Question 4

Sahil Bhugwan[a]

[a] *Github- https://github.com/SBhugwan*

Abstract

Given the age of streaming launching a new streaming serives is the way to go however questions must be asked given Netflix recent decline. This will look to see in SU Streaming should lauch its own service.

Keywords: Netflix \

1. Introduction

There are multiple streaming services in the world such as Disney plus, Netflix etc. However Netflix was one of the first streaming services in the world. However the question remains has the market become to saturated given the decline in Netflix users

2. Trends Over time

The first thing that i will be looking at is the content on Netflix over time

Email address: 21075492@sun.ac.za (Sahil Bhugwan)

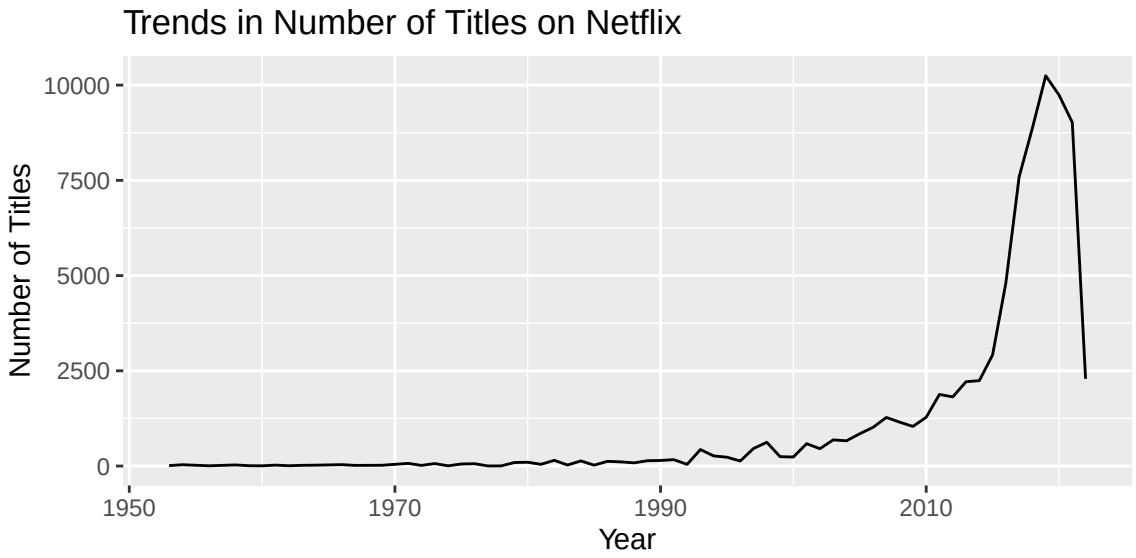

Figure 2.1: Content on Netflix over time

It can be see from this graph that from the late 1990s netflix really starting to take off. However from 2010 there was an explosion in the content. this lasted up an till 2015 as other streaming services started to enter the market.

3. Distribution of Content

Given that Netflix is a streaming platform it offers both movies and shows

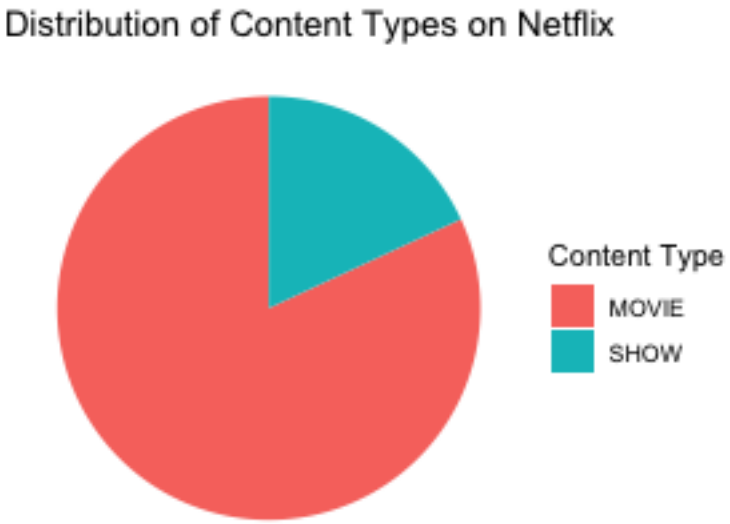

Figure 3.1: Pie chart of content

Is is clearly evident from figure 3.1 that Netflix offers more movies than shows. To look as this more clearly we will look the bar chart to show the difference in content

