

Business Analytics: Data Analysis and Decision Making, 6e
CHAPTER 2: Describing the Distribution of a Single Variable

Answers to Conceptual Questions

Note to Instructors: Student answers will vary. The responses here are intended to provide general guidance in terms of concepts that could be discussed.

- C.1. The relevant population consists of all people (adults?) in the U.S. who would consider flying commercially. This might be discovered by a survey of a lot of people (several thousand?) that first asks whether they ever have flown or might fly in the future and then asks whether the fear of terrorist attacks would change their minds. Only the people responding "Yes" to the first question would remain in the sample for analyzing the second question.
- C.2. The "number of children" is a count, so this is a discrete data type.
- C.3. A histogram is typically relevant only for a continuous variable that is binned into discrete categories, so it isn't relevant here. But a column chart of counts in states *is* relevant, and it's a close relative to a histogram.
- C.4. Depending on the difficulty of the exam, the shape could easily be skewed to the left, with the students who didn't study comprising the long left tail. But it could also be symmetric or even skewed to the right, with a few "brains" comprising the long right tail.
- C.5. This should be a time series graph, which is really a scatterplot of the number of air conditioner sales versus time, with the "dots" connected.
- C.6. The mean will be larger than the median, maybe considerably larger. This is because the large incomes in the right tail pull up the average, but they have no effect on the median.
- C.7. This is true only if the distribution, or at least the middle 50% of it, is reasonably symmetric. If it's skewed to the right, say, the median will be closer to the 1st quartile than to the 3rd quartile. This is often clear in boxplots, where the median is *not* in the middle of the box.
- C.8. The standard deviation, like the mean, is highly sensitive to outliers. Remember that in the definition of standard deviation, deviations from the mean are *squared*, so outliers on either side can really increase the standard deviation. As stated in the book, an accepted procedure when outliers are clearly present is to report measures such as the standard deviation *with* the outliers and *without* them.
- C.9. There are basically two indications: (1) the median will be about in the middle of the box, indicating that the middle 50% of the distribution is symmetric, and (2) the lines (whiskers) and outliers on either side of the box will be similar, indicating that the more extreme observations are distributed about the same on the low side as on the high side.
- C.10. It all depends. If these two salaries correspond to employees who are somehow outside the population of interest, such as top executives, it is fine to delete them. But if they aren't, then they shouldn't be deleted. For example, they might reveal a "shady" company salary policy and hence could represent the most interesting finding of the study.

This is the actual composition of the 2008 and 2009 incoming MBA classes at the Kelley School of Business at IU. Names have been omitted for confidentiality.

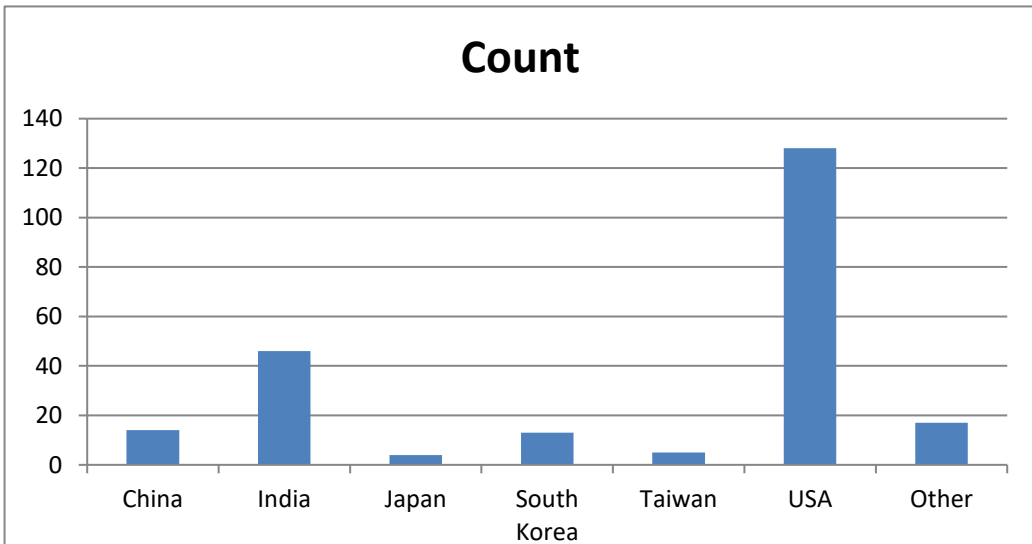
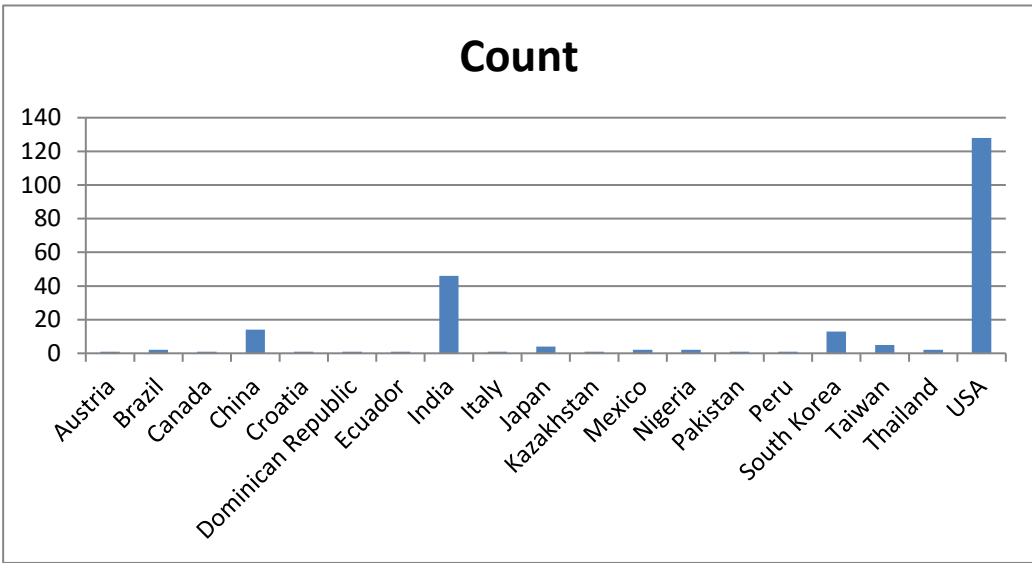
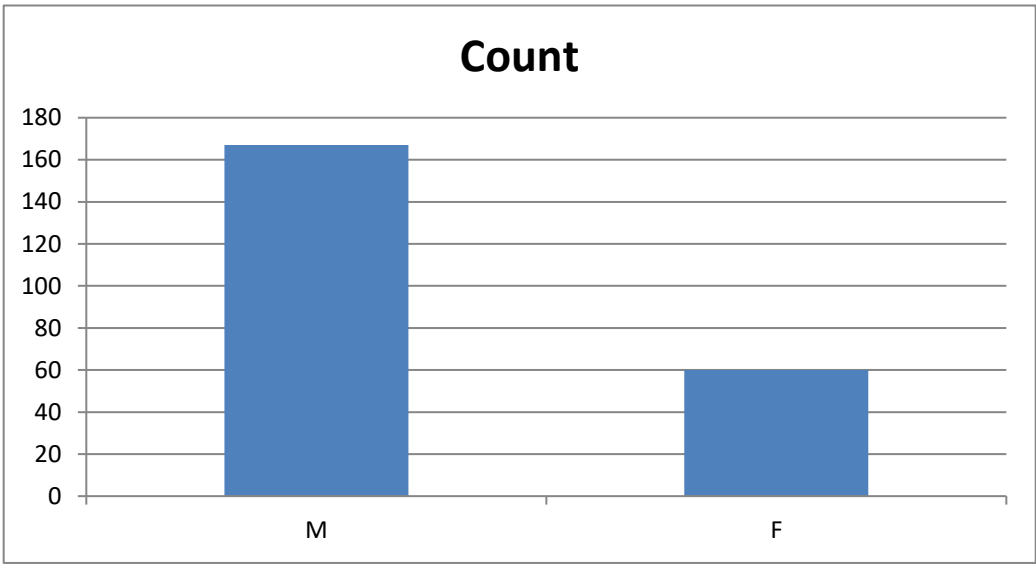
Student	Gender	Nationality	Gender	Count	Pct of total
1	M	USA	M	167	73.6%
2	M	USA	F	60	26.4%
3	M	India			
4	F	India	Nationality	Count	Pct of total
5	M	USA	Austria	1	0.4%
6	F	USA	Brazil	2	0.9%
7	M	USA	Canada	1	0.4%
8	M	USA	China	14	6.2%
9	M	USA	Croatia	1	0.4%
10	M	India	Dominican Republic	1	0.4%
11	M	India	Ecuador	1	0.4%
12	M	USA	India	46	20.3%
13	M	USA	Italy	1	0.4%
14	F	USA	Japan	4	1.8%
15	M	India	Kazakhstan	1	0.4%
16	F	Thailand	Mexico	2	0.9%
17	M	USA	Nigeria	2	0.9%
18	M	USA	Pakistan	1	0.4%
19	F	USA	Peru	1	0.4%
20	M	USA	South Korea	13	5.7%
21	M	USA	Taiwan	5	2.2%
22	M	USA	Thailand	2	0.9%
23	M	USA	USA	128	56.4%
24	M	USA			
25	M	South Korea	Nationality	Count	Pct of total
26	F	China	China	14	6.2%
27	F	China	India	46	20.3%
28	M	China	Japan	4	1.8%
29	M	USA	South Korea	13	5.7%
30	M	South Korea	Taiwan	5	2.2%
31	F	South Korea	USA	128	56.4%
32	F	China	Other	17	7.5%
33	M	Brazil			
34	M	USA			
35	M	Brazil			
36	F	USA			
37	M	USA			
38	F	USA			
39	M	India			
40	M	USA			
41	M	USA			
42	M	USA			
43	M	USA			
44	M	USA			
45	F	USA			
46	F	USA			

