

## **Motivation**

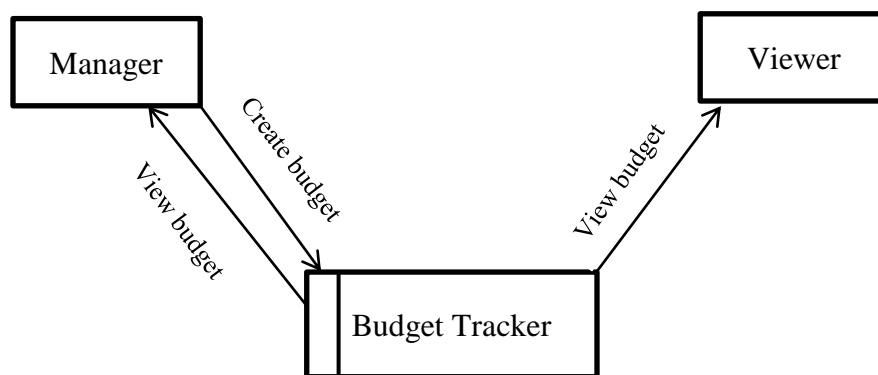
The Budget Tracker is an application that allows people to create budgets. It supports modifying read/write permissions on the budget, adding/deleting items on a budget, and creating budgets within budgets.

## **Purpose**

The purpose of Budget tracker is as follows:

1. Simplify the process of creating a budget.
2. Manage users who read the budget and the users who edit the budget.
3. Provide a platform to record budgeted and actual expenditures (in the form of cost items).

## **Context Diagram**



## **Concepts**

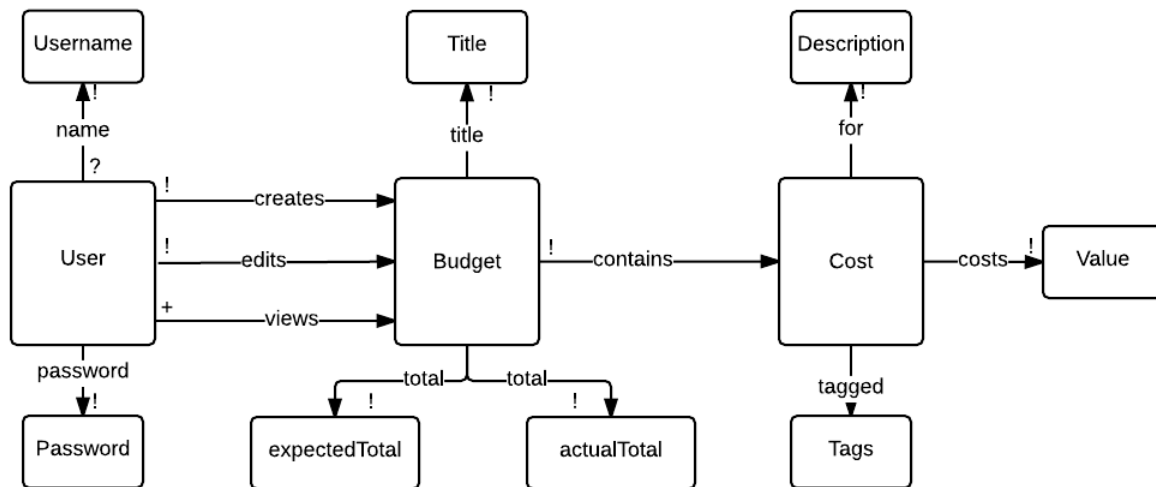
*Manager:* A user that has both read and writes permissions to a budget.

*Viewer:* A user that has read permissions to a budget.

*Budget:* A collection of cost items. This includes all of the subtotals for each cost item and aggregates the costs into a grand total. This can also contain other budget objects.

*Cost:* A line item detailing the item/service to be purchased and the cost of that item/service.

## Data Model



## Design Challenges

### **How to implement the viewing of the budget?**

Potential Solutions:

- Divide users into two classes: Manager and Viewer. Manager can create and edit a budget. A Manager can also set permissions for other users (i.e. can make other users Manager or Viewer). A Viewer can only view an existing budget.
- Treat budgets like a Google document by having the budget closed (not being able to view or read) to all except to the creator.

### **Should costs be organized into certain “categories”?**

Potential Solutions:

- Costs can be structured to have a subject/title string that details the content of the line item. The contents of a cost object must refer to an item or a service. Along with that string can be a number detailing the price of that item/service.
- Can also implement a tagging system that could be expanded to budgets.

### **How can budgets/costs be updated (in the interface)?**

- If the user is a Manager, then there will be an edit button that will put the user in “edit budget” mode.
- Or, if the user is a manager, clicking on any element containing a line item will bring up options to edit that line item.

### **What type of database system to use?**

Potential Solutions:

- Use a relational database system to keep track of budgets and cost items separately. Cost items that belong to a certain budget will have a “budget id” referring to that budget.
- Use a document store database system and keep cost objects embedded in the budget object.

**What is the structure of the data model?**

Potential Solutions:

- Have a user object that contains name, password, contact info, and the budgets that user has created and/or shared.
- Have a budget object that contains a collection of cost objects and a grand total.