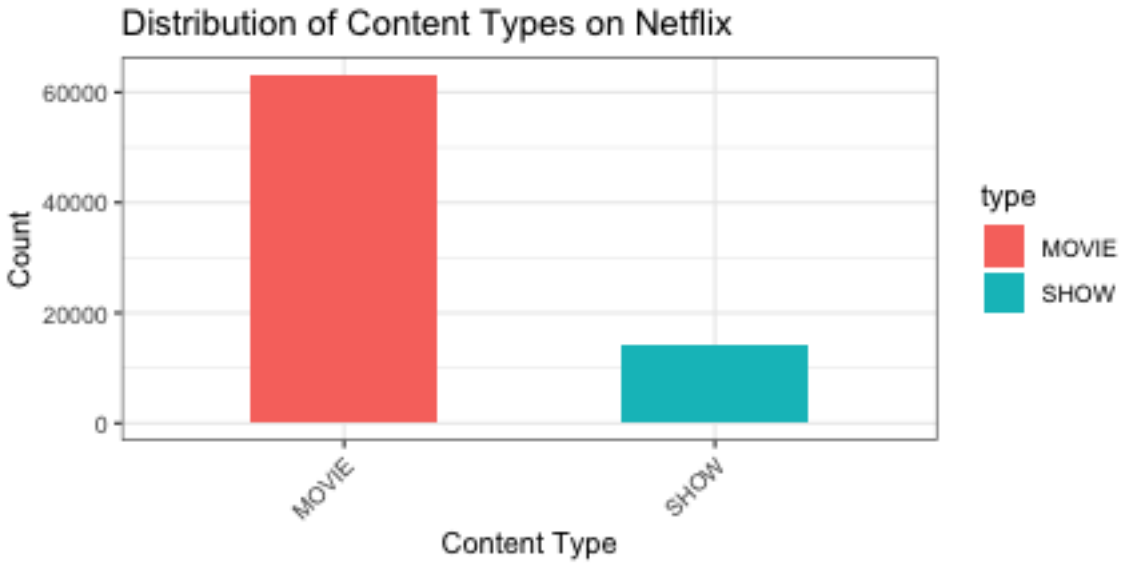

Figure 3.2: Bar graph

It is clearly evident that netflix platform hosts more movies that shows.

However one must question whether given that shows dominate on netflix how do they rate compared to shows.