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49	F	USA
50	F	USA
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53	F	USA
54	F	USA
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57	M	USA
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61	M	Austria
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63	F	India
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67	F	China
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70	M	USA
71	M	USA
72	F	USA
73	M	USA
74	F	Mexico
75	F	USA
76	M	India
77	M	USA
78	M	China
79	M	Taiwan
80	F	USA
81	M	USA
82	M	Nigeria
83	M	USA
84	M	India
85	F	Croatia
86	M	India
87	F	USA
88	M	South Korea
89	M	USA
90	F	USA
91	M	Japan
92	F	USA
93	M	India

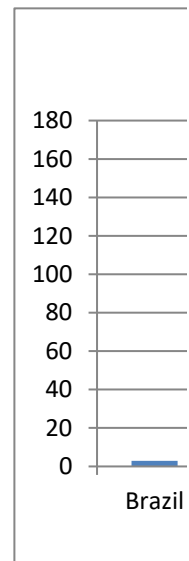
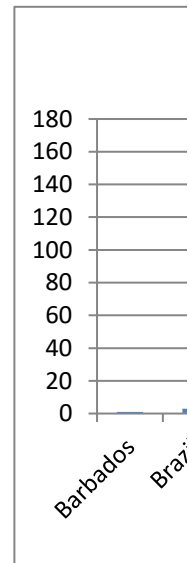
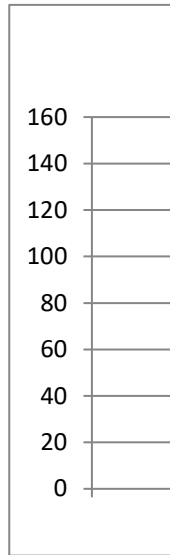
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96	M	Nigeria
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99	M	India
100	M	India
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102	M	USA
103	M	South Korea
104	M	South Korea
105	M	South Korea
106	M	South Korea
107	F	Peru
108	M	USA
109	F	USA
110	F	USA
111	F	USA
112	F	USA
113	F	India
114	M	India
115	F	India
116	M	USA
117	M	USA
118	M	USA
119	M	USA
120	M	USA
121	M	USA
122	M	USA
123	F	USA
124	F	USA
125	M	USA
126	M	India
127	M	Kazakhstan
128	M	India
129	M	USA
130	M	USA
131	M	USA
132	M	USA
133	M	USA
134	M	USA
135	F	Taiwan
136	F	India
137	M	USA
138	M	South Korea
139	M	India
140	M	USA

141	M	USA
142	M	USA
143	M	India
144	M	USA
145	M	Dominican Republic
146	F	India
147	M	USA
148	F	India
149	M	Pakistan
150	M	USA
151	M	India
152	M	India
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154	M	India
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161	M	USA
162	M	USA
163	M	Ecuador
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193	M	Thailand
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213	F	USA
214	M	USA
215	M	India
216	M	China
217	M	USA
218	M	Taiwan
219	M	USA
220	M	China
221	M	China
222	M	China
223	F	China
224	M	China
225	M	China
226	F	USA
227	M	Japan



Student	Gender	Nationality	Gender	Count	Pct of total
1	M	USA	M	150	66.4%
2	M	India	F	76	33.6%
3	M	USA			
4	F	USA	Nationality	Count	Pct of total
5	M	USA	Barbados	1	0.4%
6	F	USA	Brazil	3	1.3%
7	F	USA	China	10	4.4%
8	M	USA	Colombia	1	0.4%
9	M	USA	India	29	12.8%
10	M	USA	Japan	3	1.3%
11	M	Brazil	Mexico	2	0.9%
12	M	India	Peru	2	0.9%
13	M	India	Philippines	1	0.4%
14	F	USA	Puerto Rico	1	0.4%
15	M	India	South Korea	12	5.3%
16	M	USA	Taiwan	5	2.2%
17	M	USA	Thailand	1	0.4%
18	M	USA	USA	155	68.6%
19	F	USA			
20	M	USA	Nationality	Count	Pct of total
21	M	USA	Brazil	3	1.3%
22	F	USA	China	10	4.4%
23	M	USA	India	29	12.8%
24	M	USA	Japan	3	1.3%
25	M	India	South Korea	12	5.3%
26	M	USA	Taiwan	5	2.2%
27	M	USA	USA	155	68.6%
28	F	China	Other	9	4.0%
29	M	USA			
30	M	USA			
31	M	China			
32	F	Taiwan			
33	M	USA			
34	M	South Korea			
35	F	USA			
36	M	South Korea			
37	F	USA			
38	M	USA			
39	M	USA			
40	M	USA			
41	M	USA			
42	F	India			
43	M	USA			
44	M	USA			
45	M	USA			
46	F	USA			



Probably the two most notable differences are that (1) there is a higher percentage of females in 2009 than in 2008, and (2) there is a higher percentage of USA students in 2009 than in 2008 (and a corresponding decrease in the percentage of Asian students).

