family expense entry). It allows you to control what information users see and how they use the form.

#### Use:

Configuring the form means customizing how a form looks and works when users create or update a record in ServiceNow — such as logging a family expense.

## Steps:

- Go to All >> In the filter search for Family Expenses >> Open Family Expenses
- 2. Click on New
- Go to the Header and right click there>> click on Configure >> Select Form Design
- 4. Customize or Drag Drop the form as per your requirement.



- 5. Make Number Read-Only Field by clicking on the gear icon and checking Read-Only
- 6. Make Date, Amount Mandatory Field by clicking on the gear icon and checking Mandatory
- 7. Click on Save.

Milestone 4: Creation of Table(Daily Expenses)

Activity 1: Creation of Daily Expenses Table

Purpose:

Creating daily expenses entries is essential for accurately tracking, calculating, and managing family finances on a day-to-day basis. It gives a detailed view of how money is being spent every day, helping in budgeting, analysis, and financial control.

#### Use:

Creating daily expense entries plays a critical role in effectively calculating and managing overall family expenses. Each daily record contributes to building a full picture of where, when, and how money is being spent.

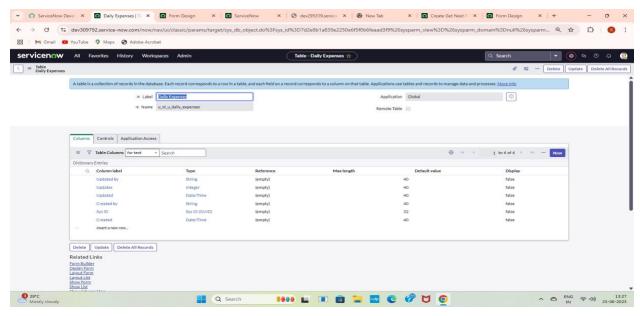
#### Steps:

1. Go to All > In the filter search for Tables > click on New.

2. Enter the Details:

Label : Daily Expenses Name : Auto-Populated

Add Module to menu: Family Expenditure



3.Go to the Header and right click there>> click on Save.

# Activity 2: Creation of Columns(Fields)

# Purpose:

Family Expenses table, columns (fields) are created to capture specific details about each expense. These columns make it possible to calculate, categorize, and analyze expenses accurately. Family Expenses table, columns (fields) are created to capture

specific details about each expense. These columns make it possible to calculate, categorize, and analyze expenses accurately.

#### Use:

Creating columns in a Family Expenses table is essential for organizing and analyzing financial data. Each column stores a specific type of information that is used to calculate total, categorized, and time-based expenses effectively.

# Steps:

- 1. Near Columns Double click near insert a new row.
- 2. Give the details as:

Column label: Number

Type: String

- 3. Double click on insert a new row again
- 4. Give the details as:

Column label: Date

Type: Date

- 5. Double click on insert a new row again
- 6. Give the details as:

Column label: Expense

Type: Integer

- 7. Double click on insert a new row again
- 8. Give the details as:

Column label: Family Member Name

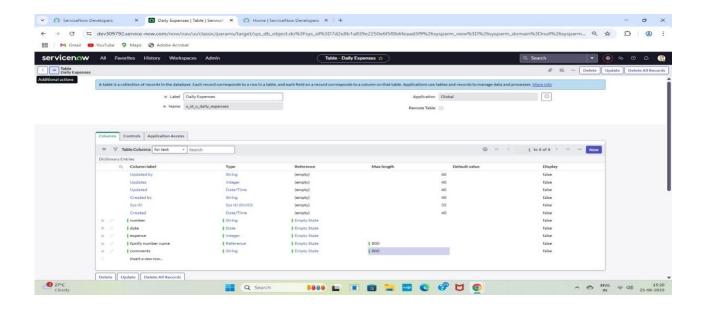
Type: Reference Max length: 800

- 9. Double click on insert a new row again
- 10. Give the details as:

Column label: Comments

Type : String Max length : 800

11. Go to the Header and right click there>> click on Save.



Activity 3: Making Number Field an Auto-Number

#### Purpose:

Creating daily expenses entries is essential for accurately tracking, calculating, and managing family finances on a day-to-day basis. It gives a detailed view of how money is being spent every day, helping in budgeting, analysis, and financial control.

#### Use:

Creating daily expense entries plays a critical role in effectively calculating and managing overall family expenses. Each daily record contributes to building a full picture of where, when, and how money is being spent.

