Section 2.2 — Graphical Displays of Data

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Outline

Types of Data

Types of Data

Definition (Quantitative Data)

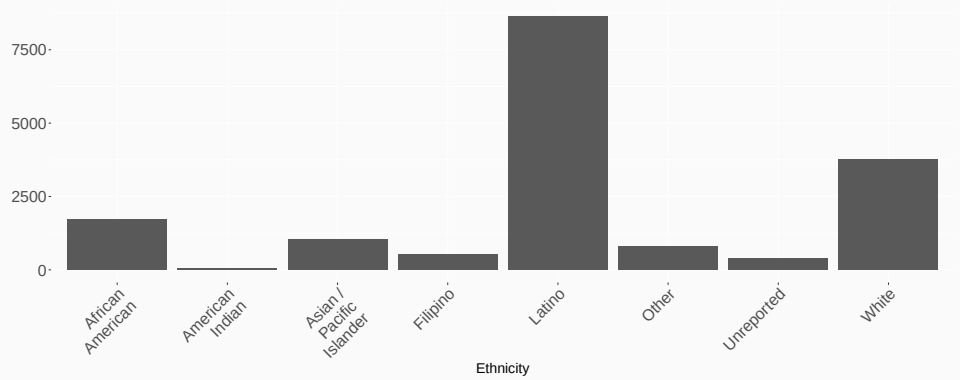
Quantitative (or numerical) data consists of numbers representing counts or measurements.

Definition (Categorical Data)

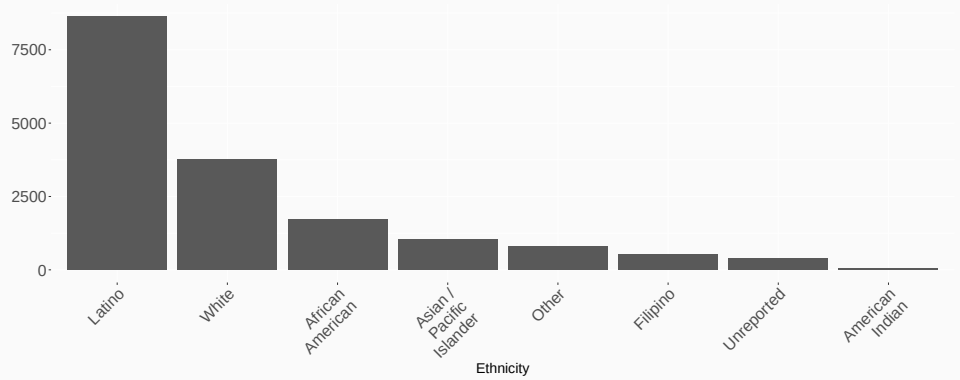
Categorical (or qualitative) data consists of names or labels that are not numbers representing counts or measurements.

Pie, Bar, and Pareto Charts

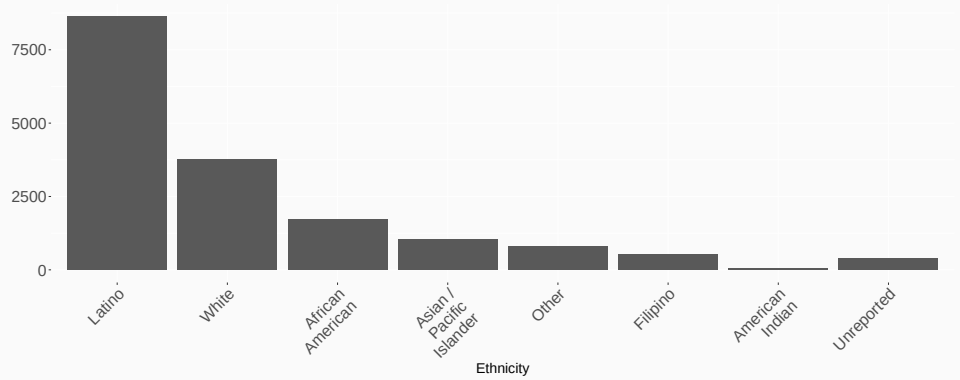
Bar Chart


7500
5000
2500
0
African American
American Indian
Asian / Pacific Islander
Filipino
Latino
Other
Unreported
White
Ethnicity

