

## Phase 3: Data Modelling & Relationship

### Standard & Custom Objects

- Standard Objects: Provided by Salesforce itself (i.e., Account, Contact, Opportunity, Reports, User etc.)
- Custom Objects: Objects you create to store data specific to your app.

Eg: Expenses\_\_c , Budget\_\_c.

### Creation of Custom Objects:

Setup → Object Manager → custom object .

Fill the required details like label, Plural label, API name, Record Name and check the required permission (i.e., allow search ,allow activities, Track filed history etc.)

Save it.

The screenshot shows the Salesforce Object Manager interface for creating a custom object. The breadcrumb trail is 'SETUP > OBJECT MANAGER'. The object name is 'Expense'. On the left, a sidebar lists configuration options: Details (selected), Fields & Relationships, Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Field Sets, Object Limits, Record Types, and Related Lookup Filters. The main 'Details' section contains the following fields:

- Description: (empty text area)
- API Name: Expense\_\_c
- Custom: ☒
- Singular Label: Expense
- Plural Label: Expenses
- Enable Reports: ☒
- Track Activities: ☒
- Track Field History: ☒
- Deployment Status: Deployed
- Help Settings: Standard salesforce.com Help Window

Buttons for 'Edit' and 'Delete' are located in the top right corner of the details section.

### Create Tab :

Setup → Tabs → New → choose Expense → pick an icon → Save.

### Expense Tab

The screenshot shows the 'Edit Custom Object Tab' page for the 'Expenses' tab. The breadcrumb trail is 'SETUP > Tabs'. The left sidebar shows 'User Interface' with options to 'Rename Tabs and Labels' and 'Tabs' (selected). The main content area is titled 'Edit Custom Object Tab Expenses' and includes the instruction 'Fill in the fields below to define the custom tab.' Below this is the 'Custom Tab Definition Edit' section with the following fields:

- Custom Object Tab Information: (header)
- Tab Label: Expenses
- Object: Expenses
- Tab Style: Building Block (with a selection icon)
- (Optional) Choose a Home Page Custom Link to show as a splash page the first time your users click on this tab. Splash Page Custom Link: --None--
- Enter a short description. Description: (empty text area)

'Save' and 'Cancel' buttons are at the bottom of the form. A 'Help for this Page' link is in the top right corner.

## Budget Tab:

The screenshot shows the 'Setup' page in Salesforce, specifically the 'Custom Tab Definition Edit' for the 'Expenses' custom object. The left sidebar shows the 'Setup' menu with 'Home' and 'Object Manager' selected. The main content area is titled 'Edit Custom Object Tab: Expenses' and includes a search bar and a 'Help for this Page' link. Below the title, there is a section for 'Custom Tab Definition Edit' with a 'Custom Object Tab Information' sub-section. This section contains fields for 'Tab Label' (Expenses), 'Object' (Expense), and 'Tab Style' (Building Block). There is also an optional field for 'Home Page Custom Link' (None) and a 'Description' field. At the bottom, there are 'Save' and 'Cancel' buttons.

Setup

Home Object Manager

Q tabs

User Interface

Rename Tabs and Labels

Tabs

Didn't find what you're looking for? Try using Global Search.

SETUP Tabs

Edit Custom Object Tab: Expenses

Fill in the fields below to define the custom tab.

Custom Tab Definition Edit

Custom Object Tab Information

Tab Label Expenses

Object Expense

Tab Style Building Block

(Optional) Choose a Home Page Custom Link to show as a splash page the first time your users click on this tab.

Splash Page Custom Link None

Enter a short description.

Description

Save Cancel

## Fields

Field types: Text, Text Area, Number, Currency, Date, Picklist, Lookup, Master-Detail, Formula, Roll-Up Summary, Checkbox, URL, File, etc.

Expense field types:

- ☐ Expense Name (record name)
- ☐ Date (Date)
- ☐ Amount (Currency)
- ☐ Category (Picklist)
- ☐ User (Lookup → User)
- ☐ Budget (see relationships below)

The screenshot shows the 'Setup' page in Salesforce, specifically the 'Fields & Relationships' section for the 'Expense' object. The left sidebar shows the 'Setup' menu with 'Home' and 'Object Manager' selected. The main content area is titled 'SETUP > OBJECT MANAGER Expense' and includes a search bar and a 'Quick Find' button. Below the title, there is a table with columns for 'FIELD LABEL', 'FIELD NAME', 'DATA TYPE', 'CONTROLLING FIELD', and 'INDEXED'. The table lists 12 items, including 'Amount', 'Budget', 'Category', 'Created By', 'Date', 'Expense Name', 'Last Modified By', 'Owner', and 'Receipt Image'. At the bottom, there are buttons for 'New', 'Deleted Fields', 'Field Dependencies', and 'Set History Tracking'.

