Report on assignment

What the program is about:

«SAF-T Financial is a standard format used in the exchange of accounting data. SAF-T, or Standard Audit File-Tax, is the result of a joint development collaboration between the business community, the accounting sector, and the Norwegian Tax Administration. It is based on a recommendation by the OECD.

The introduction of the standard format will make it easier for those obliged to keep accounts to submit accounting records to public authorities upon request.

It will also be easier to perform internal control audits, and analyse and share data with others, such as external auditors or between different accounting systems.

This program is a showcase for how this new format can be used for analysis purposes.

The example file:

We were not able to get our hands-on real data extracted straight from an accounting system by a real company. This is because there is a lot of confidential information in these files. We tried to get hold of some from various auditing firms, but it was not possible:
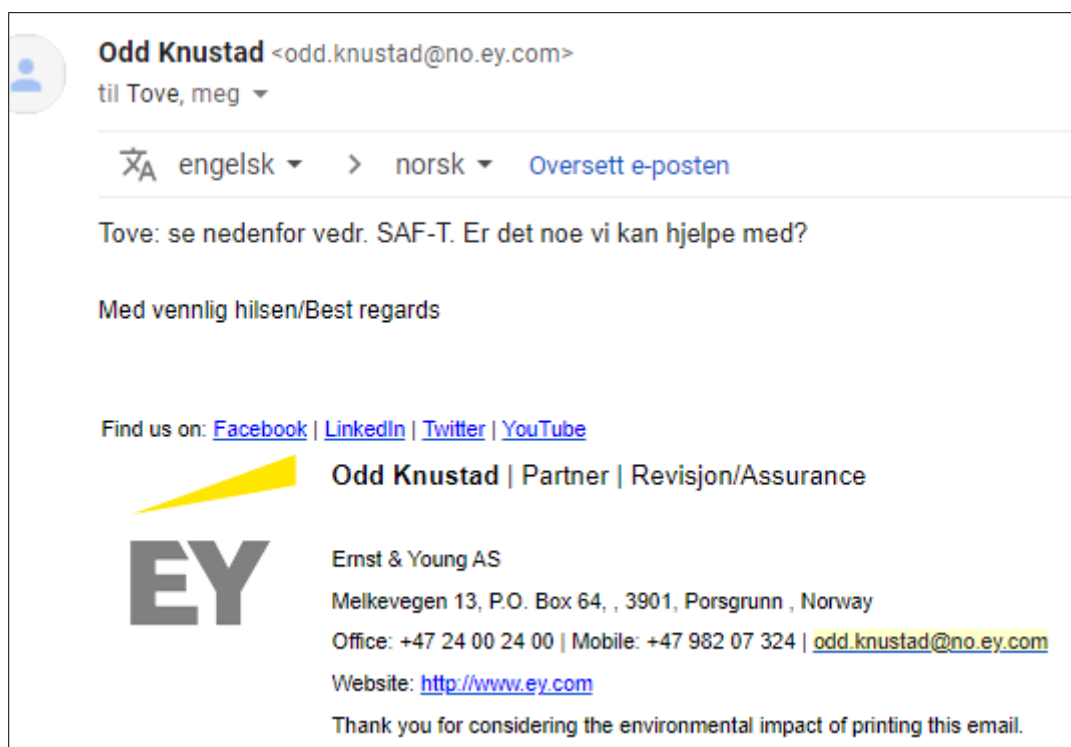
Hei Sindre,
det er godt å høre - sjeldent dumt å ha med seg litt
programmeringskunnskap videre i karrieren.