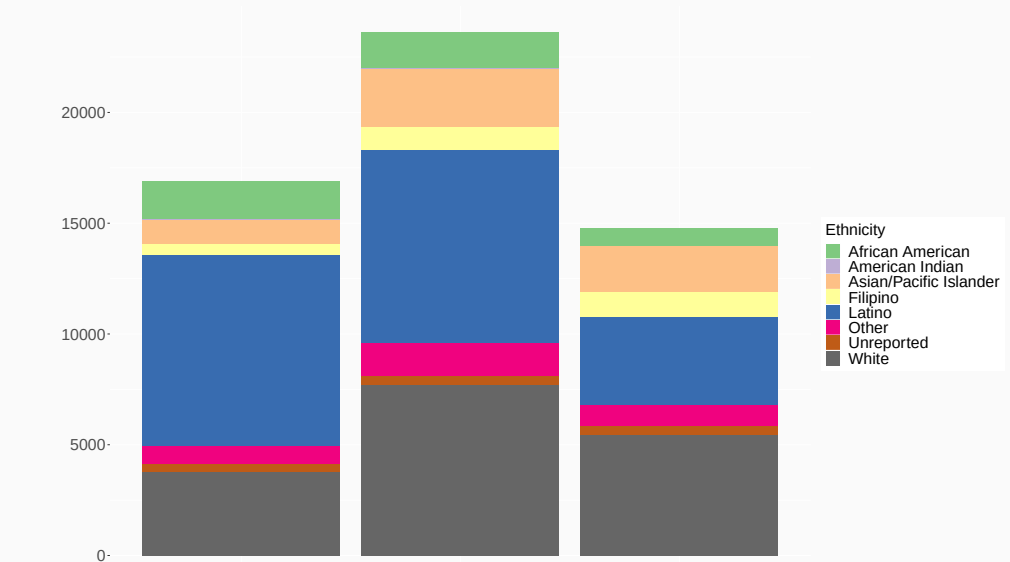
Pareto Chart



Pareto Chart

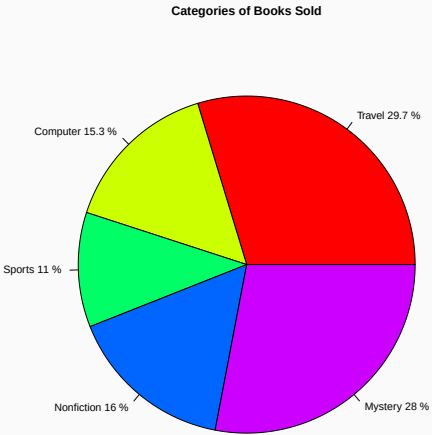


Stacked bar chart



Pie Chart

A book store sells roughly 1300 books per month. The pie chart describes the most popular categories and the percentage of sales.



Histograms

Histograms

Definition (Histogram)

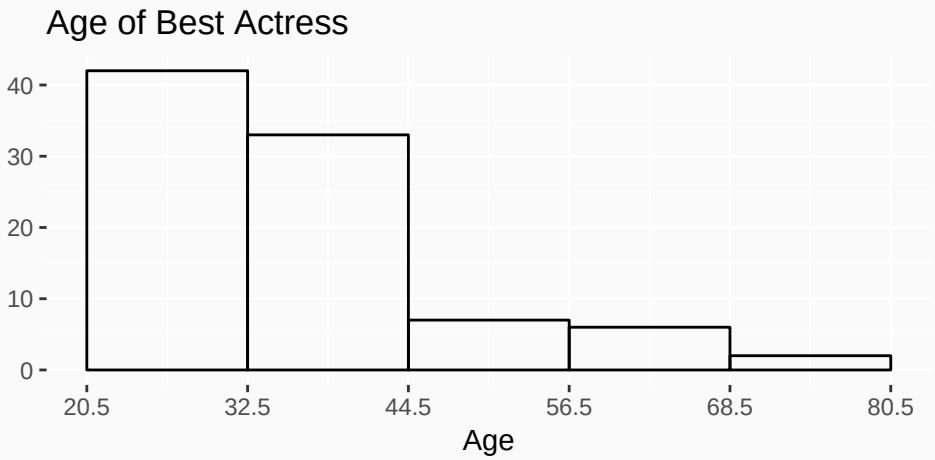
A histogram is a graph consisting of bars of equal width drawn adjacent to one another. The horizontal scale represents classes and the vertical scale represents frequencies. The heights of the bars correspond to frequency values.

IQ Scores

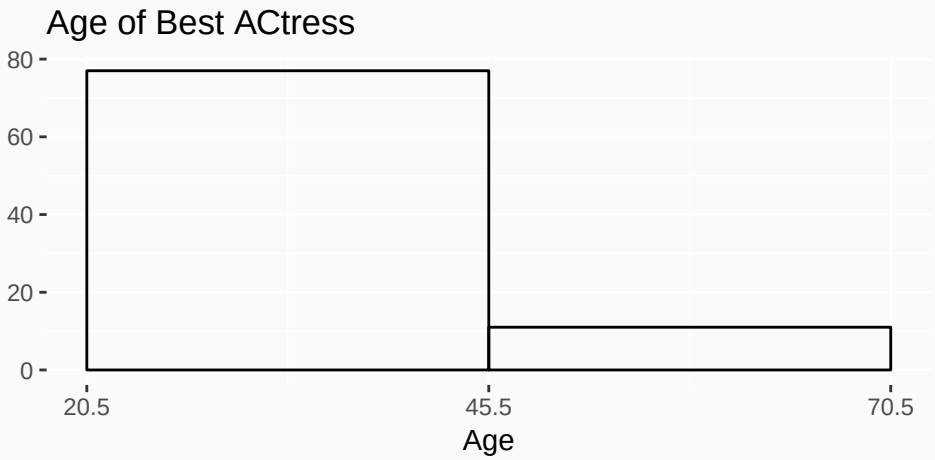
Table 1: Ages of Oscar Winner for Best Actress

21	22	22	24	24	25	25	25	25	26	26	26	26	26	26
27	27	27	27	28	28	28	28	28	29	29	29	29	29	29
29	29	30	30	30	31	31	31	32	32	32	32	33	33	33
33	33	33	34	34	34	35	35	35	35	35	36	36	37	37
38	38	38	38	39	39	40	41	41	41	41	41	42	42	44
45	45	48	49	49	54	54	60	61	61	61	62	63	74	80

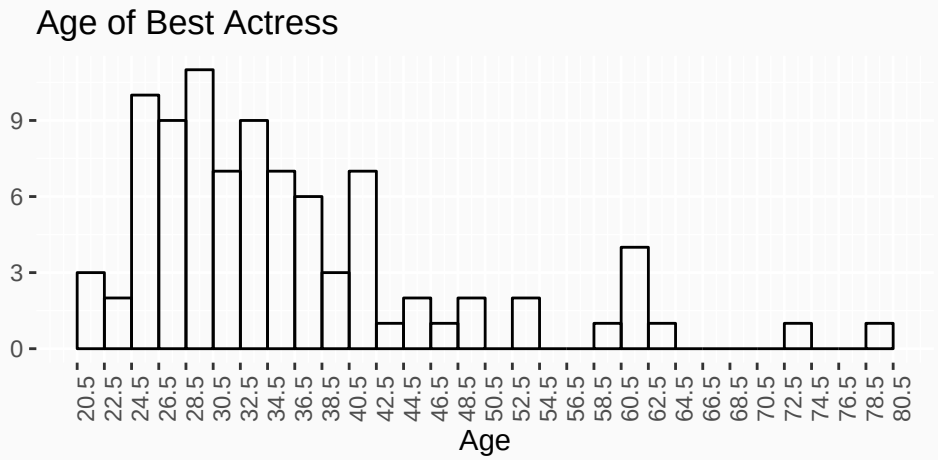
Histogram



Histogram



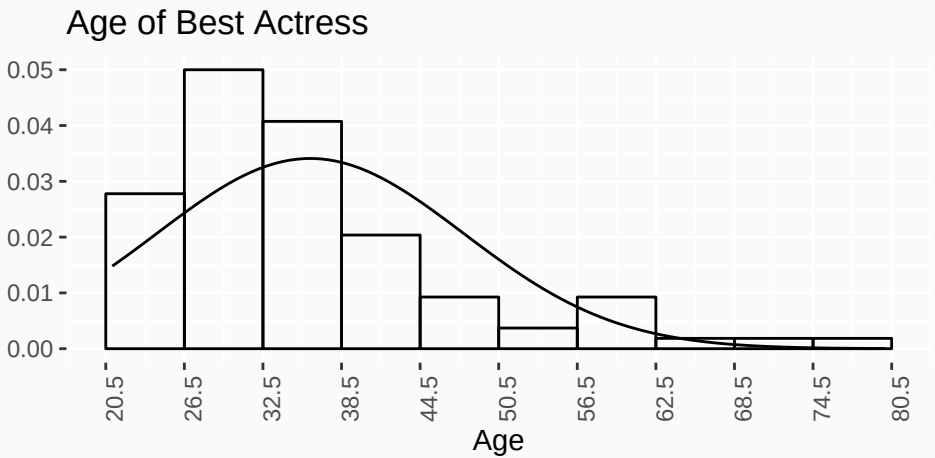
Histogram


Age of Best Actress
9
6
3
0
20.5
22.5
24.5
26.5
28.5
30.5
32.5
34.5
36.5
38.5
40.5
42.5
44.5
46.5
48.5
50.5
52.5
54.5
56.5
58.5
60.5
62.5
64.5
66.5
68.5
70.5
72.5
74.5
76.5
78.5
80.5
Age

Histogram

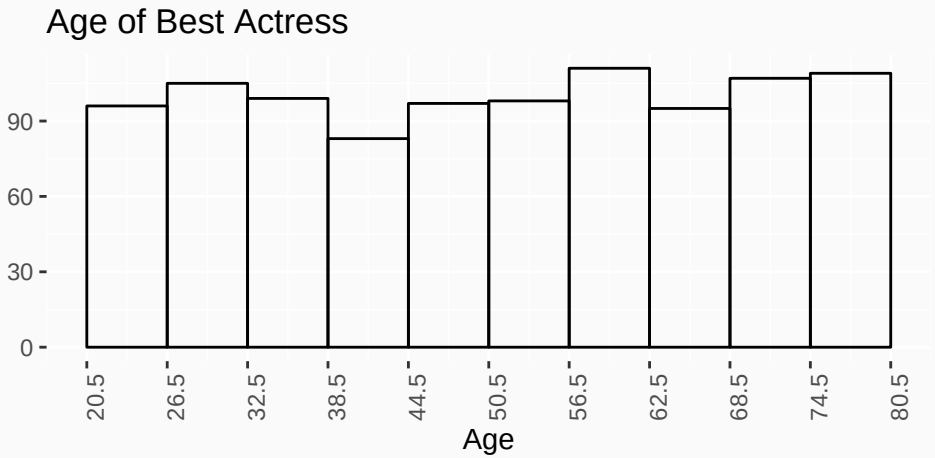

Age of Best Actress
20
10
0
20.5
26.5
32.5
38.5
44.5
50.5
56.5
62.5
68.5
74.5
80.5
Age

Shapes

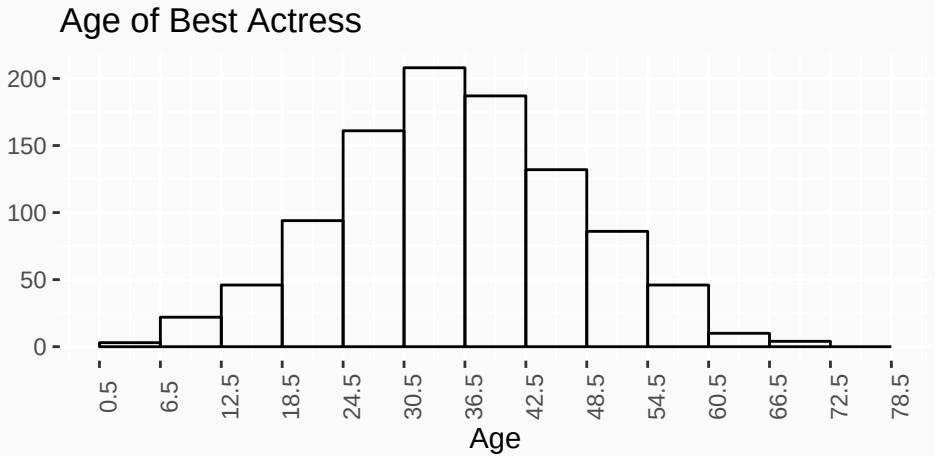

Age of Best Actress
0.05
0.04
0.03
0.02
0.01
0.00
20.5
26.5
32.5
38.5
44.5
50.5
56.5
62.5
68.5
74.5
80.5
Age

Uniform Distribution

Everything happens with the same frequency.



Normal Distribution



Skewness

Definition (Tail)

The tail of a histogram refers to the extreme regions (both left and right)

Skewness

Definition (Tail)

The tail of a histogram refers to the extreme regions (both left and right)

Definition (Skewed)

Data is skewed to the right or positively skewed if it has a longer right tail. It is skewed to the left or negatively skewed if it has a longer left tail.

Our data


Age of Best Actress
0.05
0.04
0.03
0.02
0.01
0.00
20.5
26.5
32.5
38.5
44.5
50.5
56.5
62.5
68.5
74.5
80.5
Age