Documentation: Calculating Family Expenses using ServiceNow
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1. Introduction

Managing family finances effectively is essential for households of all sizes. In today's digital era, families often use spreadsheets or manual tracking methods, which can be time-consuming and prone to errors. This project uses the ServiceNow platform to create a Family Expense Management System that lets users record, categorize, and analyze their monthly expenses.

ServiceNow, mainly known for IT Service Management, offers strong features like custom tables, business rules, reporting, dashboards, and notifications. By customizing these features, we can create a useful solution for personal financial tracking.

The goals of this system are to:

- Simplify expense recording.
- Automate monthly and yearly calculations.
- Provide visual insights into spending habits.
- Encourage financial discipline and planning.

This documentation describes the step-by-step setup, use cases, benefits, and possible improvements for the Family Expense Management System.

2. Objectives

The main objectives of this project are:

Centralized Expense Tracking

Create one accurate source for all family-related expenses.

Categorization of Expenses

Classify spending into categories like Food, Rent, Utilities, Education, Medical, Entertainment, and Others.

Automated Calculations

Automatically calculate totals for weekly, monthly, and yearly expenses without manual input.

Visual Reporting and Dashboards

Provide family members with easy-to-understand visualizations like pie charts, line graphs, and bar charts.

Budget Management

Compare actual spending against set budgets and send alerts when limits are exceeded.

Accessibility

Allow family members to log expenses using simple forms and access dashboards at any time.

3. System Design & Architecture

3.1 Key Components

Custom Table: Stores expense details.

Form & List Layouts: For entering and viewing data.

Business Rules: Automate validations and calculations.

Reports & Dashboards: For financial analysis.

Scheduled Jobs: For monthly summaries.

Notifications: To alert members about budget overspending.

3.2 Process Flow

Data Entry: Family members record expenses.

Storage: Expenses are stored in ServiceNow's database.

Processing: Business rules calculate totals.

Visualization: Reports and dashboards show insights.

Alerts: Notifications are triggered when necessary.

4. Configuration Steps

4.1 Create a Custom Table

Go to System Definition > Tables.

Create a table named Family Expenses (u_family_expenses).

4.2 Configure Forms and Lists

Form View: Designed for easy expense entry.

List View: Provides a table view with filters (e.g., by date or category).

4.3 Business Rules

Validation Rule: Ensure the entered amount is greater than 0.

Calculation Rule: Aggregate expenses by month/year for reporting.

4.4 Reports & Dashboards

The created reports include:

- Monthly Expenses by Category (Pie Chart).
- Yearly Expense Trend (Line Chart).
- Top 5 Expense Categories (Bar Chart).

These are combined into a Family Expense Dashboard for a complete view.

4.5 Scheduled Jobs

A job is set up to automatically generate a monthly summary and email it to family members.

5. Use Cases
5.1 Example Scenario 1 – Monthly Tracking

Rent: ₹10,000

Groceries: ₹4,000

Electricity: ₹2,000

Entertainment: ₹1,500

Output:

Total Monthly Expenses = ₹17,500

Rent is the largest spending category.

Dashboard trend shows a 10% increase compared to last month.

5.2 Example Scenario 2 – Yearly Overview

Expenses recorded across all months.

Yearly expense trend report shows increases during school admission months (Education) and festive seasons (Entertainment).

6. Benefits

The Family Expense Management System in ServiceNow offers many benefits for households that want to track and manage their finances better. Key advantages include:

6.1 Centralized Expense Repository

All family expenses are kept in one central location within ServiceNow. This removes the need for scattered records in notebooks, spreadsheets, or mobile apps. Families can easily retrieve and review past data whenever needed.

6.2 Automation of Calculations

The system automatically calculates total expenses for weekly, monthly, and yearly periods. This automation helps reduce mistakes, saves time, and ensures consistent reporting. Families no longer need to do manual calculations in spreadsheets.

6.3 Easy Visualization through Dashboards

ServiceNow dashboards provide a clear and user-friendly way to view financial data. Pie charts, bar graphs, and trend lines allow families to quickly spot spending patterns, like which categories take up the largest part of the budget.