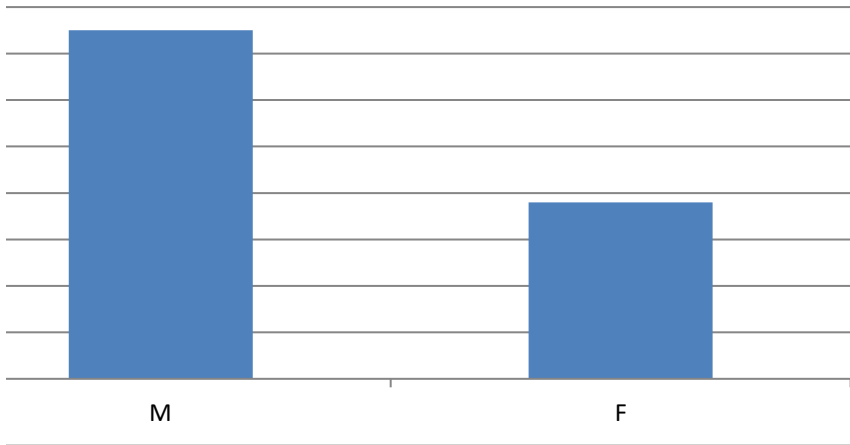
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92	F	USA
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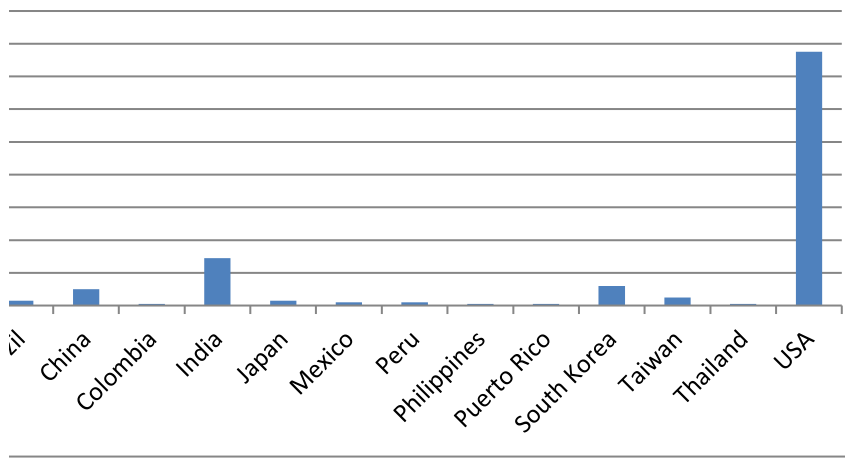
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142	F	India
143	F	USA
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145	M	Colombia
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147	F	Mexico
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152	M	USA
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154	M	USA
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156	M	USA
157	F	Thailand
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162	F	India
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164	F	India
165	M	India
166	F	USA
167	F	USA
168	M	India
169	M	USA
170	M	Peru
171	M	South Korea
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173	F	USA
174	M	Philippines
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183	M	India
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207	M	USA
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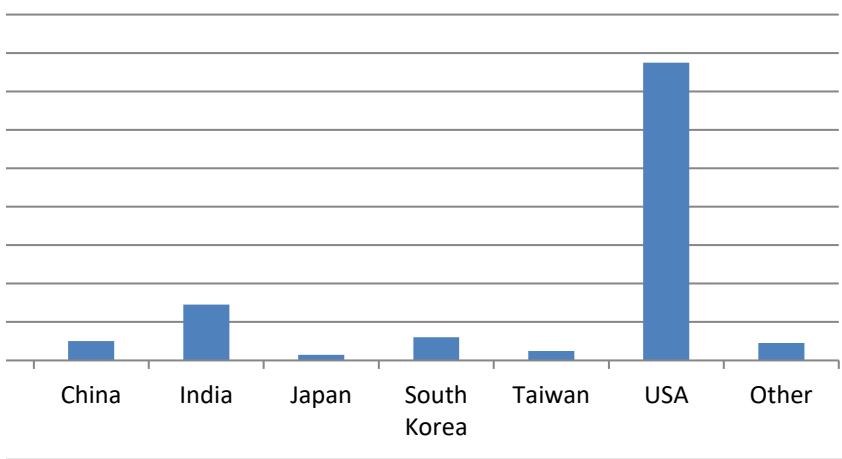
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The Numbers

I wrote some macros to manipulate the data into the form shown here.

Index	Movie	Distributor
1	The Texas Chainsaw Massacre: The Beginning	New Line
2	Year of the Dog	Paramount Vantage
3	War	Lionsgate
4	Stomp the Yard	Sony Pictures
5	The Illusionist	Freestyle Releasing
6	Pirates of the Caribbean: At World's End	Buena Vista
7	Sicko	Weinstein Co.
8	Babel	Paramount Vantage
9	Ghost Rider	Sony Pictures
10	Saw III	Lionsgate
11	World Trade Center	Paramount Pictures
12	Beerfest	Paramount Pictures
13	Ocean's Thirteen	Warner Bros.
14	Amazing Grace	Warner Bros.
15	Shrek the Third	Warner Bros.
16	The Holiday	Warner Bros.
17	Deck the Halls	Warner Bros.
18	The Namesake	Fox Searchlight
19	Déjà Vu	Buena Vista
20	Running With Scissors	Sony Pictures
21	Ratatouille	Buena Vista
22	The Hills Have Eyes II	Fox Searchlight
23	Fast Food Nation	Fox Searchlight
24	Nancy Drew	Warner Bros.
25	28 Weeks Later	20th Century Fox
26	The Condemned	Lionsgate
27	Employee of the Month	Lionsgate
28	Man of the Year	Universal
29	The Bourne Ultimatum	Universal
30	All the King's Men	Sony Pictures
31	Turistas	20th Century Fox
32	I Now Pronounce You Chuck and Larry	Universal
33	Fantastic Four: Rise of the Silver Surfer	20th Century Fox
34	The Nativity Story	New Line
35	Thank You For Smoking	Fox Searchlight
36	Casino Royale	MGM
37	Miami Vice	Universal
38	The Transformers	Paramount Pictures
39	Unaccompanied Minors	Warner Bros.
40	Hannibal Rising	Weinstein Co.
41	Pride	Lionsgate
42	The Ant Bully	Warner Bros.
43	Surf's Up	Sony Pictures
44	Material Girls	MGM
45	Daddy Day Camp	Sony Pictures
46	Pulse	Weinstein/Dimension

I did the recoding manually, by sorting on Distributor, say, and finding values with count greater than 20.

See the tables of counts and charts to the right.

47	Vacancy	Sony/Screen Gems
48	TMNT	Weinstein Co.
49	Invincible	Buena Vista
50	Flyboys	MGM
51	Mr. Brooks	MGM
52	Sunshine	Fox Searchlight
53	The Fountain	Warner Bros.
54	Clerks II	MGM
55	Pan's Labyrinth	PictureHouse
56	John Tucker Must Die	20th Century Fox
57	Little Man	Sony Pictures
58	Hot Fuzz	Focus Features
59	Norbit	Paramount Pictures
60	Superbad	Sony Pictures
61	Spider-Man 3	Sony Pictures
62	Next	Sony Pictures
63	Superman Returns	Warner Bros.
64	X-Men: The Last Stand	20th Century Fox
65	The Queen	Miramax
66	The Descent	Lionsgate
67	Perfect Stranger	Sony Pictures
68	Freedom Writers	Paramount Pictures
69	The Ex	Weinstein Co.
70	Are We Done Yet?	Sony Pictures
71	Waitress	Fox Searchlight
72	Georgia Rule	Universal
73	Iraq in Fragments	Typecast Releasing
74	Lady in the Water	Warner Bros.
75	Once	Fox Searchlight
76	Disturbia	Paramount Pictures
77	Balls of Fury	Focus Features
78	Idiocracy	20th Century Fox
79	Hot Rod	Paramount Pictures
80	Ice Age: The Meltdown	20th Century Fox
81	The Covenant	Sony/Screen Gems
82	Barnyard: The Original Party Animals	Paramount Pictures
83	Day Watch	Fox Searchlight
84	How to Eat Fried Worms	New Line
85	Everyone's Hero	20th Century Fox
86	The Marine	20th Century Fox
87	School for Scoundrels	Weinstein Co.
88	Black Christmas	Miramax/Dimension
89	The Devil Wears Prada	20th Century Fox
90	The Nanny Diaries	Weinstein Co.
91	Blood Diamond	Warner Bros.
92	Reign Over Me	Sony Pictures
93	The Black Dahlia	Universal

94	Reno 911!: Miami	20th Century Fox
95	Live Free or Die Hard	20th Century Fox
96	Trust the Man	Fox Searchlight
97	The Wicker Man	Warner Bros.
98	The Astronaut Farmer	Warner Bros.
99	Tenacious D in: The Pick of Destiny	New Line
100	Pirates of the Caribbean: Dead Man's Chest	Buena Vista
101	Smokin' Aces	Universal
102	License to Wed	Warner Bros.
103	Grindhouse	Weinstein/Dimension
104	Pathfinder	20th Century Fox
105	The Simpsons Movie	20th Century Fox
106	Operation Homecoming	The Documentary Group
107	The Omen	20th Century Fox
108	Catch and Release	Sony Pictures
109	Away From Her	Lionsgate
110	Knocked Up	Universal
111	Jet Li's Fearless	Focus/Rogue Pictures
112	The Guardian	Buena Vista
113	Water	Fox Searchlight
114	Accepted	Universal
115	Music and Lyrics	Warner Bros.
116	You, Me and Dupree	Universal
117	Eragon	20th Century Fox
118	Primeval	Buena Vista
119	Night at the Museum	20th Century Fox
120	Evan Almighty	Universal
121	Black Snake Moan	Paramount Vantage
122	No Reservations	Warner Bros.
123	Meet the Robinsons	Buena Vista
124	A Good Year	20th Century Fox
125	One Night with the King	Rocky Mountain Pictures
126	Hostel: Part II	Lionsgate
127	Stranger Than Fiction	Sony Pictures
128	We Are... Marshall	Warner Bros.
129	Rush Hour 3	New Line
130	Flicka	20th Century Fox
131	Dreamgirls	Paramount Pictures
132	Children of Men	Universal
133	Bobby	Weinstein Co.
134	Underdog	Buena Vista
135	Flushed Away	Dreamworks SKG
136	Jackass: Number Two	Paramount Pictures
137	Confetti	Fox Searchlight
138	The Invisible	Buena Vista
139	Borat	20th Century Fox
140	Wild Hogs	Buena Vista