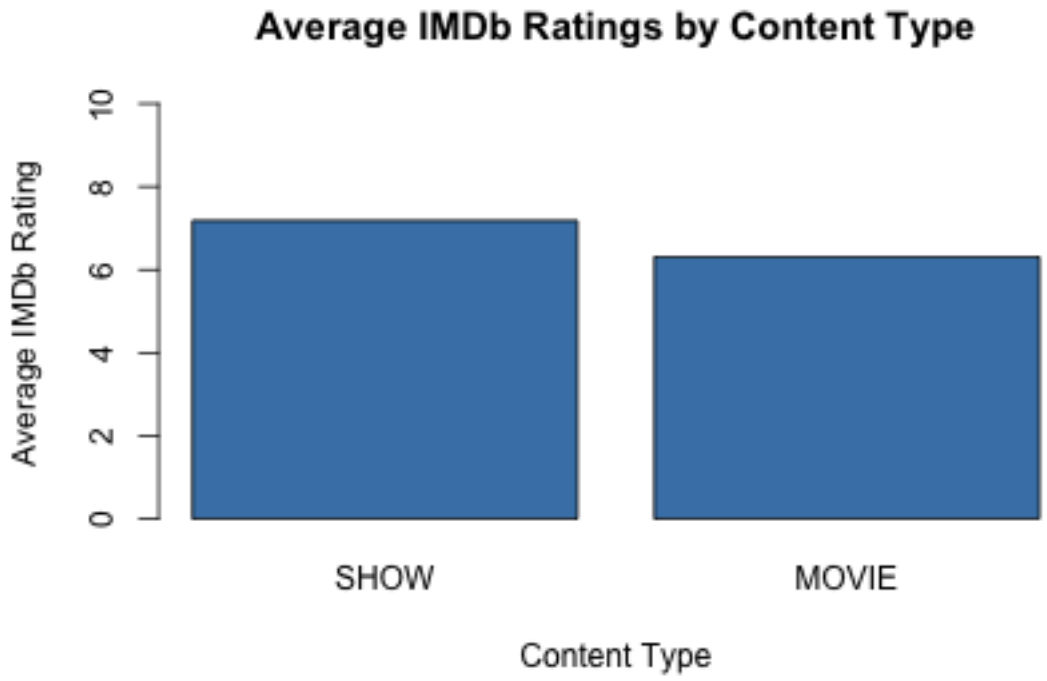

Figure 3.3: Average ratings

4. Popular people on Netflix

If SU wants to launch its own service it should consider which actors/actress has the most content on netflix

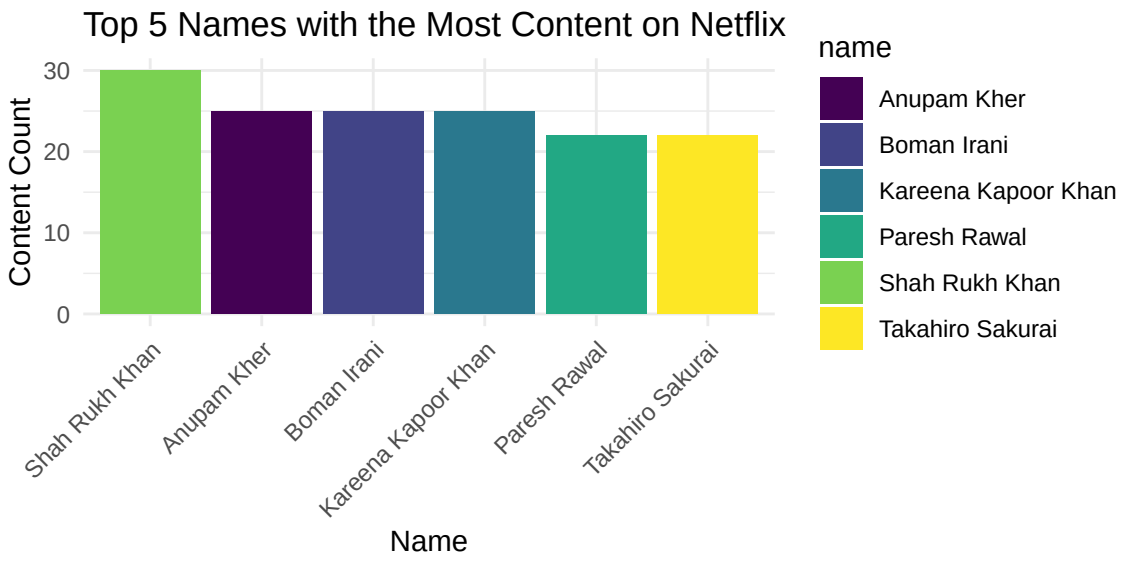

Figure 4.1: Common Stars on Netflix

Therefore Shah Rukh Khan has the most content on netflix, thus if SU has its own streaming service it should include some of his content. This is because if we look at the Figure 4.2 we can see that he has a high popularity as well as the content he is in tends to be rated above 6 on IMDb.