6.4 Improved Financial Discipline

By recording every expense, family members become more aware of their spending habits. The system encourages accountability since each expense includes the payer's name. This awareness leads to smarter financial choices and helps avoid unnecessary spending.

6.5 Historical Data and Trend Analysis

The system keeps historical records, enabling families to compare expenses over months and years. They can identify trends, such as seasonal increases during festivals or school

admissions. This insight helps families plan ahead and manage their resources more efficiently.

7. Challenges

User Adoption: Family members may resist logging every expense at first.

Customization: Requires knowledge of ServiceNow configuration.

Scalability: Advanced features like income integration may require extra effort.

8. Future Enhancements

Income Tracking: Add another table to track income and savings.

Mobile Access: Use ServiceNow's mobile app for quick logging.

Integrations: Connect with banking APIs or Google Sheets.

Predictive Insights: Use AI for expense forecasting.

9. Testing
9.1 Test Case 1: Data Entry

Enter an expense with a negative amount → Error message displayed.

9.2 Test Case 2: Reporting

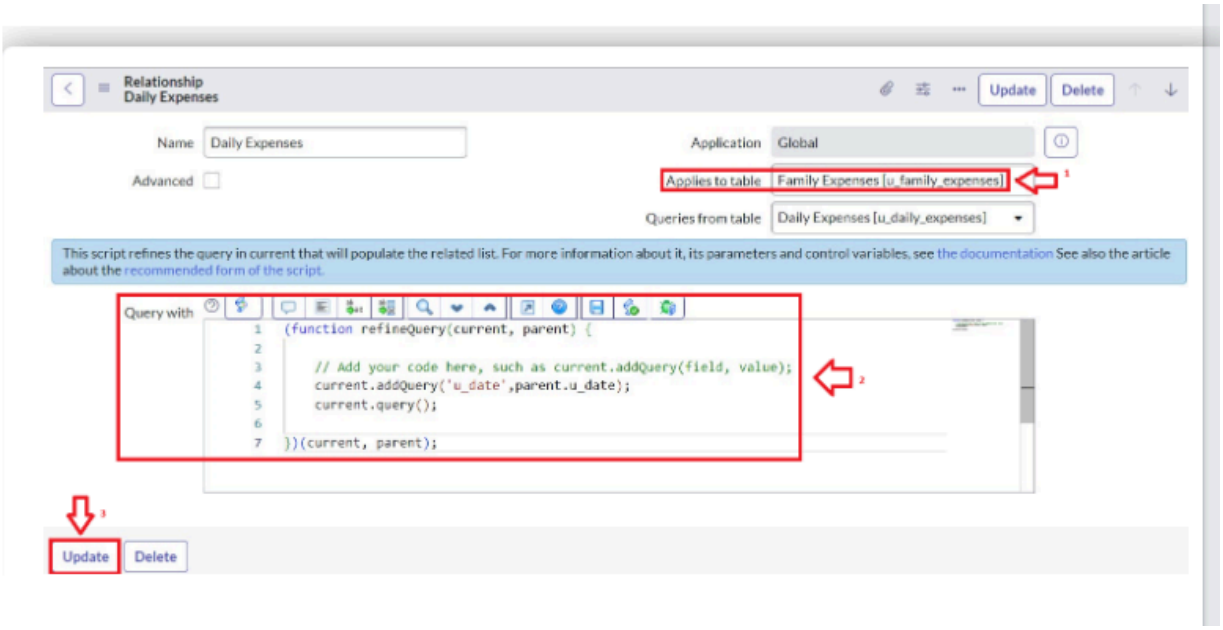
Add expenses in various categories.

Check that reports display accurate totals and percentages.

9.3 Test Case 3: Notification

Set a budget of ₹20,000.

Add expenses that exceed ₹20,000 → Notification triggered.