141	The Grudge 2	Sony Pictures
142	Evening	Focus Features
143	The Invasion	Warner Bros.
144	The Good Shepherd	Universal
145	La Vie en Rose	PictureHouse
146	Fracture	New Line
147	Monster House	Sony Pictures
148	Zoom	Sony Pictures
149	Lucky You	Warner Bros.
150	1408	Miramax/Dimension
151	Bridge to Terabithia	Buena Vista
152	Apocalypto	Buena Vista
153	Bratz	Lionsgate
154	My Super Ex-Girlfriend	20th Century Fox
155	Bug	Lionsgate
156	The Prestige	Buena Vista
157	Stardust	Paramount Pictures
158	Happy Feet	Warner Bros.
159	Alpha Dog	Universal
160	Epic Movie	20th Century Fox
161	Blades of Glory	Paramount Pictures
162	Dead Silence	Universal
163	Delta Farce	Lionsgate
164	The Messengers	Sony Pictures
165	I Know Who Killed Me	Sony/TriStar
166	Who's Your Caddy?	MGM
167	Notes on a Scandal	Fox Searchlight
168	I Think I Love My Wife	Fox Searchlight
169	Charlotte's Web	Paramount Pictures
170	The Last Kiss	Paramount Pictures
171	Because I Said So	Universal
172	Unconscious	Regent Releasing
173	Shooter	Paramount Pictures
174	Gridiron Gang	Sony Pictures
175	Hairspray	New Line
176	Zodiac	Paramount Pictures
177	In the Land of Women	Warner Independent Pictures
178	Premonition	Sony Pictures
179	Becoming Jane	Miramax
180	The Protector	Weinstein Co.
181	Crank	Lionsgate
182	The Hitcher	Focus Features
183	The History Boys	Fox Searchlight
184	Gracie	PictureHouse
185	Firehouse Dog	20th Century Fox
186	The Santa Clause 3: The Escape Clause	Buena Vista
187	Step Up	Buena Vista

188	Open Season	Sony Pictures
189	The Last Mimzy	New Line
190	The Reaping	Warner Bros.
191	Talladega Nights: The Ballad of Ricky Bobby	Sony Pictures
192	Hollywoodland	Focus Features
193	Rocky Balboa	MGM
194	A Mighty Heart	Paramount Vantage
195	Mr. Bean's Holiday	Universal
196	Joshua	Fox Searchlight
197	Flags of Our Fathers	Dreamworks SKG
198	Little Miss Sunshine	Fox Searchlight
199	Garfield's A Tail of Two Kitties	20th Century Fox
200	Letters from Iwo Jima	Dreamworks SKG
201	Daddy's Little Girls	Lionsgate
202	Harry Potter and the Order of the Phoenix	Warner Bros.
203	Marie-Antoinette	Sony Pictures
204	The Departed	Warner Bros.
205	Snakes on a Plane	New Line
206	Breach	Universal
207	The Last King of Scotland	Fox Searchlight
208	300	Warner Bros.
209	The Pursuit of Happyness	Sony Pictures
210	The Number 23	New Line
211	Arctic Tale	Paramount Vantage

Recoded Distributor	Genre	Recoded Genre	7-day Gross	14-day Gross
New Line	Horror	Horror	\$22,707,121	\$32,109,139
Other	Drama	Drama	\$141,803	\$318,598
Lionsgate	Action	Action	\$12,839,402	
Sony Pictures	Drama	Drama	\$28,263,594	\$42,853,277
Other	Drama	Drama		
Buena Vista	Adventure	Adventure	\$173,339,068	\$232,297,818
Other	Documentary	Other		
Other	Drama	Drama		
Sony Pictures	Action	Action	\$58,960,097	\$83,257,376
Lionsgate	Horror	Horror	\$44,576,835	\$63,279,443
Sony Pictures	Drama	Drama		
Other	Comedy	Comedy	\$10,151,951	\$15,786,241
Other	Adventure	Adventure	\$50,705,336	\$79,668,309
Other	Drama	Drama	\$5,200,372	
Other	Adventure	Adventure	\$150,338,458	\$227,906,792
Other	Romantic Comedy	Other	\$17,110,339	\$30,092,962
Other	Comedy	Comedy		
Fox Searchlight	Drama	Drama	\$361,518	\$1,333,480
Buena Vista	Thriller/Suspense	Thriller/Suspense		
Sony Pictures	Comedy	Comedy		\$3,660,628
Buena Vista	Comedy	Comedy	\$80,517,305	\$124,984,886
Fox Searchlight	Horror	Horror	\$11,883,609	\$17,579,582
Fox Searchlight	Drama	Drama	\$580,363	\$853,713
Warner Bros.	Thriller/Suspense	Thriller/Suspense	\$11,687,594	\$19,334,739
20th Century Fox	Horror	Horror	\$13,460,756	\$21,121,250
Lionsgate	Action	Action	\$4,947,445	\$6,769,217
Lionsgate	Comedy	Comedy	\$14,310,416	\$21,038,727
Universal	Comedy	Comedy	\$15,480,880	\$24,146,540
Universal	Action	Action	\$98,673,300	\$144,820,320
Sony Pictures	Drama	Drama	\$4,686,955	
20th Century Fox	Thriller/Suspense	Thriller/Suspense	\$4,540,030	\$6,437,413
Universal	Comedy	Comedy	\$52,547,115	\$81,169,105
20th Century Fox	Action	Action	\$77,453,559	\$105,800,808
New Line	Drama	Drama	\$10,239,000	\$18,373,000
Fox Searchlight	Black Comedy	Other		
Other	Action	Action	\$63,267,784	\$100,763,154
Universal	Action	Action	\$36,056,785	\$50,564,950
Paramount Pictures	Action	Action		\$228,950,080
Warner Bros.	Comedy	Comedy	\$6,547,915	
Other	Thriller/Suspense	Thriller/Suspense	\$16,662,340	\$24,157,310
Lionsgate	Drama	Drama	\$4,295,317	
Warner Bros.	Adventure	Adventure	\$14,260,551	\$20,610,757
Sony Pictures	Adventure	Adventure	\$25,370,697	\$40,612,980
Other	Comedy	Comedy	\$6,190,228	
Sony Pictures	Comedy	Comedy		
Other	Horror	Horror	\$11,176,099	\$16,228,598

Other	Thriller/Suspense	Thriller/Suspense	\$9,667,558	\$14,985,909
Other	Action	Action	\$29,268,284	\$41,781,886
Buena Vista	Drama	Drama	\$22,640,843	\$39,870,508
Other	Drama	Drama	\$7,595,128	\$10,794,574
Other	Thriller/Suspense	Thriller/Suspense	\$13,682,301	\$20,621,219
Fox Searchlight	Thriller/Suspense	Thriller/Suspense	\$362,501	\$2,235,239
Warner Bros.	Drama	Drama		
Other	Comedy	Comedy		\$20,987,916
Other	Horror	Horror		
20th Century Fox	Comedy	Comedy	\$22,572,760	\$32,751,462
Sony Pictures	Comedy	Comedy		
Other	Comedy	Comedy	\$7,724,188	\$14,090,753
Paramount Pictures	Comedy	Comedy	\$42,082,178	\$64,938,373
Sony Pictures	Comedy	Comedy	\$50,572,274	\$76,834,795
Sony Pictures	Adventure	Adventure	\$182,070,572	\$253,357,629
Sony Pictures	Action	Action	\$9,066,641	\$13,000,019
Warner Bros.	Adventure	Adventure		
20th Century Fox	Action	Action		
Other	Drama	Drama		
Lionsgate	Thriller/Suspense	Thriller/Suspense	\$12,927,112	\$19,882,850
Sony Pictures	Thriller/Suspense	Thriller/Suspense	\$13,968,118	\$19,418,295
Paramount Pictures	Drama	Drama	\$11,323,827	\$21,317,621
Other	Romantic Comedy	Other	\$1,944,838	
Sony Pictures	Comedy	Comedy		
Fox Searchlight	Drama	Drama		
Universal	Drama	Drama	\$9,121,575	\$14,424,970
Other	Documentary	Other		
Warner Bros.	Drama	Drama		\$35,922,083
Fox Searchlight	Drama	Drama		
Paramount Pictures	Thriller/Suspense	Thriller/Suspense	\$27,194,364	\$43,085,763
Other	Comedy	Comedy		
20th Century Fox	Comedy	Comedy	\$234,596	\$351,327
Paramount Pictures	Comedy	Comedy	\$8,792,476	\$12,534,240
20th Century Fox	Adventure	Adventure		
Other	Thriller/Suspense	Thriller/Suspense	\$11,013,531	\$17,004,815
Paramount Pictures	Comedy	Comedy	\$24,016,098	\$38,506,651
Fox Searchlight	Action	Action	\$68,234	\$166,581
New Line	Drama	Drama	\$5,571,313	
20th Century Fox	Adventure	Adventure	\$6,844,371	\$12,125,203
20th Century Fox	Action	Action	\$8,822,674	\$13,555,127
Other	Comedy	Comedy	\$10,554,778	\$15,065,677
Other	Horror	Horror		
20th Century Fox	Comedy	Comedy		
Other	Comedy	Comedy	\$10,151,376	
Warner Bros.	Action	Action	\$12,119,786	\$22,002,750
Sony Pictures	Drama	Drama	\$9,630,847	\$14,896,332
Universal	Thriller/Suspense	Thriller/Suspense	\$12,820,690	\$18,613,540