# Steps:

1.double click on the number field by column

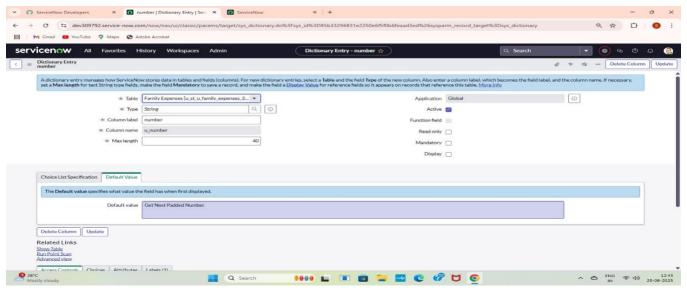
2.Go down and double click on Advanced view

3.In Default Value

Use dynamic default : check the box

Dynamic default value: Get Next Padded Number

4.Click on Update.



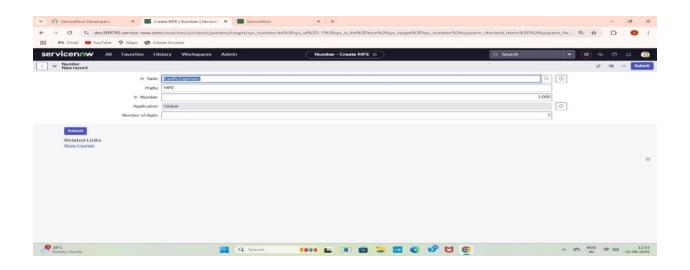
5.Go to All >> In the filter search for Number Maintenance >> select Number Maintenance

6.Click on New.

7.Enter the below Details:

Table: Family Expenses

Prefix: MFE



Activity 4: Configure the Form Purpose:

Configuring a form in ServiceNow means customizing how data is entered, displayed, and interacted with on a record (such as a family expense entry). It allows you to control what information users see and how they use the form.

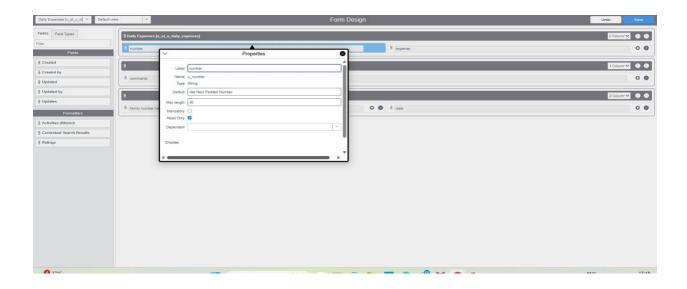
#### Use:

Configuring the form means customizing how a form looks and works when users create or update a record in ServiceNow — such as logging a family expense.

## Steps:

1.Go to All >> In the filter search for Family Expenses >> Open Family Expenses

- 2.Click on New
- 3.Go to the Header and right click there>> click on Configure >> Select Form Design
- 4. Customize or Drag Drop the form as per your requirement.



5.Make Number Read-Only Field by clicking on the gear icon and checking Read-Only

6.Make Date, family member name mandatory field by clicking on the gear icon and checking mandatory 7.Click on Save.

# Milestone 5: Creation of Relationship

Activity 1: Creation of Relationship between Family Expenses and Daily Expenses tables

Purpose:

In systems like ServiceNow or databases, creating relationships between tables means linking related pieces of information — like linking an expense to the person who made it or to a budget plan.

#### Use:

Creating relationships between tables or data fields (like between expenses and family members, or expenses and categories) helps build a connected system that makes calculating and analyzing family expenses much easier and more accurate.

#### Steps:

- 1. Go to All >> In the filter search for Relationships >> Open Relationships
- 2. Click on New.
- 3. Enter the details:

Name: Daily Expenses

Applies to table : Select Family Expenses Daily Expenses : Select Daily Expenses

4.Click Save.

Milestone 6: Configuring Related List on Family Expenses

Activity 1: Configuring Related List on Family Expenses

#### Purpose:

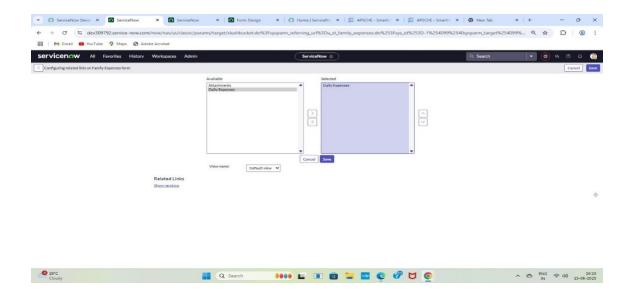
Configuring a related list on family expenses (in a system like Salesforce, or another CRM/ERP/Database platform) serves several important purposes.