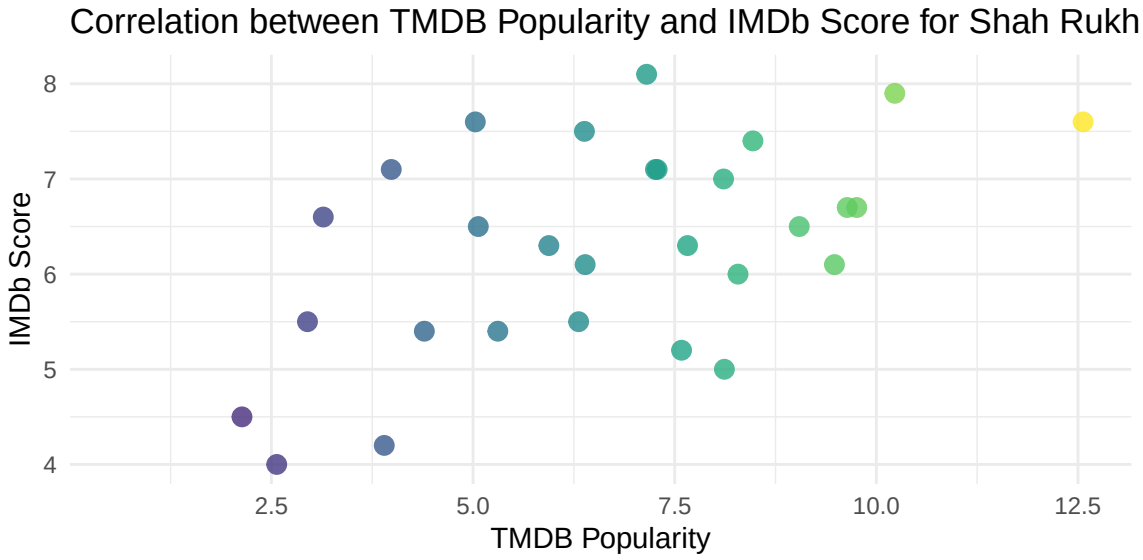

Figure 4.2: Correlation

To reference the plot above, add a "\label'' after the caption in the chunk heading, as done above. Then reference the plot as such: As can be seen, Figures 4.1 and 3.1 are excellent, with Figure 3.1 being particularly aesthetically pleasing due to its device setting of Tikz. The nice thing now is that it correctly numbers all your figures (and sections or tables) and will update if it moves. The links are also dynamic.

I very strongly suggest using ggplot2 (ideally in combination with dplyr) using the ggtheme package to change the themes of your figures.

Also note the information that I have placed above the chunks in the code chunks for the figures. You can edit any of these easily - visit the Rmarkdown webpage for more information.

5. Splitting a page

You can also very easily split a page using built-in Pandoc formatting. I comment this out in the code (as this has caused issues building the pdf for some users - which I presume to be a Pandoc issue), but you are welcome to try it out yourself by commenting out the following section in your Rmd file.

6. Methodology

6.1. Subsection

Ideally do not overuse subsections. It equates to bad writing.[1]

6.2. Math section

Equations should be written as such:

[1]This is an example of a footnote by the way. Something that should also not be overused.

$$\beta = \sum_{i=1}^{\infty} \frac{\alpha^2}{\sigma_{t-1}^2} \tag{6.1}$$
$$\int_{x=1}^{\infty} x_i = 1$$

If you would like to see the equations as you type in Rmarkdown, use $ symbols instead (see this for yourself by adjusted the equation):

$$\beta = \sum_{i=1}^{\infty} \frac{\alpha^2}{\sigma_{t-1}^2} \int_{x=1}^{\infty} x_i = 1$$

