BMI Analysis

Please download “hw.txt”. This file holds height and weight for a group of people. Figure-1 shows the “hw.txt” file. Each pair of numbers in the file is a record for one person. For example, the first pair is (180, 180); it means the height is 180 **cm** and weight is 180 **lb** for person-1. The 2nd pair is (170, 200); it means the height is 170 cm and the weight is 200 lb for person-2 and so on.

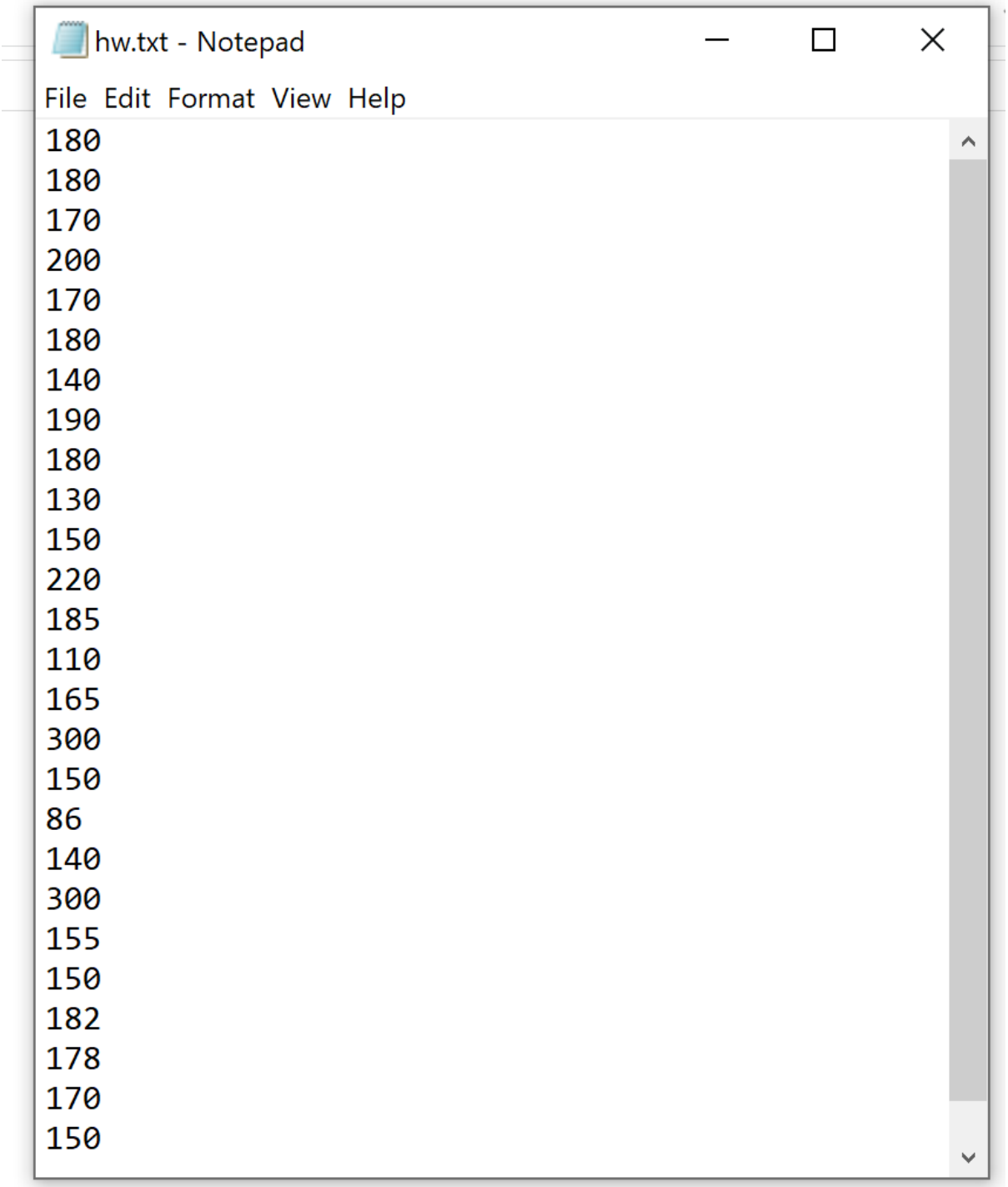

Figure-1

We use height and weight to calculate the Body Mass Index (BMI) for a person. The following formula is used to calculate the BMI:

$$\textbf{BMI} = \textbf{kg/m}^2$$

As you have seen in the text file, the heights and weights are given in cm and lb respectively, so before we can apply the formula to do the calculation, we have to convert the height and weight to kilogram and meter respectively. **Please use 1 kg = 2.2lbs and 1 meter = 100 cm**

Once the BMI is calculated then we use the result to determine whether a person has normal weight or underweight or overweight or obese. We use the following to calculate the BMI category based on the calculated BMI:
BMI Categories:
Underweight = <18.5
Normal weight = 18.5–24.9
Overweight = 25–29.9
Obesity = BMI of 30 or greater

Your program should generate an output more or less similar to the output given in **Figure-2**

```
Under Weight:
Person- 5 : 18.2379
Person- 7 : 14.6092
Person- 9 : 17.3737
Group Size: 3
Average BMI for this group: 16.7403
Normal:
Person- 12 : 24.4261
Person- 13 : 23.5923
Group Size: 2
Average BMI for this group: 24.0092
Over Weight:
Person- 1 : 25.2525
Person- 3 : 28.3108
Person- 11 : 28.3795
Group Size: 3
Average BMI for this group: 27.3143
Obesity:
Person- 2 : 31.4564
Person- 4 : 44.0631
Person- 6 : 44.4444
Person- 8 : 50.0877
Person- 10 : 69.5733
Group Size: 5
Average BMI for this group: 47.9250
The file has records for: 13 persons
Average BMI for all these 13 persons: 32.2929
```

Figure-2