Team Number :	APMCM0827

Problem Chosen :	C

2016 APMCM summary sheet

Evaluation and Customization of Film and Television

As key cultural industries, Film and TV programs have already came into our life for a period of time. However, in nowadays highly competitive television market, some problems arouse the film producers' attention that the quantity of the TV teleplay is to be saturated while the quality is worrying.

Aiming to evaluate the popularity index of TV programs and give reasonable suggestions, we've completed the following analysis on basis of information provided by the given questions and the Big Data on the net.

In the first question, we offer a new developed index R Score to integrate all the three crucial factors (scores, number of comments and episode) by utilizing Analytical Hierarchy Process (**AHP**). Three weighted values are defined respectively during calculated the final outcome.

In the second question, we make a comprehensive mathematical model of the stars popularity index by weighted calculating, considering four factors: the volume of Baidu search, fans of Weibo, Baidu news and Youko clicks.

In the third question, we study the effects of a piece of Micro-bo spreading and take as examples the top 10 TV series ranked on Baidu Search's for the first half year in 2016, analyzing opinion data and the current audience among the whole information we got and speculating on the viewers' interest. Essential elements an ideal production team ought to qualified also referred to .

In the forth question, we try to figure out the connection between the app's usage records and the reasonable recommendation by stimulating a designed schematic flow, subsequently we exemplify the feasibility of our system.

Eventually, we give a comprehensive analysis of the models' strengths and weaknesses.

Contents

I. Introduction

In order to indicate the origin of the problems, the following background is worth mentioning.

1. Background

The current Chinese television market is highly competitive and full of different styles and topics. Though the annual TV drama production remains high, the number of the high cost-effective and quality dramas is not as imagined. Recent years, using Big Data as an analysis instrument to test TV market has been quite successful, though which we can solve the problem to some extent and make it possible to reduce TV investment risk, improve script quality, and forecast audience response to ensure maximum benefits.

1.1 Symbol Description

Symbol	Definition
Rscore	Real score
S	Score
Chs	Conversion rate of comments number
Ehs	Conversion rate of episode
Hotstar	Total index of popularity
Bddjhrcd	Baidu hits
Bdxwhrcd	Stars' popularity index of Baidu News
Wbhrcd	Stars' popularity index of Sina Weibo
Ykhrcd	Stars' popularity index of Youko
Rwb	Total number of Sina Weibo's users per day
Rbdxw	Total number of Baidu News' users per day
Rbdss	Total number of Baidu search's users per day
Ryk	Total number of Youko's users per day
R	Total number of people in China
Pylxw	Probability of the entertainment news hitting headline
Pbdxw	Probability of watching Baidu News
RSD	Number of the people who saw the same piece of Micro-blog

1.2 General Assumptions

● Production cost per episode of different TV dramas is the same.

● There's no zombie fans or falsified network data among the information we used.

II. The Description of the Problems & Models

2. Q1: Our top 10 TV dramas

2.1 Description

We can clearly notice that some TV dramas enjoy remarkable comment scores while, ironically, the number of comments is quite a few. Most audience just judge them as "good ones" before drama-broadcasting instead of watching them subsequently. Since the deviation between comment scores and number of comments, we need a developed method to perfect the evaluation criterion of TV dramas by integrating other subordinate factors. After a serious-minded discussion, episodes and the number of renowned stars are also taken into account to constitute a mathematical model except for the former main parameters.

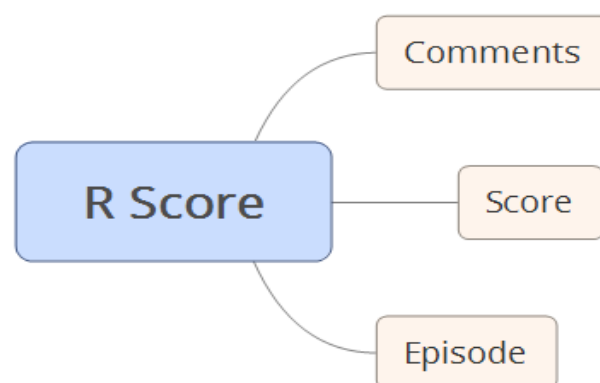We can utilize Analytical Hierarchy Process (**AHP**) to solve the first question.

Figure 1 : Mind Map of the Real Score

2.2 Model

The number of TV drama comments is actually a reflection of the number of viewers, so we consider that the number of comments represents the audience rating, the score represents the quality of a TV drama and the episode represents the production cost of the certain film studio.

First, we exclude all the unscored-dramas because we cannot judge a TV drama without the most critical factor of evaluation. So-called "brilliant and cost-effective teleplay" is undoubtedly based on the quantity of comments, high scores and low-budget script.

- **Scores**

A TV drama score, the average of the total scores marked by the commentators, is the main basis of the given **R** Score. We define its weight value as 1, which is properly adequate because scores, as the foremost factor, directly reflect the audience impression on the teleplay.

- **Number of comments**

The number of a teleplay comments matters its popularity. It's a prevalent phenomenon that somehow a teleplay gets so hot for a period of time thanks to the soaring discussion index to a large extent, both on virtual net and the real world rather than the its quality. Such phenomenon often leads to the fact that if we just incorporate the number of comments and scores into the AHP, we'll get an imprecise consequence. We hence define the number of comments' weight value of the most-commented teleplay *He Yi Sheng Xiao Mo* as **1** and by this analogy, we transform the number of comments into the percentage respectively and add them into the calculation of the **R** Score.

- **Episode**

As we all know, the more teleplay episodes are, the more production investment the film will cost. According to our first assumption, each of the episodes in different series share the same cost, that is to say, the more teleplay episodes are, the lower cost-effective the teleplay will be. We redefine this factor by setting a moderate weight value **0.2** that influences the outcome relatively little.

Therefore, we incorporate all the three elements into the following equation:

$$RScore = S*Chs\text{-}0.2*Ehs$$

2.3 Conclusion

We rank the top ten TV dramas on the basis of the equation:

Chart1: Top ten TV dramas

TV Drama	Score	Number of Comments	Episode	Chs	Ehs	Rscore
Zhan Changsha	9.2	18419	32	0.702399	0.32	6.398068
He Yi Sheng Xiao Mo	6.3	26223	32	1	0.32	6.236
Beiping Wu Zhan Shi	8.8	16084	53	0.613355	0.53	5.291521
Li Hun Lv Shi	7.2	16872	46	0.643405	0.46	4.540513
Hong Gao Liang	7.5	10028	60	0.382412	0.6	2.748093
WuMeiniang Chuan Qi	5.4	13625	82	0.519582	0.82	2.641743
ShanShan Lai le	6.9	9285	33	0.354078	0.33	2.377142
Yi Pu Er Zhu	7.2	8337	43	0.317927	0.43	2.203074
Wo Ai Nan Gui Mi	7.4	7373	34	0.281165	0.34	2.012624

3. Q2：A Designed Star Popularity Index

3.1 General Description

Referring to a star popularity index, we make a comprehensive judgment by weighted calculating, considering four factors: **the volume of Baidu search, fans of Weibo, Baidu news and Youko clicks.**

We find that the star, who was a smash hit on the net for a certain time, more often than not is enormously influenced by the release of their hot teleplays or films for the same period of time. So this leads to our judgment according to the former four typical factors. The popularity index of the top ten female and male stars ranked by Baidu Search are taken into account as follows.

