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Course: MTH220 - Fall 2017

Professor: Dr. Alfaro

Homework Assignment #6 & #7

Code and full dataset can be found at <https://github.com/telton/linear-algebra-assignment>.

## Explanation of the Data

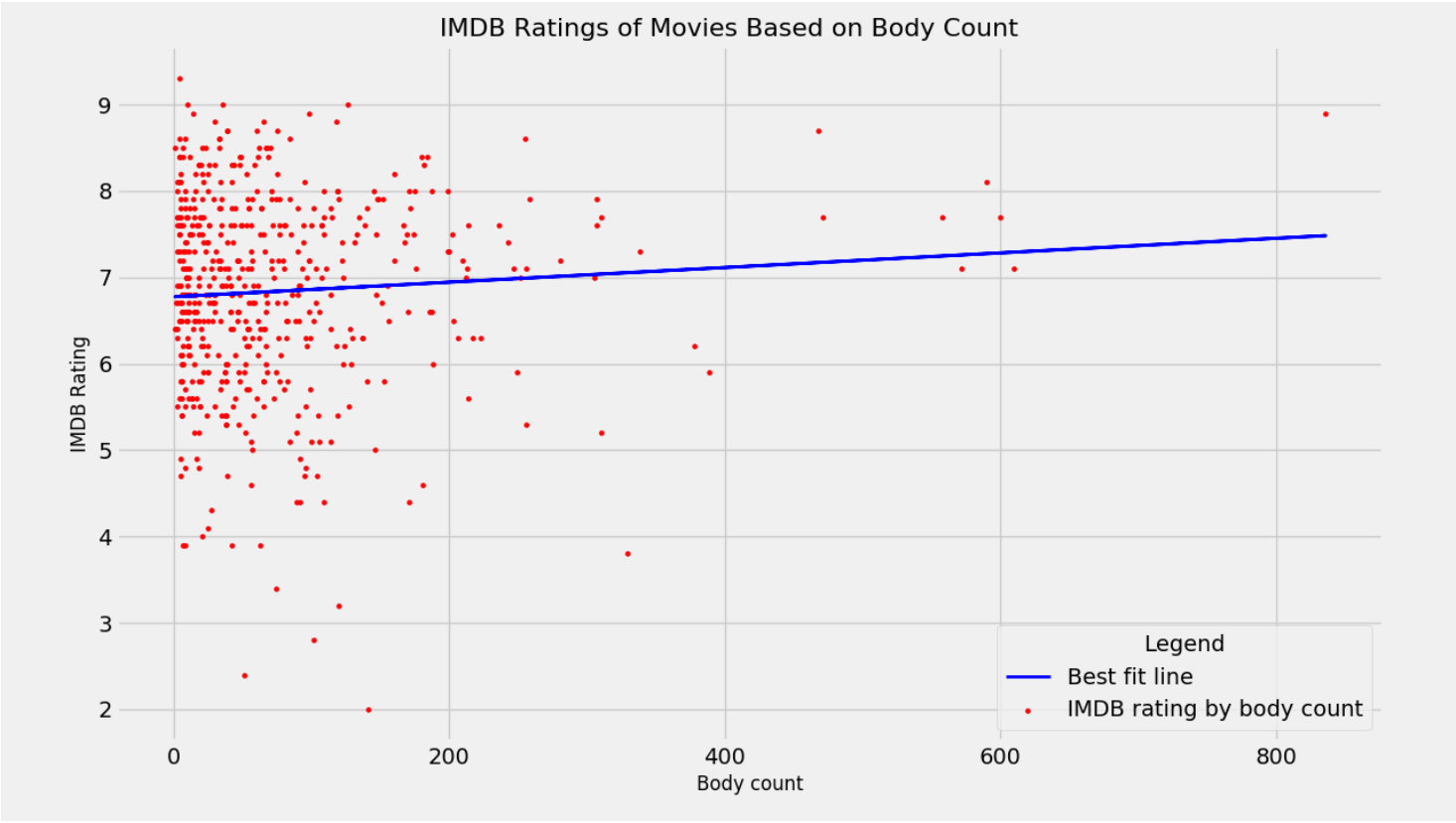
The response variable  $y$  is the [IMDB Rating](#) of the movies in the dataset. The  $\_predictor\_$  variable  $\_x\_$  is the body count is the body count that the movie produces. The dataset was compiled using data from the website [Movie Body Counts](#). To be counted a kill and/or dead body has to be visible on the screen, implied deaths like those died in the explosion of the Death Star are not counted. For more details on how counts should be conducted see their guidelines at <http://moviebodycounts.proboards.com/thread/6>.

