

Graphical Representation of Data

Graphical representation of discrete data

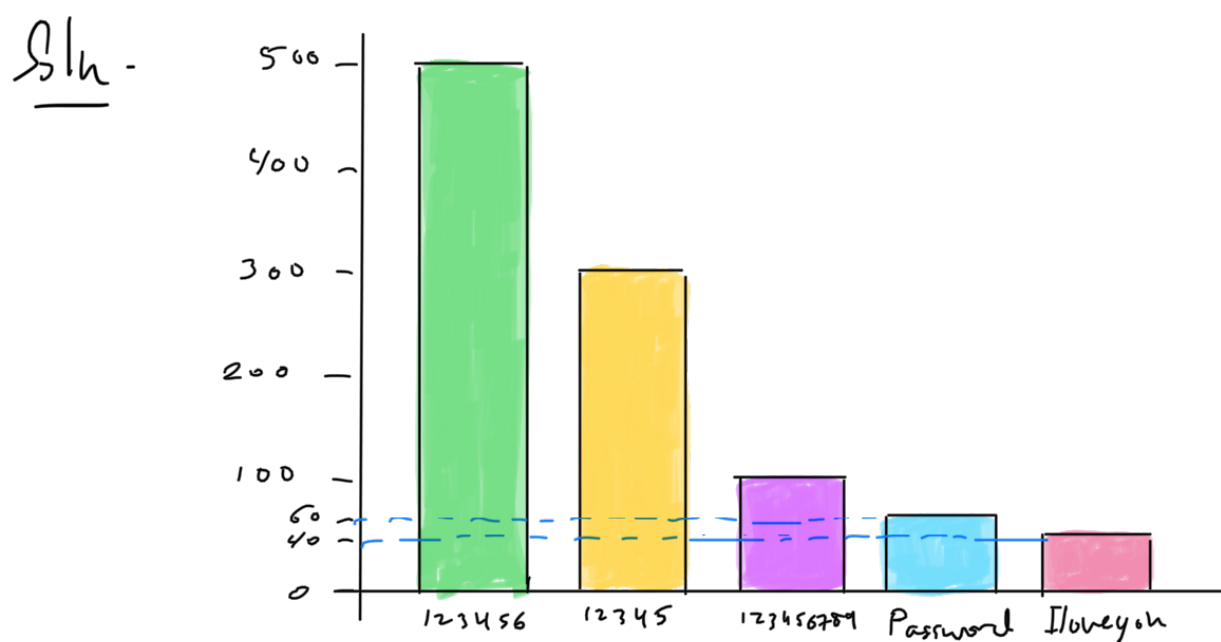
(1) Bar chart.

A two dimensional graph which consists of a series of usually non-adjacent rectangles, where the horizontal axis is marked by the classes, and the vertical axis is marked by the class frequencies.

Ex. Here are the five worst passwords:
a study shows the following result
amongst 1000 persons surveyed.

Password	Number of people used
123456	500
12345	300
123456789	100
Password	60
iloveyou	40

Represent this by a bar chart.



[2] Pie chart.

A partitioned circle in which the area of each sector is proportional to the relative frequency of each category.

Note that the angle for the j^{th} class is

$$\theta_j = \frac{f_j}{n} (360^\circ)$$

the relative freq.

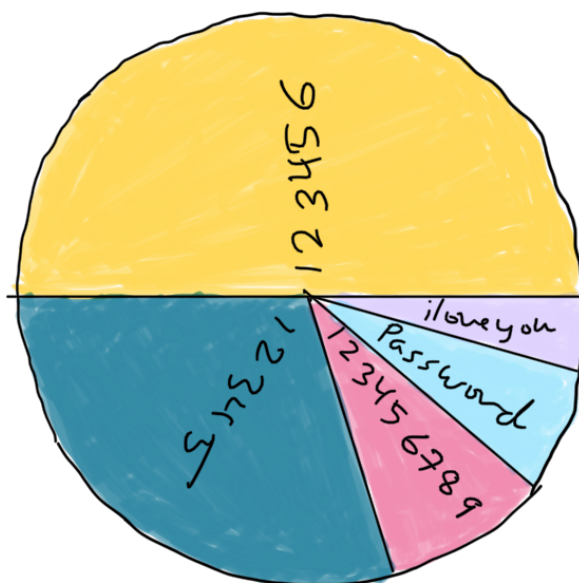
Ex. Following up the data in the last example, we give a representation by a pie chart.

