Progress Report:
The Movie-Chain-Runner Project

Team Chain-Runner

Sung Uk Ryu
Eugene Scanlon
Shashank Singh
Jimmy Zong

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Prepared and Submitted by

Shashank Singh   Jimmy Zong
sss1@andrew.cmu.edu   yzong@cmu.edu

Contents

1 Overview

We first explain the context of this report and the Movie-Chain-Runner Problem.

1.1 This Report

This report documents our progress in solving the Movie-Chain-Runner Problem (discussed below) as of June 17, 2013, as well as our plans for how to proceed up until the project deadline of June 27, 2013.

1.2 The Movie-Chain-Runner Project

2 Progress

We present our progress in three sections: General Progress, Status, and Projections.

2.1 General Progress

Here we discuss the accomplishments of our project thus far.

Our first step was to reconstruct the list of movie titles as a directed graph, with an edge from title A to title B when B can follow A in a movie chain, reducing the problem to the well-known Longest Path Problem. We proceeded to implement a greedy brute force algorithm which simply followed as many paths as possible. This quickly constructed a path of 243 titles and then ceased to make appreciable progress. The majority of our efforts have since been towards honing and augmenting this brute force algorithm.

We have

2.2 Status

Here we evaluate the current state of our project and discuss our ability to meet deadlines set in our Proposal.

Our longest chain currently consists of ??? titles and ???? words. This falls short of our scheduled June 17 goal of 285 titles and ???? words by ? titles and ?? words.

Figure 1 on page ? shows the original Gantt chart presented in our project proposal. We have made ?????????????? changes.

2.3 Projections

Here we discuss our goals from now until the final project deadline (June 27, 2013) and how we intend to accomplish these goals.

Since 285 titles and ???? words is the threshold for receiving A on this project, the benefits of achieving 300 titles are primarily cosmetic. Thus, we have reduced our final goal to 285 titles.

We have propose 3 approaches to this goal

Although we have devoted much computational power toward extending the longest chain at either end, we have not considered a potentially large number of alternative paths

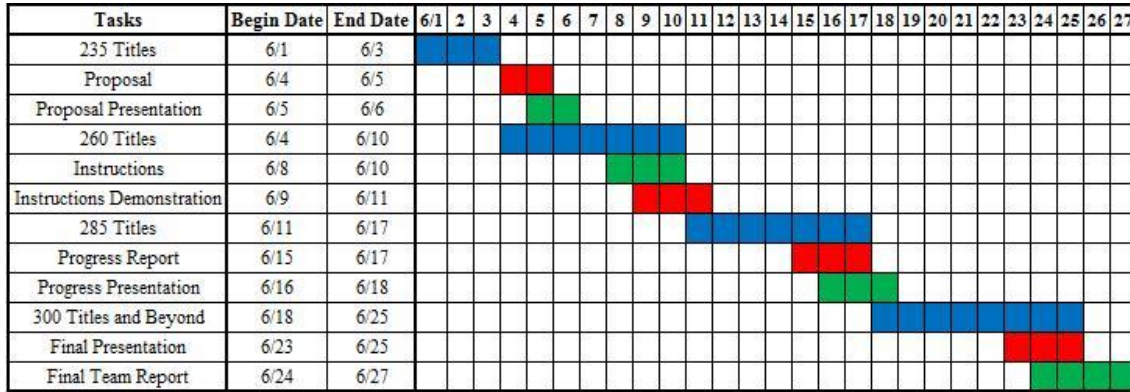| Tasks	Begin Date	End Date	6/1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
235 Titles	6/1	6/3	■	■	■																								
Proposal	6/4	6/5				■	■																						
Proposal Presentation	6/5	6/6					■	■																					
260 Titles	6/4	6/10				■	■	■	■	■	■	■																	
Instructions	6/8	6/10								■	■	■																	
Instructions Demonstration	6/9	6/11									■	■	■																
285 Titles	6/11	6/17											■	■	■	■	■	■	■										
Progress Report	6/15	6/17															■	■	■										
Progress Presentation	6/16	6/18																■	■	■									
300 Titles and Beyond	6/18	6/25																		■	■	■	■	■	■	■	■		
Final Presentation	6/23	6/25																							■	■	■		
Final Team Report	6/24	6/27																								■	■	■	■

Figure 1: Our original Gantt chart.

between nodes in the chain. Thus, we will attempt to compute, for adjacent or nearby nodes, alternative (longer) chains connecting the same nodes. We are also considering ways to "trim" the graph by removing nodes unlikely to be in the longest chain, thus reducing the number of possible paths that must be considered.

If simple methods prove insufficient, we may also implement a color-coding algorithm proposed by Alon et al. [1] or one of several genetic algorithms proposed by Portugal et al., [2] although, due to the implementation complexity of these algorithms, we hope this will be unnecessary.

