

Validations

Invoice Amount

- Invoice Header has total amounts
- Invoice Rows has specific amounts per row
 - Calculate these together and you should end up to header totals
 - There might be rounding differences, so you need to know your playground

```
def isEqual(headerTotal, rowTotal, maxDifference):  
    if ( abs(headerTotal-rowTotal) < maxDifference ):  
        return True  
    return False
```

Invoice Amount - Types

- Amount excluding VAT
- Amount including VAT
- VAT
- Unit Prices * Units vs. Total Prices

Reference number

- Reference number is made for helping to identify payments in bookkeeping.
- The last digit of reference number is check number
- Number can include different information
- One easy way to generate ref. is add invoice number and add check digit after that

Reference number

- Finnish way to add check number is:
 - Multiply from right to left all reference number digits by 7, 3, 1, 7, 3, 1, ... sequence
 - Calculate products together and subtract value from next total ten
 - Difference is check number, what is added to last digit of reference number
 - If difference is 10, check number is 0

Esimerkki viitenumeron tarkisteen laskennasta

Perusviitetieto	1	2	3	4	5	6
Painoarvot oikealta vasemmalle	1	3	7	1	3	7
Saadut tulot yhteensä	$1 + 6 + 21 + 4 + 15 + 42 = 89$					
Seuraavasta nolnaan päättyvästä luvusta (90) vähennetään tulojen summa	$90 - 89 = 1$					

Erotus on viitenumeron tarkiste 1

Reference number

- International reference number
- ISO 11649
- RFX1234561
 - RF is unique identifier
 - XX is 2 digit check number.
 - Number is max 21 char length number what invoice creator can decide

<https://www.finanssiala.fi/wp-content/uploads/2022/12/kansainvalisen-viitenumeron-rakenne-ja-tarkisteen-laskenta.pdf>

IBAN

- 2 digits country code + 2 digit check number and 14 chars base part
- Validation can be based on
 - Length
 - Rules
 - Country Code and Check numbers are moved to the end
 - Letters are converted to numbers
 - Divide number by 97 and remainder should be 1

<https://www.finanssiala.fi/wp-content/uploads/2021/03/IBAN-ja-BIC-maksujenvalityksessa-1.pdf>