Password	Number of people	Angle	Cumulative angles
123456	500	180°	180°
12345	300	108°	288°
123456789	100	36°	324°
Password	60	21.6°	345.6°
iloveyou	40	14.4°	360°

their sum is 1000

$$500 * \frac{360}{1000} = 180$$

Pie chart.



Graphical presentation of continuous data

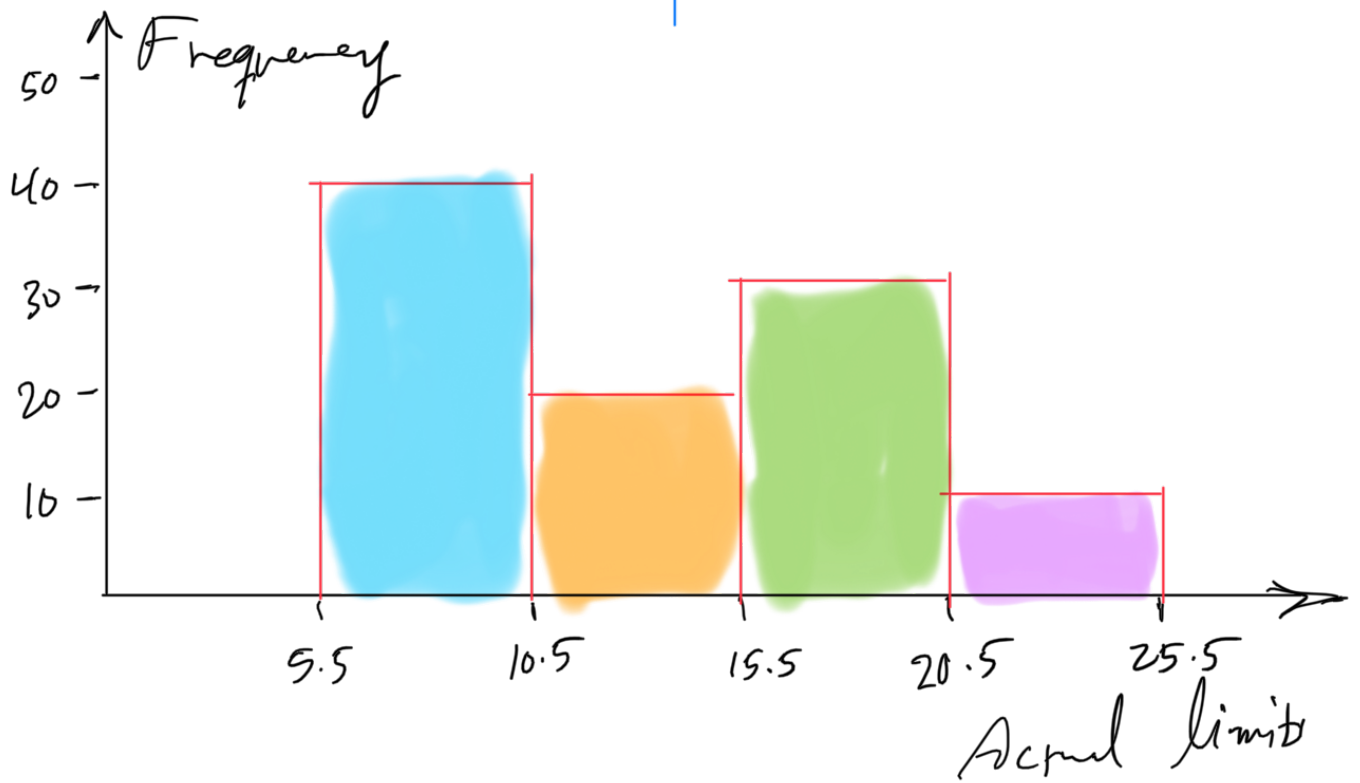
II Histogram.

A graph in which the actual classes (actual limits) are marked on the horizontal axis and the class frequencies are represented by the heights of the bars and the bars are drawn adjacent to each other.

Ex. Represent the table in the following data by a histogram.

Actual limits	Class	Frequency
5.5 - 10.5	6-10	40
10.5 - 15.5	11-15	20
15.5 - 20.5	16-20	30
20.5 - 25.5	21-25	10
	Sum	100

Sln.