3   Recommendations

4   Discussion

Appendices

A   Our Longest Movie Chain

Here, we include our current longest movie chain, with ??? titles and ???? words:

THE RESCUERS	STAND IN	BEST OF THE BEST
THE RESCUERS DOWN UNDER	IN OLD CALIFORNIA	THE BEST OF EVERYTHING
UNDER CAPRICORN	CALIFORNIA SPLIT	EVERYTHING RELATIVE
CAPRICORN ONE	SPLIT SECOND	RELATIVE FEAR
ONE NIGHT STAND	SECOND BEST	FEAR STRIKES OUT

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[1] Noga Alon , Raphael Yuster , Uri Zwick, Color-coding, Journal of the ACM (JACM), v.42 n.4, p.844-856, July 1995. (accessed June 16, 2013 at http://dl.acm.org/citation.cfm?id=210337).

[2] D. Portugal, C. H. Antunes, R. Rocha, "A Study of Genetic Algorithms for Approximating the Longest Path in Generic Graphs," Proc. of the IEEE SMC, pp. 2539-2544, 2010. (accessed June 16, 2013 at http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=5641920& navigation=1).

OUT OF THE PAST	SPICE WORLD	ALASKA SPIRIT OF THE WILD
PAST MIDNIGHT	WORLD TRADE CENTER	THE WILD ANGELS
MIDNIGHT RUN	CENTER STAGE	ANGELS WITH DIRTY FACES
RUN SILENT RUN DEEP	STAGE FRIGHT	FACES OF DEATH
DEEP BLUE	FRIGHT NIGHT	DEATH SHIP
BLUE CAR	NIGHT AND THE CITY	SHIP OF FOOLS
CAR 54 WHERE ARE YOU	CITY OF JOY	FOOLS RUSH IN
YOU CANT TAKE IT WITH YOU	JOY RIDE	IN COLD BLOOD
YOU LIGHT UP MY LIFE	RIDE THE HIGH COUNTRY	BLOOD BEACH
MY LIFE WITHOUT ME	COUNTRY LIFE	BEACH PARTY
ME MYSELF I	LIFE IS BEAUTIFUL	PARTY GIRL
I SPY	BEAUTIFUL GIRLS	GIRL IN THE CADILLAC
SPY HARD	GIRLS GIRLS GIRLS	CADILLAC MAN
HARD TIMES	GIRLS JUST WANT TO HAVE FUN	MAN ON FIRE
TIMES SQUARE	FUN AND FANCY FREE	FIRE IN THE SKY
SQUARE DANCE	FREE WILLY	SKY HIGH
DANCE WITH A STRANGER	FREE WILLY 2 THE ADVENTURE HOME	HIGH CRIMES
STRANGER IN THE HOUSE	HOME ALONE	CRIMES OF PASSION
HOUSE OF DRACULA	ALONE IN THE DARK	PASSION IN THE DESERT
DRACULA DEAD AND LOVING IT	THE DARK HALF	DESERT HEARTS
IT TAKES TWO	HALF LIGHT	HEARTS OF DARKNESS A FILMMAKERS APOCALYPSE
24 7 TWENTY FOUR SEVEN	LIGHT OF DAY	APOCALYPSE NOW
SEVEN YEARS IN TIBET	DAY FOR NIGHT	NOW YOU SEE HIM NOW YOU DONT
TIBET CRY OF THE SNOW LION	NIGHT OF THE LIVING DEAD	DONT BOTHER TO KNOCK
LION OF THE DESERT	DEAD HEAT	KNOCK OFF
DESERT BLUE	HEAT AND DUST	OFF THE BLACK
BLUE STEEL	DUST TO GLORY	BLACK AND WHITE
STEEL DAWN	GLORY ROAD	WHITE LIGHTNING
DAWN OF THE DEAD	ROAD GAMES	LIGHTNING IN A BOTTLE
DEAD BANG	GAMES PEOPLE PLAY NEW YORK	BOTTLE ROCKET
BANG BANG YOURE DEAD	NEW YORK NEW YORK	ROCKET MAN
DEAD END	NEW YORK COP	MAN TROUBLE
END OF DAYS	COP LAND	TROUBLE EVERY DAY
DAYS OF HEAVEN	LAND OF THE DEAD	DAY OF THE DEAD
HEAVEN CAN WAIT	DEAD MAN	DEAD OF NIGHT
WAIT UNTIL DARK	DEAD MAN ON CAMPUS	NIGHT MOTHER
DARK CITY	CAMPUS MAN	MOTHER JUGS AND SPEED
CITY BY THE SEA	MAN OF THE HOUSE	SPEED 2 CRUISE CONTROL
SEA OF LOVE	HOUSE OF FRANKENSTEIN	CONTROL ROOM
LOVE AND DEATH	FRANKENSTEIN AND THE MONSTER FROM HELL	ROOM AT THE TOP
DEATH BECOMES HER	HELL NIGHT	TOP GUN
HER MAJESTY MRS BROWN	NIGHT FALLS ON MANHATTAN	GUN CRAZY
BROWN SUGAR	MANHATTAN MURDER MYSTERY	CRAZY AS HELL
SUGAR AND SPICE	MYSTERY ALASKA	HELL UP IN HARLEM

