

```
In [1]: open_file = open("data.csv", encoding = "utf-8")
```

```
In [2]: import csv

read_file = csv.reader(open_file)
read_file
```

```
Out[2]: <_csv.reader at 0x1abd815ca60>
```

```
In [3]: dataset = list(read_file)
```

```
In [4]: dataset
```

```
Out[4]: [['roll no', 'Name', 'Chemistry', 'Physics', 'Math'],
 ['101', 'Aliza', '50', '23', '87'],
 ['102', 'Fareed', '45', '24', '88'],
 ['103', 'Basit', '46', '25', '89'],
 ['104', 'Abdullah', '47', '26', '90'],
 ['105', 'Ali', '48', '27', '67'],
 ['106', 'Mubashir', '49', '28', '68'],
 ['107', 'Waleed', '50', '29', '69'],
 ['108', 'Mansoor', '51', '30', '70'],
 ['109', 'Zain', '52', '31', '71'],
 ['110', 'Mohsin', '53', '67', '72'],
 ['111', 'Shahmeer', '54', '68', '73'],
 ['112', 'Rao', '55', '69', '74'],
 ['113', 'Aurangzeb', '56', '70', '75'],
 ['114', 'Zeeshan', '57', '71', '76'],
 ['115', 'Humza', '58', '72', '77'],
 ['116', 'Hamza', '59', '73', '78'],
 ['117', 'Khalid', '60', '74', '79'],
 ['118', 'Behroz', '61', '75', '80'],
 ['119', 'Justin', '62', '76', '81'],
 ['120', 'Danial', '63', '77', '82']]
```

```
In [5]: len(dataset)
```

```
Out[5]: 21
```

```
In [6]: #fetch single row

dataset[0]
```

```
Out[6]: ['roll no', 'Name', 'Chemistry', 'Physics', 'Math']
```

```
In [44]: dataset[0:5]
```

```
Out[44]: [['roll no', 'Name', 'Chemistry', 'Physics', 'Math'],
 ['101', 'Aliza', '50', '23', '87'],
 ['102', 'Fareed', '45', '24', '88'],
 ['103', 'Basit', '46', '25', '89'],
 ['104', 'Abdullah', '47', '26', '90']]
```

```
In [45]: dataset[2:5]
```

```
Out[45]: [['102', 'Fareed', '45', '24', '88'],  
          ['103', 'Basit', '46', '25', '89'],  
          ['104', 'Abdullah', '47', '26', '90']]
```

```
In [17]: dataset[:5]
```

```
Out[17]: [['roll no', 'Name', 'Chemistry', 'Physics', 'Math', 'Percentage'],  
          ['101', 'Aliza', '50', '23', '87', 53.33],  
          ['102', 'Fareed', '45', '24', '88', 52.33],  
          ['103', 'Basit', '46', '25', '89', 53.33],  
          ['104', 'Abdullah', '47', '26', '90', 54.33]]
```

```
In [20]: dataset[0].index("Name")
```

```
Out[20]: 1
```

```
In [22]: #fetch single column  
for i in dataset:  
    name=i[1]  
    print(name)
```

```
Name  
Aliza  
Fareed  
Basit  
Abdullah  
Ali  
Mubashir  
Waleed  
Mansoor  
Zain  
Mohsin  
Shahmeer  
Rao  
Aurangzeb  
Zeeshan  
Humza  
Hamza  
Khalid  
Behroz  
Justin  
Danial
```

```
In [7]: for i in dataset[1:]: # i = ['101', 'Aliza', '50', '23', '87']  
#     print(i)  
    chem = int(i[2]) # chem = 50  
    phy = int(i[3]) # phy = 23  
    math = int(i[-1]) # math = 87  
    percentage = round((chem+phy+math)/300 * 100, 2)  
    i.append(percentage)
```

```
In [8]: dataset
```

```
Out[8]: [['roll no', 'Name', 'Chemistry', 'Physics', 'Math'],  
['101', 'Aliza', '50', '23', '87', 53.33],  
['102', 'Fareed', '45', '24', '88', 52.33],  
['103', 'Basit', '46', '25', '89', 53.33],  
['104', 'Abdullah', '47', '26', '90', 54.33],  
['105', 'Ali', '48', '27', '67', 47.33],  
['106', 'Mubashir', '49', '28', '68', 48.33],  
['107', 'Waleed', '50', '29', '69', 49.33],  
['108', 'Mansoor', '51', '30', '70', 50.33],  
['109', 'Zain', '52', '31', '71', 51.33],  
['110', 'Mohsin', '53', '67', '72', 64.0],  
['111', 'Shahmeer', '54', '68', '73', 65.0],  
['112', 'Rao', '55', '69', '74', 66.0],  
['113', 'Aurangzeb', '56', '70', '75', 67.0],  
['114', 'Zeeshan', '57', '71', '76', 68.0],  
['115', 'Humza', '58', '72', '77', 69.0],  
['116', 'Hamza', '59', '73', '78', 70.0],  
['117', 'Khalid', '60', '74', '79', 71.0],  
['118', 'Behroz', '61', '75', '80', 72.0],  
['119', 'Justin', '62', '76', '81', 73.0],  
['120', 'Danial', '63', '77', '82', 74.0]]
```

```
In [9]: dataset[0].append("Percentage")
```

```
In [14]: dataset
```

```
Out[14]: [['roll no', 'Name', 'Chemistry', 'Physics', 'Math', 'Percentage'],  
['101', 'Aliza', '50', '23', '87', 53.33],  
['102', 'Fareed', '45', '24', '88', 52.33],  
['103', 'Basit', '46', '25', '89', 53.33],  
['104', 'Abdullah', '47', '26', '90', 54.33],  
['105', 'Ali', '48', '27', '67', 47.33],  
['106', 'Mubashir', '49', '28', '68', 48.33],  
['107', 'Waleed', '50', '29', '69', 49.33],  
['108', 'Mansoor', '51', '30', '70', 50.33],  
['109', 'Zain', '52', '31', '71', 51.33],  
['110', 'Mohsin', '53', '67', '72', 64.0],  
['111', 'Shahmeer', '54', '68', '73', 65.0],  
['112', 'Rao', '55', '69', '74', 66.0],  
['113', 'Aurangzeb', '56', '70', '75', 67.0],  
['114', 'Zeeshan', '57', '71', '76', 68.0],  
['115', 'Humza', '58', '72', '77', 69.0],  
['116', 'Hamza', '59', '73', '78', 70.0],  
['117', 'Khalid', '60', '74', '79', 71.0],  
['118', 'Behroz', '61', '75', '80', 72.0],  
['119', 'Justin', '62', '76', '81', 73.0],  
['120', 'Danial', '63', '77', '82', 74.0]]
```

```
In [12]: from csv import writer
```

```
In [15]: f = open("clean_student_data.csv", "w", newline="", encoding = "utf-8")

writer_data = writer(f, delimiter = ",")

#writer_data.writerow(header)

for i in dataset:
    writer_data.writerow(i)
```

## TASKS

1. Calculate grade of each student
2. Calculate status of each student (Pass or Fail)
3. Calculate number of students who have passed and failed
4. Calculate average percentage