Final Project

October 4, 2016

In this final project you are asked to design a basic database with tree tables:

- A table of names with addresses (Table 1).
- A table of invoices (Table 2).
- A table of expenses (Table 3).

Name	Address
Isaac	
Bernie	
Andres	
⋮	
⋮	
⋮	

Table 1: Table of Names

Name	Invoices Number	Payment
Isaac	0010	$1000.00
Isaac	0011	
Andres	0021	
⋮		
⋮		
⋮		

Table 2: Table of Expenses

Invoices Number	Item	Expense
0010	Beer	$10.00
0010	Food	$25.00
0010	Beer	$30.00
⋮		

Table 3: Table of Expenses

A more detailed relation can be seen in (Fig. 1)

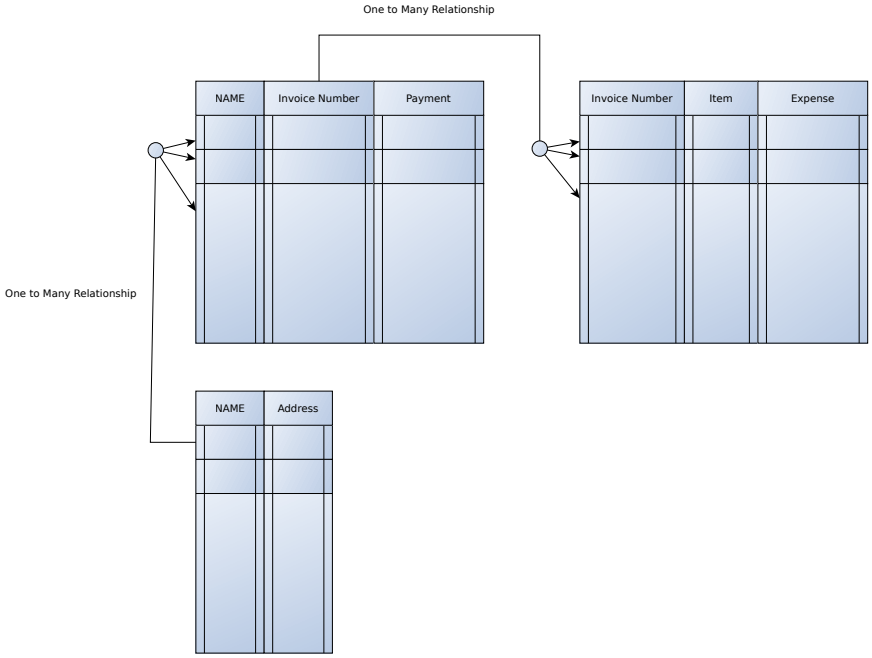

Figure 1: The Relations between the tables

For your project you need to build a database with the ability of

1. Insert the different quantities in the different tables by primary id.
2. Delete quantities by their primary id at each table.
3. Select names from the first table and see their total expenses. Basically a table like (Table 4).
4. Select names from the first table and see their total payments (Similar to table 4)

5. Return the earning after expenses in a similar fashion.

6. Calculate how similar are different users by expense. Basically given two users x and y then $w(x, y) = |TotalExpenses_x - TotalExpenses_y|$

Name	Invoice	Expense
Issac	Beer	$10.00
	Food	$25.00
	Beer	$30.00

Table 4: Table of Expenses

Basically, you need to build a series of dictionaries using possible

1. Hash tables.

2. Rapid indexation using binary trees.

3. Basic Search in Graphs.