

Budgeted Design Document
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CS 157A Database Management

Design Document

We identified 6 entities and 4 relation tables for Budgeted. 6 entities are users, budget, income, expenses, transactions, and analysis.

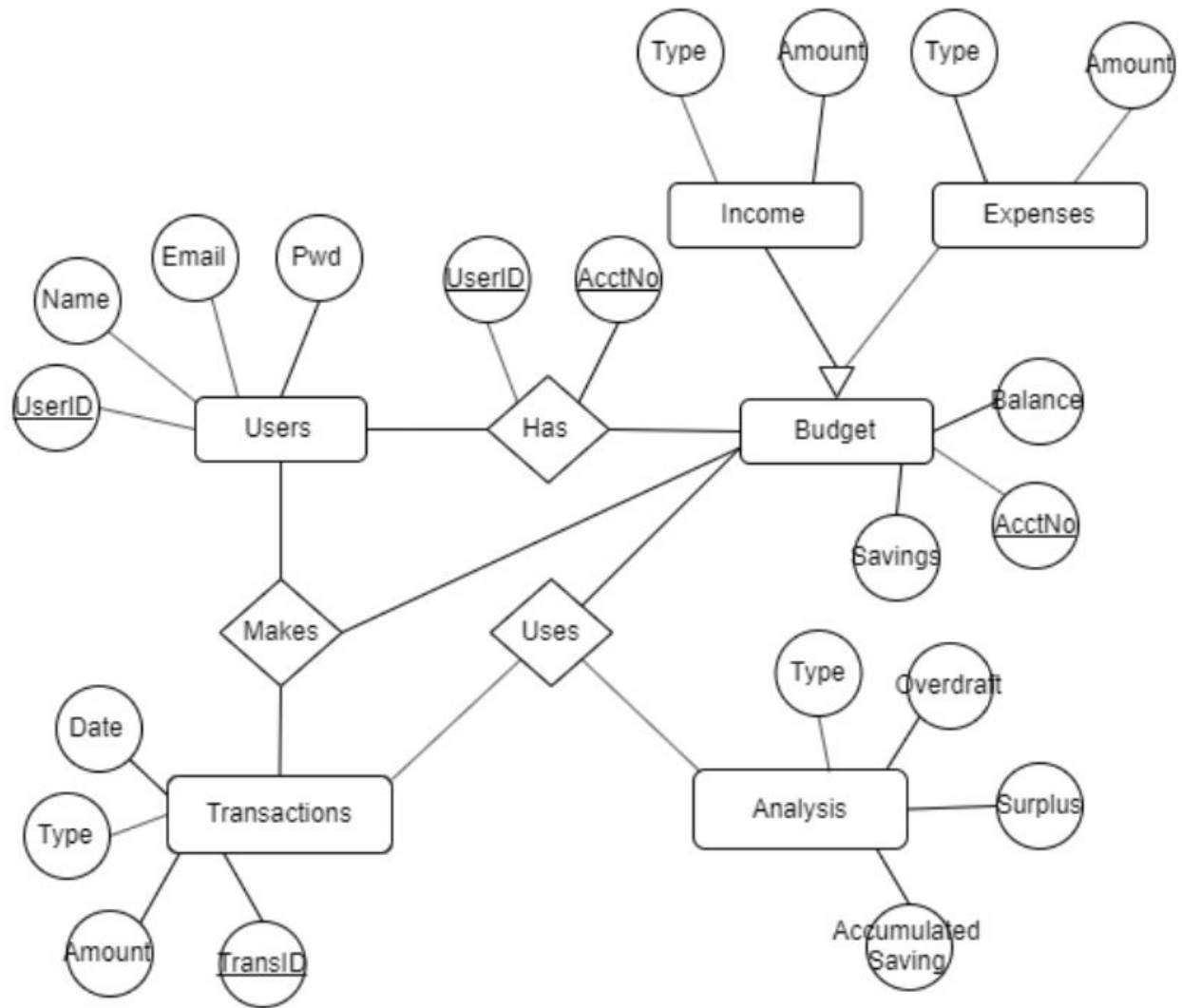


Figure 1: Entity Relationship Diagram

Schema

User(userID, name, email, password)

Has (userID, acctNo)

Budget (acctNo, saving, balance)

IS-A (acctNo, Income, Expenses)

Income (acctNo, Type, Amount)

Expense (acctNo, Type, Amount)

Makes (userID, TransactionID, AcctNo)

Transaction (TransactionID, Date, Type, Amount)

Uses (TransactionID, AcctNo)

Analysis (AcctNo, Type, Overdraft, Surplus, AccumulatedSaving)

Schema Description

Users: It is an entity set that describes the owner of each budget account, and has a one-to-one relationship with Budget account.

Has: Each user can have one budget account which makes it one-to-one relationship between Users and Budget.

Budget: This entity is the account for each user, and there are two aspects of relationships. One aspect is one-to-one relationship with Users, and another is IS-A relationship with Income and Expenses.

Has: This is a three-way relationship that describes each Budget account has two types of accounts which are Income and Expenses.

Income: This entity set has IS-A relationship with Budget account that describe the on-going income of the user.

Expenses: This entity set has IS-A relationship with Budget account that describe the on-going spending of the user.

Makes: This relationship table describes three-way relationship that users make transactions on budget accounts.

Transaction: This entity set describes the details of transaction being made and has two three-way relationships; one with Users and Budget, and one with Budget and Analysis.

Uses: This relation table describes a three-way relationship among Transaction, Analysis, and Budget. Because Analysis uses Transaction and Budget to analyze its data, and present it back to the user.

Analysis: This entity set has a three-way relationship with Transactions, and Budget where it uses data from the two tables to conduct its calculation.