20th Century Fox	Comedy	Comedy	\$12,662,896	\$17,729,833
20th Century Fox	Action	Action		\$88,674,537
Fox Searchlight	Comedy	Comedy	\$255,827	\$655,122
Warner Bros.	Thriller/Suspense	Thriller/Suspense	\$13,371,125	\$18,628,666
Warner Bros.	Drama	Drama	\$5,580,399	\$8,338,517
New Line	Comedy	Comedy		
Buena Vista	Adventure	Adventure		
Universal	Comedy	Comedy	\$18,630,955	\$27,061,120
Warner Bros.	Comedy	Comedy		\$31,442,050
Other	Horror	Horror	\$15,460,828	\$21,320,000
20th Century Fox	Adventure	Adventure	\$6,360,568	\$8,895,535
20th Century Fox	Comedy	Comedy	\$102,949,705	\$141,112,342
Other	Documentary	Other	\$6,795	
20th Century Fox	Horror	Horror		
Sony Pictures	Romantic Comedy	Other	\$9,311,010	\$12,646,624
Lionsgate	Drama	Drama		
Universal	Romantic Comedy	Other	\$46,223,940	\$75,946,815
Other	Drama	Drama	\$13,083,004	\$19,461,440
Buena Vista	Action	Action	\$22,751,717	\$35,265,924
Fox Searchlight	Drama	Drama		
Universal	Comedy	Comedy	\$14,641,880	\$23,510,200
Warner Bros.	Romantic Comedy	Other		
Universal	Comedy	Comedy		
20th Century Fox	Adventure	Adventure	\$30,495,702	\$48,213,849
Buena Vista	Adventure	Adventure	\$7,716,473	
20th Century Fox	Comedy	Comedy	\$79,055,249	\$140,096,754
Universal	Comedy	Comedy	\$45,535,600	\$69,987,650
Other	Drama	Drama	\$5,410,053	\$8,079,470
Warner Bros.	Romantic Comedy	Other	\$17,586,828	\$28,169,989
Buena Vista	Adventure	Adventure	\$35,231,834	\$59,900,752
20th Century Fox	Drama	Drama	\$4,799,687	\$6,851,054
Other	Drama	Drama	\$5,307,651	
Lionsgate	Horror	Horror	\$11,191,000	\$16,040,871
Sony Pictures	Comedy	Comedy	\$16,300,147	\$26,778,068
Warner Bros.	Drama	Drama	\$17,038,381	\$30,289,979
New Line	Action	Action	\$66,323,168	\$96,763,003
20th Century Fox	Drama	Drama	\$9,163,221	\$14,900,036
Paramount Pictures	Musical	Other		\$22,964,345
Universal	Adventure	Adventure		
Other	Drama	Drama	\$1,242,622	\$7,204,245
Buena Vista	Adventure	Adventure	\$18,290,912	\$28,078,697
Other	Comedy	Comedy	\$23,220,769	\$41,991,571
Paramount Pictures	Comedy	Comedy	\$37,465,379	\$56,293,371
Fox Searchlight	Romantic Comedy	Other	\$29,623	\$190,312
Buena Vista	Thriller/Suspense	Thriller/Suspense	\$9,221,338	\$13,343,836
20th Century Fox	Comedy	Comedy	\$38,841,865	\$76,154,492
Buena Vista	Comedy	Comedy	\$49,415,325	\$85,167,997

Sony Pictures	Horror	Horror	\$23,680,202	\$32,715,981
Other	Drama	Drama		\$9,668,000
Warner Bros.	Thriller/Suspense	Thriller/Suspense	\$8,374,693	\$12,611,955
Universal	Drama	Drama	\$24,065,985	\$41,897,680
Other	Drama	Drama		\$3,144,035
New Line	Thriller/Suspense	Thriller/Suspense	\$14,260,545	\$23,032,218
Sony Pictures	Adventure	Adventure		\$50,951,765
Sony Pictures	Adventure	Adventure	\$6,607,544	
Warner Bros.	Drama	Drama	\$3,622,974	\$5,329,749
Other	Horror	Horror	\$29,779,254	\$46,649,346
Buena Vista	Drama	Drama	\$32,648,034	\$49,302,632
Buena Vista	Adventure	Adventure	\$20,201,406	\$31,724,156
Lionsgate	Comedy	Comedy	\$6,146,369	
20th Century Fox	Comedy	Comedy		\$19,118,663
Lionsgate	Drama	Drama	\$4,871,655	\$6,740,839
Buena Vista	Thriller/Suspense	Thriller/Suspense	\$19,207,527	\$31,630,273
Paramount Pictures	Adventure	Adventure	\$13,842,551	\$22,501,872
Warner Bros.	Musical	Other	\$62,178,720	\$103,955,600
Universal	Drama	Drama	\$8,796,815	
20th Century Fox	Comedy	Comedy	\$21,143,563	\$31,024,169
Paramount Pictures	Comedy	Comedy	\$45,382,907	\$76,130,018
Universal	Horror	Horror	\$9,775,725	\$14,145,450
Lionsgate	Comedy	Comedy	\$4,285,912	\$6,692,207
Sony Pictures	Horror	Horror	\$17,524,018	\$26,708,505
Other	Thriller/Suspense	Thriller/Suspense	\$5,066,322	
Other	Comedy	Comedy	\$3,711,337	
Fox Searchlight	Drama	Drama		
Fox Searchlight	Comedy	Comedy	\$7,279,181	\$10,899,186
Paramount Pictures	Drama	Drama	\$18,809,466	\$40,857,817
Paramount Pictures	Romantic Comedy	Other	\$5,936,292	\$9,188,774
Universal	Comedy	Comedy	\$16,584,590	\$28,257,665
Other	Comedy	Comedy		
Paramount Pictures	Thriller/Suspense	Thriller/Suspense	\$19,211,919	\$30,855,582
Sony Pictures	Drama	Drama	\$17,501,040	\$28,676,742
New Line	Musical	Other	\$43,858,000	\$69,629,420
Paramount Pictures	Thriller/Suspense	Thriller/Suspense	\$16,954,103	\$25,849,997
Other	Comedy	Comedy	\$5,908,658	\$9,308,837
Sony Pictures	Thriller/Suspense	Thriller/Suspense	\$22,090,745	\$34,242,317
Other	Drama	Drama		\$6,148,661
Other	Action	Action	\$6,583,847	\$9,940,816
Lionsgate	Action	Action	\$15,058,504	\$21,713,622
Other	Thriller/Suspense	Thriller/Suspense	\$9,800,045	
Fox Searchlight	Comedy	Comedy		
Other	Drama	Drama	\$1,939,458	
20th Century Fox	Comedy	Comedy		
Buena Vista	Comedy	Comedy	\$24,159,405	\$43,401,458
Buena Vista	Drama	Drama	\$29,580,830	\$44,232,438

