

csvstudio.py

Keep it simple csv analysis tool

Why?

- ❖ Useful to handle large CSV files when you do not know what's inside

What does csvstudio.py do?

- ❖ Command line tool (one single file, no dependencies)
- ❖ It reads and parses CSV files
- ❖ Perform statistical analysis to discover content and dependent cols
- ❖ It can filter rows and cols using a simple but powerful syntax
- ❖ Can compute new columns, fix / normalize existing ones
- ❖ Can output text, html and other csv files
- ❖ Everything can be scripted

Where can I get it?

The image is a screenshot of a web browser displaying the 'csvstudio' project page on Google Code. The browser's address bar shows the URL 'http://code.google.com/p/csvstudio/'. A blue callout bubble with a pointer to the address bar contains the text 'googlecode'. The page header includes the user 'massimodipierro71@gmail.com' and links for 'My favorites', 'Profile', and 'Sign out'. The project name 'csvstudio' is prominently displayed with a logo. Below the name is a search bar and a navigation menu with links: 'Project Home', 'Downloads', 'Wiki', 'Issues', 'Source', and 'Administer'. Under 'Project Home', there are sub-links for 'Summary', 'Updates', and 'People'. The main content area is divided into two columns. The left column, titled 'Project Information', contains links for 'Star project', 'Activity' (with a bar chart icon), 'Code license' (with a link to 'New BSD License'), and 'Feeds' (with a link to 'Project feeds'). A blue callout bubble with a pointer to the 'New BSD License' link contains the text 'license = BSD'. The right column contains the text 'Python tool to analyze csv files'. The browser's status bar at the bottom shows the word 'Done'.

csvstudio - Project Hosting on Google Code

http://code.google.com/p/csvstudio/

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Project Information

★ Star project

[Activity](#) None

Code license

[New BSD License](#)

Feeds

[Project feeds](#)

Python tool to analyze csv files

license = BSD

Done

Show me what's in the file

```
$ python csvstudio.py -i input.csv -m 5
```

display only 5 rows

```
### 1
year=2000, code='X005', product_name='Cuckoo clock', price=114, quantity=15
### 2
year=2000, code='X005', product_name='Cuckoo clock', price=114, quantity=60
### 3
year=2000, code='X005', product_name='Cuckoo clock', price=106, quantity=38
### 4
year=2000, code='X005', product_name='Cuckoo clock', price=105, quantity=1

...

### 15000
year=2006, code='Y007', product_name='Standing clock', price=115, quantity=7
```

Do a statistical analysis

analysis

```
$ python csvstudio.py -i input.csv -a
```

col names

```
### Columns
```

```
columns = ['year', 'code', 'product_name', 'price', 'quantity']
```

```
### Column "year"
```

```
len(values) = 10
```

```
values = [2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009]
```

values found in column year

```
### Column "code"
```

```
len(values) = 2
```

```
values = ['X005', 'Y007']
```

```
code is equivalent to product_name
```

code is equivalent to product_name

```
### Column "product_name"
```

```
len(values) = 2
```

```
values = ['Cuckoo clock', 'Standing clock']
```

```
### Column "price"
```

```
len(values) = 20
```

```
values = [100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119]
```

items have only 20 possible prices

Filter rows

-q is a query

```
$ python csvstudio.py -i input.csv -q "year=2003 X005"
```

```
### 1
```

```
year=2003, code='X005', product_name='Cuckoo clock', price=105, quantity=4
```

```
### 2
```

```
year=2003, code='X005', product_name='Cuckoo clock', price=105, quantity=4
```

```
### 3
```

```
year=2003, code='X005', product_name='Cuckoo clock', price=105, quantity=4
```

```
### 4
```

```
year=2003, code='X005', product_name='Cuckoo clock', price=100, quantity=24
```

```
...
```

```
### 1000
```

```
year=2003, code='X005', product_name='Cuckoo clock', price=105, quantity=89
```

year=2003, record must
contain X005

Filter cols

```
$ python csvstudio.py -i input.csv -q "year=2003 X005" -c price,quantity
```

```
### 1
price=105, quantity=4
### 2
price=108, quantity=16
### 3
price=105, quantity=83
### 4
price=100, quantity=24
...

### 1000
price=105, quantity=89
```

year=2003, record must
contain X005

display only price and quantity

Compute

```
$ python csvstudio.py -i input.csv -q "year=2003 X005" -c price,quantity,revenue  
-r "revenue=price*quantity" -t
```

compute a column revenue

```
### 1  
price=105, quantity=4, revenue=420  
### 2  
price=108, quantity=16, revenue=1728  
### 3  
price=105, quantity=83, revenue=8715  
### 4  
price=100, quantity=24, revenue=2400  
...
```

add a row with totals

total revenues for cuckoo clocks
in 2003

```
### 1001  
price=109360.0, quantity=51401.0, revenue=5628864.0
```

total number of cuckoo clocks
sold in 2003

Fix/Normalize cells

```
$ python csvstudio.py -i input.csv
                        -r "product_name=product_name.strip().capitalize()"

### 1
year=2000, code='X005', product_name='Cuckoo clock', price=114, quantity=15,
product_name='Cuckoo clock'
### 2
year=2000, code='X005', product_name='Cuckoo clock', price=114, quantity=60,
product_name='Cuckoo clock'
### 3
year=2000, code='X005', product_name='Cuckoo clock', price=106, quantity=38,
product_name='Cuckoo clock'
### 4
year=2000, code='X005', product_name='Cuckoo clock', price=105, quantity=1,
product_name='Cuckoo clock'

...

### 15000
year=2006, code='Y007', product_name='Standing clock', price=115, quantity=7,
product_name='Standing clock'
```


Export

```
$ python csvstudio.py -i input.csv -q "year=2003 X005" -c price,quantity,revenue  
-r "revenue=price*quantity" -o output.csv -f csv
```

to csv

```
$ python csvstudio.py -i input.csv -q "year=2003 X005" -c price,quantity,revenue  
-r "revenue=price*quantity" -o output.html -f html
```

to html

```
$ python csvstudio.py -i input.csv -q "year=2003 X005" -c price,quantity,revenue  
-r "revenue=price*quantity" -o output.text -f text
```

to text

Query Syntax (-q)

- ❖ AND conditions separated by space
- ❖ EACH condition can take the form "value" or "column\$value" where \$ is one of the supported operators =, <, >, <=, >=, #
- ❖ (# means "contains")
- ❖ EXAMPLE: -q "2003 x005 price<50 product_name#clock" means "all rows which contain 2003 and contain X005 and have a price value < 50 and a 'clock' in the column_name value"

Compute Value Syntax (-t, -r)

- ❖ -t sums the numerical columns for all selected rows (selected by -q)
- ❖ -r computes new columns
- ❖ formulas must be separated by semi-colon (;) and can contain math operators, functions defined in the math modules and in the random module. Each formula must have the form "new_col_name=value"
- ❖ EXAMPLE: -r "revenue=price*quantity; discount=0.05*revenue"
- ❖ Queries (-q) can be applied to computed fields (-r)