

System Design Specification

CORPORATE ACCOUNTING SYSTEM

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Executive Summary

The proposed system is designed to perform corporate accounting for multiple legal entities in multiple Charts of Accounts for a holding company consisting of several firms responsible for their own lines of business.

The purpose of software application is to increase efficiency of corporate accounting for corporations consisting of several companies and doing business according to different tax rules and different accounting standards.

The increase in efficiency of doing corporate accounting will be achieved by improving convenience of entering source documents for all legal entities in the same software application and in the same database which will allow to instantly consolidate data of all legal entities or only selected legal entities and clearly see the "big picture" of business operations.

The convenience of using entered accounting data will be increased by allowing to perform analysis according to selected criteria across all or selected legal entities and in selected chart or charts of accounts. This is achieved by using analytical dimensions as common reference information for all legal entities.

System Overview

The system will be organized in the following way. All accounting transactions will be registered in the Journal of Transactions. In this journal for each legal entity will be a separate tab with Legal Entity name. Each transaction is a Journal Entry with a unique number and will consist of Journal Entry lines. In each Journal Entry line will be required to select G/L (General Ledger) account and analytics for that G/L account. If applicable, optionally can be entered quantity and units of measurement for the quantity. If transaction is in foreign currency and G/L account for the Journal Entry line allows to account amounts in foreign currency, there will be required to enter the original amount in foreign currency and exchange rate to convert it into national currency. Journal Entry may have Journal Entry Lines for multiple Charts of Accounts in the same document. For Journal Entry lines of each Chart of Accounts in table part of the document will be a separate tab with Chart of Account's name on that tab.

All analytical information that can be entered in Journal Entry lines will be stored in Analytical Dimensions. For each particular dimension there will be a separate list and menu item in the interface. Examples of analytical dimensions are: Customers, Vendors, Inventory, Employees, Locations, Lines of Business, Expenses. All reference information will be stored in Reference Lists. For each particular reference list there will be a separate list and menu item. Examples of reference lists are: Currencies, Units of Measurement, Legal Entities, Inventory Groups, List of Charts of Accounts.

To be able to do accounting for multiple legal entities, the Legal Entities list should contain the names of legal entities. For doing accounting in multiple charts of accounts, the List of Charts of Accounts should contain the names of required charts of accounts. For multiple currencies accounting, the Currencies list should contain required currencies.

The Charts of Accounts will contain all G/L accounts that can be selected from Journal Entry lines. Each G/L account will have G/L account settings and analytical dimensions for that account. If List of Chart of Accounts contains several charts of accounts, for each chart of account there will be a separate tab with that chart of accounts' name.

Functional Decomposition Diagram

This diagram is a representation of business process from more general to more specific by decomposing each process of the original business process into more detailed diagram. Functional Decomposition Diagram for the designed Corporate Accounting System is shown on Figure 1.

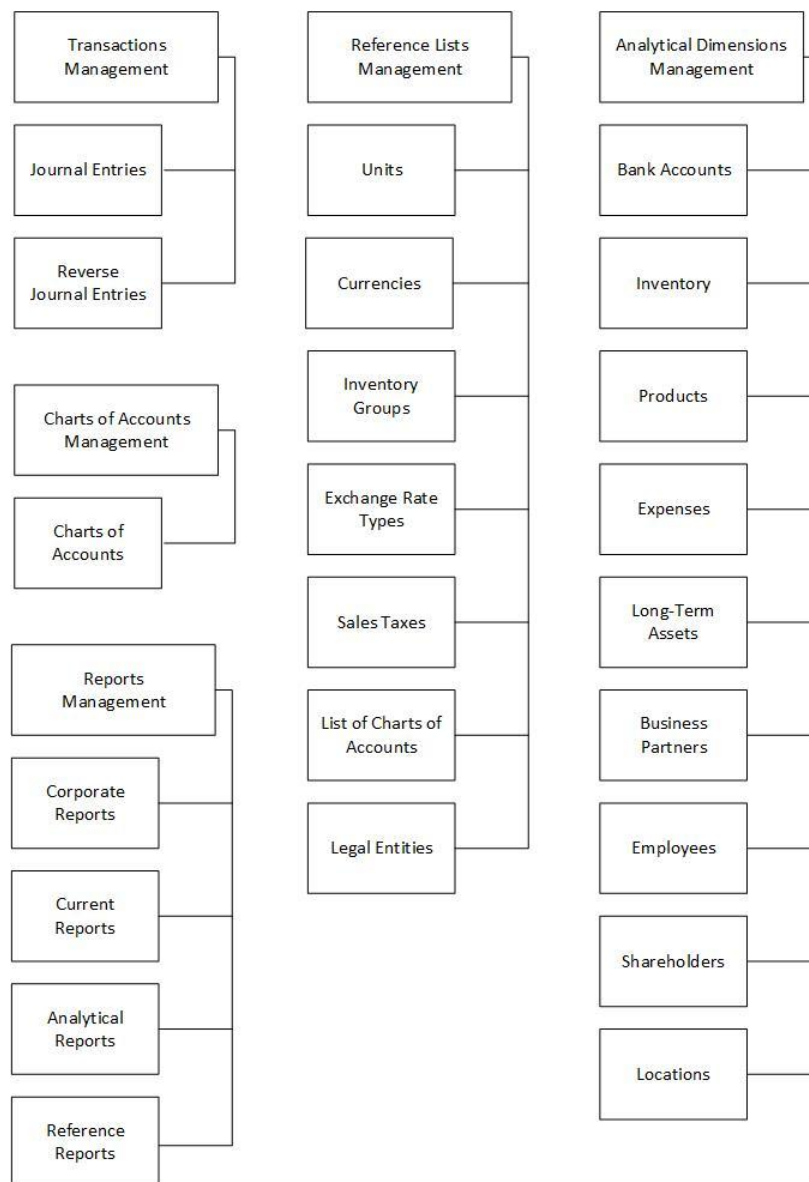


Figure 1 - Functional Decomposition Diagram

Organization Chart

The organizational structure of a company for which this application could be useful is shown next. Since this software is mostly for companies with holding structure, there are 2 charts: organization structure and corporate office structure. The first chart shows how a company could be organized with regards to offices and legal entities (Figure 2). The second chart demonstrates how the corporate office of the holding company could be organized in terms of main users of this software application (Figure 3).

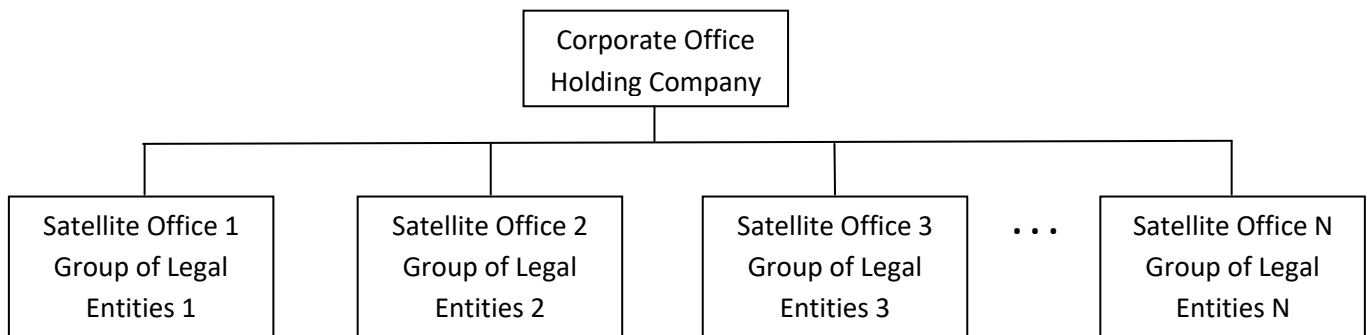


Figure 2 - Organization Structure

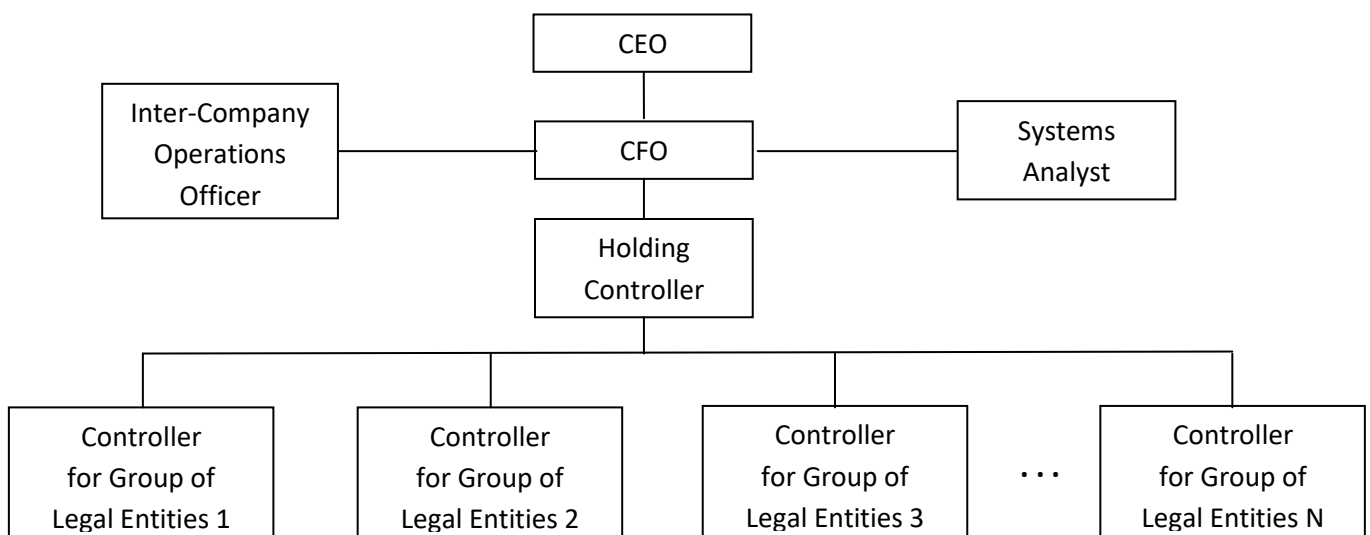


Figure 3 - Corporate Office Structure

Input source document and data entry screens

Input source document

The input source document for entering information into system in a convenient way is shown on Figure 4.