SETUP > OBJECT MANAGER Expense

Details

Fields & Relationships

12 Items. Sorted by Field Label

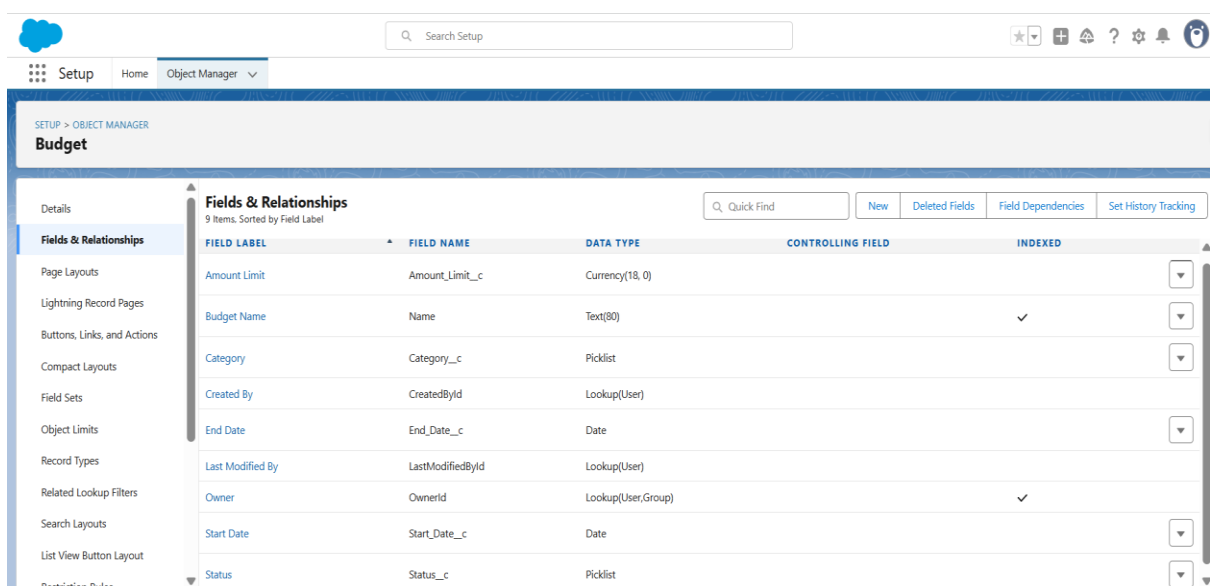
Q Quick Find

New Deleted Fields Field Dependencies Set History Tracking

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Amount	Amount_c	Currency(12, 2)		
Budget	Budget_c	Lookup(Budget)		✓
Category	Category__c	Picklist		
Created By	CreatedById	Lookup(User)		
Date	Date_c	Date		
Expense Name	Name	Text(80)		✓
Last Modified By	LastModifiedById	Lookup(User)		
Owner	OwnerId	Lookup(User,Group)		✓
Receipt Image	Receipt_Image_c	URL(255)		

## 🔧 Budget Fields:

- ☐ Budget name (Text)
- ☐ Category , department (picklist)
- ☐ Amount limit (currency)
- ☐ Start Date (date)
- ☐ End Date (date)
- ☐ Total Expense



The screenshot shows the Salesforce Setup interface, specifically the Object Manager for the Budget object. The left sidebar contains a navigation menu with options like Details, Fields & Relationships, Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Field Sets, Object Limits, Record Types, Related Lookup Filters, Search Layouts, List View Button Layout, and Restriction Rules. The main content area is titled 'Fields & Relationships' and shows a table of 9 fields. The table has columns for FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING FIELD, and INDEXED. The fields listed are Amount Limit, Budget Name, Category, Created By, End Date, Last Modified By, Owner, Start Date, and Status. The Budget Name and Owner fields are marked as indexed.

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Amount Limit	Amount_Limit__c	Currency(18, 0)		
Budget Name	Name	Text(80)		✓
Category	Category__c	Picklist		
Created By	CreatedById	Lookup(User)		
End Date	End_Date__c	Date		
Last Modified By	LastModifiedById	Lookup(User)		
Owner	OwnerId	Lookup(User,Group)		✓
Start Date	Start_Date__c	Date		
Status	Status__c	Picklist		

## Record types:

- Allow different business processes, picklist values, and page layouts for the same object. Use when you need different UIs or data rules per type of record.

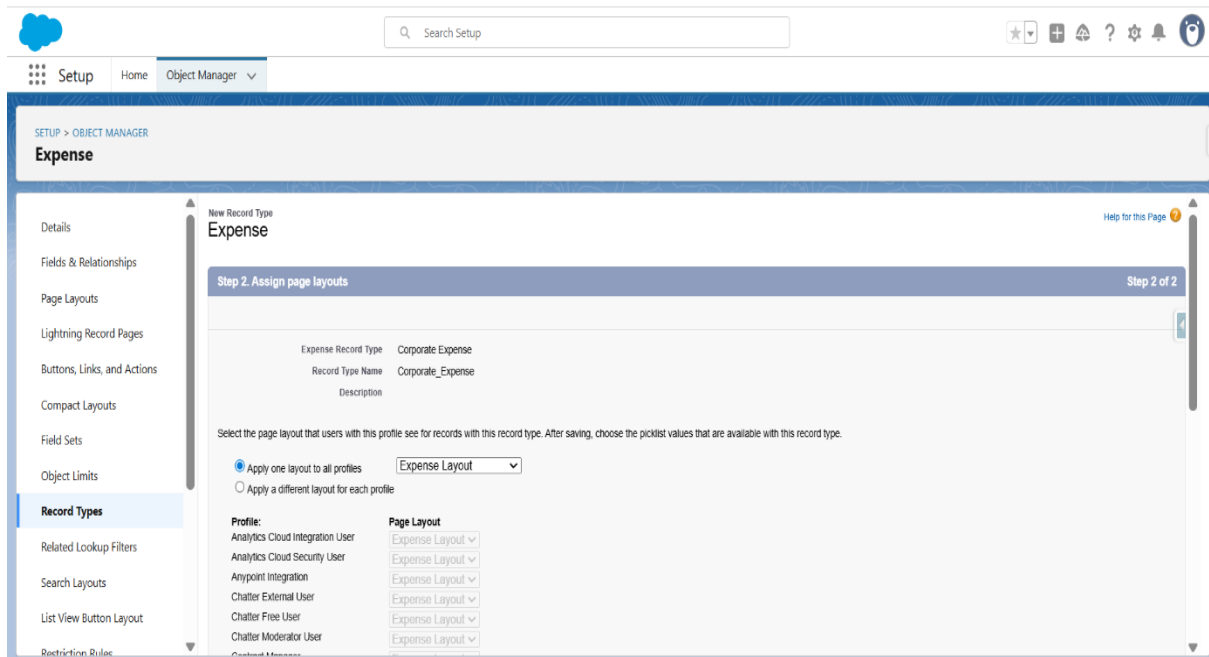
## 🔧 Create record pages:

employee expense, corporate expense and travel expense.