Sony Pictures	Adventure	Adventure	\$28,128,740	\$48,154,270
New Line	Adventure	Adventure	\$12,192,019	\$17,318,613
Warner Bros.	Horror	Horror		
Sony Pictures	Comedy	Comedy	\$68,216,958	\$100,585,876
Other	Drama	Drama	\$7,799,599	\$11,434,376
Other	Drama	Drama		
Other	Drama	Drama	\$5,418,140	\$7,757,609
Universal	Comedy	Comedy	\$13,000,430	
Fox Searchlight	Thriller/Suspense	Thriller/Suspense	\$74,590	\$400,745
Other	Drama	Drama	\$13,576,213	\$22,131,112
Fox Searchlight	Comedy	Comedy		
20th Century Fox	Comedy	Comedy		
Other	Drama	Drama		
Lionsgate	Romantic Comedy	Other		
Warner Bros.	Adventure	Adventure		\$217,083,411
Sony Pictures	Drama	Drama	\$6,906,276	\$10,733,964
Warner Bros.	Drama	Drama	\$37,950,891	\$63,472,929
New Line	Thriller/Suspense	Thriller/Suspense	\$20,152,024	\$28,601,000
Universal	Thriller/Suspense	Thriller/Suspense	\$14,309,725	\$21,938,345
Fox Searchlight	Drama	Drama		
Warner Bros.	Action	Action	\$96,288,328	\$141,843,655
Sony Pictures	Drama	Drama	\$38,286,895	\$79,049,229
New Line	Thriller/Suspense	Thriller/Suspense	\$17,633,643	\$26,321,000
Other	Documentary	Other		

Total US Gross	International Gross	US DVD Sales	Budget
\$39,517,763	\$11,000,000	\$15,909,367	\$16,000,000
\$1,540,141			
\$22,466,994	\$18,200,000	\$27,040,983	\$25,000,000
\$61,356,221	\$15,000,000	\$33,166,898	\$14,000,000
\$39,868,642	\$44,407,533	\$38,189,217	\$16,500,000
\$309,420,425	\$651,576,067	\$295,701,718	\$300,000,000
\$24,538,513	\$9,000,000	\$17,375,592	\$9,000,000
\$34,302,837	\$101,000,000	\$31,456,221	\$20,000,000
\$115,802,596	\$121,900,000	\$103,699,106	\$120,000,000
\$80,238,724	\$83,638,091	\$47,124,617	\$10,000,000
\$70,278,893	\$93,000,000	\$36,856,697	\$65,000,000
\$19,185,184	\$974,132	\$28,372,842	
\$117,144,465	\$194,600,000	\$47,716,836	\$85,000,000
\$21,214,987	\$6,771,432	\$25,275,167	
\$322,719,944	\$476,238,218	\$174,342,569	\$160,000,000
\$63,280,000	\$141,910,324	\$71,202,459	\$85,000,000
\$35,093,569	\$12,137,501	\$28,291,848	
\$13,610,521	\$6,569,588	\$9,345,626	
\$64,038,616	\$117,000,000	\$40,473,916	\$80,000,000
\$6,775,659	\$437,970	\$1,877,732	\$12,000,000
\$206,445,654	\$418,000,000	\$189,036,784	\$150,000,000
\$20,804,166	\$16,662,372	\$30,466,195	\$15,000,000
\$1,005,539			
\$25,584,685	\$5,000,000	\$10,392,745	
\$28,638,916	\$35,599,524	\$24,333,111	
\$7,371,706			
\$28,444,855	\$9,672,863	\$21,061,839	\$10,000,000
\$37,442,180			
\$227,471,070	\$214,690,492	\$123,288,965	\$130,000,000
\$7,221,458	\$2,300,000		\$55,000,000
\$7,027,762	\$7,293,308	\$3,507,046	\$10,000,000
\$119,725,280	\$65,983,182	\$69,258,990	\$85,000,000
\$131,921,738	\$156,293,581	\$62,251,422	\$120,000,000
\$37,629,831	\$8,802,433	\$26,111,634	\$35,000,000
\$24,793,509	\$14,438,702	\$16,644,189	\$7,500,000
\$167,365,000	\$429,000,000	\$79,665,820	\$102,000,000
\$63,478,838	\$100,339,718	\$37,640,111	\$135,000,000
\$319,246,193	\$389,026,399	\$290,541,120	\$151,000,000
\$16,655,224	\$5,293,990	\$7,035,302	\$25,000,000
\$27,669,725	\$52,913,586	\$23,317,001	\$50,000,000
\$7,057,600			
\$28,142,535	\$27,038,594	\$28,487,251	\$45,000,000
\$58,867,694	\$86,528,051	\$46,067,803	\$100,000,000
\$11,449,638	\$1,000,000	\$12,117,535	
\$13,235,267	\$4,962,131	\$5,394,066	\$76,000,000
\$20,264,436	\$9,507,049		\$7,500,000

\$19,063,007	\$5,300,000	\$15,476,934	
\$54,149,098	\$40,860,790	\$30,361,634	\$35,000,000
\$57,806,952	\$673,876	\$48,056,452	
\$13,090,630	\$1,725,749	\$23,600,109	\$60,000,000
\$28,476,219	\$17,512,793	\$29,822,828	
\$3,688,560	\$28,342,050	\$6,319,960	\$40,000,000
\$10,144,010	\$5,317,628	\$8,742,316	\$35,000,000
\$24,148,068	\$1,746,405	\$26,390,836	\$5,000,000
\$37,634,615	\$45,600,000	\$40,752,599	\$16,000,000
\$41,011,711	\$27,812,815	\$32,656,099	
\$58,636,047	\$43,000,000	\$32,683,684	\$64,000,000
\$23,618,786	\$55,578,707	\$33,365,115	\$16,000,000
\$95,673,607	\$63,300,000	\$44,106,290	
\$121,463,226	\$48,400,000	\$134,374,749	\$17,500,000
\$336,530,303	\$554,341,323	\$123,997,036	\$258,000,000
\$18,211,013	\$55,380,487	\$18,978,879	
\$200,120,000	\$191,000,000	\$81,570,819	\$232,000,000
\$234,362,462	\$224,997,093	\$103,539,395	\$150,000,000
\$56,441,711	\$66,398,892	\$29,155,509	\$15,000,000
\$26,024,456	\$31,005,153	\$22,436,857	\$7,000,000
\$23,760,822	\$38,765,566	\$23,711,660	
\$36,605,602	\$6,485,139	\$20,489,423	\$21,000,000
\$3,091,922	\$646,700	\$1,827,435	
\$49,662,533	\$8,725,535	\$22,928,049	
\$19,097,550	\$3,104,630	\$23,084,465	\$1,500,000
\$18,882,880	\$1,936,721	\$19,347,243	\$20,000,000
\$204,462			
\$42,285,169	\$30,500,000	\$12,428,204	\$75,000,000
\$9,445,857	\$9,551,317		\$150,000
\$80,209,692	\$37,363,351	\$34,408,161	\$20,000,000
\$32,886,940	\$7,991,682	\$19,013,476	
\$444,093	\$41,106		
\$13,938,332	\$396,069	\$23,972,256	\$25,000,000
\$195,330,621	\$456,568,661	\$131,324,982	\$75,000,000
\$23,364,784	\$14,800,000	\$26,301,459	\$20,000,000
\$72,779,000	\$43,839,084	\$64,992,667	\$51,000,000
\$459,095	\$38,411,815	\$4,060,608	
\$13,040,527	\$55,787	\$16,841,759	
\$14,523,101	\$1,596,538	\$5,943,446	
\$18,844,784	\$3,320,824	\$26,752,947	\$15,000,000
\$17,807,569			\$20,000,000
\$16,235,738			\$9,000,000
\$124,740,460	\$201,810,634	\$95,831,660	\$35,000,000
\$25,926,673	\$20,064,522	\$37,541,232	
\$57,377,916	\$114,000,000	\$62,525,527	\$100,000,000
\$19,661,987	\$420,000	\$15,941,535	\$20,000,000
\$22,672,813	\$24,000,000	\$12,345,224	\$60,000,000

