Class limit, boundary, interval, width and midpoint

Class Limits

Class limits are the smallest and largest observations (data, events etc) in each class. Hence, each class has two limits: a lower and upper limit.

Example:

Class	Frequency
300 – 399	13
400 – 499	20
500 – 599	7
600 – 699	3
700 – 799	12
800 – 899	8
900 – 999	7
Total Frequency	**70**

By means of the frequency table above, what are the lower and upper class limits for the first three classes? One can definitely see that;

For the first class, 300 – 399

The lower class limit is *300*

The upper class limit is *399*

For the second class, 400 – 499

The lower class limit is *400*

The upper class limit is *499*

For the third class, 500 – 599

The lower class limit is *500*

The upper class limit is *599*

Class Boundaries

Class Boundaries are the midpoints between the upper class limit of a class and the lower class limit of the next class in the sequence. It is 0.5 more or less of a class limit. Therefore, each class has an upper and lower class boundary.

Example:

Class	Frequency
300 – 399	13
400 – 499	20

500 – 599	7
600 – 699	3
700 – 799	12
800 – 899	8
900 – 999	7
Total Frequency	**70**

By means of the frequency table above, find the class boundaries of the first three classes.

For the first class, 300 – 399

The lower class boundary is the midpoint between 299 and 300, that is _299.5_

The upper class boundary is the midpoint between 399 and 400, that is _399.5_

For the second class, 400 – 499

The lower class boundary is the midpoint between 399 and 400, that is _399.5_

The upper class boundary is the midpoint between 499 and 500, that is _499.5_

For the third class, 500 – 599

The lower class boundary is the midpoint between 499 and 500, that is _499.5_

The upper class boundary is the midpoint between 599 and 600, that is _599.5_

Class Intervals, width and size

Class interval for example is 300-399 and the class width or size is the difference between the upper and lower class boundaries of any class.

Example:

Class	Frequency
300 – 399	13
400 – 499	20
500 – 599	7
600 – 699	3
700 – 799	12
800 – 899	8
900 – 999	7
Total Frequency	**70**

Using the table above, find the class width for the first class.

For the first class, 300 – 399

The class width = Upper class boundary – lower class boundary

Upper class boundary = 399.5

Lower class boundary = 299.5

Therefore, the class width = 399.5 – 299.5= 100

Class midpoint

Class midpoint is found by adding the upper and lower class boundaries of any class and dividing the results by 2

Example:

Class	Frequency
300 – 399	13
400 – 499	20
500 – 599	7
600 – 699	3
700 – 799	12
800 – 899	8
900 – 999	7
Total Frequency	**70**

Using the table above, find the class midpoint for the first class.

For the first class, 300 – 399

The class midpoint = (Upper class boundary + lower class boundary)/2

Upper class boundary = 399.5

Lower class boundary = 299.5

Therefore, the class interval = (399.5 + 299.5)/2

= 100/2=50