Problem : Binning

Below is the dataset which is divided into 3 bins as follows:

Bin 1	5,10,11,13
Bin 2	15,35,50,55
Bin 3	7,29,22,04,215

Demonstrate how you will smooth the data using Bin Mean, Bin Median and Bin Boundary.

Binning Problem - Solution

a) Bin by Mean

Bin 1	5,10,11,13
Bin 2	15,35,50,55
Bin 3	7,29,22,04,215

Mean of Bin 1: 9.75 which can be approximated to 10.
Mean of Bin 2: 38.75 which can be approximated to 39.
Mean of Bin 3: 55.4 which can be approximated to 55.
Therefore, below are the values of the 3 bins after smoothing by Means.

Bin 1	*10,10,10,10*
Bin 2	*39,39,39,39*
Bin 3	*55,55,55,55,55*

Binning Problem - Solution

b) *Bin by Median*

Bin 1	5,10,11,13
Bin 2	15,35,50,55
Bin 3	7,29,22,04,215

Median of Bin 1: 10.5 which can be approximated to 11.
Median of Bin 2: 42.5 which can be approximated to 43.
Median of Bin 3: 22

Therefore, below are the values of the 3 bins after smoothing by Median.

Bin 1 11,11,11,11
Bin 2 43,43,43,43
Bin 3 22,22,22,22,22

Binning Problem - Solution

c) *Bin by Boundary*

Bin 1	5,10,11,13
Bin 2	15,35,50,55
Bin 3	7,29,22,04,215

Boundary for Bin 1: [5,13]
Boundary for Bin 2: [15,55]
Boundary for Bin 3: [4,215]

Therefore, below are the values of the 3 bins after smoothing by Boundary

Bin 1 5,13,13,13,
Bin 2 15,15,55,55
Bin 3 4,4,4,4,215

Or

Bin 1 5,13,13,13
Bin 2 15,55,55,55
Bin 3 4,4,4,4,215