Journal Entry # 						
Date: 		Amount: 		Currency: 		
				Exchange Rate: 		
Source document ref.: 						
Organization/Employee/Shareholder: 						
					Chart of Accounts: 	

G/L Acctn	Dt Amnt	Cr Amnt	Curr.	Q-ty	Unit	Analytics
Balance:						

Accountant: 	Signature:
--	---

Figure 4 - Input Source Document

Data entry screens

All entered into system transactions will be stored in the Journal of Transactions. The form of this journal is shown on Figure 5.

Date	JE #	Amount	Curr	Contact	Note

Figure 5 - Journal of Transactions

In this journal the companie's legal entities are shows on the tabs. For each legal entity transactions are stored separately. The column names in this journal are self-explanatory and they correspond to the form fields of Journal Entry form shown on the next picture.

The main form for entering transactions into system is the Journal Entry input form shown on Figure 6.

Figure 6 - Journal Entry input form

In the *Date* field is entered transaction date, *JE #* field is for Journal Entry number, *Amount* field is for transaction amount, *Currency* field is for currency of transaction, *Contact* field if for an Organization or a Person with whom this transaction was performed, *Note* field is for remarks related to this transaction.

In table part of the Journal Entry form:

G/L Acct field is for G/L account number in Journal Entry line. G/L accounts are selected from the Chart of Accounts shown on the tab. *Analytical Dimensions* field is for selecting analytical dimensions for G/L account in this line of Journal Entry and for further analysis with reports. *Quantity* field is for quantity of something that was bought or sold, if it's applicable. *Unit* field is for specifying a unit of measurement for the quantity. *Org.Amnt* field is for original amount in transaction currency if the transaction is in foreign currency. *Org.Curr* field is for specifying the original currency of transaction for transactions in foreign currency. *Debit* field is for amount in

national currency which should be allocated to debit of specified G/L account. *Credit* field is for amount in national currency to allocate to credit of G/L account.

All G/L Accounts used in Journal Entry input form are entered through Charts of Accounts Journal. The form of this Journal is shown on Figure 7.

G/L #	Account Name	Acct Type	Account Group	Q-ty	Curr	Cntr

Figure 7 - Charts of Accounts Journal

The names of different Charts of Accounts are shown on the tabs of this journal. All column names are self-explanatory and correspond to field names of G/L Account input form shown on the next picture.

The form for entering G/L Accounts information can be seen on Figure 8.

G/L Account

G/L Number:

Account Name:

Type of Account:

Account Group:

☐ Quantity Tracking

☐ Foreign Currency Operations

☐ Contra Account

Analytical Dimensions	Type	*

OK Cancel

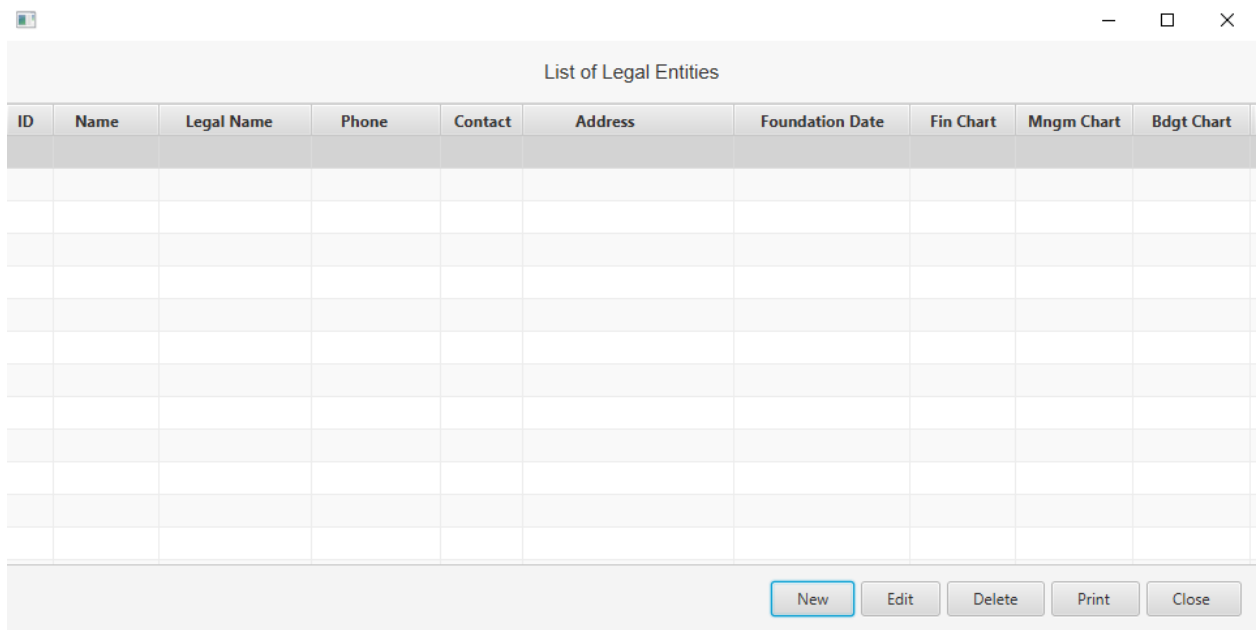
Figure 8 - G/L Account input form

In this form *G/L Number* field is for entering G/L account number for selected Chart of Accounts. *Account Name* field is for information explaining what will be stored on this G/L account. *Type of Account* field is for selecting the type of G/L account: either Balance Sheet account or Income Statement account. Depending of selected Type of Account the next field *Account Group* will require to select a group of either Balance Sheet or Income Statement to which this G/L account belongs. *Quantity Tracking* flag field is for selecting if the account requires tracking quantity of items. *Foreign Currency Operations* flag field is for selecting to track amounts in foreign currency in this account. *Contra Account flag* field is for marking this G/L account as contra to the selected Account Group.