Setup → object manager → expense object → Record types → new

Label : Employee Expense → select picklist categories (i.e., Food, Travel, Utilities, others) → assign to the profiles and select page layout → save it.

Repeat for other record types also.



SETUP > OBJECT MANAGER

## Expense

Details  
Fields & Relationships  
Page Layouts  
Lightning Record Pages  
Buttons, Links, and Actions  
Compact Layouts  
Field Sets  
Object Limits  
**Record Types**  
Related Lookup Filters  
Search Layouts  
List View Button Layout  
Restrictions Rules

New Record Type  
**Expense**

Step 2 of 2: Assign page layouts

Expense Record Type: Corporate Expense  
Record Type Name: Corporate\_Expense  
Description:

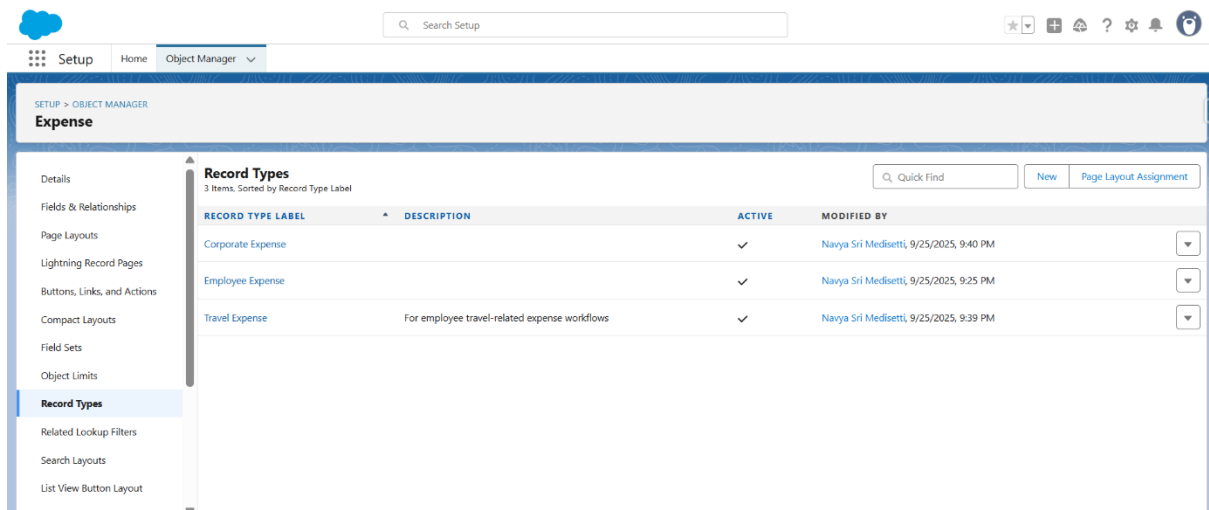
Select the page layout that users with this profile see for records with this record type. After saving, choose the picklist values that are available with this record type.

☒ Apply one layout to all profiles ☐ Apply a different layout for each profile

Expense Layout

Profile: Page Layout

Analytics Cloud Integration User	Expense Layout
Analytics Cloud Security User	Expense Layout
Anypoint Integration	Expense Layout
Chatter External User	Expense Layout
Chatter Free User	Expense Layout
Chatter Moderator User	Expense Layout
Custom Messages	Expense Layout



SETUP > OBJECT MANAGER

## Expense

Details  
Fields & Relationships  
Page Layouts  
Lightning Record Pages  
Buttons, Links, and Actions  
Compact Layouts  
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Object Limits  
**Record Types**  
Related Lookup Filters  
Search Layouts  
List View Button Layout  
Restrictions Rules

**Record Types**  
3 Items. Sorted by Record Type Label

Quick Find New Page Layout Assignment

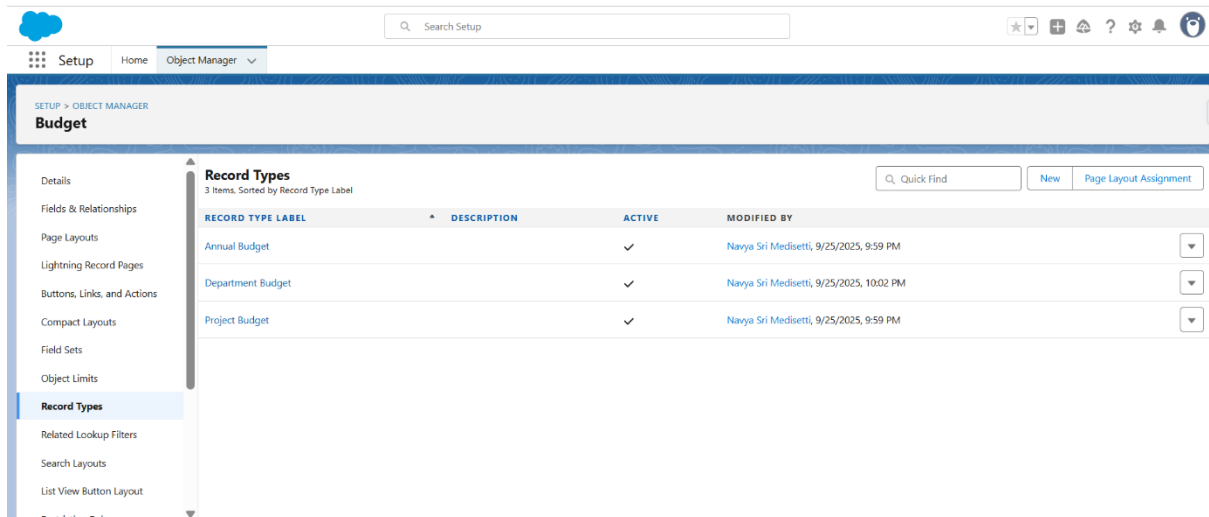
RECORD TYPE LABEL	DESCRIPTION	ACTIVE	MODIFIED BY
Corporate Expense		✓	Navya Sri Mediseti, 9/25/2025, 9:40 PM
Employee Expense		✓	Navya Sri Mediseti, 9/25/2025, 9:25 PM
Travel Expense	For employee travel-related expense workflows	✓	Navya Sri Mediseti, 9/25/2025, 9:39 PM