\$20,342,161			
\$134,529,403	\$249,002,061	\$100,735,780	\$110,000,000
\$1,530,535	\$1,017,843		\$9,000,000
\$24,413,467	\$13,308,360		
\$11,003,643			\$13,000,000
\$8,334,575	\$5,100,000	\$6,035,460	
\$423,315,812	\$642,344,000	\$320,671,450	\$225,000,000
\$35,662,731	\$20,384,530	\$35,769,990	\$17,000,000
\$43,792,641	\$27,000,000	\$22,727,928	\$35,000,000
\$25,031,037	\$25,156,752	\$31,032,170	\$53,000,000
\$10,232,081	\$20,590,780	\$27,357,887	
\$183,135,014	\$343,936,008	\$96,337,909	\$72,500,000
\$6,795			
\$54,607,383	\$65,000,000	\$10,459,743	\$25,000,000
\$15,432,542			
\$4,548,331			
\$148,761,765	\$70,232,344	\$117,411,877	\$27,500,000
\$24,633,730	\$42,000,000	\$30,497,752	
\$55,011,732	\$32,000,000	\$53,922,172	
\$5,529,144	\$2,590,061		
\$36,580,083	\$1,734,720	\$37,827,956	
\$50,572,589	\$94,983,557	\$21,129,239	\$40,000,000
\$75,802,010	\$54,600,000	\$41,628,625	\$54,000,000
\$75,030,163	\$174,457,952	\$87,654,390	\$100,000,000
\$10,597,734	\$1,000,000	\$4,982,989	
\$250,863,268	\$323,617,573	\$153,286,880	\$110,000,000
\$100,289,690	\$72,929,590	\$37,997,932	\$175,000,000
\$9,396,870			\$15,000,000
\$43,107,979	\$49,000,000	\$26,948,545	\$28,000,000
\$97,822,171	\$71,510,807	\$78,345,374	
\$7,459,300	\$34,604,805	\$7,342,760	\$35,000,000
\$13,395,961			\$20,000,000
\$17,544,812	\$16,061,597	\$16,167,194	\$7,500,000
\$40,435,190	\$4,800,000	\$30,880,666	\$30,000,000
\$43,545,364			
\$140,125,968	\$112,900,000	\$40,775,094	\$180,000,000
\$21,000,147	\$893,444	\$49,920,014	\$15,000,000
\$103,365,956	\$51,600,000	\$53,661,766	\$75,000,000
\$35,552,383	\$33,897,819	\$25,338,142	\$76,000,000
\$11,205,901	\$8,667,942	\$12,345,494	
\$43,760,605	\$21,540,742	\$38,478,972	
\$64,665,672	\$113,000,000	\$70,937,146	\$149,000,000
\$72,778,712	\$10,800,000	\$49,039,094	\$11,000,000
\$228,498	\$4,506,731		
\$20,568,319	\$2,971,947	\$13,668,418	
\$128,505,958	\$133,066,786	\$62,652,669	\$18,000,000
\$168,213,584	\$84,800,000	\$92,291,863	

\$39,143,839	\$29,500,000	\$8,293,678	\$20,000,000
\$12,406,646	\$478,928		
\$15,074,191	\$25,072,851	\$4,845,361	\$80,000,000
\$59,908,565	\$35,468,177	\$33,880,479	
\$10,299,782	\$73,200,000		\$15,500,000
\$38,989,507	\$50,200,000	\$22,208,165	
\$73,661,010	\$66,500,000	\$71,541,095	\$75,000,000
\$11,989,328	\$516,860	\$6,679,409	\$35,000,000
\$5,755,286	\$766,543	\$853,973	\$55,000,000
\$71,985,628	\$56,543,671	\$49,635,451	\$22,500,000
\$82,234,139	\$54,700,000	\$41,355,482	\$25,000,000
\$50,866,635	\$66,918,416	\$43,279,287	\$40,000,000
\$10,010,209	\$15,737,014	\$39,102,832	
\$22,530,295	\$38,000,000		
\$7,006,708			\$4,000,000
\$53,089,891	\$54,806,115	\$45,348,399	\$40,000,000
\$38,634,938	\$96,921,737	\$25,077,781	\$70,000,000
\$198,000,317	\$187,000,000	\$203,202,864	\$85,000,000
\$15,242,450	\$12,977,992	\$12,376,741	
\$39,739,367	\$47,119,211	\$16,820,895	\$20,000,000
\$118,594,548	\$27,000,000	\$49,169,389	\$61,000,000
\$16,574,590	\$4,040,071	\$16,762,012	
\$8,130,530			
\$35,374,833	\$18,400,000	\$15,902,523	
\$7,233,485			
\$5,694,308			
\$17,510,118	\$32,242,273	\$8,957,029	
\$12,559,771	\$645,640	\$13,549,608	\$14,000,000
\$82,985,708	\$61,000,000	\$83,550,733	\$82,500,000
\$11,614,790			
\$42,674,040	\$26,205,530	\$23,917,497	
\$68,501			
\$47,003,582	\$48,200,000	\$57,244,093	\$60,000,000
\$38,432,823	\$3,048,028	\$33,990,308	\$30,000,000
\$118,823,091	\$84,000,000	\$104,029,214	\$75,000,000
\$33,080,084	\$50,000,000	\$20,971,999	\$85,000,000
\$11,052,958	\$3,087,444	\$9,691,414	\$10,500,000
\$47,852,604	\$33,608,739	\$33,205,167	
\$18,663,911	\$18,640,726	\$8,050,112	\$16,500,000
\$12,044,087	\$31,000,000	\$13,059,709	\$5,700,000
\$27,838,408	\$5,986,288	\$28,754,050	\$12,000,000
\$16,379,582	\$4,476,064		
\$2,730,296	\$10,695,293		\$3,700,000
\$2,956,339	\$80,397		\$9,000,000
\$13,932,383	\$3,366,768	\$17,210,792	
\$84,500,122	\$23,000,000	\$76,815,057	
\$65,328,121	\$50,000,000	\$51,183,795	\$12,000,000

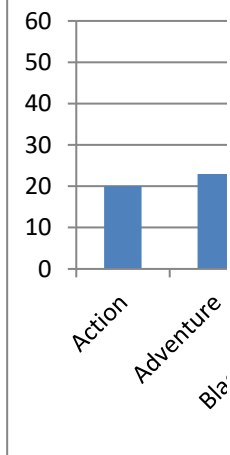
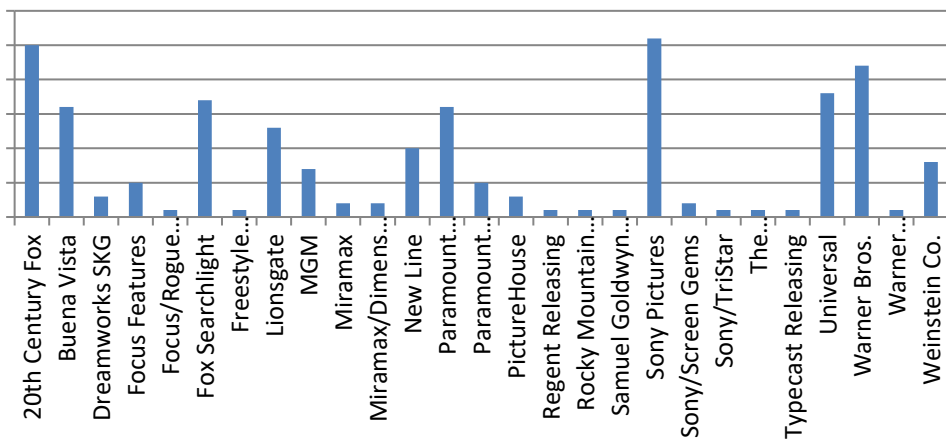
\$85,105,259	\$104,796,444	\$96,372,487	\$85,000,000
\$21,471,047	\$5,149,714	\$21,227,639	
\$25,126,214	\$37,100,000	\$19,733,449	\$40,000,000
\$148,213,377	\$14,800,000	\$84,806,563	\$73,000,000
\$14,426,251			
\$70,269,899	\$85,450,189	\$34,655,821	\$24,000,000
\$9,176,787	\$9,755,330	\$5,434,934	\$15,000,000
\$33,302,167	\$196,397,938	\$28,162,446	\$25,000,000
\$482,355	\$233,349		
\$33,602,376	\$28,300,000	\$45,095,837	\$53,000,000
\$59,891,098	\$40,632,083	\$55,497,574	\$8,000,000
\$28,426,747	\$113,275,517	\$18,693,368	
\$13,756,082	\$55,000,000	\$13,618,088	\$13,000,000
\$31,366,978	\$150,081	\$31,456,820	
\$292,004,738	\$646,464,126	\$220,651,146	\$150,000,000
\$15,962,471	\$44,900,000	\$16,617,894	\$40,000,000
\$133,311,000	\$157,228,042	\$140,647,116	\$90,000,000
\$34,020,814	\$28,000,000	\$23,693,992	\$33,000,000
\$33,000,880	\$1,457,899	\$18,301,944	
\$17,606,684	\$30,756,832	\$16,831,973	\$6,000,000
\$210,614,939	\$245,453,242	\$261,158,713	\$60,000,000
\$162,586,036	\$143,500,000	\$90,820,939	\$55,000,000
\$35,193,167	\$41,400,000	\$27,501,523	\$32,000,000
\$833,532	\$194,090		