HARLEM RIVER DRIVE	DOWN WITH LOVE	EIGHT AND A HALF WOMEN
DRIVE ME CRAZY	LOVE LIFE	WOMEN IN LOVE
CRAZY PEOPLE	LIFE OR SOMETHING LIKE IT	IN LOVE AND WAR
PEOPLE I KNOW	IT HAPPENED AT THE WORLDS FAIR	WAR OF THE WORLDS
I KNOW WHAT YOU DID LAST SUMMER	THE GAME	THE WORLDS FASTEST INDIAN
SUMMER CATCH	GAME OF DEATH	INDIAN SUMMER
CATCH A FIRE	DEATH WISH V THE FACE OF DEATH	SUMMER SCHOOL
FIRE ON THE MOUNTAIN	DEATH WISH	SCHOOL OF ROCK
THE MOUNTAIN MEN	WISH UPON A STAR	ROCK STAR
MEN CRY BULLETS	A STAR IS BORN	STAR TREK THE MOTION PICTURE
BULLETS OVER BROADWAY	BORN AMERICAN	PICTURE BRIDE
BROADWAY DANNY ROSE	AMERICAN HISTORY X	BRIDE OF THE WIND
ROSE RED	X THE MAN WITH THE X RAY EYES	THE WIND AND THE LION
RED EYE	EYES OF AN ANGEL	THE LION KING
EYE FOR AN EYE	ANGEL BABY	KING OF THE JUNGLE
AN EYE FOR AN EYE	BABY SECRET OF THE LOST LEGEND	JUNGLE 2 JUNGLE
EYE OF GOD	LEGEND OF THE LOST	JUNGLE BOOK
GOD IS GREAT IM NOT	THE LOST BOYS	BOOK OF LOVE
NOT OF THIS EARTH	BOYS AND GIRLS	LOVE WALKED IN
EARTH GIRLS ARE EASY	GIRLS WILL BE GIRLS	IN GODS HANDS
EASY MONEY	GIRLS OF SUMMER	HANDS ON A HARD BODY
MONEY FOR NOTHING	SUMMER LOVERS	BODY DOUBLE
NOTHING BUT TROUBLE	LOVERS AND OTHER STRANGERS	DOUBLE TEAM
TROUBLE IN PARADISE	STRANGERS WHEN WE MEET	TEAM AMERICA WORLD POLICE
PARADISE ROAD	MEET JOE BLACK	POLICE ACADEMY
ROAD HOUSE	BLACK LIKE ME	POLICE ACADEMY 3 BACK IN TRAINING
HOUSE PARTY	ME WITHOUT YOU	TRAINING DAY
PARTY MONSTER	YOU ONLY LIVE ONCE	DAY OF THE WOMAN
MONSTER IN A BOX	ONCE AROUND	THE WOMAN IN RED
BOX OF MOON LIGHT	AROUND THE BEND	RED RIVER
LIGHT IT UP	BEND OF THE RIVER	RIVER OF NO RETURN
UP CLOSE AND PERSONAL	THE RIVER WILD	RETURN TO HORROR HIGH
PERSONAL BEST	WILD THINGS	HIGH SCHOOL HIGH
BEST MEN	THINGS TO COME	HIGH SPIRITS
MEN WITH GUNS	COME AND GET IT	SPIRITS OF THE DEAD
GUNS OF THE MAGNIFICENT SEVEN	IT HAPPENED ONE NIGHT	DEAD MAN WALKING
THE MAGNIFICENT SEVEN RIDE	ONE NIGHT WITH THE KING	WALKING AND TALKING
RIDE WITH THE DEVIL	THE KING AND I	TALKING ABOUT SEX
THE DEVIL RIDES OUT	I WANT TO LIVE	SEX AND THE OTHER MAN
OUT COLD	LIVE AND LET DIE	MAN OF THE YEAR
COLD FEVER	DIE MOMMIE DIE	YEAR OF THE DRAGON
FEVER PITCH	DIE MONSTER DIE	DRAGON SEED
PITCH BLACK	DIE HARD	SEED OF CHUCKY
BLACK HAWK DOWN	HARD EIGHT	