#### User:

The use of configuring a related list on family expenses is to create a clear and structured connection between family records and their associated financial data.

Steps:

- Go to All >> In the filter search for Family Expenses >> Open Family Expenses
- 2. Click on New
- 3. Go to the Header and right click there>> click on Configure >> Select Related Lists
- 4. Add Daily Expenses to the Selected Area.
- 5. Click on Save



# Milestone 7: Creation of Business Rules

# Activity 1: Creation of Business Rules

#### Purpose:

Business rules are guidelines or conditions that define or constrain how business processes operate.

#### Use:

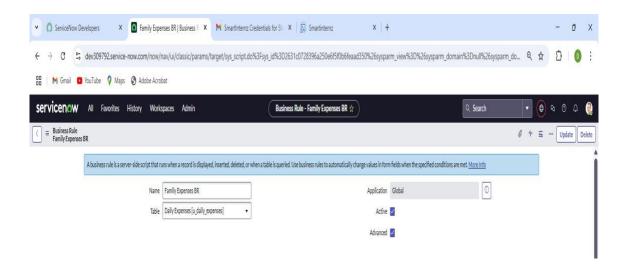
use of creating business rules is to define how a business operates by setting clear conditions, guidelines, or logic that systems and people must follow. These rules help standardize operations, enforce policies, and automate decision-making.

#### Steps:

- 1. Go to All >> In the filter search for Business Rules.
- 2. Under System Definition Select Business Rules then click on New.
- 3. Enter the Details:

Name: Family Expenses BR Table: Select Daily Expenses

Check Advanced



4.In when to run Check Insert and Update
5.In Advance(we write the code): Write the below code >>

(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');
UseNewFamilyExpenses.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);

```
(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+"/-";
10
           FamilyExpenses.update();
11
       else
12
13
           var NewFamilyExpenses = new GlideRecord('u_family_expenses');
           NewFamilyExpenses.u_date = current.u_date;
           NewFamilyExpenses.u_amount = current.u_expense;
17
           NewFamilyExpenses.u_expense_details += ">"+current.u_comments+":"+"Rs."+current.u_expense+"/-";
18
           NewFamilvExpenses.insert():
19
    })(current, previous);
```

6.Go to the Header and right click there>> click on Save.

## Milestone 8: Configure the Relationship

Activity 1: Configure the Relationship

# Purpose:

Configuring relationships—especially in systems like databases, CRMs (like Salesforce), or ERP systems—means establishing how different data objects or entities are connected.

#### Use:

The use of configuring the relationship in a system (like a database, CRM, or software application) is to link related data together so it can be accessed, managed, and analyzed more effectively.

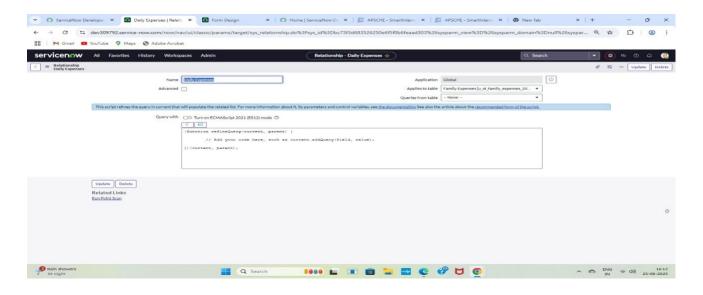
# Steps:

- 1. Go to All >> In the filter search for Relationships >> Open Relationships.
- 2. In that, open Daily Expenses Relationship.
- 3. For Applies to table: Select Family Expenses.
- 4. In Query with : write the below Query.

```
(function refine Query(current, parent) {

// Add your code here, such as current.addQuery(field, value);
current.addQuery('u_date',parent.u_date);
current.query();
```

# Ni})(current, parent);



# 5. Click on Update.

| S.no | Parameters        | Description  |
|------|-------------------|--|
| 1    | Income Parameters | Primary income – Salary or wages of the main earner Secondary income – Spouse/partner's income Passive income – Rental income, dividends, investments Government benefits – Child support, tax credits 2                 |
| 2    | Fixed Expenses    | Loan repayments (car, personal, student loans) Utility bills (electricity, water, gas, internet) School/tuition fees Insurance premiums (health, life, car, property) Subscription services (Netflix, gym, mobile plans) |
| 3    | Variable Expenses | Groceries and food Transport (fuel, public transport, maintenance) Medical expenses (doctor visits, medication) Clothing and shoes Household supplies  |

|   |                       | Dining out, entertainment Travel and holidays   |
|---|-----------------------|---|
| 4 | Savings & Investments | Planned savings and wealth-building: Emergency fund contributions Retirement savings (e.g., 401(k), IRA) Children's education savings Recurring investments (stocks, mutual funds)          |
| 5 | Family Demographics   | These influence overall expense levels: Number of family members Number of dependents (children, elderly) Age of children (infant, school-aged, college) Special needs or health conditions |