Chart2 : Baidu Hits of Stars[1]

Rank	Name(male)	Index	Rank	Name(female)	Index
1	Yi Cheng	86509	1	Tianai Zhang	62030
2	Tianyu Ma	72528	2	Rong Yang	26300
3	Jinfu Jiang	48433	3	Yan Tang	22886
4	Zheng Yi	42680	4	Liying Zhao	22205
5	Xuedong Chen	39967	5	Xinyi Zhang	22048
6	Hu Gao	31306	6	O Wang	21225
7	Xiubo Wu	22887	7	Mi Yang	17139
8	Kaiwei Liu	22424	8	Xiaotong Mao	14965
9	Baoqiang Wang	17473	9	Shuang Zheng	13933
10	Zijun Mao	16594	10	Yazhi Zhao	12450

Chart3 : Searching Quantity of Baidu News

Rank	Name(male)	Quantity	Rank	Name(female)	Quantity
1	Yi Cheng	9530	1	Tianai Zhang	43200
2	Tianyu Ma	67400	2	Rong Yang	26200
3	Jinfu Jiang	91500	3	Yan Tang	249000
4	Zheng Yi	12900	4	Liying Zhao	247000
5	Xuedong Chen	43800	5	Xinyi Zhang	67000
6	Hu Gao	65600	6	O Wang	136000
7	Xiubo Wu	83600	7	Mi Yang	459000
8	Kaiwei Liu	248000	8	Xiaotong Mao	1070000
9	Baoqiang Wang	263000	9	Shuang Zheng	270000
10	Zijun Mao	1660	10	Yazhi Zhao	60500

Chart 4 : Stars' Popularity Index on Youko

Rank	Name(male)	Index	Rank	Name(female)	Index
1	Yi Cheng	2286	1	Tianai Zhang	3976
2	Tianyu Ma	10587	2	Rong Yang	5273
3	Jinfu Jiang	4208	3	Yan Tang	16869
4	Zheng Yi	?	4	Liying Zhao	44524
5	Xuedong Chen	5617	5	Xinyi Zhang	6855
6	Hu Gao	2614	6	O Wang	3692
7	Xiubo Wu	4131	7	Mi Yang	13421
8	Kaiwei Liu	6444	8	Xiaotong Mao	6814
9	Baoqiang Wang	8431	9	Shuang Zheng	44071
10	Zijun Mao	2367	10	Yazhi Zhao	5407

Chart 5 : the Number of Fans on Sina Weibo

Rank	Name(male)	Index	Rank	Name(femael)	Index
1	Yi Cheng	2470000	1	Tianai Zhang	8890000
2	Tianyu Ma	20400000	2	Rong Yang	5590000
3	Jinfu Jiang	13360000	3	Yan Tang	51640000
4	Zheng Yi	3400000	4	Liying Zhao	43400000
5	Xuedong Chen	24560000	5	Xinyi Zhang	16140000
6	Hu Gao	330000	6	O Wang	5540000
7	Xiubo Wu	8470000	7	Mi Yang	65530000
8	Kaiwei Liu	16270000	8	Xiaotong Mao	5790000
9	Baoqiang Wang	28650000	9	Shuang Zheng	2750000
10	Zijun Mao	1680000	10	Yazhi Zhao	5280000

It's a current necessary that we should use the definition Hotstar to integrate the data from four kinds of origination since the respective popularity indexes are distinguishing. We use **Web hits quantities** of the four kinds of media as the weight value of the data.

We define **R wb** as the Hits quantity of Sina Weib per day likewise **Rbdxw** as Baidu News, **R bdss** as Baidu Search and **Ryka** as Youko. Since the total number of these media users is defined as **R**, then the weighting coefficient is $\dfrac{R\text{wb}}{R}$, $\dfrac{R\text{bdxw}}{R}$, $\dfrac{R\text{bdss}}{R}$, $\dfrac{R\text{yk}}{R}$ respectively.

Therefore, a function symbolized **the popularity index** is conducted:

$$Hotstar = Bddjhrcd * \frac{Rdss}{R} + Bdxwhrcd * \frac{Rbdxw}{R} + Wbhrcd * \frac{Rwb}{R} + Ykhrcd * \frac{Ryk}{R}$$

Below aims to prove the attainability of our index by giving a real-life example from this year.

3.2 Respective Description

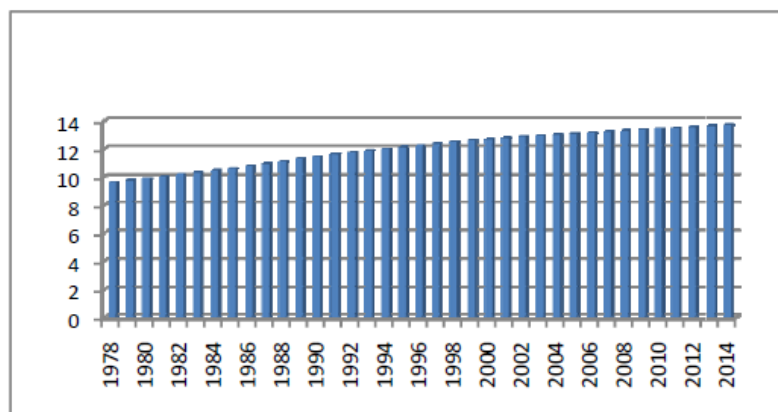### 3.2.1 Prediction and Estimation of Chinese Population

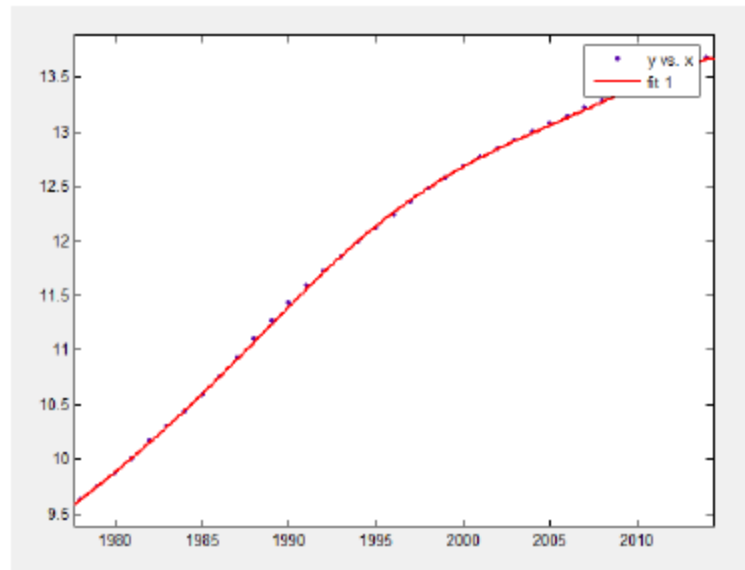**Figure 2:** Chinese Population from 1978 to 2014