## Budget Record Types

Setup → object manager → Budget object → Record types → new

Label : Department Budget → select picklist department (i.e, HR, IT, Sales and services , Marketing , Research and Development etc.) → assign to the profiles and select page layout → save it.

Repeat same steps for Project Budget and Annual Budget.



## Page Layouts:

- Control which fields, related lists, quick actions, and sections appear on record detail pages.

Setup → Object Manager → **Expense** → **Page Layouts** → **New** or click an existing layout.

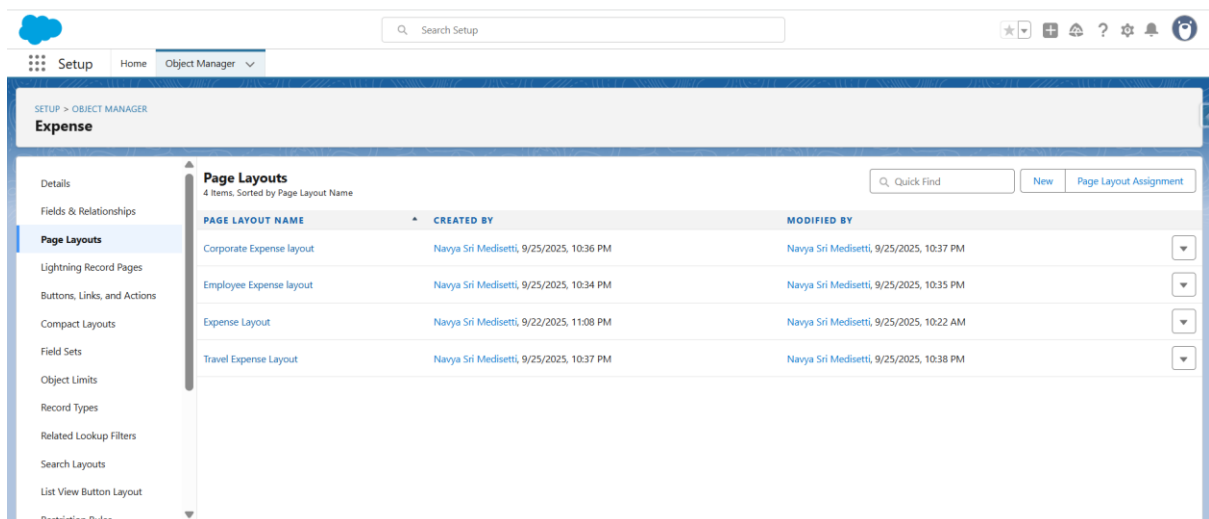
Expense Page Layout:

Different Page Layouts in Expense Layout:

Employee Expense layout

Corporate Expense layout

Travel Expense layout



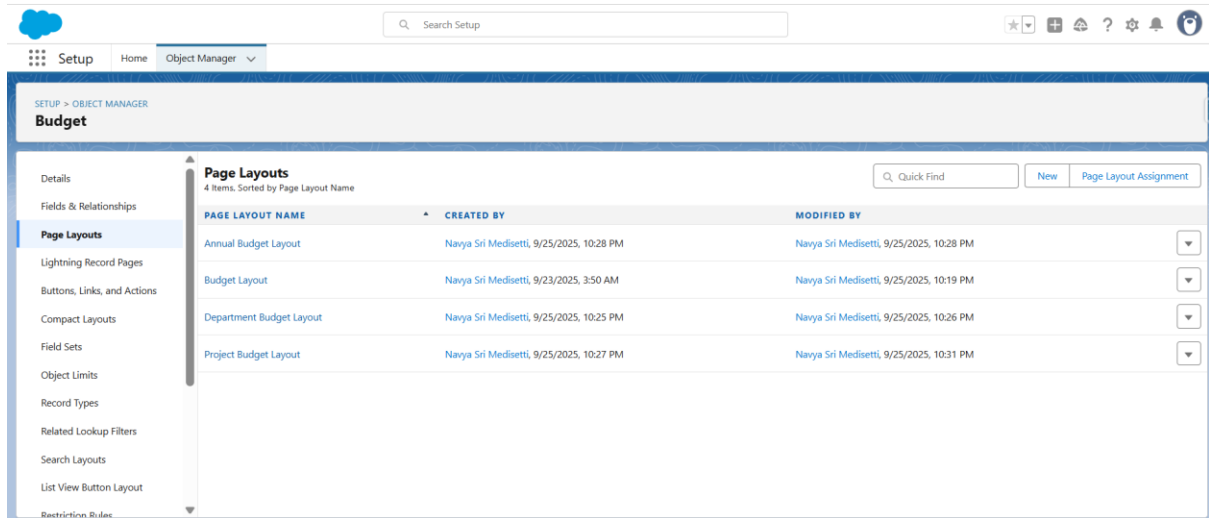
Budget Page Layout:

Created page layouts in Budget objects are:

## Annual Budget layout

## Department Budget layout

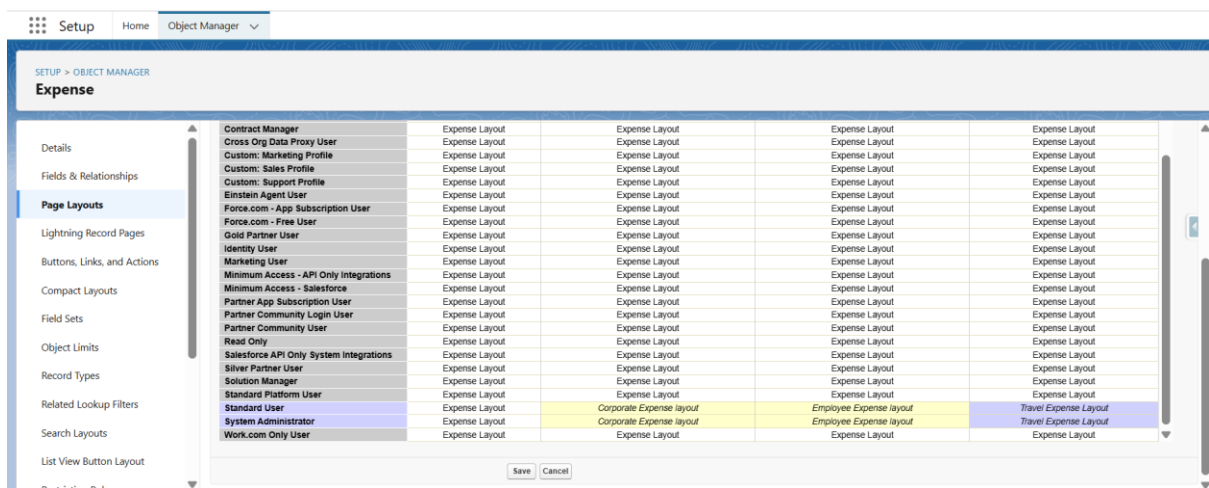
## Project Budget layout



The screenshot shows the Salesforce Setup interface, specifically the Object Manager for the Budget object. The left sidebar contains a navigation menu with options like Details, Fields & Relationships, Page Layouts (selected), Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Field Sets, Object Limits, Record Types, Related Lookup Filters, Search Layouts, List View Button Layout, and Restriction Rules. The main content area is titled 'Page Layouts' and shows a list of four page layouts: Annual Budget Layout, Budget Layout, Department Budget Layout, and Project Budget Layout. Each layout entry includes the name, the user who created it, the creation date and time, the user who modified it, and the modification date and time. A 'Quick Find' search bar and 'New' and 'Page Layout Assignment' buttons are also visible.

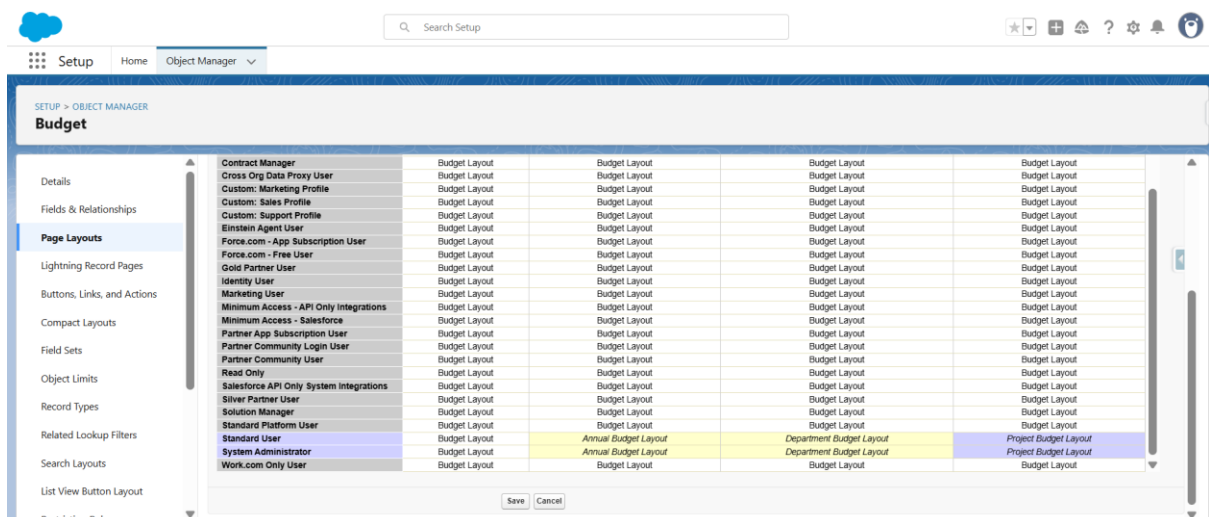
PAGE LAYOUT NAME	CREATED BY	MODIFIED BY
Annual Budget Layout	Navya Sri Mediseti, 9/25/2025, 10:28 PM	Navya Sri Mediseti, 9/25/2025, 10:28 PM
Budget Layout	Navya Sri Mediseti, 9/23/2025, 3:50 AM	Navya Sri Mediseti, 9/25/2025, 10:19 PM
Department Budget Layout	Navya Sri Mediseti, 9/25/2025, 10:25 PM	Navya Sri Mediseti, 9/25/2025, 10:26 PM
Project Budget Layout	Navya Sri Mediseti, 9/25/2025, 10:27 PM	Navya Sri Mediseti, 9/25/2025, 10:31 PM

