EE 232E Project 4
IMDb Mining

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1 A brief tutorial on how to use this template

Please remove the tutorial section in the final manuscript by commenting, i.e. %(*something*)

1.1 Figures

Figure insertion is shown in Fig 1.

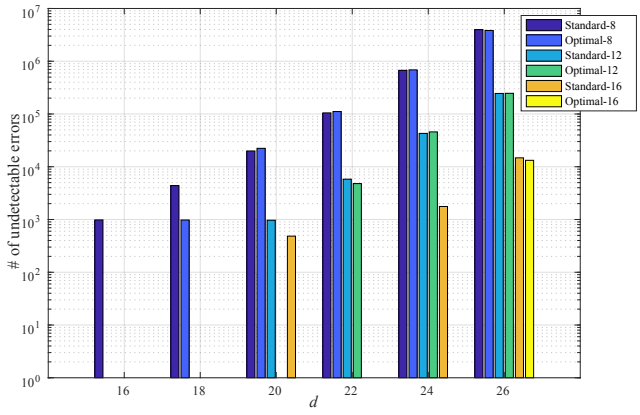

Figure 1: An example of figure insertion

1.2 Equations

An example of equations is given as follows.

Theorem 1. *Let a, b, c denote the sides of a triangle, respectively. If $a \perp b$, the pythagoras theorem is given as follows.*

$$c^2 = a^2 + b^2 \tag{1}$$

1.3 Tables

An example of tables is shown in Table 1.

Table 1: Standard CRC Codes versus Optimal CRC Codes for Convolutional Code $G = (561\ 753)$ with $n = 504$ Bits

Name	Gen. Poly.	Undetected Error Distance Spectrum						
		d	16	18	20	22	24	26
Standard-8	0x19B		983	4387	19909	105000	672724	3972970
Optimal-8	0x19D		0	979	22349	111304	686314	3830340
Standard-12	0x180F		0	0	969	5815	42893	245211
Optimal-12	0x108B		0	0	0	4793	45795	246729
Standard-16	0x11021		0	0	484	0	1765	14752
Optimal-16	0x1F8FD		0	0	0	0	0	13240

1.4 Actor rankings

We aimed to find to find the top 10 actor/actress in the network using the google's pagerank algorithm. Those information of the top 10 actor/actress is shown in Table 2, including the name, the number of movies and the in-degree of each of the actor/actress in the top 10 list.

We can see from the result that it does not have any of the actor/actress listed in the previous section. In general, the more movie they took part in, the high pagerank they may had, because that means they had more changes to cooperate with other actor/actress and it's obvious that they may have higher degree in the network. After googling it, we found that most people int the top 10 are actually voice actors. That's why they can take part in hundreds of movies and that also explains why those famous previous actor/actress are not included in the

Table 2: Top 10 highest pagerank score actor/actress

Name	the Number of Movies	In-degree
Flowers, Bess	828	7537
Tatasciore, Fred	355	3954
Harris, Sam (II)	600	6960
Blum, Steve (IX)	373	3316
Miller, Harold (I)	561	6587
Jeremy, Ron	637	3177
Phelps, Lee (I)	647	5563
Lowenthal, Yuri	318	2662
Downes, Robin Atkin	267	2953
O'Connor, Frank (I)	623	5502

top 10. Even though those movie super stars acted so many movies, it's very common that they still act less than those voice actors.

What's more, the same information of the actor/actress listed in the previous section is shown in Table 3.

Table 3: The same information table for previous actor/actress

Name	the Number of Movies	In-degree
Tom Cruise	63	1651
Emma Watson (II)	25	453
George Clooney	67	1573
Tom Hanks	80	2064
Dwayne Johnson (I)	78	1357
Johnny Depp	98	2144
Will Smith (I)	49	1319
Meryl Streep	97	1594
Leonardo DiCaprio	49	1301
Brad Pitt	71	1739

2 Movie Network

2.1 Undirected movie network creation

We create a weighted undirected movie network. And the degree distribution of the movie network is shown in Figure 2. We can see from the result that most movies have a degree between 500 and 1000, also there're only a few movies that have very large or very small degrees. The result is not super surprising since it is very common that lots of movies share same popular movie starts for the box office.

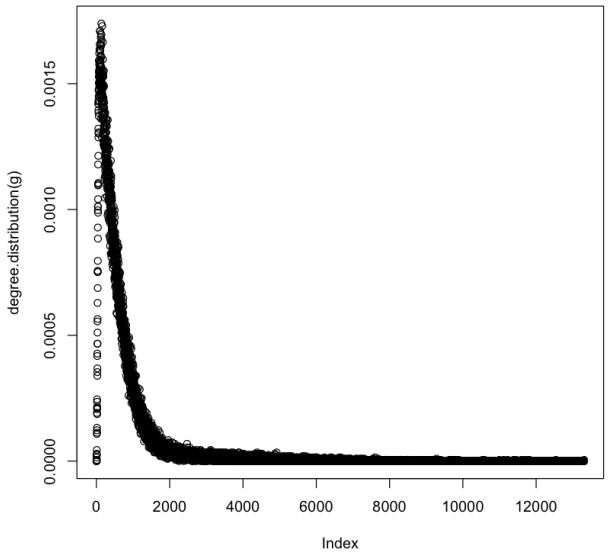

Figure 2: Degree distribution of the movie network