Note again the reference to equation 6.1. Writing nice math requires practice. Note I used a forward slashes to make a space in the equations. I can also align equations using **&**, and set to numbering only the first line. Now I will have to type "begin equation'' which is a native LaTeXcommand. Here follows a more complicated equation:

$$\begin{aligned}
y_t &= c + B(L)y_{t-1} + e_t \\
e_t &= H_t^{1/2} z_t; \quad z_t \sim N(0, I_N) \quad \& \quad H_t = D_t R_t D_t \\
D_t^2 &= \sigma_{1,t}, \ldots, \sigma_{N,t} \\
\sigma_{i,t}^2 &= \gamma_i + \kappa_{i,t} v_{i,t-1}^2 + \eta_i \sigma_{i,t-1}^2, \quad \forall i \\
R_{t,i,j} &= diag({Q_{t,i,j}}^{-1}).Q_{t,i,j}.diag(Q_{t,i,j}^{-1}) \\
Q_{t,i,j} &= (1 - \alpha - \beta)\bar{Q} + \alpha z_t z_t' + \beta Q_{t,i,j}
\end{aligned} \tag{6.2}$$

Note that in 6.2 I have aligned the equations by the equal signs. I also want only one tag, and I create spaces using "quads''.

See if you can figure out how to do complex math using the two examples provided in 6.1 and

6.2.

7. Results

Tables can be included as follows. Use the *xtable* (or kable) package for tables. Table placement = H implies Latex tries to place the table Here, and not on a new page (there are, however, very many ways to skin this cat. Luckily there are many forums online!).

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
1	21.00	6.00	160.00	110.00	3.90	2.62	16.46	0.00	1.00	4.00	4.00
2	21.00	6.00	160.00	110.00	3.90	2.88	17.02	0.00	1.00	4.00	4.00
3	22.80	4.00	108.00	93.00	3.85	2.32	18.61	1.00	1.00	4.00	1.00
4	21.40	6.00	258.00	110.00	3.08	3.21	19.44	1.00	0.00	3.00	1.00
5	18.70	8.00	360.00	175.00	3.15	3.44	17.02	0.00	0.00	3.00	2.00

Table 7.1: Short Table Example

To reference calculations **in text**, *do this:* From table 7.1 we see the average value of mpg is 20.98.

Including tables that span across pages, use the following (note that I add below the table: "continue on the next page' '). This is a neat way of splitting your table across a page.

Use the following default settings to build your own possibly long tables. Note that the following will fit on one page if it can, but cleanly spreads over multiple pages:

Table 7.2: Long Table Example

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
	21.00	6.00	160.00	110.00	3.90	2.62	16.46	0.00	1.00	4.00	4.00
	21.00	6.00	160.00	110.00	3.90	2.88	17.02	0.00	1.00	4.00	4.00

Continued on next page

Table 7.2: Long Table Example

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
	22.80	4.00	108.00	93.00	3.85	2.32	18.61	1.00	1.00	4.00	1.00
	21.40	6.00	258.00	110.00	3.08	3.21	19.44	1.00	0.00	3.00	1.00
	18.70	8.00	360.00	175.00	3.15	3.44	17.02	0.00	0.00	3.00	2.00
	18.10	6.00	225.00	105.00	2.76	3.46	20.22	1.00	0.00	3.00	1.00
	14.30	8.00	360.00	245.00	3.21	3.57	15.84	0.00	0.00	3.00	4.00
	24.40	4.00	146.70	62.00	3.69	3.19	20.00	1.00	0.00	4.00	2.00
	22.80	4.00	140.80	95.00	3.92	3.15	22.90	1.00	0.00	4.00	2.00
	19.20	6.00	167.60	123.00	3.92	3.44	18.30	1.00	0.00	4.00	4.00
	17.80	6.00	167.60	123.00	3.92	3.44	18.90	1.00	0.00	4.00	4.00
	16.40	8.00	275.80	180.00	3.07	4.07	17.40	0.00	0.00	3.00	3.00
	17.30	8.00	275.80	180.00	3.07	3.73	17.60	0.00	0.00	3.00	3.00
	15.20	8.00	275.80	180.00	3.07	3.78	18.00	0.00	0.00	3.00	3.00
	10.40	8.00	472.00	205.00	2.93	5.25	17.98	0.00	0.00	3.00	4.00
	10.40	8.00	460.00	215.00	3.00	5.42	17.82	0.00	0.00	3.00	4.00
	14.70	8.00	440.00	230.00	3.23	5.34	17.42	0.00	0.00	3.00	4.00
	32.40	4.00	78.70	66.00	4.08	2.20	19.47	1.00	1.00	4.00	1.00
	30.40	4.00	75.70	52.00	4.93	1.61	18.52	1.00	1.00	4.00	2.00
	33.90	4.00	71.10	65.00	4.22	1.83	19.90	1.00	1.00	4.00	1.00
	21.50	4.00	120.10	97.00	3.70	2.46	20.01	1.00	0.00	3.00	1.00
	15.50	8.00	318.00	150.00	2.76	3.52	16.87	0.00	0.00	3.00	2.00
	15.20	8.00	304.00	150.00	3.15	3.44	17.30	0.00	0.00	3.00	2.00
	13.30	8.00	350.00	245.00	3.73	3.84	15.41	0.00	0.00	3.00	4.00
	19.20	8.00	400.00	175.00	3.08	3.85	17.05	0.00	0.00	3.00	2.00
	27.30	4.00	79.00	66.00	4.08	1.94	18.90	1.00	1.00	4.00	1.00
	26.00	4.00	120.30	91.00	4.43	2.14	16.70	0.00	1.00	5.00	2.00
	30.40	4.00	95.10	113.00	3.77	1.51	16.90	1.00	1.00	5.00	2.00
	15.80	8.00	351.00	264.00	4.22	3.17	14.50	0.00	1.00	5.00	4.00
	19.70	6.00	145.00	175.00	3.62	2.77	15.50	0.00	1.00	5.00	6.00
	15.00	8.00	301.00	335.00	3.54	3.57	14.60	0.00	1.00	5.00	8.00