## Table of the Dataset

Note: This is just a snippet of the dataset! The full dataset can be found at <https://github.com/telton/linear-algebra-assignment/blob/master/film-death-counts.csv>.

1	Film	Year	Body_Count	MPAA_Rating	Genre	Director	Length_Minutes	IMDB_Rating		
2	24 Hour Party People	2002	7	R	Biography Comedy Drama Music	Michael Winterbottom	117	7.3		
3	28 Days Later	2002	53	R	Horror Sci-Fi Thriller	Danny Boyle	113	7.6		
4	28 Weeks Later	2007	212	R	Horror Sci-Fi Thriller	Juan Carlos Fresnadillo	100	7		
5	30 Days of Night	2007	67	R	Horror Thriller	David Slade	113	6.6		
6	300	2007	600	R	Action Fantasy History War	Zack Snyder	117	7.7		
7	3:10 To Yuma	2007	45	R	Adventure Crime Drama Western	James Mangold	122	7.8		
8	8MM	1999	1	R	Crime Mystery Thriller	Joel Schumacher	123	6.4		
9	A Better Tomorrow	1986	65	R	Action Crime Drama Thriller	John Woo	95	7.5		
10	A Better Tomorrow II	1987	199	R	Action Crime Drama Thriller	John Woo	105	7.3		
11	A Bridge Too Far	1977	243	PG	Drama History War	Richard Attenborough	175	7.4		
12	A Christmas Story	1983	4	PG	Comedy Family	Bob Clark	94	8.1		
13	A Clockwork Orange	1971	7	X	Crime Drama Sci-Fi	Stanley Kubrick	136	8.4		
14	A Fistful of Dollars	1964	109	M	Western	Sergio Leone	99	8		
15	A Fistful of Dynamite	1971	471	PG	Adventure Western	Sergio Leone	138	7.7		
16	A History of Violence	2005	13	R	Crime Drama Thriller	David Cronenberg	96	7.5		
17	A Man Apart	2003	39	R	Action Crime Drama Thriller	F. Gary Gray	109	6		
18	A Nightmare on Elm Street	1984	4	R	Horror	Wes Craven	91	7.5		
19	Above the Law	1988	18	R	Action Crime Drama Thriller	Andrew Davis	99	5.8		
20	Action Jackson	1988	17	R	Action Comedy Crime Thriller	Craig R. Baxley	96	4.9		
21	Aeon Flux	2005	58	PG-13	Action Sci-Fi	Karyn Kusama	93	5.4		
22	Air Force One	1997	54	R	Action Adventure Drama	Wolfgang Petersen	124	6.4		
23	Akira	1988	119	R	Animation Horror Sci-Fi	Katsuhiro Ohtomo	124	8		
24	Alexander	2005	119	R	Action Adventure Biography	Oliver Stone	175	5.4		
25	Ali G Indahouse	2002	11	R	Comedy	Mark Mylod	85	6.1		
26	Alien	1979	1	R	Horror Sci-Fi	Ridley Scott	117	8.5		
27	Aliens	1986	68	R	Action Adventure Sci-Fi	James Cameron	137	8.5		
28	Aliens vs. Predator: Requiem	2007	5	R	Action Horror Sci-Fi Thriller	Colin Strause Greg Strause	94	4.7		
29	Alpha Dog	2007	3	R	Biography Crime Drama	Nick Cassavetes	122	6.9		
30	Altered States	1980	5	R	Drama Fantasy Horror Sci-Fi Thriller	Ken Russell	102	6.9		
31	American Gangster	2007	15	R	Biography Crime Drama	Ridley Scott	157	7.8		
32	American Ninja	1985	114	R	Action Adventure Romance Sport	Sam Firstenberg	95	5.1		
33	American Pop	1981	61	R	Animation Drama Music	Ralph Bakshi	96	6.9		
34	American Psycho	2000	18	R	Crime Drama	Mary Harron	102	7.6		
35	American Yakuza	1993	53	R	Action Crime Drama Thriller	Frank A. Cappello	96	5.7		

## Graph of the Data w/ Best Fit Line



## Least Square Solution & Mean Square Error for Dataset

The least square solution for this dataset has been calculated to be  $x = [8.47213753e-04, 6.77486598e+00]$ .

The mean square error for this dataset has been calculated to be  $ss = 1.1152532564$ .