Relationship
Daily Expenses
Update
Delete
Name
Daily Expenses
Application
Global
Advanced
Applies to table
Family Expenses [u_family_expenses]
1
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
(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);
2
3
Update
Delete

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);
```

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

```
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var FamilyExpenses = new GlideRecord('u_family_expenses');
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}
else
{
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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);
```
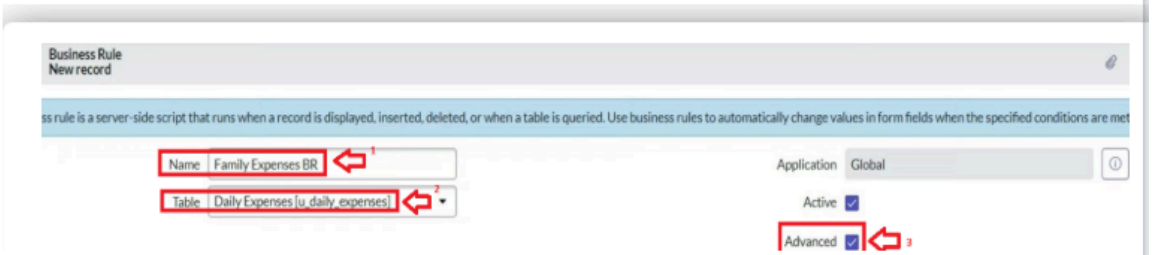
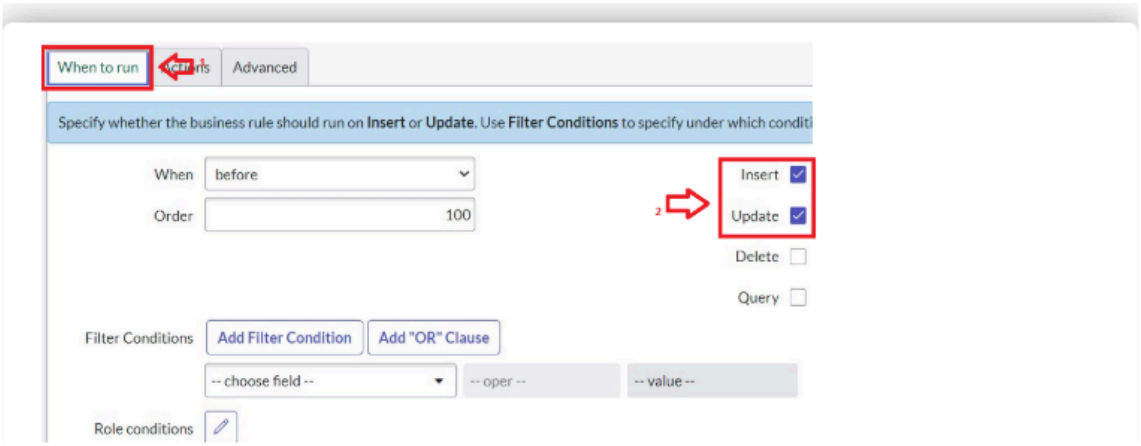

Creation Of Business Rules

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 >>

Configuring Related List On Family Expenses

