

# Revision Notes

## What is a CSV file?

A CSV file is a type of plain text file that uses specific structuring to arrange tabular data. CSV is a common format for data interchange as it's compact, simple and general. Many online services allow its users to export tabular data from the website into a CSV file. Files of CSV will open into Excel, and nearly all databases have a tool to allow import from CSV file. The standard format is defined by rows and columns data. Moreover, each row is terminated by a newline to begin the next row. Also within the row, each column is separated by a comma.

## How to Read a CSV File

To read data from CSV files, you must use the reader function to generate a reader object.

The reader function is developed to take each row of the file and make a list of all columns. Then, you have to choose the column you want the variable data for.

It sounds a lot more intricate than it is. Let's take a look at this example, and we will find out that working with csv file isn't so hard.

```
#import necessary modules
import csv
with open('X:\data.csv','rt')as f:
    data = csv.reader(f)
    for row in data:
        print(row)
```

When you execute the program above, the output will be:

```
['Programming language; Designed by; Appeared; Extension']
['Python; Guido van Rossum; 1991; .py']
['Java; James Gosling; 1995; .java']
['C++; Bjarne Stroustrup;1983;.cpp']
```

# How to write CSV File

When you have a set of data that you would like to store in a CSV file you have to use `writer()` function. To iterate the data over the rows(lines), you have to use the `writerow()` function.

Consider the following example. We write data into a file "writeData.csv" where the delimiter is an apostrophe.

```
#import necessary modules
import csv

with open('X:\writeData.csv', mode='w') as file:
    writer = csv.writer(file, delimiter=',', quotechar='"', quoting=csv.QUOTE_MINIMAL
    )

    #way to write to csv file
    writer.writerow(['Programming language', 'Designed by', 'Appeared', 'Extension'])
    writer.writerow(['Python', 'Guido van Rossum', '1991', '.py'])
    writer.writerow(['Java', 'James Gosling', '1995', '.java'])
    writer.writerow(['C++', 'Bjarne Stroustrup', '1985', '.cpp'])
```

Result in csv file is:

```
Programming language, Designed by, Appeared, Extension
Python, Guido van Rossum, 1991, .py
Java, James Gosling, 1995, .java
C++, Bjarne Stroustrup,1983,.cpp
```

## Basic Usage of `csv.writer()`

Let's look at a basic example of using `csv.writer()` to refresh your existing knowledge.

**Example 1: Write into CSV files with `csv.writer()`**

Suppose we want to write a CSV file with the following entries:

```
SN,Name,Contribution
1,Linus Torvalds,Linux Kernel
2,Tim Berners-Lee,World Wide Web
3,Guido van Rossum,Python Programming
```

Here's how we do it.

```
import csv
with open('innovators.csv', 'w', newline='') as file:
    writer = csv.writer(file)
    writer.writerow(["SN", "Name", "Contribution"])
    writer.writerow([1, "Linus Torvalds", "Linux Kernel"])
    writer.writerow([2, "Tim Berners-Lee", "World Wide Web"])
    writer.writerow([3, "Guido van Rossum", "Python Programming"])
```

## Example 2: Writing Multiple Rows with writerows()

If we need to write the contents of the 2-dimensional list to a CSV file, here's how we can do it.

```
import csv
row_list = [
    ["SN", "Name", "Contribution"],
    [1, "Linus Torvalds", "Linux Kernel"],
    [2, "Tim Berners-Lee", "World Wide Web"],
    [3, "Guido van Rossum", "Python Programming"]
]
with open('protagonist.csv', 'w', newline='') as file:
    writer = csv.writer(file)
    writer.writerows(row_list)
```

The output of the program is the same as in Example 1.

## Example 3: Write CSV File Having Pipe Delimiter

```
import csv
data_list = [
    ["SN", "Name", "Contribution"],
    [1, "Linus Torvalds", "Linux Kernel"],
    [2, "Tim Berners-Lee", "World Wide Web"],
    [3, "Guido van Rossum", "Python Programming"]
]
with open('innovators.csv', 'w', newline='') as file:
    writer = csv.writer(file, delimiter='|')
    writer.writerows(data_list)
```

## Output

```
SN|Name|Contribution
1|Linus Torvalds|Linux Kernel
2|Tim Berners-Lee|World Wide Web
3|Guido van Rossum|Python Programming
```

## Example 4: Write CSV files with quotes

```
import csv
row_list = [
    ["SN", "Name", "Quotes"],
    [1, "Buddha", "What we think we become"],
    [2, "Mark Twain", "Never regret anything that made you smile"],
    [3, "Oscar Wilde", "Be yourself everyone else is already taken"]
]
with open('quotes.csv', 'w', newline='') as file:
    writer = csv.writer(file, quoting=csv.QUOTE_NONNUMERIC, delimiter=';')
    writer.writerows(row_list)
```

### Output

```
"SN";"Name";"Quotes"
1;"Buddha";"What we think we become"
2;"Mark Twain";"Never regret anything that made you smile"
3;"Oscar Wilde";"Be yourself everyone else is already taken"
```

## Example 5: Writing CSV files with custom quoting character

```
import csv
row_list = [
    ["SN", "Name", "Quotes"],
    [1, "Buddha", "What we think we become"],
    [2, "Mark Twain", "Never regret anything that made you smile"],
    [3, "Oscar Wilde", "Be yourself everyone else is already taken"]
]
with open('quotes.csv', 'w', newline='') as file:
    writer = csv.writer(file, quoting=csv.QUOTE_NONNUMERIC,
                        delimiter=';', quotechar='*')
    writer.writerows(row_list)
```

### Output

```
*SN*; *Name*; *Quotes*
1; *Buddha*; *What we think we become*
2; *Mark Twain*; *Never regret anything that made you smile*
3; *Oscar Wilde*; *Be yourself everyone else is already taken*
```