Figure3 : Linear Fitting Chart of the Chinese population

So we arrive at the 2016 Chinese population **R**:

Chart 6: Fitting data of the Chinese population

Year	Population（100 million）
2010	13.4085
2011	13.4747
2012	13.5412
2013	13.6074
2014	13.6741
2015	13.7387
2016	13.8013

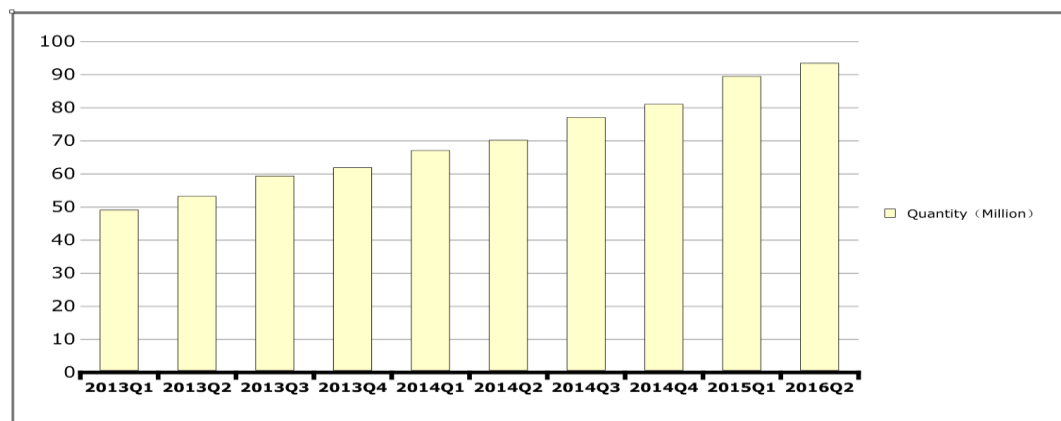### 3.2.2 Numbers of the Sina Weibo users

Figure4 : Numbers of Active Sina Weibo Users for Recent Quarters[2]

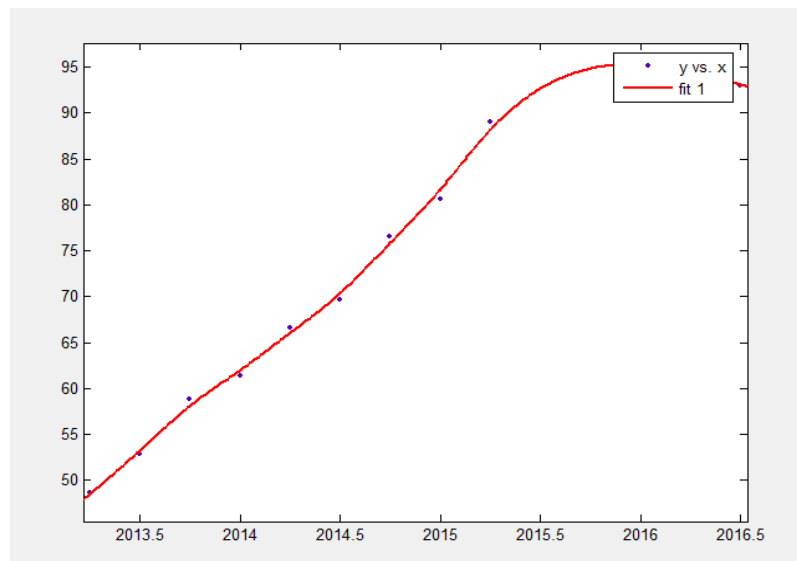According to the data above, we obtain the fitting number of active Sina Weibo users during the 4th quarter in 2016.

Figure 5 : Linear Fitting Chart of the Active Sina Weibo Users' Number per Day

We also get the prediction numbers as follows：

Chart7 : Numbers of Active Sina Weibo Users per Day

Year	Quantity（million）
2015Q4	95.2193
2016Q1	94.4457
2016Q2	93.0876
2016Q3	91.7295
2016Q4	90.9559

Thus, The value of **Rwb2016** equals to 90.9559.

3.2.3 Population of the Netizens Using Baidu Search and Baidu News

In terms of the information on the net we've obtained, the volume of Baidu Search comes to around 5 billion times per day, which each person contributes to an average of 12 times or so. So we recommend the number of population searching on Baidu, Rbdss2016, as 0.41 billion to continue our compute.

Since it's hard for us to estimate the population of watching news on net directly, we decide to use the general survey data of the arrangement when people surfing on net as long as the Chinese population to compute it. From the following diagram, large amounts of netziens tend to spare their time on online games or chatting, whereas the percentage of people who merely watching news online occupies less than 1% of all. Whatever online preferences netziens choose, the headline news

appearing on various webs will draw their attention.

Generally, probability of the entertainment news hitting headline is 1/51, which is estimated by the random selection of one day's headline in 2016.
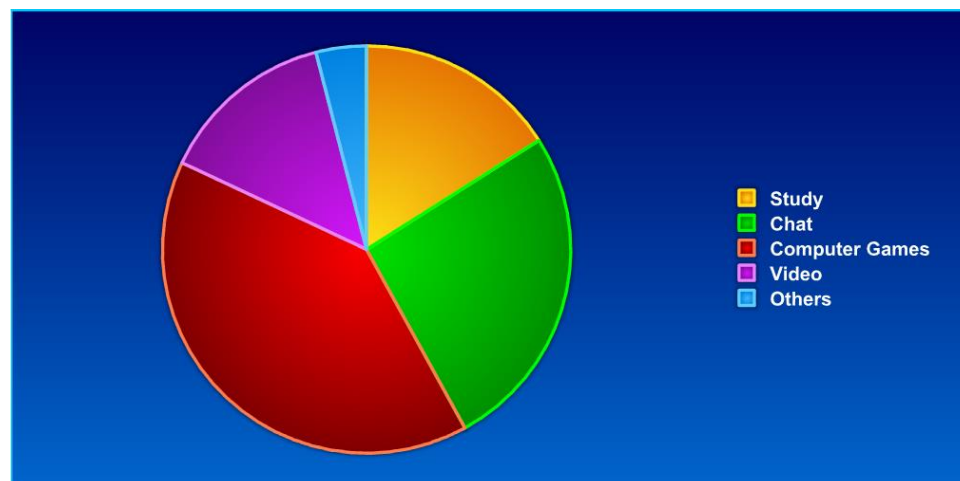

Figure 6: Arrangement when people surfing online

3.2.4 Estimation from Youko clicks

Due to the short timelines of stars' entertainment videos, we prepare to seek though 50 Videoviews per day. (Detailed information are included in *Appendix II*.)