Continued on next page

Table 7.2: Long Table Example

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
	21.40	4.00	121.00	109.00	4.11	2.78	18.60	1.00	1.00	4.00	2.00

7.1. Huxtable

Huxtable is a very nice package for making working with tables between Rmarkdown and Tex easier.

This cost some adjustment to the Tex templates to make it work, but it now works nicely.

See documentation for this package here. A particularly nice addition of this package is for making the printing of regression results a joy (see here). Here follows an example:

If you are eager to use huxtable, comment out the Huxtable table in the Rmd template, and uncomment the colortbl package in your Rmd's root.

Note that I do not include this in the ordinary template, as some latex users have complained it breaks when they build their Rmds (especially those using tidytex - I don't have this problem as I have the full Miktex installed on mine). Up to you, but I strongly recommend installing the package manually and using huxtable. To make this work, uncomment the *Adding additional latex packages* part in yaml at the top of the Rmd file. Then comment out the huxtable example in the template below this line. Reknit, and enjoy.

Table 7.3: Regression Output

	Reg1	Reg2	Reg3
(Intercept)	-2256.361 ***	5763.668 ***	4045.333 ***
	(13.055)	(740.556)	(286.205)
carat	7756.426 ***		7765.141 ***
	(14.067)		(14.009)
depth		-29.650 *	-102.165 ***
		(11.990)	(4.635)
N	53940	53940	53940
R2	0.849	0.000	0.851

*** p $<$ 0.001; ** p $<$ 0.01; * p $<$ 0.05.

FYI - R also recently introduced the gt package, which is worthwhile exploring too.

8. Lists

To add lists, simply using the following notation

- This is really simple
  - Just note the spaces here - writing in R you have to sometimes be pedantic about spaces...
- Note that Rmarkdown notation removes the pain of defining LaTeXenvironments!

9. Conclusion

I hope you find this template useful. Remember, stackoverflow is your friend - use it to find answers to questions. Feel free to write me a mail if you have any questions regarding the use

of this package. To cite this package, simply type citation("Texevier") in Rstudio to get the citation for Katzke (2017) (Note that uncited references in your bibtex file will not be included in References).

References

10 Katzke, N.F. 2017. *Texevier: Package to create elsevier templates for rmarkdown.* Stellenbosch, South Africa: Bureau for Economic Research.

Appendix

Appendix A

Some appendix information here

Appendix B