## Assign page out assignments



The screenshot shows the Salesforce Setup interface, specifically the Object Manager for the Expense object. The left sidebar is the same as the previous screenshot. The main content area is titled 'Expense' and shows a table of page layout assignments for various users. The table has columns for the user, the page layout, and the assignment status. The users listed include Contract Manager, Cross Org Data Proxy User, Custom: Marketing Profile, Custom: Sales Profile, Custom: Support Profile, Einstein Agent User, Force.com - App Subscription User, Force.com - Free User, Gold Partner User, Identity User, Marketing User, Minimum Access - API Only Integrations, Minimum Access - Salesforce, Partner App Subscription User, Partner Community Login User, Partner Community User, Read Only, Salesforce API Only System Integrations, Silver Partner User, Solution Manager, Standard Platform User, Standard User, System Administrator, and Work.com Only User. The page layouts assigned are Expense Layout, Corporate Expense layout, Employee Expense layout, and Travel Expense layout. A 'Save' button is visible at the bottom of the table.

User	Page Layout	Assignment Status
Contract Manager	Expense Layout	
Cross Org Data Proxy User	Expense Layout	
Custom: Marketing Profile	Expense Layout	
Custom: Sales Profile	Expense Layout	
Custom: Support Profile	Expense Layout	
Einstein Agent User	Expense Layout	
Force.com - App Subscription User	Expense Layout	
Force.com - Free User	Expense Layout	
Gold Partner User	Expense Layout	
Identity User	Expense Layout	
Marketing User	Expense Layout	
Minimum Access - API Only Integrations	Expense Layout	
Minimum Access - Salesforce	Expense Layout	
Partner App Subscription User	Expense Layout	
Partner Community Login User	Expense Layout	
Partner Community User	Expense Layout	
Read Only	Expense Layout	
Salesforce API Only System Integrations	Expense Layout	
Silver Partner User	Expense Layout	
Solution Manager	Expense Layout	
Standard Platform User	Expense Layout	
Standard User	Expense Layout	
System Administrator	Corporate Expense layout	
Work.com Only User	Expense Layout	



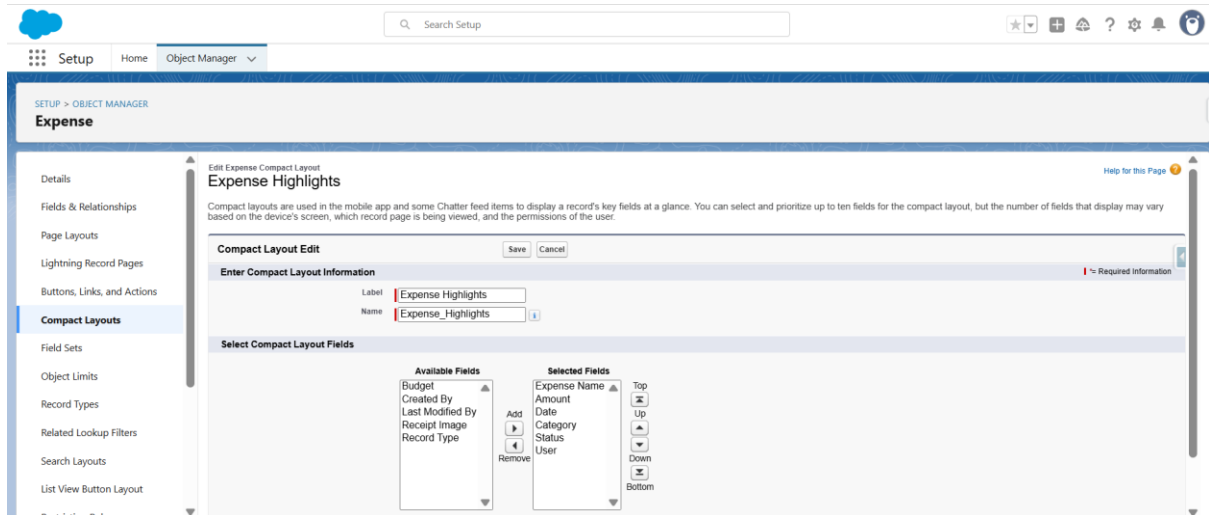
The screenshot shows the Salesforce Setup interface, specifically the Object Manager for the Budget object. The left sidebar is the same as the previous screenshots. The main content area is titled 'Budget' and shows a table of page layout assignments for various users. The table has columns for the user, the page layout, and the assignment status. The users listed are the same as in the previous screenshot. The page layouts assigned are Budget Layout, Annual Budget layout, Department Budget layout, and Project Budget layout. A 'Save' button is visible at the bottom of the table.

User	Page Layout	Assignment Status
Contract Manager	Budget Layout	
Cross Org Data Proxy User	Budget Layout	
Custom: Marketing Profile	Budget Layout	
Custom: Sales Profile	Budget Layout	
Custom: Support Profile	Budget Layout	
Einstein Agent User	Budget Layout	
Force.com - App Subscription User	Budget Layout	
Force.com - Free User	Budget Layout	
Gold Partner User	Budget Layout	
Identity User	Budget Layout	
Marketing User	Budget Layout	
Minimum Access - API Only Integrations	Budget Layout	
Minimum Access - Salesforce	Budget Layout	
Partner App Subscription User	Budget Layout	
Partner Community Login User	Budget Layout	
Partner Community User	Budget Layout	
Read Only	Budget Layout	
Salesforce API Only System Integrations	Budget Layout	
Silver Partner User	Budget Layout	
Solution Manager	Budget Layout	
Standard Platform User	Budget Layout	
Standard User	Budget Layout	
System Administrator	Annual Budget layout	
Work.com Only User	Budget Layout	