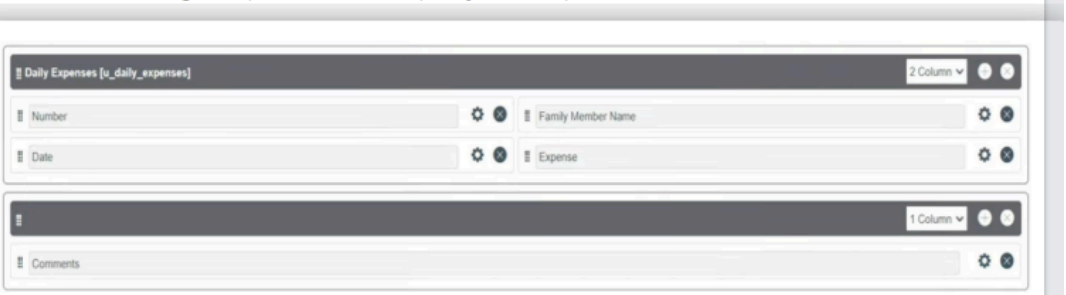
1. Go to All >> In the filter search for Family Expenses >> Open Family Expenses
2. Click on New
3. Go to the Header and right click there>> click on Configure >> Select Related Lists
4. Add Daily Expenses to the Selected Area.
5. Click on Save

Creation Of Relationship Between Family Expenses And Daily Expenses Tables

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.

Configure The Form

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

9. Click on Submit.

Creation Of Columns(Fields)

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.

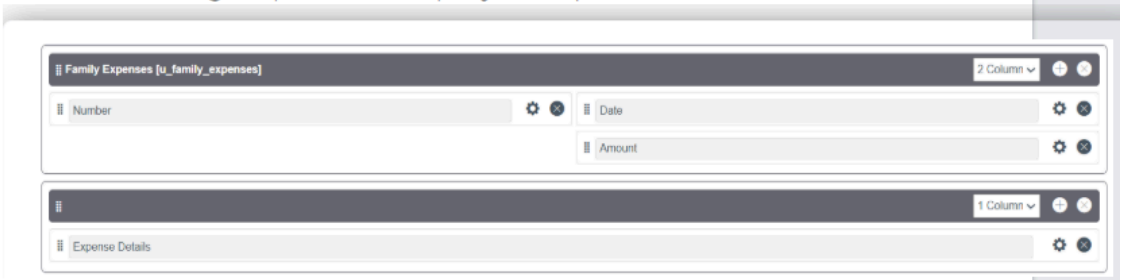
Creation Of Daily Expenses Table

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

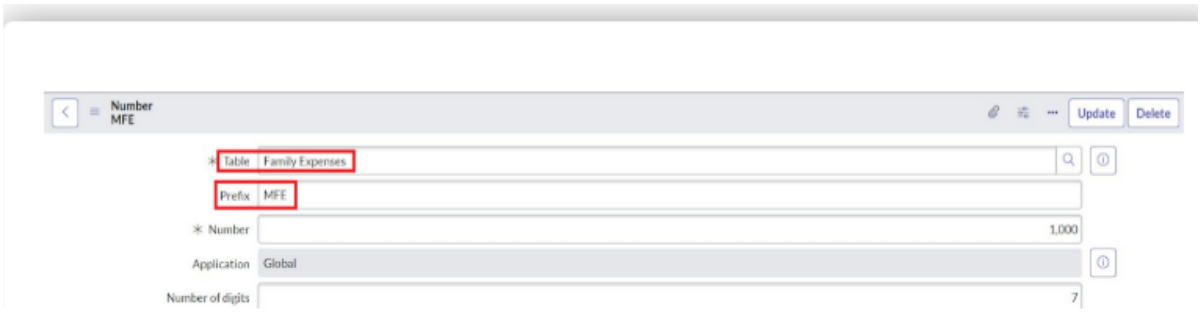
3. Go to the Header and right click there>> click on Save.

Configure The Form

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.