# PROJECT PLANNING AND SCHEDULING:

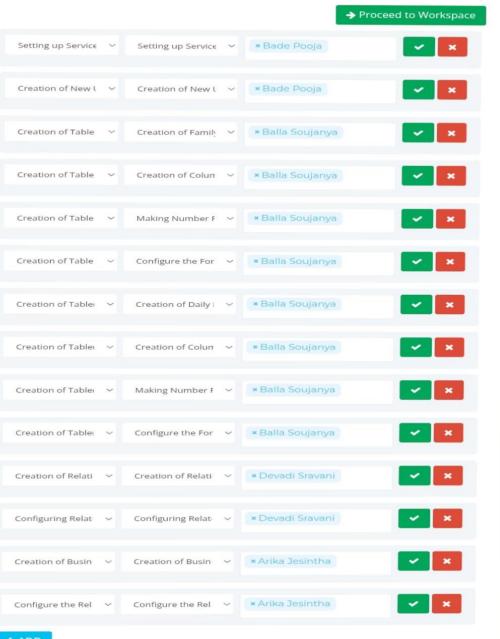
# **Project Planning**

| Functional         | User story  |
|--------------------|---|
| Requirements       |   |
| Setting up service | As a family member, I want to use ServiceNow to track and calculate family        |
| instance           | expenses so that we can manage our finances effectively.                          |
| Creation of new    | As a ServiceNow developer, I want to create a new update set so that I can        |
| update set         | capture and migrate my configuration changes between instances.                   |
| Creation of tables | As a ServiceNow developer, I want to create a new table so that I can store and   |
|                    | manage specific data for my application or business requirement.                  |
| Creation of        | As a ServiceNow developer, I want to create an "Expenses" table in the Daily      |
| tables(daily       | Expenses application so that users can record and track their daily spending.     |
| expenses)          |   |
| Creation of        | As a ServiceNow developer, I want to create a relationship between tables so that |
| relationship       | related data can be linked and accessed efficiently.                              |
| Configuring        | As a ServiceNow developer, I want to configure a related list on the Family       |
| related list on    | Member record so that I can view all expenses entered by that family member       |
| family expenses    | directly from their profile.  |
| Creation of        | As a ServiceNow developer, I want to create business rules on the Expenses table  |
| business rules     | so that specific logic and automation can be applied when records are inserted,   |
|                    | updated, or deleted.  |

| Configure the | As a developer Service nowdeveloper, I want to configure a relationship between |
|---------------|---|
| relationship  | the Family Members table and the Expenses table so that I can link each expense |
|               | record to the person who incurred it and easily track individual spending.      |

Note: Request you to please click on "Tick mark 🗹" after assigning the activities for each milestone.