Vi har dessverre ingen data fra kunder vi har mulighet til å dele uten videre
(pga konfidensialitet), men Skatteetaten har lagt ut et datasett som heter
Tøyen Leketøysfabrikk som vi selv benytter for utviklingsformål internt hos
oss. Det inneholder ikke voldsomme mengder med data, men det er
hvertfall noe å begynne med.

https://github.com/Skatteetaten/saf-t/blob/master/Example%20Files/
ExampleFile%20SAF-T%20Financial_888888888_20180228235959.xml

Med vennlig hilsen/Kind regards,

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Therefore, we decided to manually design our own SAF-t file, which has its drawbacks. However, we feel we get to showcase how this format can be used for analysis but ideally, we should have many files to test our program on. This is the biggest weakness of this assignment.

SAF-T Financial includes header, master files and general ledger entries. Inside the master files there's information about general ledger accounts (as well as information about customers, suppliers, and taxes). We make use of the general ledger accounts section for the dashboard, income statement and balance sheet. For the transaction plot, we make use of the general ledger entries section of the file. The structure should be standardized, and our code should in theory work across all SAF-t financial files. However, as stated, we were not able to do massive testing on different SAF-t files produced by different firms from different accounting systems.

We constructed our own example file. This was based on the financial report for Telenor Fornebu 2019. In the general ledger, manually edited the numbers on different accounts. The SAF-t template file (empty) was exported from an accounting software called Tripletex. This template file included mapping of all the standard account Ids as used in NS4102 (Norsk Standard Kontoplan NS 4102). That is, standard account ids from 10 all the way up to 89. We have made an important assumption that the SAF-t files produced by different accounting software will map all the standard id accounts. And we even made sure in our error handling, that our code will output a custom error message if the standard account ids 10-89 is not included (in the same way our program outputs the error message for any file except xml files in this exact structure).

As for populating the general ledger entries section of the example file, we used an old example file provided by https://github.com/skatteetaten/saf-t, which contains a saft-example file from 2016 about a fictious toy company (very early in the SAF-t project). This file we could not use as our main example file, because it did not have a full mapping of the general ledger accounts in the master files section. However, we copied over the general ledger entries section to our Tripletex template to make a transaction plot of the entries.

However, we are of the understanding that all accounts should be mapped. That is what accounting systems produce as of 2020 (e.g., Tripletex template), and that what is recently discussed by the developers on GitHub:

How to use the program:

Open shinydashboard.R, and make sure all the packages are installed. Hit the «run app» and select the «SAF-T fictitious company» xml file from the file selection menu. Also, can try any other file that's not SAF-T file, to see the custom error handling.

The reason for warnings messages when running the code is that not all general ledger accounts has nodes for both opening/closing balance and credit/debit. And when it is not included it will be an NA in the data frame column where it is not included.

An illustration from the general ledger accounts section about what is going on:

This will not produce any NA's in any data frame column (openingdebit, openingcredit, closingdebit, closingcredit)

```
<nl:Account>
    <nl:AccountID>1035</nl:AccountID>
    <nl:AccountDescription>Patenter, egenutviklet</nl:AccountDescription>
    <nl:StandardAccountID>10</nl:StandardAccountID>
    <nl:AccountType>GL</nl:AccountType>
    <nl:OpeningDebitBalance>1000</nl:OpeningDebitBalance>
    <nl:ClosingDebitBalance>1200</nl:ClosingDebitBalance>
    <nl:OpeningCreditBalance>0.0</nl:OpeningCreditBalance>
    <nl:ClosingCreditBalance>0.0</nl:ClosingCreditBalance>
```

However, for <u>credit</u> balances when the account is empty it will not even be included. And here the data frame column; openingcredit and closingcredit will be filled with NA's in R.

```
<nl:Account>
    <nl:AccountID>1035</nl:AccountID>
    <nl:AccountDescription>Patenter, egenutviklet</nl:AccountDescription>
    <nl:StandardAccountID>10</nl:StandardAccountID>
    <nl:AccountType>GL</nl:AccountType>
    <nl:OpeningDebitBalance>1000</nl:OpeningDebitBalance>
    <nl:ClosingDebitBalance>1200</nl:ClosingDebitBalance>
```

And this is what causes the error messages when running the code. (NA's is handled by converting to 0 in the code)