Mainly resulted from star effects and other uncertain factors, the click quantity of stars' entertainment videos on Youko varies enormously by analyzing both variance and average though SPSS. Consequently, we exclude 5 highest ones and 5 lowest ones among the data and get a relatively satisfied value of **Ryk.**

Ryk = 14446

The value indicates that Viedoviews data provided by Video Websites is merely a inferior factor of the stars' popularity index.

4. Q3：Speculations & Models about Ideal Production Team

4.1 Speculations on Viewers' Interest

We will take as examples the top 10 TV series for the first half year in 2016, analyzing opinion data and the current audience among the whole information we got and speculating on the viewers' interest.

Chart 8 : TV Series' Ranking List for the First half year of 2016

Rank	Name	Audience Rating	Market Shares	Episode	Type*
1	*Qin Ai De Fan Yi Guan*	2.048%	6.19%	44	UA
2	*Da Cuo Che*	1.501%	3.84%	38	FE
3	*Zhu Fu Shen Tan*	1.407%	3.61%	43	UA
4	*Nv Yi Ming Fei Zhuan*	1.296%	3.39%	50	AC
5	*Shao Shuai*	1.281%	3.29%	48	SD
6	*Tian Tian You Xi Zhi Ren Jian You Ai*	1.233%	3.32%	76	AC
7	*Xiao Zhang Fu*	1.216%	3.57%	40	UA
8	*Huan Le Song*	1.213%	3.48%	42	UA
9	*Ji Mo Kong Ting Chun Yu Wan*	1.175%	3.16%	37	AC
10	*Hao Xian Sheng*	1.172%	3.56%	42	UA

*UA: Urban affectional teleplay   AC: Ancient costume

 FE: Family ethics drama   SD: Spy drama

Main factors are showed as follow:

● **Viewers' Interest**

Viewers' interest has always been a puzzled question for teleplay directors. Although some directors claim how outstanding their series will be, it more often than not occurs some unhappy endings for failing to interest the audience interest. So the following ideas aim to investigate viewers' interest.

● **Comments from the audience**

Comments from the audience are one of important elements for the TV series in our common sense. Opinions often lead to someone's view experience of a certain TV show to some degree, especially those from some senior film critics.

We there utilize parts of audience-rating data about Qin Ai De Fan Yi Guan to exemplify the factor of comments from the audience.
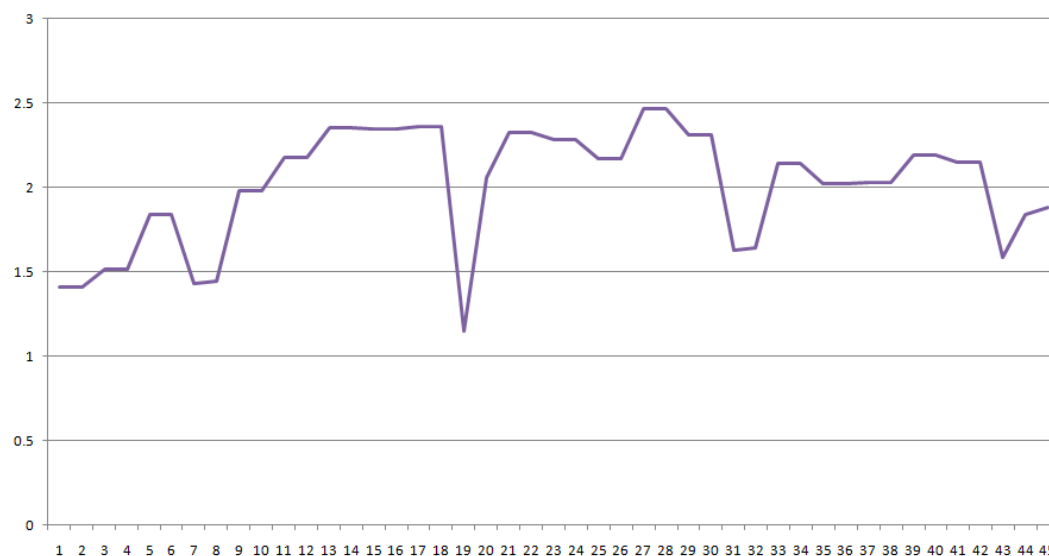
Figure 7: Audience Rating per episode of *Qin Ai De Fan Yi Guan*

We found that the line meets three apparent low points, appearing at the 19th, 31th and 43th episode separately. It is the spoiler of the 19th episode and a large scale of negative complaints about 31th and 43th episodes that badly cut viewers' interest down, from the comments we investigated on Sina Weibo.

Pursuing more reliability, we intend to investigate a micro-blog spreading effect. First, we'd better focus on the processing of Weibo forwarding.
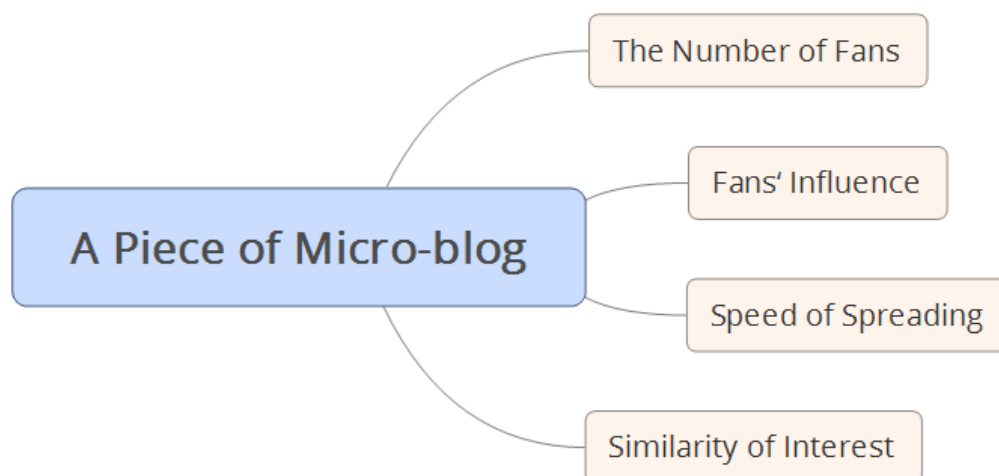
Figure 8: Effects of Micro-Bo spreading

Let's assume that the number of fans that a general microblogging user has is Tnof, the percentage of his active fans is Phy and the proximity of the fans who has the same users with this user is Soi.