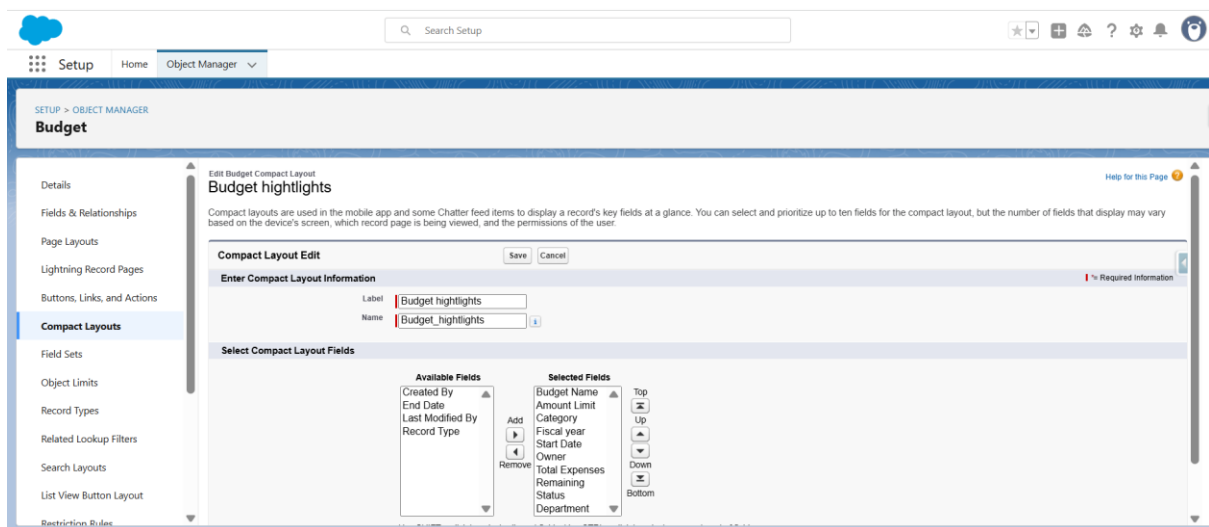
## Compact page layout

The small set of fields shown in highlights.

☞ Expense highlight compact page layout:



☞ Budget highlight compact page layout:

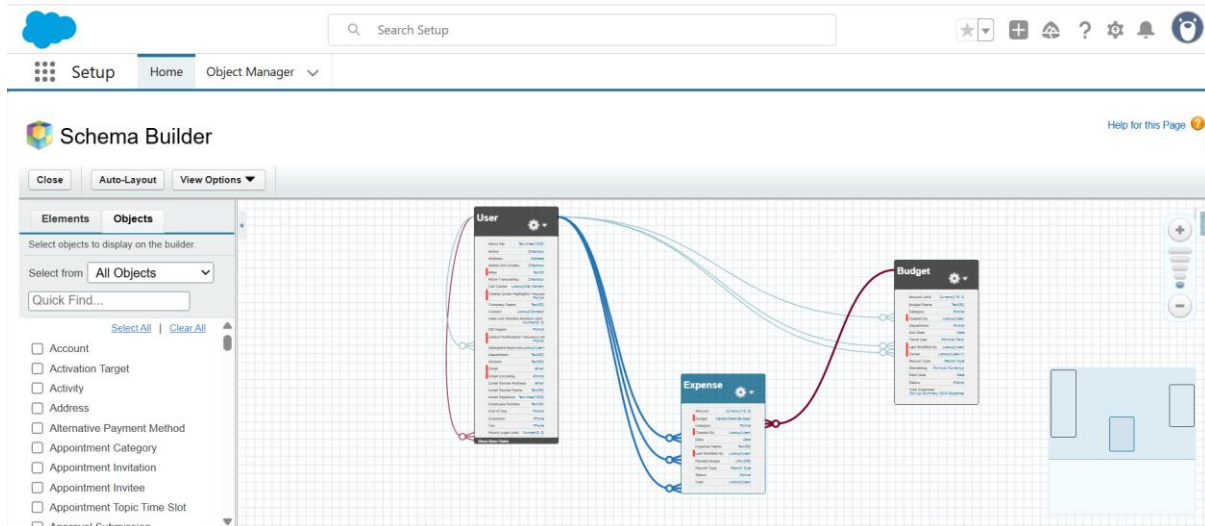


## Schema Builder:

- It is a **visual tool in Salesforce** that lets you “**see, create, and manage objects, fields, and relationships**” graphically.

Setup → search for schema Builder in Quick Box → click it (canvas will be opened)

Drag and drop or select the required Objects for observing relation between in graphically / diagrammatic view.



## Lookup vs Master-detail Relationship:

### Lookup Relationship

- Loose link between two objects.
- Child record can exist without parent.
- No roll-up summary fields.

### Master-Detail Relationship

- Master (parent) controls sharing & ownership of the detail (child).
- Deleting master deletes child.
- Supports **Roll-Up Summary** fields on master (SUM, COUNT, MIN, MAX of child fields).
- Master must exist when child is created (required).

### Change field type:

Setup → Expense → Fields & Relationships → click Lookup field → **Change Field Type** → Master-Detail.

- Ensure all Expense records have a Budget value (no null parents).
- Change field type: Setup → Expense → Fields & Relationships → click Lookup field → **Change Field Type** → Master-Detail.
- If any child records w/out parents exist, conversion will fail — populate them first.

Budget\_\_c to summarize expenses with a roll-up summary, **make Expense a Master-Detail child of Budget** (Budget = master, Expense = detail).