In table part of this form there are 2 columns. The column *Analytical Dimensions* is for selecting which types of Analytical Dimensions are required to track in Journal Entries with this

G/L account. The column *Type* is for selecting the type of tracking: either Balance or Period. Balance choice is for tracking balances for selected Analytical Dimension, Period choice is for tracking transactions marked with Analytical Dimension within period without tracking balance for the dimension.

All Legal Entities used in transactions are stored in the list of Legal Entities shown on Figure 9.



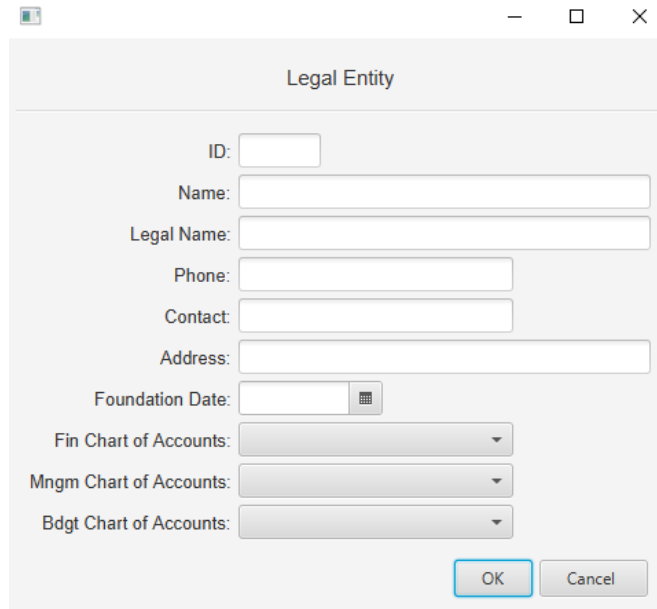
ID	Name	Legal Name	Phone	Contact	Address	Foundation Date	Fin Chart	Mngm Chart	Bdgt Chart

New Edit Delete Print Close

Figure 9 - List of Legal Entities

Column names correspond to field names in Legal Entity input form shown on the next picture.

Legal Entity input form is shown on Figure 10.



The image shows a software window titled "Legal Entity". It contains several input fields and dropdown menus. The fields are: ID (a small text box), Name (a long text box), Legal Name (a long text box), Phone (a text box), Contact (a text box), Address (a long text box), and Foundation Date (a date picker with a calendar icon). Below these are three dropdown menus labeled "Fin Chart of Accounts", "Mngm Chart of Accounts", and "Bdgt Chart of Accounts". At the bottom right are "OK" and "Cancel" buttons.

Figure 10 - Legal Entity input form

ID field is for assigning ID number for a legal entity. *Name* field is for common name for the company, *Legal Name* field is for official legal name for the legal entity. Fields *Phone*, *Contact*, *Address* are for storing contact information. *Foundation Date* field is for storing date of foundation for legal entity. Fields *Fin Chart of Accounts*, *Mngm Chart of Accounts*, *Bdgt Chart of Accounts* are for selecting which charts of accounts will be used for tracking operations for financial accounting, management accounting and for budgeting accordingly.

All other Analytical Dimensions and Reference Lists have list form and input form similar to Legal Entity list and input form accordingly.

Context Diagram

This diagram shows the entire system as a single process. The context diagram for the designed system is shown on Figure 11.