So, the number of the people who are willing to repost the same micro-blog, which we call *first-grade repost*, is:

$$Tnof1*Phy1*Soi1$$

According to the investigated data, the reposting volume of a piece of common micro-blog is approximately 5 times, then we get the number of the *second-grade reposting* people:

$$(Tnof1*Phy1*Soi1)*(Tnof2*Phy2*Soi2)$$

By such analogy, the number of *the fifth-grade reposting people* is conducted:

$$\prod_{i=1}^{5}Tnofi*Phyi*Soii$$

Figure 9 : Transmition of a piece of micro-blog

Therefore, the total number of the people seeing this piece of micro-blog is:
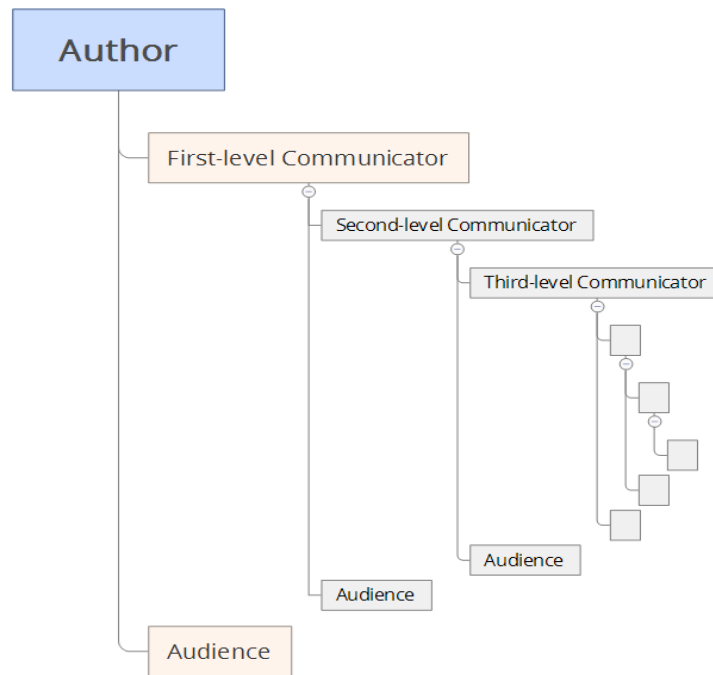
$RSD =$

$Tnof1 * Phy1 + Tnof1 * Phy1 * Soi1 * (Tnof2 * Phy2) +$

$Tnof1 * Phy1 * Soi1 * (Tnof2 * Phy2 * Soi2) * (Tnof3 * Phy3) +$

$Tnof1 * Phy1 * Soi1 * (Tnof2 * Phy2 * Soi2) *$

$(Tnof3 * Phy3 * Soi3) * (Tnof4 * Phy4) +$

$Tnof1 * Phy1 * Soi1 * (Tnof2 * Phy2 * Soi2) *$

$(Tnof3 * Phy3 * Soi3) * (Tnof4 * Phy4 * Soi4) * Tnof5 * Phy5 +$

$Tnof1 * Phy1 * Soi1 * (Tnof2 * Phy2 * Soi2) *$

$(Tnof3 * Phy3 * Soi3) * (Tnof4 * Phy4 * Soi4) * (Tnof5 * Phy5 * Soi5) * (Tnof6 * Phy6)$

Under a series of calculation, the outcome is amazing that an ordinary user on Weibo can affect the comments of a TV show by a casual reposting. That means the Weibo account of an ideal production team is obliged to attract lots of fans and pose some speculations of the teleplay online

● **Volume of Baidu Search & Youko clicks**

We recommend that the volume of Baidu Search & Youko clicks belongs to one type of influential factor, more accurately, the factor that focuses on the entertainment publicity.

Chart9 : The Baidu Search Volume of Teleplays

Rank	Name	Volume
1	*Dear Translator*	2500000
2	*Taking the Wrong Car*	1180000
3	*Cooked Women Detective*	549000
4	*Female doctor Ming Fei Story*	2500000
5	*Young Marshal*	9320000
6	*Every Day There Is Love of Human Love*	730000
7	*Small Husband*	2810000
8	*Ode to Joy*	44900000
9	*Lonely Empty Court for Late Spring*	2450000
10	*Good Sir*	16900000

Ode to Joy is such a teleplay whose audience rating is less, while still receive lots of positive comments on the net.

It's really hard for us to look for the volume of Youko clicks with messy broadcasting environment, but **it's clear that the proper propagandas towards the major video website could benefits the audience ratings.**

4.2 What Contributes to a Popular TV Program

Based on the recent ranking list of TV program(***Appendix V*** for more details), we make an all-rounded analysis and attempt to study the factors causing the popularity of TV program.

- **Audience Tendency of choosing the Fine Traditional TV programs**

The list shows obviously that *Happy Camp, If You Are the One and Avenue of Stars* are three programs with long history and high quality. When someone watch a TV program, they tend to choose one both qualified with the two factors. Moreover, these factors contained the other inferior factors: stars on the show, the creativity of the show and scores.

As for *Happy Camp,* we cannot deny its innovation and inner attraction to the stars. Thus its 7.2 score is relatively higher. *If you are the one* is a blind date program, though lack of innovation, it enjoys great words of mouth among the audience with the score of 6.7. And when it comes to *Avenue of Stars*, its high score 7.3 are marked by the ordinary people who support its program concept.

- **Innovation**

Among all the entertainment program, Comedy Story and Tonight Paramount are qualified a precious quality, the great innovation.

They both integrate all the elements that audience prefer to watch into a new formation, including the funny comedians and short sketch only seen on the Spring Festival gala before.

In conclusion, what really attracts the audience is the factors above, **the fine tradition** and **the precious innovation.**

5. Q4：Flows of Recommendation System& Modeling

5.1 Recommendation System

In nowadays' intelligence era, most experiential apps on our smart phones will give the users some recommendations or some personalized predictions during the frequent usages, such as recommended commodities on taobao, recommended videos on video website etc. We try to figure out the connection between the app's usage records and the reasonable recommendation.