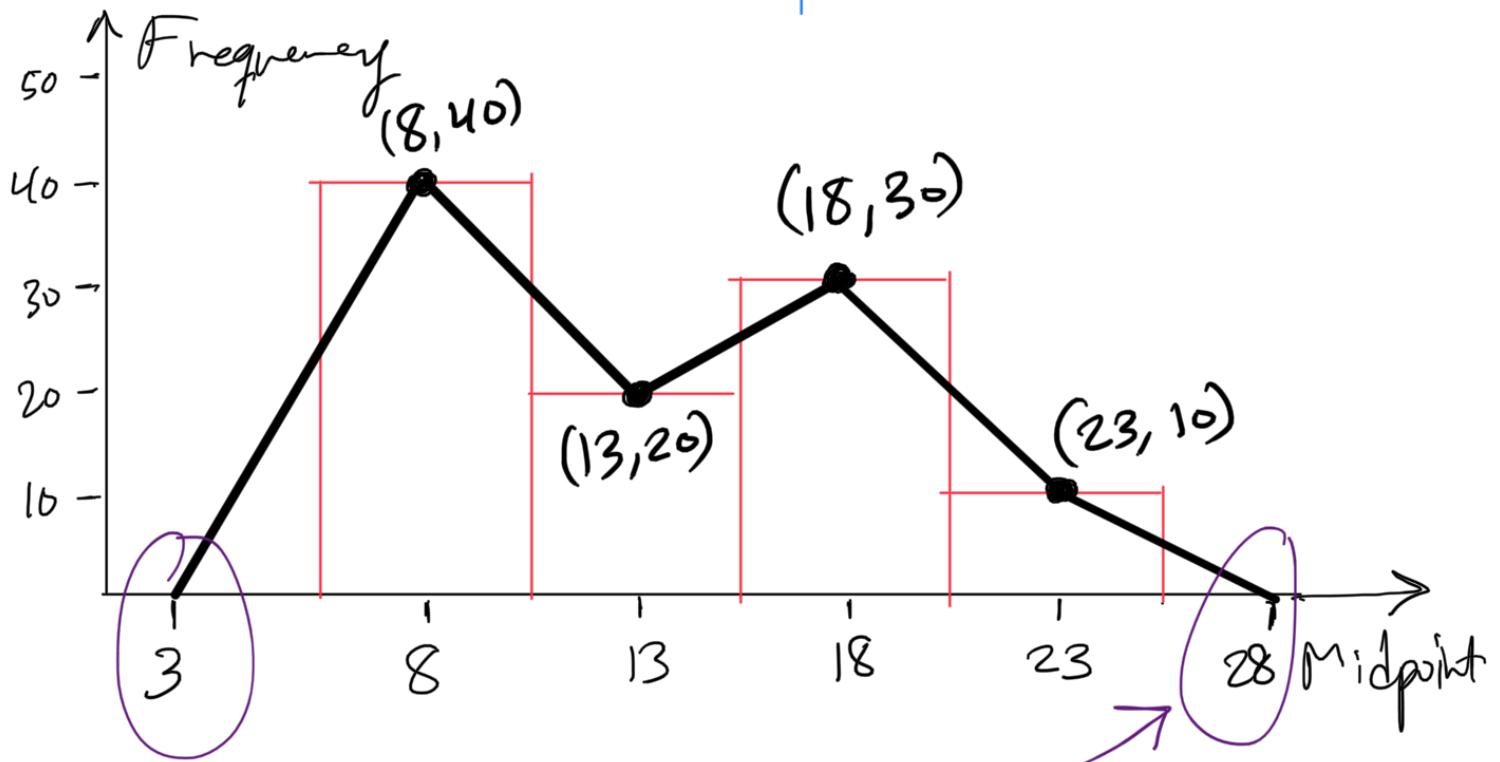
[2] Polygon.

A frequency polygon consists of line segments connecting the points formed by the class midpoint and the class frequency.

Ex. Represent the data given in the above example by a freq. polygon.

Sol.

Class midpoint	Class	Frequency
8	6-10	40
13	11-15	20
18	16-20	30
23	21-25	10
	Sum	100



Note: To have a closed polygon, we assume a pre-class and a post-class each with frequency zero.

Searching keywords:

- Graphical representation of data.
- Bar chart.
- Pie chart.
- Histogram.
- Polygon.
- The University of Jordan الجامعة الأردنية
- Principles of Statistics مبادئ الإحصاء
- Baha Alzalg بهاء الزالق

References: See the course website

<http://sites.ju.edu.jo/sites/Alzalg/Pages/131.aspx>

For any comments or concerns, please use my email to contact me.



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