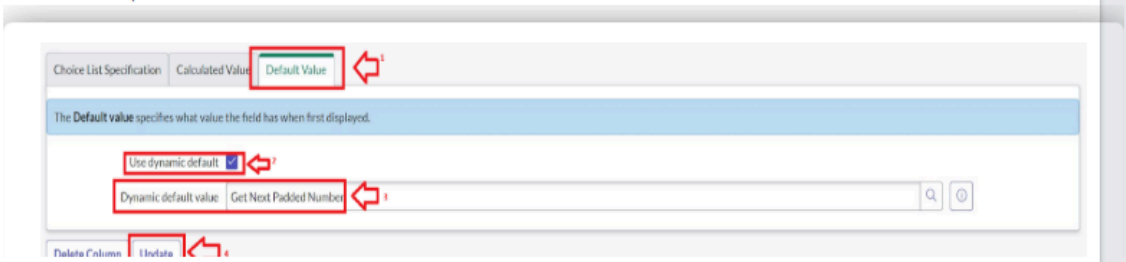


5. Make Number Read-Only Field by clicking on the gear icon and checking Read-Only
6. Make Date, Amount Mandatory Field by clicking on the gear icon and checking Mandatory
7. Click on Save.



9. Click on Submit.

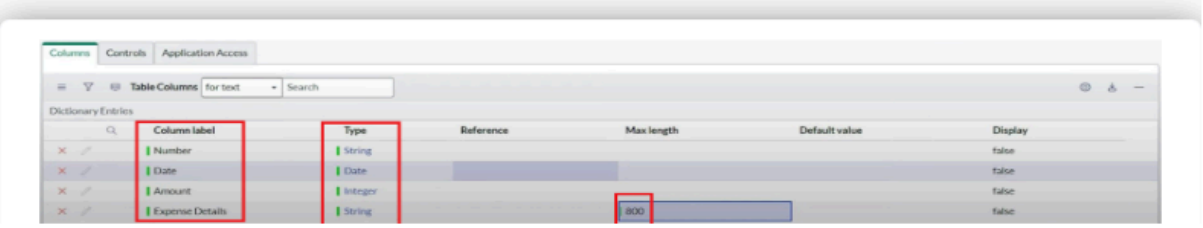
Making Number Field An Auto-Number

1. Double click on the Number Field/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. 

6. Go to All >> In the filter search for Number Maintenance >> select Number Maintenance
7. Click on New.
8. Enter the below Details:
   Table : Family Expenses
   Prefix : MFE

Creation Of Columns(Fields)

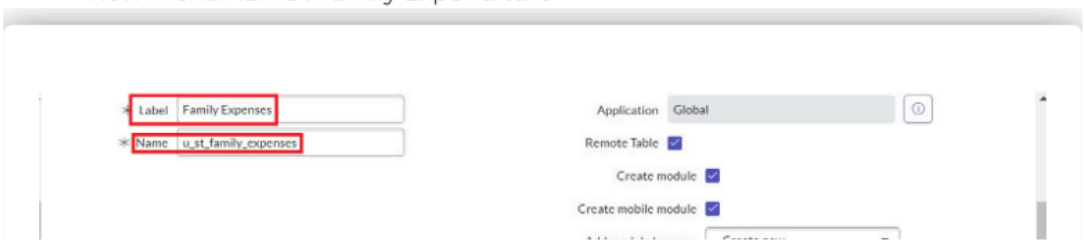
1. Near Columns Double click near insert a new row.
2. Give the details as:
   Column label : Number
   Type : String
3. Double click on insert a new row again
4. Give the details as:
   Column label : Date