The following designed schematic flow explains it better:
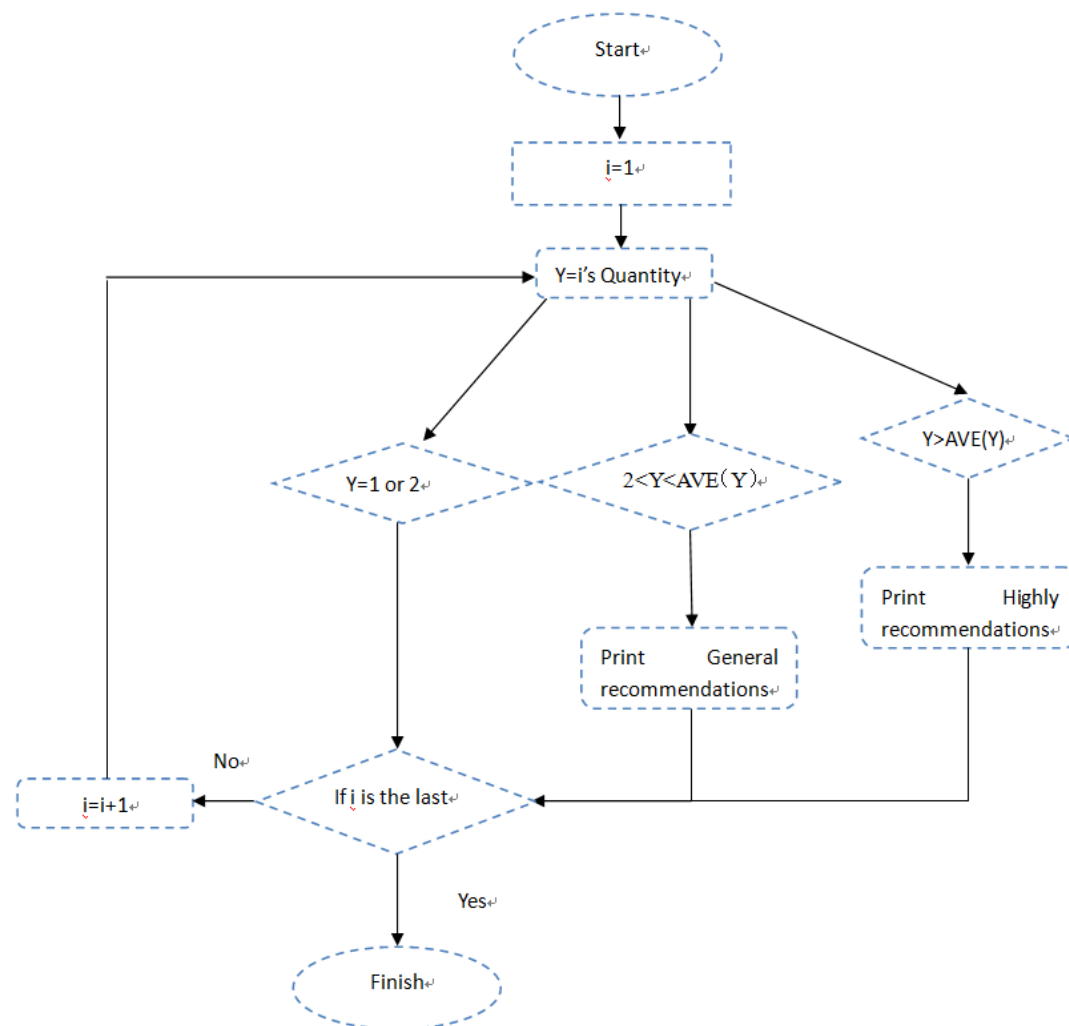
Figure 10: Schematic Flow of Recommendation System

First, the recommendation system will distinguish the frequency **i** of watching a certain type of the video:

Only when **i** exceeds 3, the system will record the type the video belongs to, otherwise the record won't be recorded. The larger value of **i** is, the more accurate videos type chosen by the users will be calculated.

5.2 Exemplification of the Recommendation System

We exemplify our system by catting some data of two frequently-used apps, *Pudding animation* and *Bilibili*.
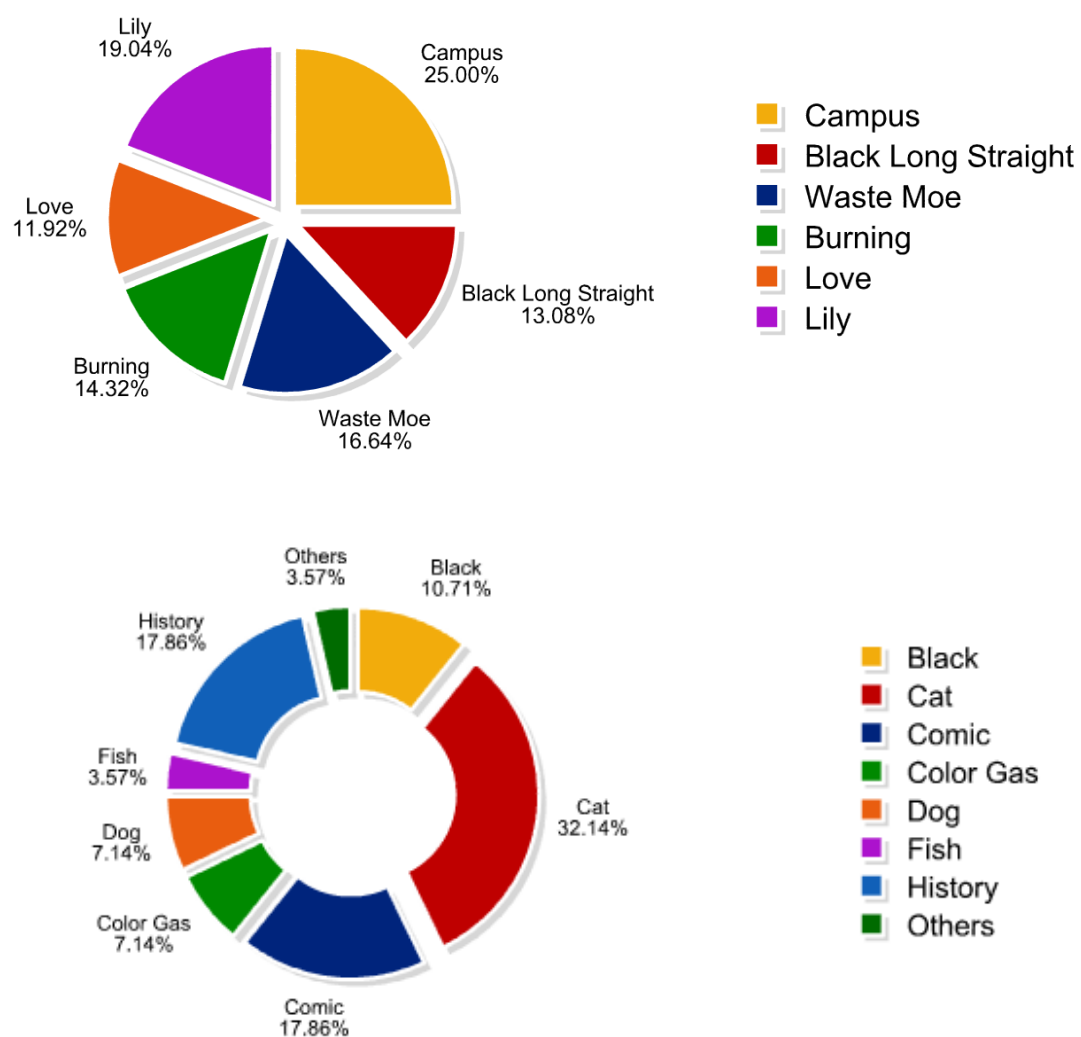
Figure 10: Historical Usage Records of *Pudding animation* and *Bilibili*.