Distributor	Count	Genre	Count
20th Century Fox	25	Action	20
Buena Vista	16	Adventure	23
Dreamworks SKG	3	Black Comedy	1
Focus Features	5	Comedy	56
Focus/Rogue Pictures	1	Documentary	4
Fox Searchlight	17	Drama	54
Freestyle Releasing	1	Horror	15
Lionsgate	13	Musical	3
MGM	7	Romantic Comedy	9
Miramax	2	Thriller/Suspense	26
Miramax/Dimension	2		
New Line	10		
Paramount Pictures	16		
Paramount Vantage	5		
PictureHouse	3		
Regent Releasing	1		
Rocky Mountain Pictures	1		
Samuel Goldwyn Films	1		
Sony Pictures	26		
Sony/Screen Gems	2		
Sony/TriStar	1		
The Documentary Group	1		
Typecast Releasing	1		
Universal	18		
Warner Bros.	22		
Warner Independent Pictures	1		
Weinstein Co.	8		
Weinstein/Dimension	2		
Recoded Distributor			
New Line	10	Recoded Genre	Count
Lionsgate	13	Action	20
Sony Pictures	26	Adventure	23
Buena Vista	16	Comedy	56
Paramount Pictures	16	Drama	54
Warner Bros.	22	Horror	15
20th Century Fox	25	Thriller/Suspense	26
Fox Searchlight	17	Other	17
Universal	18		
Other	48		

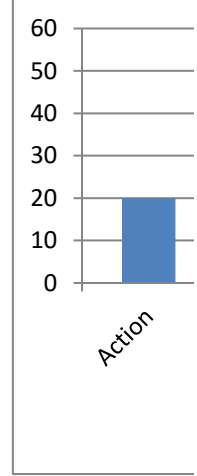
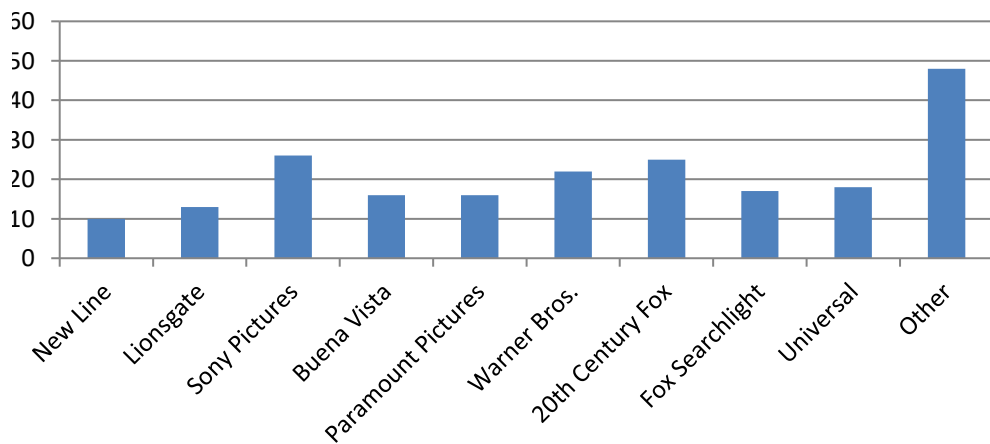
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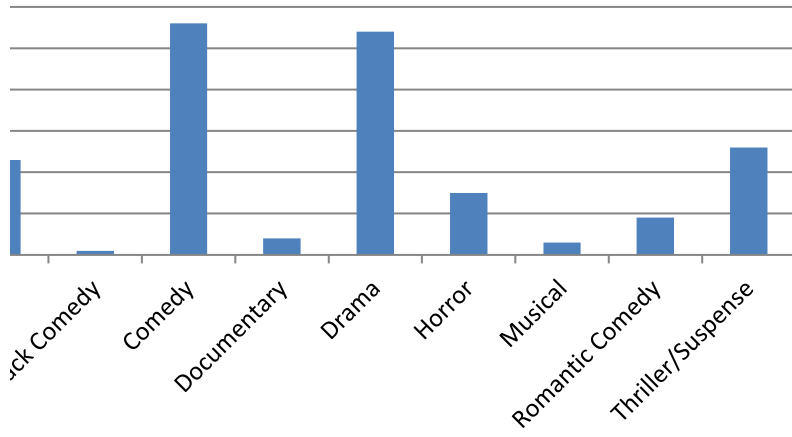
Count of Distributor



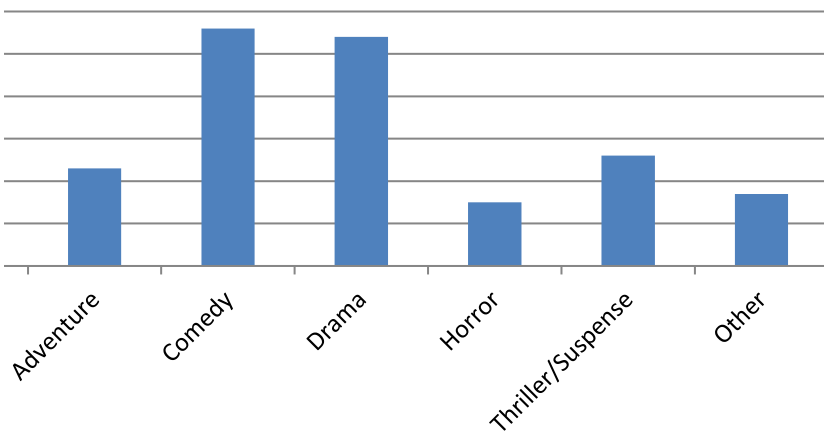
Count of Recoded Distributor



Count of Genre



Count of Recoded Genre



Numbers of six-packs purchased				
Customer	Beer A	Beer B	Beer C	All three
1	2	5	2	9
2	2	2	6	10
3	2	4	5	11
4	1	6	0	7
5	4	0	2	6
6	3	1	3	7
7	6	1	6	13
8	0	1	4	5
9	3	0	3	6
10	0	1	4	5
11	1	0	5	6
12	1	1	0	2
13	0	1	3	4
14	2	4	6	12
15	3	5	1	9
16	1	0	3	4
17	0	1	6	7
18	6	0	0	6
19	6	6	0	12
20	3	3	6	12
21	0	3	0	3
22	4	0	3	7
23	1	2	0	3
24	2	2	6	10
25	4	6	0	10
26	1	4	0	5
27	5	3	5	13
28	0	4	2	6
29	4	0	4	8
30	0	1	1	2

Similar averages to those quoted in
 Beer A Beer B Beer C
 8.173913 7.695652 7.818182

Columns B-D contain random numbers and column E contains their sums. The AVERAGE function to calculate the average of the numbers in column E where the number in column A is 0, columns P and Q. The "Any" average in column J is a simple average of all the numbers in column E. The key to see how the random numbers are generated.

As you can see, the "Any" average is lower than the "Beer A" average because of a built-in bias. It averages all the numbers in column E, whereas the others average only the numbers in column E where the number in column A is 0. Therefore, these particular numbers tend to be large ones.

Still, there is nothing that guarantees that the "Any" average is lower than the "Beer A" average. Now, if column A is 0, columns P and Q are 0, the "Any" average is not always the same as the "Beer A" average. Of course, there are other types of customer behavior that can be modeled with number formulas.

n case

Any

7.333333

Numbers of six-packs purchased

Customer	Beer A	Beer B	Beer C	All three
1	2	1	0	3
2	0	3	2	5
3	1	1	1	3
4	4	1	1	6
5	0	3	4	7
6	1	1	1	3
7	4	1	1	6
8	5	0	0	5
9	6	0	1	7
10	6	0	0	6
11	0	5	4	9
12	0	4	0	4
13	5	1	1	7
14	5	1	1	7
15	4	0	0	4
16	4	0	1	5
17	5	0	1	6
18	5	0	0	5
19	3	0	1	4
20	6	0	0	6
21	6	1	0	7
22	5	0	0	5
23	5	0	0	5
24	2	0	1	3
25	1	1	1	3
26	4	0	0	4
27	0	2	0	2
28	0	4	4	8
29	0	1	6	7
30	5	0	1	6

numbers of purchases, and
Columns G-I use the AVERAGEIF
ages in the case, whereas the Any
e average of column E. Press the F9
umbers and averages change.

verage tends to be the lowest. This is
verages all the numbers in column
e only over the numbers in column
n B (or C or D) is positive.
mbers in column E tend to be the

gantees this behavior. Look at the
nn O is positive, columns P and Q
and loyalty to brand A), whereas if
Q can be larger. In this case, the
ie lowest. In fact, it is usually larger
course, we could build in many
vior, depending on the random

Averages quoted in case

Beer A	Beer B	Beer C	Any
5.043478	5.4375	5.666667	5.266667