Personal accounting in Ledger

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Also By Marcin Borkowski

Hacking your way around in Emacs

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Introduction

This is an introductory textbook (well, a *textbooklet*, if that is a word) on personal accounting, with examples using a tool called Ledger.

If you are not familiar with accounting, you may ask, why bother? Why not keep your financial data in a spreadsheet, like so many other people? Of course you can – but that may be a bit limiting.

Financial accounting is a prestigious line of work, with a long and glorious tradition extending over 500 years. Five centuries is long enough for empires to rise and topple, for economic systems to emerge and fade out, not to mention for companies to be born, thrive and eventually go bankrupt. Five centuries saw an enormous spectrum of business models, organizational structures and sizes of human endeavors. Yet, the principles of accounting, codified by Luca Pacioli in late 15th century, have proven to be enough to keep books for all of them. So flexible a system surely can deal with your personal – or even family finance! The first moment you want to do something a bit less typical, your spreadsheet-based ad hoc system may fall apart, or require some mental gymnastics. You might borrow or lend money from and to many friends. You might want to save for vacation and spread the vacation expenses evenly over the course of the year. You might want to keep track of the changing value of your house. You might start a side job, giving you some additional income at the cost of some additional expenses. With double-entry bookkeeping, you can easily do all of these and much more. And yet, the system is beautiful in its simplicity! It should be enough to read about half of this book to learn the basics; the rest is devoted to some special cases you may encounter.

Of course, there's much more to accounting than the humble 30+ pages of this booklet – but they are more than enough to get you started with *personal* finance. For *business* finance, I would strongly advise finding a book covering your country's accounting law. In this booklet, we won't necessarily stick to some law-enforced practices (which may differ among countries and law-systems anyway). Since persons (as opposed to business entities) are not required by law to keep books in a strict format, they can set the rules themselves – and we will do so here. (Also, companies usually need to deal with more complicated operations than a typical household.)

Ledger[1] is one of a few plain-text-based[2], command-line accounting tools. If working with a text editor and command line is your thing, you may find Ledger fitting your workflow very well. (If you are a more GUI-oriented person, an application like GnuCash[3] may be a better choice.) In other words, this booklet is primarily aimed for IT engineers who want to understand the basic principles of accounting – but anyone who can use the command line is invited.

Finally, a disclaimer. I, the author, am not an accountant, though I did study economics and had two semesters' worth of accounting courses (financial and managerial accounting). I am, though, a

[1] https://www.ledger-cli.org/
[2] https://plaintextaccounting.org/
[3] https://gnucash.org/

programmer and a long-time (almost a decade now!) user of Ledger, and I decided to share some of my knowledge and experience in the hope that it would be useful to you.

Accounts and transactions

Let us start slow. We are going to record the simple fact that we withdrew some cash from an ATM. All financial accounting basically boils down to what could be called *value transfers* – for example, money going from bucket A (here, a bank account) to bucket B (here, a wallet).

Let's use Ledger to record this. I will use PLN (Polish złoty) as the currency, since this is the currency of my home country (also, it has a fascinating history[4]!), but Ledger is fully currency-agnostic (in fact, you can use many currencies simultaneously and convert between them). So, here is our first *transaction*. Transactions are the "atoms" of accounting – every event that changes your financial situation is recorded as a transaction (or a bunch of them).

Create an empty text file (you can even use Notepad for this, but a more advanced text editor is of course much more convenient – I use Emacs) and type something like this.

```
2022-01-02 ATM
    Cash                          100.00 PLN
    Bank                         -100.00 PLN
```

The transaction has a few elements. The first line is the *date* (here, in the ISO-8601 format accepted by Ledger by default). Then we have the *description* (here, just `ATM`), and finally the *postings*.

Every transaction basically describes some flow of value. In this case, money flows from `Bank` to `Cash`. The strings `Bank` and `Cash` are *account* names. An *account* is a place where value can be stored in, go to, be taken from etc. Some accounts are more "concrete" (like the two above – both denote real "places" where we can keep real money), and some are more "abstract" (we'll see an example soon). In Ledger, the first posting describes the *target* account and the last one the *source* account, but that is not important in most cases. (From Ledger's perspective, withdrawal of 100 PLN from the bank is (almost) exactly the same as a deposit of -100 PLN (that is, *negative* 100 PLN) – the only difference I know of is with respect to transactions involving different commodities, e.g. currency exchanges, which we don't discuss in this booklet.) Finally, there are *amounts* – numbers with a *commodity* (here, just the currency) attached.

The precise rules for transaction syntax are a bit complex, but here is the gist of it:

- postings should be indented by at least one space,
- amounts should be separated from account names by at least two spaces,
- the commodity name may come before or after the amount, with or without a space (e.g., both `100.00 USD` and `$100.00` are fine, just remember to be consistent),

[4] https://en.wikipedia.org/wiki/Polish_z%C5%82oty

- if the commodity name contains certain characters special to Ledger, e.g., punctuation, mathematical operators, brackets and some other ones, it should be put in double quotes.

In other words, the above transaction could also be written this way:

```
2022-01-02 ATM
          Cash  100.00 PLN
 Bank   -100.00 PLN
```

although it looks much worse then. (Ledger comes with a dedicated Emacs editing mode which can align the postings automatically.)

Balance report

OK, so you have your first transaction – now the question is, what you can do with it. It turns out that Ledger can only do one thing: take a file with your transactions (called a *journal file*) and produce a report. This is the beauty of it: it *never* changes your journal. You, and only you, are responsible for editing it – entering transactions – and all Ledger does is analyze it and produce various kinds of reports. This means that you can do all the stuff you may be used to doing with text files – keep it in version control, maybe use `grep`, `sed` and other utilities to search, edit it etc., possibly even write some tool to automatically generate (parts of) it. Ledger doesn't care – it only takes the journal file and produces the reports.

Perhaps the simplest of them – and probably the most often used – is the *balance* report. Go to your terminal and say something like `ledger balance --file your_journal_file_name`. You will see something like this:

```
          -100.00 PLN  Bank
           100.00 PLN  Cash
--------------------
                   0
```

The balance report just displays the amount of money in every account (called *balance* in bookkeeping lingo). As you will see, in traditional accounting there are quite a few types of reports; in Ledger, many of them can be emulated with the balance report with suitable options. For now, the simple form above will be enough, especially that we have another problem to deal with first – how to record the initial amounts of money you have in bank, in cash etc.

Note that for the sake of brevity, in the rest of the book I will omit the `--file` option. Also, many Ledger options have short forms (for example, you can use `-f` instead of `--file`); most often used reports also have shorter names (for example, `bal` is a synonym for `balance`). I will keep using the long forms in the examples so that you won't have to remember the abbreviations.

Kickstarting a ledger file

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Strict mode

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Two useful Ledger shortcuts

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Chart of accounts

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Expense accounts

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Assets and liabilities

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Income accounts

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Some other reports

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Dealing with loans

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