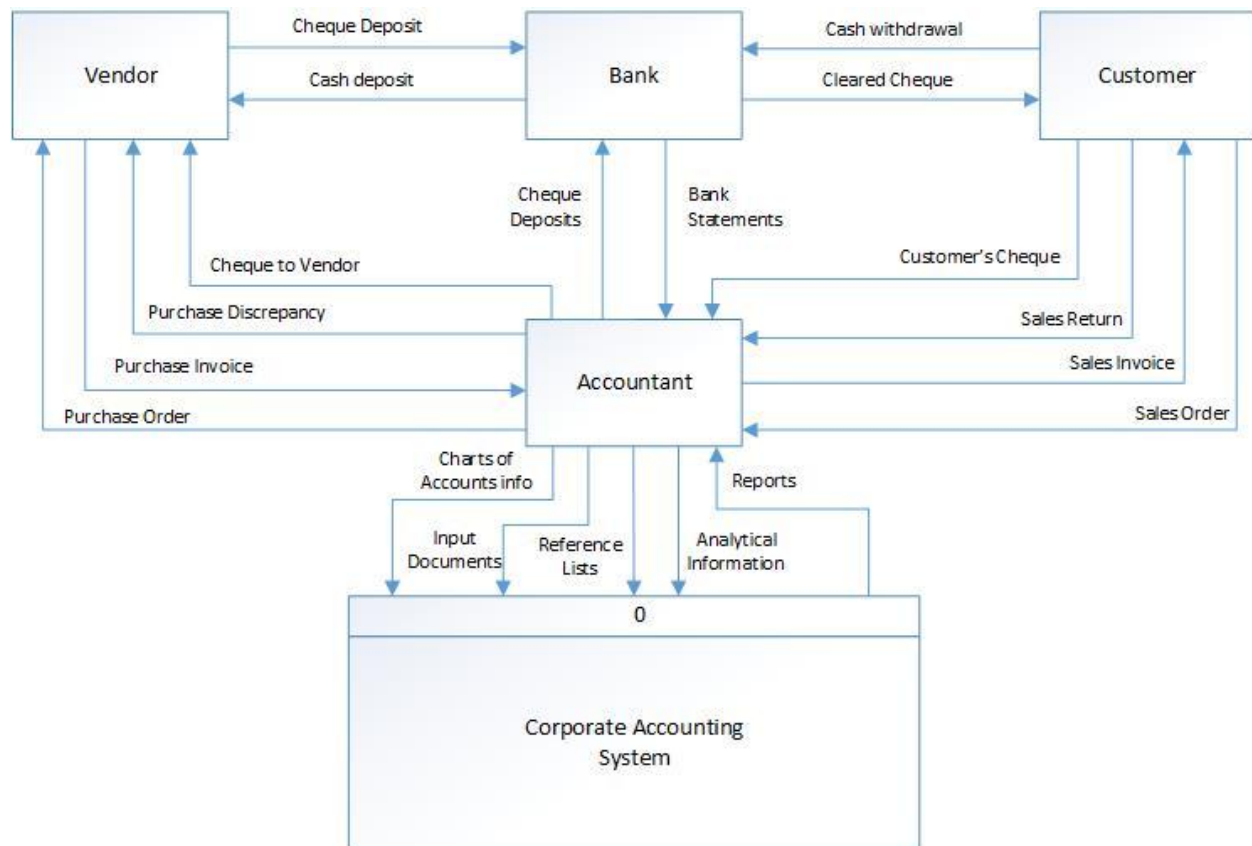


Figure 11 - Context Diagram

Data Flow Diagram Level 0

Data Flow Diagram (DFD) shows how the system transforms input data into useful information by processing, transforming and storing the data. DFD Level 0 shows details of process 0 from the Context Diagram. For the designed Corporate Accounting System the DFD Level 0 is shown on Figure 12.