Information on the figures quit conforms to the writer's current situation, thus indirectly reflects the feasibility of the system.

5.3 Suitable script content for each local TV station

Chart11: Top 11 TV programs of Shanghai Dragon TV
for the first quarter in 2016

Rank	Name	Ratings（%）
1	*Jin X ing and his friends*	1.742
2	*Happy comedy prequel*	1.418
3	*East to see female doctors*	1.017
4	*China Star dream sound of the peak duel*	0.862
5	*China Star Dreams*	0.826

	Champion Night	
6	*My sister prequel*	0.801
7	*East to see the moon month*	0.718
8	*Oriental drama*	0.707
9	*Happy comedy people happy twist Shen Teng*	0.654
10	*Four classic launched special programs*	0.593
11	*Decoding the voice of China Xingmeng*	0.585

We select some data from the TV programs higher ranked on the Shanghai Dragon TV and consider their popularity from the following aspects:

Type of the TV programs is first.

Resemblance of the type of TV programs is annoying audience's tastes. So the first innovators are likely to receive the preference and meet the demands from the picky audience like *Happy comedy people.*

Shows' broadcasting time is the second.

The percentage of TV audience who more often than not choose the Prime time to watch TV accounts for the most. So the qualified teleplays arranged in the proper broadcasting time draw more audience attention.

Ⅲ. Strength and Weakness

Like any model, the one has its strengths and weakness within the limited time. Some of the major points are presented below.

6. Strengths

● **Comprehensive**

We've finished analysis of all aspects of the questions, which contributes to better applicability.

● **Controllability**

It's less complicated to use our model to solve some problem also it's controllable.

● **Good flexibility**

Thanks to the rational strategy, our model can deal with various kinds of situations to some extent.

- **Simplicity**

Our model is clear and easy to understand.

7. Weaknesses

- **Poor Objectivity**

    Since lots of information comes from our subjective comprehension, some uncertainties may cause imprecise.

- **Limited data**

    We cannot finish it perfectly because parts of information is not open to the public, which also leads to the poor objectivity.

IV. References

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[5] Jiuxin Cao,Jianglin Wu.Sina Microblog Information Diffusion Analysis and Prediction[J] Chinese Journal of Computers,2014,37(4):783-786

[6] November 19, 2016 variety show ratings [EB/OL] http://www.tvtv.hk/archive s/4518.html

[7] 2016 first quarter ratings report [EB/OL] http://wenku.baidu.com/link?url=LS SQahtEigqx7H_WpFy_mx4-GyLZc3TiatgEkmdVNNR4NQRjThbaIGrMgeDIyO4Bij A93W49zQeBaHeekWlNnVFcatvVgEDL_p0e3yK9Moa

V. Appendix

Appendix I

```
>>
x=[2013.25,2013.50,2013.75,2014,2014.25,2014.50,2014.75,2015,2015.25,2016.50];
>> y=[48.6,52.8,58.9,61.4,66.6,69.7,76.6,80.6,89,93];
>> cftool

Smoothing spline:
        f(x) = piecewise polynomial computed from p
Smoothing parameter:
        p = 0.9976636

Goodness of fit:
  SSE: 4.3
  R-square: 0.9979
  Adjusted R-square: 0.9942
  RMSE: 1.138

>>
 x=[1978:1:2014];
>>
y=[9.6259,9.7542,9.8705,10.0072,10.1654,10.3008,10.4357,10.5851,10.7507,10.93,1
1.1026,11.2
704,11.4333,11.5823,11.7171,11.8517,11.985,12.1121,12.2389,12.3626,12.4761,12.5
786,12.6743,12.7627,12.8453,12.9227,12.9988,13.0756,13.1448,13.2129,13.2802,13.
345,13.4091,13.4735,13.
5404,13.6072,13.6782];
>> cftool
```

Appendix II

Number	Name of News	One-day Videoview volume
1	Xingfang Xie Responds to Adulterous Dan Lin: Forgiveness and Toleration	1616730
2	Rong Ma Appears with Pregnancy, Avoiding Lens Rrgardless of Her Son	433178
3	Junjie Qin Occupies in Work, Falling in Love and Addicted to iPad	18721
4	Zhang Wen Writes to Admit His Bad Temper and Unpopularity	44607

5	Gengxin Lin Dress Himself Broken Jacket, His fans yelling for his handsomeness.	7631
6	Jianhua Huo Gonna to Cry 'cause Engorging, Replys to His Fans Don't Call Him "Chi Huo"	11844
7	Mi Yang involved into face-fitting again, more beautiful appearance than before	54388
8	Xiaogang Feng negotiates with Jianlin Wang, due to his *Jinlian Pan* unentertained in Wanda Theatre.	36505
9	The new *Deep Love Deep Rain* is to be filmed. invited LiYing Zhao & Kai Wang.	27608
10	Xiaogang Feng along with Bingbing Fan and Chen Li attends the opening of Huayi brothers' film,	8901
11	Dressed up as Mingsi Dao on *Mars CIA*, Zhiqian Xue is complained to be nasty.	10358
12	Ling Jia's company is invested, she is excepted to be multimillionaire.	43555
13	Ling Guan & Tian Liang have been appeared on the same screen since 23 years ago, along with disclosure of WeChat	11865
14	Nailiang Jia is interviewed on Lynx double eleven party, who is hurt his fingers due to his striving for bonus for fans.	8035
15	Dong Wang's new teleplay is on show, who is excepted to compete with Xiubo Wu.	12693
16	TFBOYS draw in "aerospace", the script is infant.	5323
17	Yishan Zhang & Yun He's naked performance was exposed in the film *Running for the roads*.	9322
18	Photos of Yuan Wang's assistant is posted and netizens make fun of it for the resemblance with Baoqiang Wang.	4714
19	Xie Na's late-night fitness shows her "Peach Buttocks"	80439
20	Small S show the next show cheat Cai Kangyong lie and choke Lin Chi-ling is the box office poison	11486
21	Zhou Dongyu was exposed to chaos to change the movie lines warm male Takeshi Kaneshiro could not help but be angry	9456
22	Huo Jianhua bluntly hit the new film was the most powerful play with her daughter in the scene to expose each other detonated laugh	22338
23	The most beautiful pregnant women Baby pregnant belly positive exposure uplift is obvious	17877
24	"Daddy Where" Ala Lei boasted to marry "Daddy"	24704
25	Sun Qian quite pregnant belly appearance mothers Fan children full exposure: because of pregnancy fat 20 pounds	10189
26	Chen Sicheng occupies the screenwriter for his wife to create a "great future" old opera who will play so Yuan Hong Guo Caijie pressure	8229
27	Jay Chou about ten thousand kilometers marathon winner or award concert tickets	5271
28	Sheer MV woman wore no clothes into the mirror is not the film has been	35558

