

Statistics 101 – Homework 1

Solution

Assignment:

1. Do the following problems from the text, *Intro Stats*, 3rd Edition. If you have an earlier edition of the text, check with someone who has the 3rd Edition to make sure you do the correct problems.
 - Chapter 2 – problems 2, 3, 7, 13, and 14
 - Chapter 3 – problems 5, 7, and 17

If you have questions on the solutions to these problems, see your instructor or lab TA.

2. The Motion Picture Association of America (MPAA) rates movies as G – General Audiences (all ages admitted), PG – Parental Guidance Suggested (some material may not be suitable for children), PG-13 – Parents Strongly Cautioned (some material may be inappropriate for children under 13), R – Restricted (under 17 requires accompanying parent or adult guardian) and NC-17 – No One 17 and Under Admitted. Movies can also be classified by genre. Below are data on 120 movies released in 2005.

Genre	MPAA Rating				Total
	G	PG	PG-13	R	
Action/Adventure	4	5	17	9	35
Comedy	2	12	20	4	38
Drama	0	3	8	17	28
Thriller/Horror	0	0	11	8	19
Total	6	20	56	38	120

- a) Identify the Who for this data set.

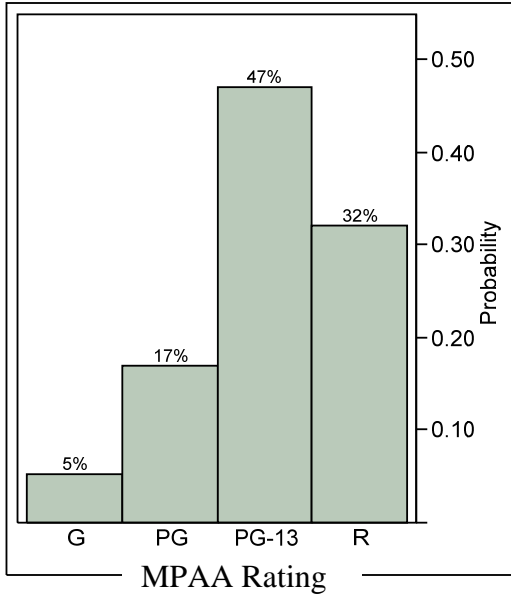
Movies released in 2005.

- b) Identify the two variables (the Whats) collected on each Who.

MPAA Rating – Categorical with categories: G, PG, PG-13 and R

Genre – Categorical with categories: Action/Adventure, Comedy, Drama and Thriller/Horror.

- c) Create an appropriately labeled bar chart for MPAA Rating. Use a percentage scale. What does the bar chart indicate about movies that are suitable for children?



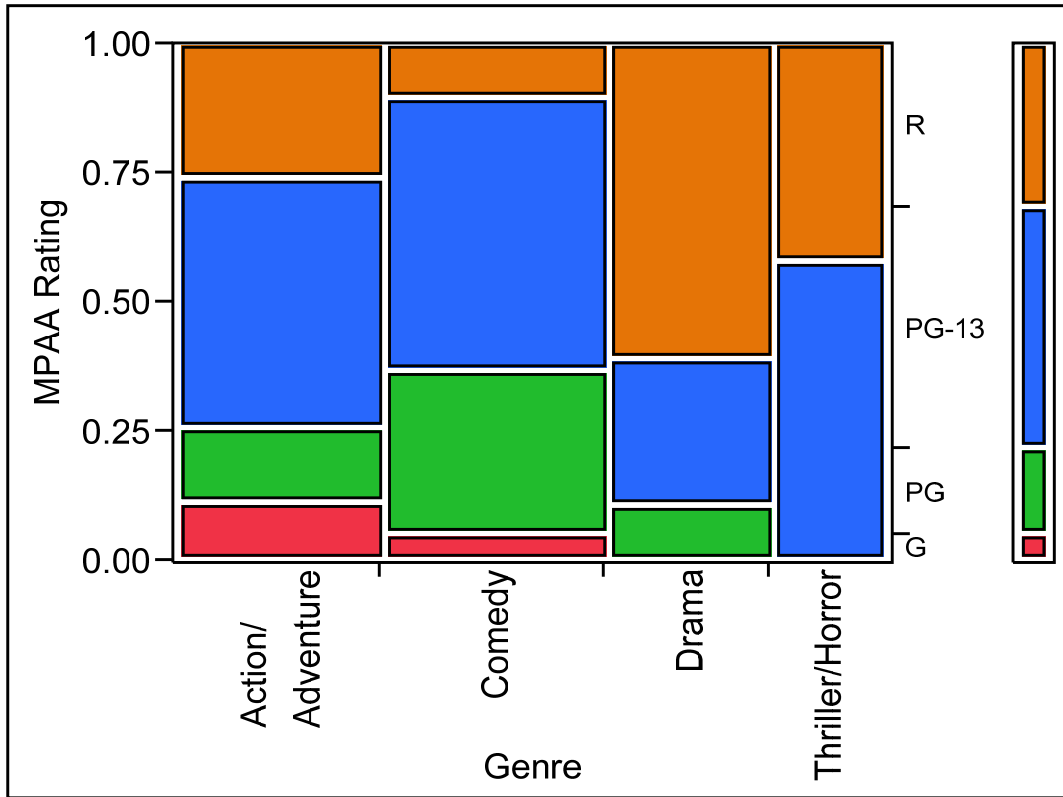
Level	Count	Prob
G	6	0.05000
PG	20	0.16667
PG-13	56	0.46667
R	38	0.31667
Total	120	1.00000

There are very few movies suitable for young children (G rating). Almost 80% of the movies released in 2005 were aimed at older children and adults.

- d) Find row percentages. Create a graphical display of the row percentages.

Count	G	PG	PG-13	R	
Row %					
Action/Adventure	4	5	17	9	35
	11.43	14.29	48.57	25.71	
Comedy	2	12	20	4	38
	5.26	31.58	52.63	10.53	
Drama	0	3	8	17	28
	0.00	10.71	28.57	60.71	
Thriller/Horror	0	0	11	8	19
	0.00	0.00	57.89	42.11	
	6	20	56	38	120

Mosaic Plot



- e) What do these percentages indicate about the relationship between movie genre and MPAA Rating?

The most likely rating for Dramas is R. For all other genres, the most likely rating is PG-13. No Thriller\Horror movies in 2005 are suitable for children under 13. Comedies are not likely to be rated G or R.