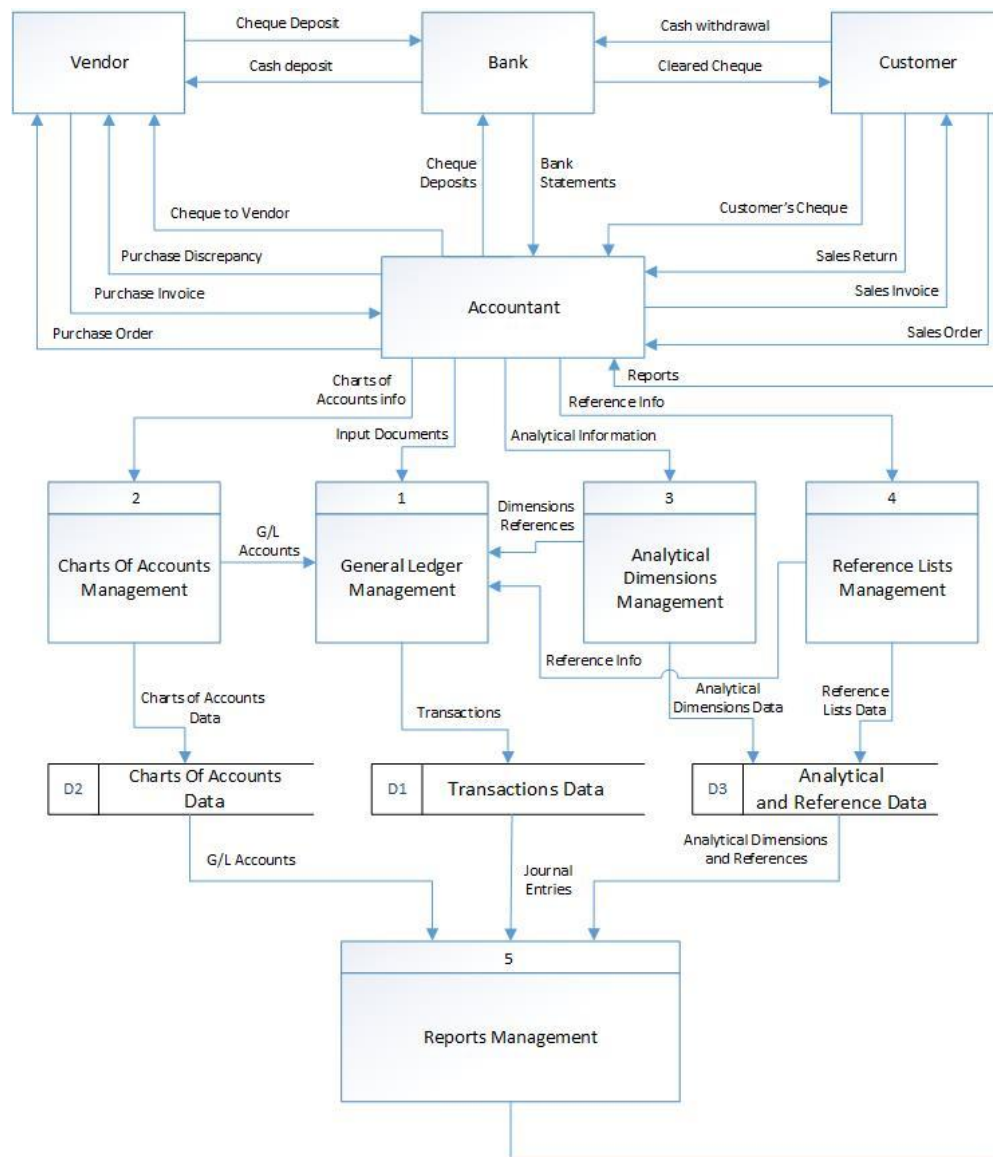


Figure 12 - Data Flow Diagram Level 0

Data Stores and Data Flows

Data Store represents stored data in order for one or more business processes to use it later.

Data Flow is a path to move data from one part of the system to another. Data Stores and Data Flows for the designed system are depicted on Figure 13.

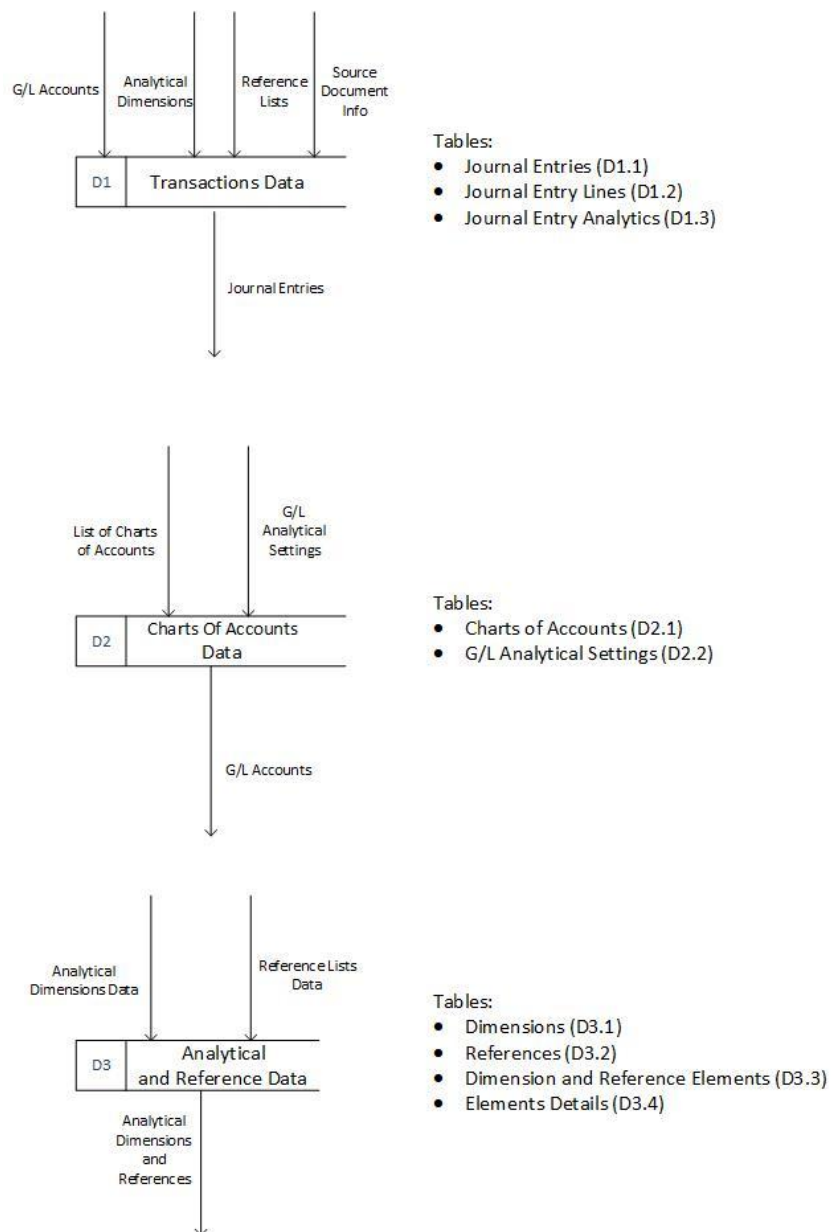


Figure 13 - Data Stores and Data Flows

Entity Relationship Diagram

Entity Relationship Diagram (ERD) describes the relationship between system entities. In order to better understand how the system's data is organized, on Figure 14 is shown the ERD for the designed system.

