

```
In [1]: import csv
```

```
In [2]: open_file = open("grades.csv", encoding = "utf-8")  
read_file = csv.reader(open_file)
```

```
In [3]: read_file
```

```
Out[3]: <_csv.reader at 0x29068749ea0>
```

```
In [4]: dataset = list(read_file)
```

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

```
Out[5]: [['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 [6]: for i in dataset:
        print(i)
```

```
['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 [7]: for i in dataset:
        print(i[-3])
```

```
Chemistry
50
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
```

```
In [8]: dataset[1:5]
```

```
Out[8]: [['101', 'Aliza', '50', '23', '87'],  
         ['102', 'Fareed', '45', '24', '88'],  
         ['103', 'Basit', '46', '25', '89'],  
         ['104', 'Abdullah', '47', '26', '90']]
```

```
In [9]: dataset[1:]
```

```
Out[9]: [['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 [10]: for i in dataset[1]:  
         print(i[-3])
```

```
50  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63
```

```
In [11]: for i in dataset[1:]:  
        i[-3] = int(i[-3])
```

```
In [12]: for i in dataset[1:]:  
        print(type(i[-3]))
```

```
<class 'int'>  
<class 'int'>  
<class 'int'>  
<class 'int'>  
<class 'int'>  
<class 'int'>  
<class 'int'>  
<class 'int'>  
<class 'int'>  
<class 'int'>  
<class 'int'>  
<class 'int'>  
<class 'int'>  
<class 'int'>  
<class 'int'>  
<class 'int'>  
<class 'int'>  
<class 'int'>  
<class 'int'>
```

```
In [13]: chem_marks = []  
  
        for i in dataset[1:]:  
            chem_marks.append(i[-3])
```

```
In [14]: sum(chem_marks)/len(chem_marks)
```

Out[14]: 53.8

```
In [15]: phy_marks = []  
        math_marks = []  
  
        for i in dataset[1:]:  
            i[-2] = int(i[-2])  
            i[-1] = int(i[-1])  
  
            phy_marks.append(i[-2])  
            math_marks.append(i[-1])
```

```
In [16]: sum(phy_marks)/len(phy_marks)
```

Out[16]: 51.75

```
In [17]: sum(math_marks)/len(math_marks)
```

```
Out[17]: 77.3
```

```
In [18]: for i in dataset[1:]:  
         print(i[1], i[-3] + i[-2] + i[-1])
```

```
Aliza 160  
Fareed 157  
Basit 160  
Abdullah 163  
Ali 142  
Mubashir 145  
Waleed 148  
Mansoor 151  
Zain 154  
Mohsin 192  
Shahmeer 195  
Rao 198  
Aurangzeb 201  
Zeeshan 204  
Humza 207  
Hamza 210  
Khalid 213  
Behroz 216  
Justin 219  
Danial 222
```

```
In [19]: for i in dataset[1:]:  
         percentage = round((i[-3] + i[-2] + i[-1])/300*100, 2)  
         i.append(percentage)
```

```
In [20]: dataset[0].append("Percentage")
```

```
In [21]: dataset[0].append("Status")  
dataset[0]
```

```
Out[21]: ['roll no', 'Name', 'Chemistry', 'Physics', 'Math', 'Percentage', 'Status']
```

```
In [22]: for i in dataset[1:]:  
         if i[-1] >= 60:  
             i.append("Pass")  
         else:  
             i.append("Fail")
```

In [23]: dataset

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

```
In [24]: frq = {} # {"Fail":1}

for i in dataset[1:]:
    status = i[-1]
    if status not in frq:
        frq[status] = 1
    else:
        frq[status] += 1
```

In [25]: frq

```
Out[25]: {'Fail': 9, 'Pass': 11}
```

In []: