Qualitative Graphs

Summary

1. Qualitative graphs are visual displays of qualitative (categorical) data.
2. Most common display is the bar graph.
3. We can graph categorical frequency (the count) or relative frequency (the percent)

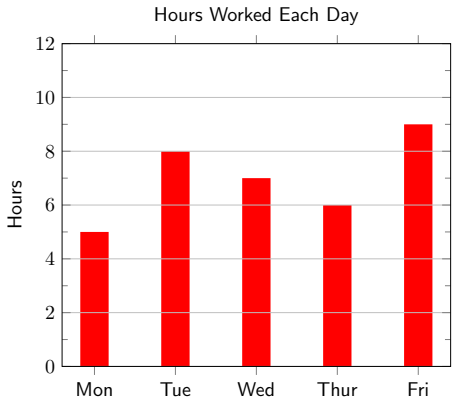
With all of the tools and techniques available for working with data, why should we bother to obtain a visualization of it?

Bar Graphs

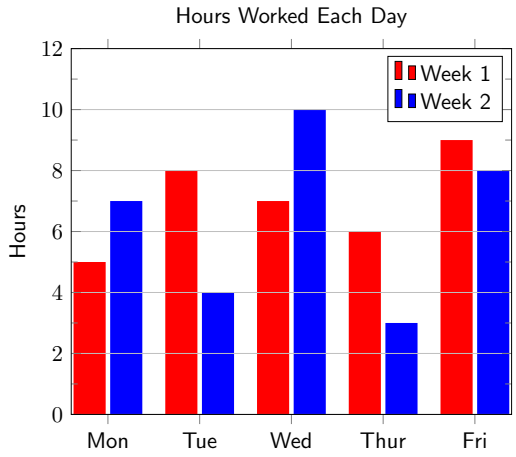
Bar Graph

A **bar graph** is a visual display of data in which bars are plotted.

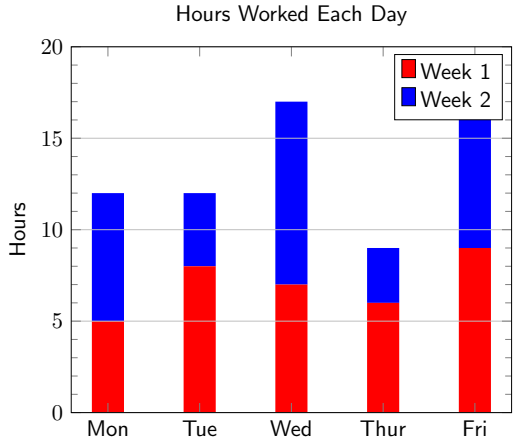
- One dimension represents each category.
- Other dimension represents the frequency (or relative frequency) of each category.



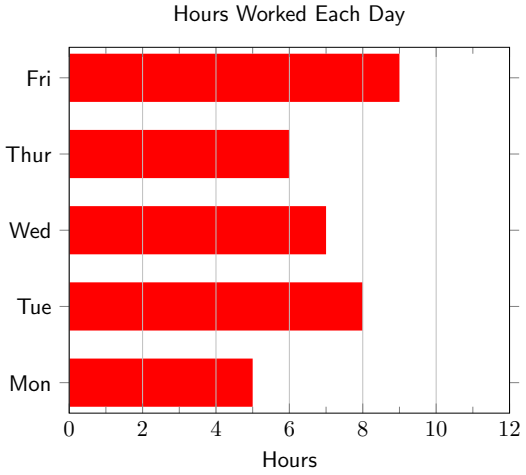
Clustered Bar Graph:



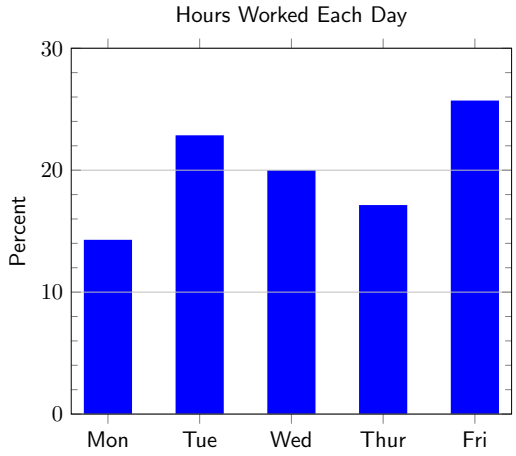
Stacked Bar Graph:



Horizontal Bar Graph



Relative Frequency (Percent of Total)



Creating a Bar Graph

- Create a frequency chart
- Displays count (or relative count) of each observation

Day	Hours Worked	Percent Total
Monday	5	14.29%
Tuesday	8	22.86%
Wednesday	7	20.00%
Thursday	6	17.14%
Friday	9	25.71%

Example 1. One week, a questionnaire was given to hotel guests asking them to rate their satisfaction with their experience. The ratings ranged from 1 (not satisfied) to 5 (very satisfied). Construct a bar graph of the data below:

2	3	1	2	3	4
1	5	5	2	2	4
5	3	2	5	3	4
4	3	5	1	1	1
3	5	3	1	4	5

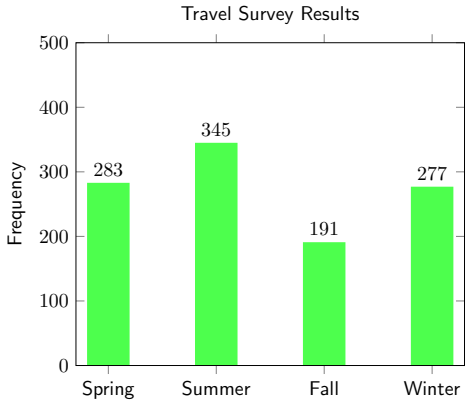
Example 2. Construct a relative frequency bar graph of the hotel ratings.

Example 3. Seeing the results of the questionnaires, the hotel made some changes and the following month, asked 40 new guests to rate their experience. The results, along with the previous results are listed:

Rating	Frequency (Sample 1)	Frequency (Sample 2)
One	6	4
Two	5	3
Three	7	12
Four	5	10
Five	7	12

Construct a stacked bar graph of the results.

Example 4. Given the bar graph below, find the percent of people who travel in the summer.



Pie Charts

- Allow for quick comparison of the part-to-whole nature of percentage.
- Each slice of the pie (the central angle) is proportional to the percentage that slice is of the whole.
- Related to a pie chart is a *donut chart*

Example 5. The pie chart below represents the hours worked each day as a percentage of the week. What total percent of the week was spent working on Monday and Tuesday?