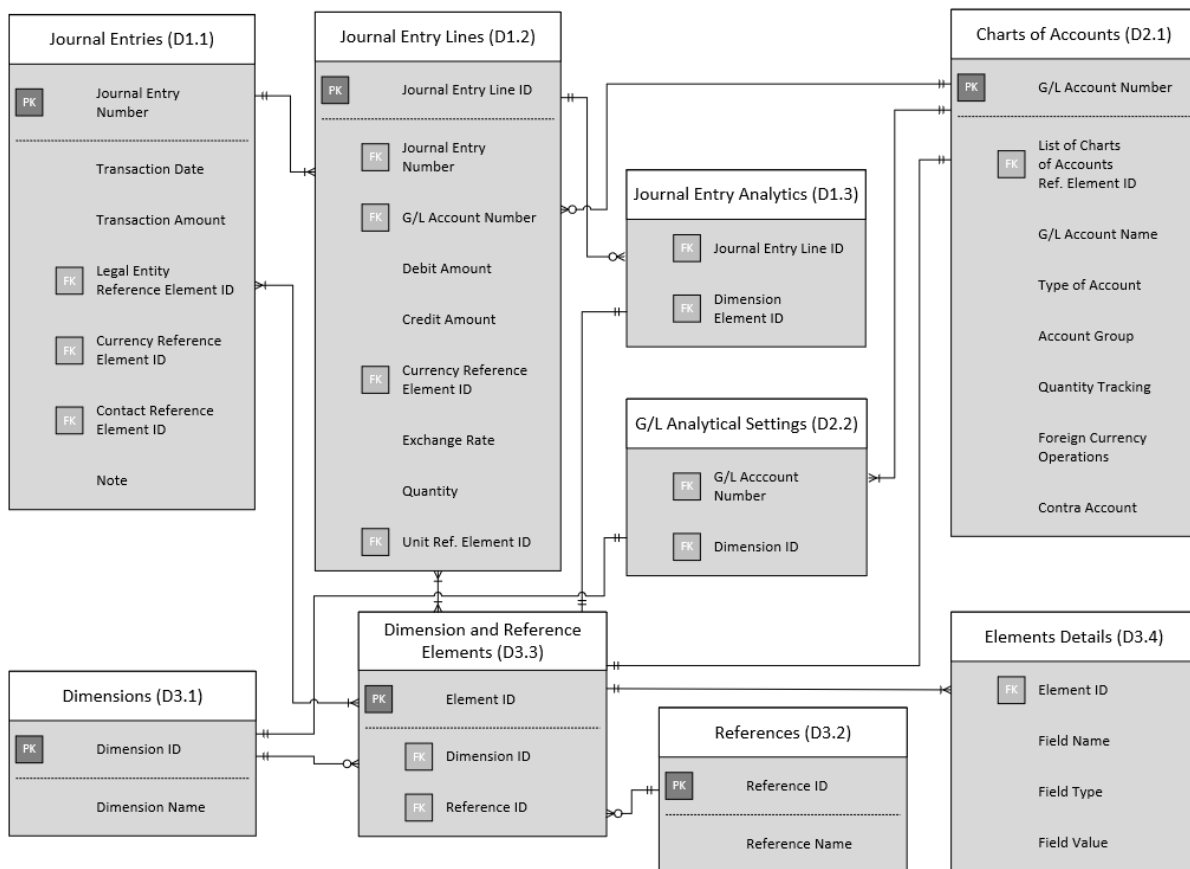


Figure 14 - Entity Relationship Diagram

Data Dictionary entry for Registration of Transaction process

Data Dictionary is a place where information about system's data is stored. As an example of functional primitive, it is described the data dictionary for Registration of Transaction process. During the Registration of Transaction process the system makes changes in the following tables:

- Journal Entries (D1.1)
- Journal Entry Lines (D1.2)
- Journal Entry Analytics (D1.3)

Data Dictionary for those tables is shown below.

Journal Entries Table (D1.1)

Table Fields :

- Journal Entry Number (PK)
- Transaction Date
- Transaction Amount
- Legal Entity Reference Element ID (FK)
- Currency Reference Element ID (FK)
- Contact Reference Element ID (FK)
- Note

[Journal Entry Number] Data Element Documentation			
System:	General Ledger	Date:	March 31, 2017
Label:	Journal Entry #	Alias:	JE#
Type/Length:	Number/10	Default Value:	Auto increment in DB
Source:	Journal Entry Form	Acceptable Values:	Any unique positive number
Security:	Accounting Department	User Responsibility:	Accounting Department
Description and Comments:			

[Transaction Date] Data Element Documentation			
System:	General Ledger	Date:	March 31, 2017
Label:	Date	Alias:	Date of Transaction
Type/Length:	Date	Default Value:	Current System Date
Source:	Journal Entry Form	Acceptable Values:	Any date until current date
Security:	Accounting Department	User Responsibility:	Accounting Department
Description and Comments:			

[Transaction Amount] Data Element Documentation			
System:	General Ledger	Date:	March 31, 2017
Label:	Amount	Alias:	Document Amount
Type/Length:	Number/14.2	Default Value:	N/A
Source:	Journal Entry Form	Acceptable Values:	Any positive number
Security:	Accounting Department	User Responsibility:	Accounting Department
Description and Comments:			

[Legal Entity Element ID] Data Element Documentation			
System:	General Ledger	Date:	March 31, 2017
Label:	Legal Entity	Alias:	Our firm
Type/Length:	Legal Entity Reference	Default Value:	N/A
Source:	Journal Entry Form	Acceptable Values:	Any from the Legal Entities Reference List
Security:	Accounting Department	User Responsibility:	Accounting Department
Description and Comments:			

[Currency Element ID] Data Element Documentation			
System:	General Ledger	Date:	March 31, 2017
Label:	Currency	Alias:	Foreign Currency
Type/Length:	Currency Reference	Default Value:	National Currency
Source:	Journal Entry Form	Acceptable Values:	Any Currency from Currencies Reference List
Security:	Accounting Department	User Responsibility:	Accounting Department
Description and Comments:			