#### Assign Roles & Responsibilities to Team



+ ADD

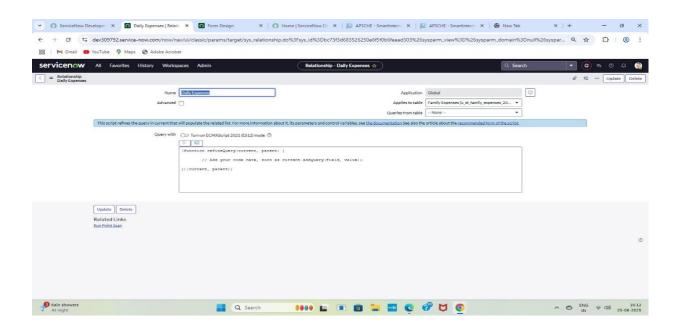
#### FUNCTIONAL AND PERFORMANCE TESTING

## **Performance Testing**

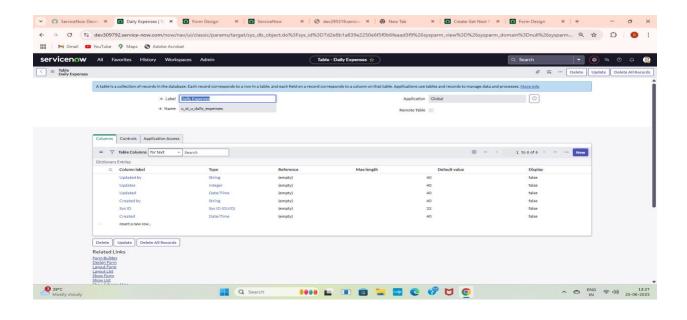
# Configure the Relationship

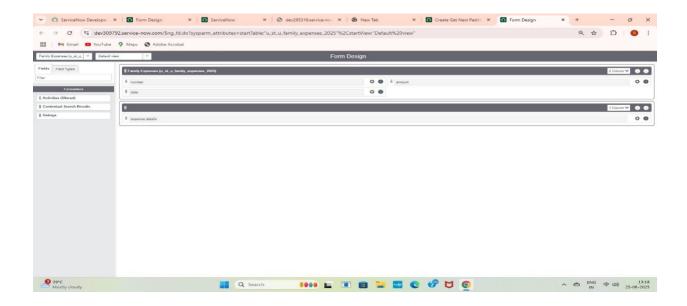
- 1. Go to All >> In the filter search for Relationships >> Open Relationships.
- 2. In that, open Daily Expenses Relationship.
- 3. For Applies to table: Select Family Expenses.
- 4. In Query with: write the below Query.

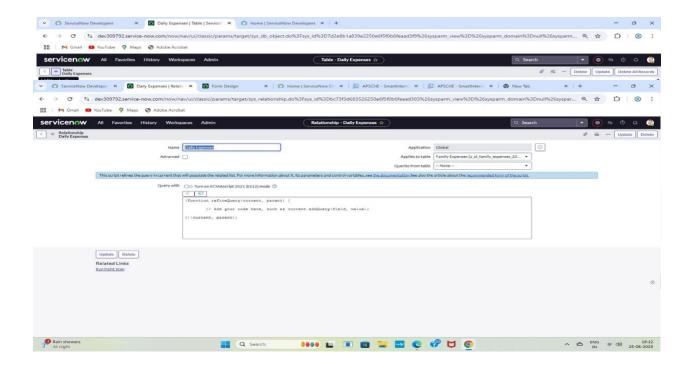
```
(function refineQuery(current, parent) {
    // Add your code here, such as current.addQuery(field, value);
    current.addQuery('u_date',parent.u_date);
    current.query();
    })(current, parent);
5.Click on Update.
```



# **RESULT:**







## **Advantages of Calculating Family Expenses:**

#### • Financial Control:

provides a clear picture of where money is going, enabling families to identify areas of overspending and make informed decisions about their finances.

#### • Debt Reduction:

By tracking expenses and setting savings goals, families can . actively work towards reducing debt and improving their overall financial health.

#### Improved Savings:

A well-planned budget allows families to allocate funds for savings, making it easier to achieve financial goals like purchasing a home, paying for education, or planning for retirement.

#### • Reduced Financial Stress:

Having a budget in place can alleviate financial worries, allowing families to focus on other aspects of life without constant anxiety about money.

#### • Informed Spending Decisions:

Budgeting helps families understand their spending habits and make conscious choices about how to allocate their resources.

## Disadvantages of Calculating Family Expenses:

#### • Time Consumption:

Creating and maintaining a budget can be time-consuming, requiring regular tracking of income and expenses.

#### Potential Rigidity:

A strict budget might feel restrictive and inflexible, potentially leading to frustration if unexpected expenses arise.

#### • Requires Consistency:

Budgeting is not a one-time task; it requires consistent effort to track expenses, make adjustments, and stay on top of financial goals.

#### Tracking Difficulties:

Accurately tracking expenses, especially variable ones, can be challenging and may require the use of budgeting apps or tools.

#### Potential for Overspending:

Even with a budget, it's possible to overspend, especially on discretionary items, if not carefully monitored.

#### **CONCLUSION:**

In conclusion, implementing the "Calculation of Family Expenses Using ServiceNow" project offers numerous benefits to the household. By leveraging the robust capabilities of ServiceNow, family members can efficiently submit, track, and manage their expenses in a centralized and streamlined manner. Calculating family expenses is not just about recording numbers — it's about gaining control, building financial awareness, and ensuring a healthy economic future for the household. With the right structure and tools, families can make informed decisions, avoid debt, and save more effectively. Calculating family expenses is a crucial step in managing household finances. It provides a clear picture

of where money is going, helps control overspending, and supports smarter financial decisions..