This gives you Total Expenses on Budget as a Roll-Up Summary.



SETUP > OBJECT MANAGER  
**Budget**

Details  
**Fields & Relationships**  
Page Layouts  
Lightning Record Pages  
Buttons, Links, and Actions  
Compact Layouts  
Field Sets  
Object Limits  
Record Types  
Related Lookup Filters  
Search Layouts  
List View Button Layout  
Restriction Rules

Specify the type of information that the custom field will contain.

**Data Type**

☐ None Selected Select one of the data types below.

☐ Auto Number A system-generated sequence number that uses a display format you define. The number is automatically incremented for each new record.

☐ Formula A read-only field that derives its value from a formula expression you define. The formula field is updated when any of the source fields change.

☒ Roll-Up Summary A read-only field that displays the sum, minimum, or maximum value of a field in a related list or the record count of all records listed in a related list.

☐ Lookup Relationship Creates a relationship that links this object to another object. The relationship field allows users to click on a lookup icon to select a value from a popup list. The other object is the source of the values in the list.

☐ Master-Detail Relationship Creates a special type of parent-child relationship between this object (the child, or "detail") and another object (the parent, or "master") where:

- The relationship field is required on all detail records.
- The ownership and sharing of a detail record are determined by the master record.
- When a user deletes the master record, all detail records are deleted.
- You can create rollup summary fields on the master record to summarize the detail records.

The relationship field allows users to click on a lookup icon to select a value from a popup list. The master object is the source of the values in the list.

☐ External Lookup Relationship Creates a relationship that links this object to an external object whose data is stored outside the Salesforce org.

☐ Checkbox Allows users to select a True (checked) or False (unchecked) value.

☐ Currency Allows users to enter a dollar or other currency amount and automatically formats the field as a currency amount. This can be useful if you export data to Excel or another spreadsheet.

Enter label details and next.

Select summarized object → Expenses. Select Roll-up type → sum. Assign Field to Aggregate → Amount

SETUP > OBJECT MANAGER  
**Budget**

Details  
**Fields & Relationships**  
Page Layouts  
Lightning Record Pages  
Buttons, Links, and Actions  
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Record Types  
Related Lookup Filters  
Search Layouts  
List View Button Layout  
Restriction Rules

**New Custom Field**

Step 3. Define the summary calculation

Step 3 of 6

**Select Object to Summarize**

Master Object Budget  
Summarized Object Expenses

**Select Roll-Up Type**

☐ COUNT

☒ SUM

☐ MIN

☐ MAX

Field to Aggregate Amount

**Filter Criteria**

☒ All records should be included in the calculation

☐ Only records meeting certain criteria should be included in the calculation

1. Go to Budget → Fields & Relationships → New → Formula.

2. Field Label: Remaining → Return Type: Currency → Next.

SETUP > OBJECT MANAGER  
**Budget**

Details  
**Fields & Relationships**  
Page Layouts  
Lightning Record Pages  
Buttons, Links, and Actions  
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List View Button Layout  
Restriction Rules

**Step 2. Choose output type**

Step 2 of 6

Field Label Remaining

Field Name Remaining

Auto add to custom report type ☒ Add this field to existing custom report types that contain this entity

**Formula Return Type**

☐ None Selected Select one of the data types below.

☐ Checkbox Calculate a boolean value. Example: TODAY() > CloseDate

☒ Currency Calculate a dollar or other currency amount and automatically format the field as a currency amount. Example: GrossMargin = Amount - Cost

☐ Date Calculate a date, for example, by adding or subtracting days to other dates. Example: Remainder (Date - CloseDate - 7)

☐ DateTime Calculate a datetime, for example, by adding a number of hours or days to another datetime. Example: Next = NOW() + 1

☐ Number Calculate a numeric value. Example: Fahrenheit = 1.8 \* Celsius + 32

☐ Percent Calculate a percent and automatically add the percent sign to the number. Example: Discount = (Amount - DiscountedAmount) / Amount

3. Formula: Amount\_Limit\_\_c - Total\_Expenses\_\_c and check syntax for errors.
4. Next → Set Field-Level Security → Add to layout → Save.

The screenshot shows the Salesforce Setup interface for creating a new custom field for the 'Budget' object. The page is titled 'New Custom Field' and is at 'Step 3 of 5: Enter formula'. The left sidebar shows the navigation menu with 'Fields & Relationships' selected. The main content area has a 'Quick Tips' box on the right and a 'Simple Formula' tab selected. The formula editor shows the formula: `Amount_Limit__c - Total_Expenses__c`. The formula is underlined in red, indicating a syntax error. The error message 'Syntax error: Unexpected token' is displayed below the formula. The formula is intended to calculate the remaining budget by subtracting total expenses from the amount limit.

SETUP > OBJECT MANAGER  
**Budget**

Details  
**Fields & Relationships**  
Page Layouts  
Lightning Record Pages  
Buttons, Links, and Actions  
Compact Layouts  
Field Sets  
Object Limits  
Record Types  
Related Lookup Filters  
Search Layouts  
List View Button Layout  
Restriction Rules

Step 3 of 5  
Previous Next Cancel

Enter your formula and click Check Syntax to check for errors. Click the Advanced Formula subtab to use additional fields, operators, and functions.  
Example: `Gross Margin = Amount - Cost__c` [More Examples...](#)

Simple Formula Advanced Formula

Select Field Type: Budget Insert Field: -- Insert Merge Field -- Insert Operator

**Remaining (Currency) =**  
`Amount_Limit__c - Total_Expenses__c`

Syntax error: Unexpected token

Quick Tips  
• Getting Started  
• Operators & Functions