[Contact Element ID] Data Element Documentation			
System:	General Ledger	Date:	March 31, 2017
Label:	Contact	Alias:	Counterpart
Type/Length:	Business Partner/ Employee/ Shareholder Dimension	Default Value:	N/A
Source:	Journal Entry Form	Acceptable Values:	Any element from Business Partners/ Employees/ Shareholders Dimension List
Security:	Accounting Department	User Responsibility:	Accounting Department
Description and Comments:			

[Note] Data Element Documentation			
System:	General Ledger	Date:	March 31, 2017
Label:	Note	Alias:	Comment
Type/Length:	Text/200	Default Value:	None
Source:	Journal Entry Form	Acceptable Values:	Any text
Security:	Accounting Department	User Responsibility:	Accounting Department
Description and Comments:			

Journal Entry Lines Table (D1.2)

Table Fields :

- Journal Entry ID (PK)
- Journal Entry Number (FK)
- G/L Account Number (FK)
- Debit Amount
- Credit Amount
- Currency Element ID (FK)
- Exchange Rate
- Quantity
- Unit Element ID (FK)

[Journal Entry ID] Data Element Documentation			
System:	General Ledger	Date:	March 31, 2017
Label:	JE ID	Alias:	N/A
Type/Length:	Number/14	Default Value:	Auto incremented in DB
Source:	N/A	Acceptable Values:	Any unique integer value
Security:	Accounting Department	User Responsibility:	Accounting Department
Description and Comments:			

[Journal Entry Number] Data Element Documentation			
System:	General Ledger	Date:	March 31, 2017
Label:	Journal Entry #	Alias:	JE #
Type/Length:	Number/10	Default Value:	Auto increment in DB
Source:	Journal Entry Form	Acceptable Values:	Any unique positive value
Security:	Accounting Department	User Responsibility:	Accounting Department
Description and Comments:			

[G/L Account Number] Data Element Documentation			
System:	General Ledger	Date:	March 31, 2017
Label:	G/L Account	Alias:	G/L #
Type/Length:	Number/5	Default Value:	N/A
Source:	Journal Entry Form	Acceptable Values:	Listed in Charts of Accounts
Security:	Accounting Department	User Responsibility:	Accounting Department
Description and Comments:			

[Debit Amount] Data Element Documentation			
System:	General Ledger	Date:	March 31, 2017
Label:	Debit	Alias:	Dt
Type/Length:	Number/14.2	Default Value:	N/A
Source:	Journal Entry Form	Acceptable Values:	Any positive value
Security:	Accounting Department	User Responsibility:	Accounting Department
Description and Comments:			

[Credit Amount] Data Element Documentation			
System:	General Ledger	Date:	March 31, 2017
Label:	Credit	Alias:	Cr
Type/Length:	Number/14.2	Default Value:	N/A
Source:	Journal Entry Form	Acceptable Values:	Any positive value
Security:	Accounting Department	User Responsibility:	Accounting Department
Description and Comments:			

[Currency Element ID] Data Element Documentation			
System:	General Ledger	Date:	March 31, 2017
Label:	Currency	Alias:	Curr.
Type/Length:	Currency Reference	Default Value:	National Currency
Source:	Journal Entry Form	Acceptable Values:	Any value listed in Currency Reference List
Security:	Accounting Department	User Responsibility:	Accounting Department
Description and Comments:			

[Exchange Rate] Data Element Documentation			
System:	General Ledger	Date:	March 31, 2017
Label:	Exch. Rate	Alias:	Rate
Type/Length:	Number/10.5	Default Value:	1.0
Source:	Journal Entry Form	Acceptable Values:	Any positive value
Security:	Accounting Department	User Responsibility:	Accounting Department
Description and Comments:			

[Quantity] Data Element Documentation			
System:	General Ledger	Date:	March 31, 2017
Label:	Quantity	Alias:	Qty
Type/Length:	Number/10.3	Default Value:	None
Source:	Journal Entry Form	Acceptable Values:	Any positive value
Security:	Accounting Department	User Responsibility:	Accounting Department
Description and Comments:			

[Unit Element ID] Data Element Documentation			
System:	General Ledger	Date:	March 31, 2017
Label:	Unit	Alias:	Unt
Type/Length:	Unit Reference	Default Value:	None
Source:	Journal Entry Form	Acceptable Values:	Listed in Units Reference List
Security:	Accounting Department	User Responsibility:	Accounting Department
Description and Comments:			

Journal Entry Analytics Table (D1.3)

Table Fields :

- Journal Entry ID (FK)
- Journal Entry Number (FK)

[Journal Entry ID] Data Element Documentation			
System:	General Ledger	Date:	March 31, 2017
Label:	JE ID	Alias:	N/A
Type/Length:	Integer/14	Default Value:	Auto incremented in DB
Source:	N/A	Acceptable Values:	Any unique integer value
Security:	Accounting Department	User Responsibility:	Accounting Department
Description and Comments:			

[Dimension Element ID] Data Element Documentation			
System:	General Ledger	Date:	March 31, 2017
Label:	Analytical Dimension	Alias:	Analytics
Type/Length:	Any Dimension	Default Value:	None
Source:	Journal Entry Form	Acceptable Values:	Any Dimension Element
Security:	Accounting Department	User Responsibility:	Accounting Department
Description and Comments:			