	banned by the television station	
29	Myolie Wu filming gold fishing shelves made promise promised to shoot the film wholeheartedly into the make man	2951
30	Guo jingming first talk about "jazz track" word of mouth box office level have been scolded	60
31	"Big return" and other 27 animated feature film the 89th session of the Oslo	3762
32	Scarlett Johansson self-disclosure of self-given special gifts gift shouted fans intimate	4089
33	Wang Zi Jian Zhang Wei met "mutual loss" gunpowder flavor for the "sum" imitate the big teacher singing	2137
34	Pay the price to be rescinded red artist redemption how much money	8741
35	Ang Lee: actors grab the play is bad habits Cheng Yi eyes praised to their boldly invited to play	4490
36	An Yixuan praise Anzai Yin is a warm man refused to respond to emotional problems	15007
37	Huang Yi suspected plastic surgery over zombie face	13580
38	Wang Jiaer Funny autumn pants for surprises He Jiong revealed admission details have been recovered	6385
39	Golden Horse Awards and then announced the 10 guests, such as Chan Chan Chen Zhen will be present	7766
40	Xue Zhiqian strength interpretation of the six step change zombie Zhang Li is the most looking forward to her boyfriend was zombie bite	4209
41	Feng Xiaogang: Bingbing make the protagonist only for self-challenge blame this life and then lead seven films	1812
42	Wu Jianhao memories of "meteor garden" from goose bumps usually online shopping photographic equipment	18160
43	Beckham tattoo tattoo affair once again reiterated the gratitude of Chinese fans	7853
44	King satirical instrument has been reported to have revealed great scheming bitch	12775
45	Exposure "great cause of the army" according to Li Yi Feng Liu Hao Ran into the group	8990
46	Fan Tai Bing imitation makeup very high degree of similarity	29528
47	Sun Li, a lot of ten-year-old documents according to Meng Wu change handsome girl beautiful facial features	20230
48	Ala Lei now rely on the value of glasses when she was a child cute	634598
49	Cao Yun Jin Jiang Ruolin both absent new film publicity Yuan Chengjie claiming to know all but can not say	4922
50	Wang Dongcheng self-proclaimed "walking hormone" cold joke skills full point of the field detonated laugh	4325

Appendix III

Abstracts of the analysis

	Case					
	Included		Excluded		Total	
	Number	Percent	Number	Percent	Number	Percent
One-day Videoview volume * VAR00001	50	96.2%	2	3.8%	52	100.0%

Report

One-day Videoview volume

VAR00001	Average	Number	SD
1.00	68157.90	50	247200.412
Total	68157.90	50	247200.412

Appendix IV

Broadcast Data of TV series Dear translator on Hunan Satellite TV

Date	Episode	Citywide Audience Ratings			Nation wide Audience Ratings		
		Ratings(%)	Market Shares(%)	Rank	Ratings(%)	Market Shares(%)	Rank
2016/5/24	1-2	1.413	4.256	1	1.76	5.56	1
2016/5/25	3-4	1.518	4.338	1	1.83	7.62	1
2016/5/26	5-6	1.839	5.234	1	1.56	8.33	1
2016/5/27	7	1.43	6.176	1	1.45	6.66	1
2016/5/28	8	1.448	6.123	1	1.56	6.44	1
2016/5/29	9-10	1.982	5.236	1	1.64	7.22	1
2016/5/30	11-12	2.175	5.689	1	1.46	8.01	1
2016/5/31	13-14	2.354	6.345	1	1.78	5.87	1
2016/6/1	15-16	2.344	6.367	1	1.54	5.99	1
2016/6/2	17-18	2.357	6.018	1	2.28	6.24	1
2016/6/3	19	1.15	5.976	1	3.54	7.16	1
2016/6/4	20	2.057	5.378	1	2.67	8.67	1
2016/6/5	21-22	2.321	5.999	1	1.99	8.06	1
2016/6/6	23-24	2.28	6.444	1	2.87	7.92	1
2016/6/7	25-26	2.167	6.552	1	3.01	6.54	1
2016/6/8	27-28	2.465	7.149	1	3.67	7.82	1

2016/6/9	29-30	2.31	7.142	1	3.22	6.33	1
2016/6/10	31	1.629	5.233	1	2.56	6.98	1
2016/6/11	32	1.64	5.02	1	4.55	5.89	1
2016/6/12	33-34	2.139	6.249	1	1.66	5.67	1
2016/6/13	35-36	2.02	5.93	1	2.44	6.42	1
2016/6/14	37-38	2.02	5.948	1	2.98	8.76	1
2016/6/15	39-40	2.026	6.54	1	3.56	7.98	1
2016/6/16	41-42	2.192	6.639	1	1.32	5.46	1
2016/6/17	43	2.148	5.198	1	3.06	6.89	1
2016/6/18	44	1.585	5.98	1	3	8.97	1
2016/6/19	Refinement	1.88	5.647	1	2.88	7.93	1
Average		2.05%	6.19%	1	2.63%	8.74%	1

Appendix V

Name	Channel	Start Time	Duration	End Time	Ratings (%)	Market Share (%)
Family good partner	Central three	19:32:38	0072:10	20:44:48	1.4908	4.1821
Happy Camp	Hunan Satellite TV	20:18:34	100:45:00	21:59:19	1.2321	3.8215
The most glamorous country drama	Shandong Satellite TV	21:19:46	0008:00	21:27:46	1.0477	3.369
Edge to non-Shing disturbance	Jiangsu Satellite TV	21:11:09	0099:19	22:50:28	1.0472	4.4461
Avenue of Stars	China Central Television Channel	19:58:56	103:05:00	21:42:01	1.0259	3.0187
Comedy Story	Zhejiang Satellite TV	20:32:36	0084:15	21:56:51	0.9068	2.8497
Happy bills pay for you	Central three	20:49:23	0085:30	22:14:53	0.8721	2.9925
First year graduation season	Hunan Satellite TV	21:59:48	100:22:00	23:40:10	0.6846	1.9

Tonight the opening of Paramount show	Shanghai Oriental TV	20:30:01	0008:49	20:38:50	0.6599	1.5478
Tonight Paramount	Shanghai Oriental TV	20:38:50	0069:10	21:48:00	0.6425	1.9906