   Type : Date
5. Double click on insert a new row again
6. Give the details as:
   Column label : Amount
   Type : Integer
7. Double click on insert a new row again
8. Give the details as:
   Column label : Expense Details
   Type : String
   Max length : 800



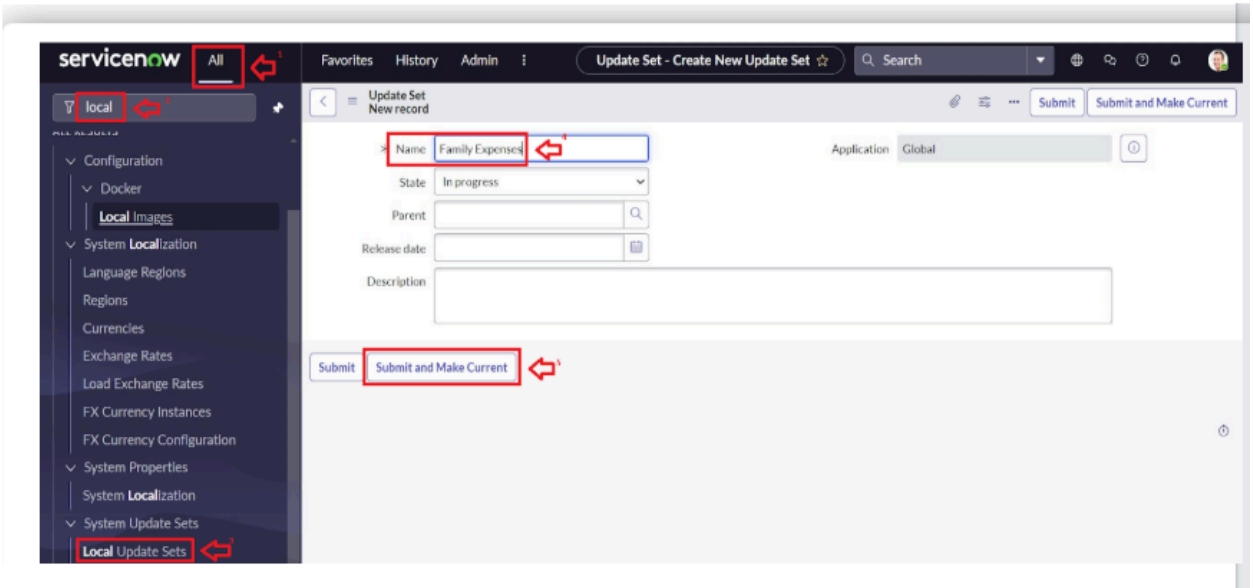
9. Go to the Header and right click there>> click on Save.

Creation Of Family Expenses Table

1. Go to All > In the filter search for Tables > click on New.
2. Enter the Details:
   Label : Family Expenses
   Name : Auto-Populated
   New menu name : Family Expenditure

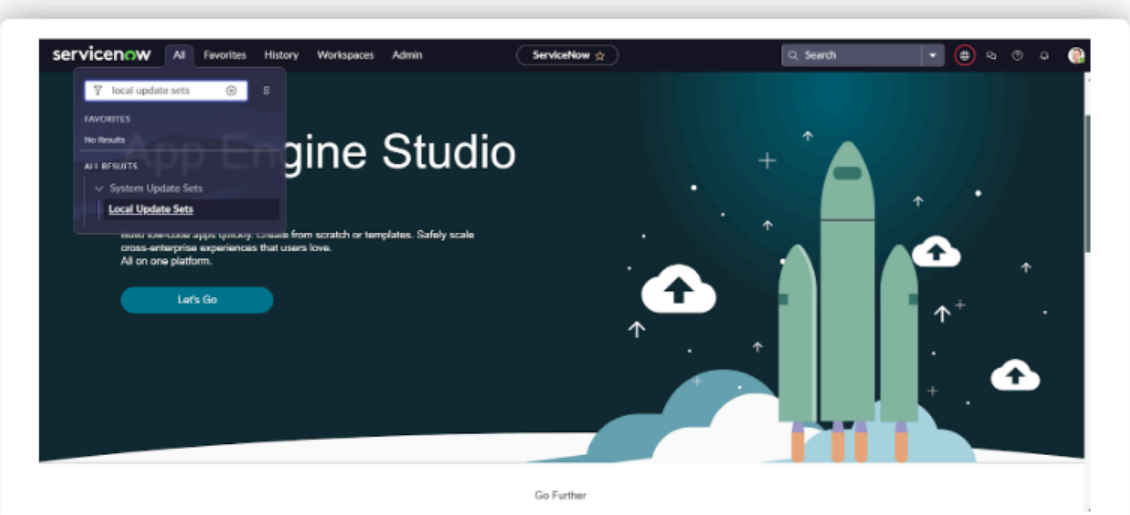


3. Go to the Header and right click there>> click on Save.

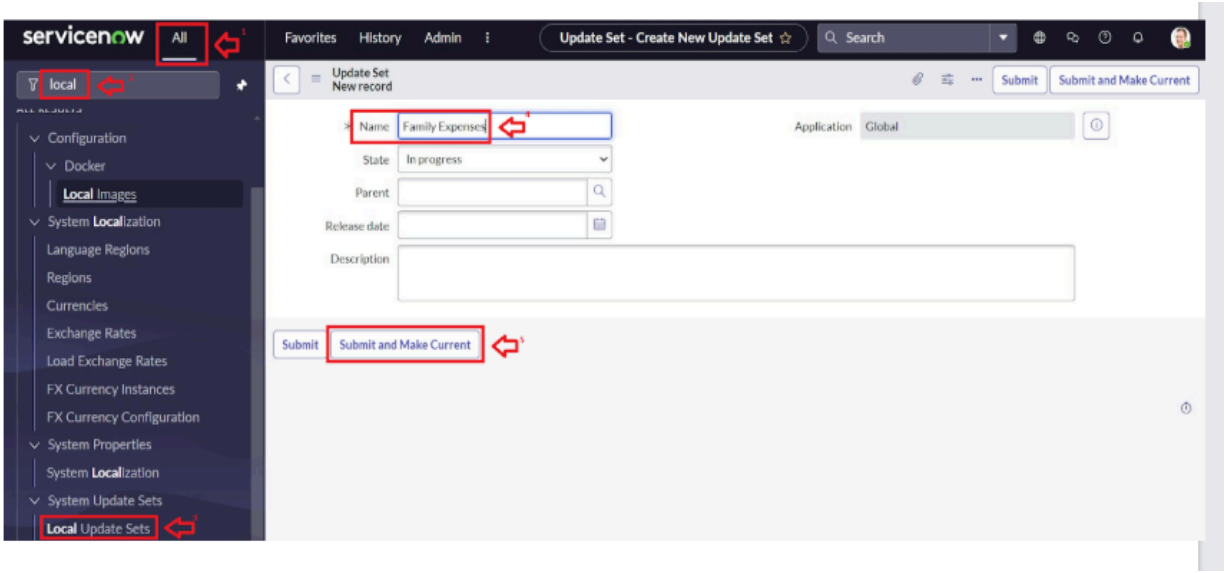


Creation Of New Update Set

1. Go to All >> In the filter search for Local Update set > click on New.

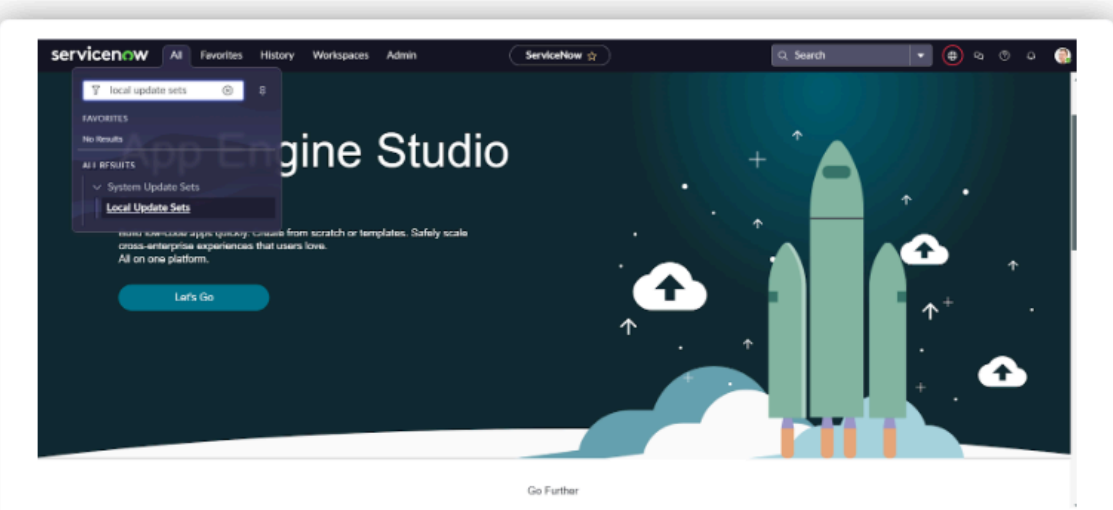


2. Enter the Details as:
   Name : Family Expenses
3. Then click on Submit and Make current.



Creation Of New Update Set

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.

Setting Up ServiceNow Instance

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 the provided credentials.

7. Now you will navigate to the ServiceNow.

10. Conclusion

The Family Expense Management System in ServiceNow provides a structured, automated, and visual way to track household spending. By using ServiceNow's custom tables, business rules, reporting, and dashboards, families can gain better financial awareness and control.

This solution not only simplifies daily expense management but also supports budgeting, saving, and long-term financial planning. With improvements like mobile entry, income tracking, and AI-driven forecasting, it has the potential to become a complete personal finance assistant built within ServiceNow.