Project Report

On

STATISTICAL ANALYSIS ON THE VIEWERSHIP OF OTT AND THEATRES AND ITS ASSOCIATED FACTORS

Submitted

in partial fulfilment of the requirements for the degree of

BACHELOR OF SCIENCE

in

MATHEMATICS

by

GROUP3

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Under the Supervision of

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ERNAKULAM, KOCHI - 682011

APRIL 2023

ST. TERESA'S COLLEGE (AUTONOMOUS), ERNAKULAM

CERTIFICATE

This is to certify that the dissertation entitled, **STATISTICAL ANALYSIS ON THE VIEWERSHIP OF OTT AND THEATRES AND ITS ASSOCIATED FACTORS** is a bonafide record of the work done by **GROUP 3** under my guidance as partial fulfillment of the award of the degree of **Bachelor of Science in Mathematics** at St. Teresa's College (Autonomous), Ernakulam affiliated to Mahatma Gandhi University, Kottayam. No part of this work has been submitted for any other degree elsewhere.

Date:25-02-2023
Place: Ernakulam

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External Examiners

1:..... 2: .....

DECLARATION

I hereby declare that the work presented in this project is based on the original work done by me under the guidance of DR. URSALA PAUL, Assistant Professor and Head, Department of Mathematics, St. Teresa's College(Autonomous), Ernakulam and has not been included in any other project submitted previously for the award of any degree.

Ernakulam. **GROUP 3**

Date:25-02-2023

ACKNOWLEDGEMENT

I take this opportunity to express my sincere gratitude towards Dr.Ursala Paul of the Department of Mathematics and Statistics of St.Teresa's college who encouraged me to carry out this work. Her continuous invaluable knowledgeable guidance throughout this study helped me complete the work up to this stage. I will always be thankful to you in this regard. I also express my profound thanks to Smt.Betty Joseph , Smt.Anu Mary John and to Dr.Susan Mathew Panakkal of the Department of Mathematics and Statistics and all those who have indirectly guided and helped me in the completion of this project.

Ernakulam. **GROUP 3**

Date: 25-02-2023

Contents

1

INTRODUCTION

1.1 INTRODUCTION

The main purpose of this study is to identify and analyze the preference of audience towards OTT or Theatres to watch movies. Through the study we were able to figure out whether the preference towards viewing films in theatre or OTT is related to factors like age, gender etc, genre of movies is related to age group, gender etc, whether there is any relation between age and screen time and we were able to check whether the preference towards OTT and theatre are in the same proportion.

1.1.1 OTT:Over the Top

OTT is a means of providing television and film content over the internet at the request and to suit the requirements of the individual consumer. This implies that a content provider is going over the top of existing internet services. Content creators use the popular streaming channels of the web to serve their work. Nowadays, the OTT platforms are attracting most internet users. There are many popular OTT platforms available. Some of them are, Amazon Prime, Netflix, and Youtube. OTT is not new, we are using them for more than a decade. But now, during the time of Covid, this industry witnessed a great amount of user attraction. As long as one has access to an internet connection – either locally or through a mobile network

he or she can access the complete Service at their leisure. OTT services are typically monetized via paid subscriptions, but there are exceptions. For example, some OTT platforms might offer in-app purchases or advertising.

1.1.2 Theatrical movie experience

A theatre is where films are shown for public entertainment. Movie theatres have undergone a lot of changes over the years. Multiscreen cinemas have grown in popularity, whereas single-screen cinemas have declined. Meeting friends and family for watching movies in the theatre improves relationships and bonding.
Theatres provide employment to many skilled and unskilled workers. To watch and experience 3D and 4D movies, many people have to go to theatres. Theatres were shut down for over two years due to Covid-19 pandemic. However, this is not the only factor in why people have begun to adore the OTT platform. The public does not appreciate the type of art and craft film that has recently been shown. People want something authentic rather than the same old love drama or over-VFX fighting scenes. That criterion can be accomplished pretty easily through OTT.

1.2 OBJECTIVES

The main objective is

1. To check whether the preference towards viewing films in theatre or OTT is related to age.
2. To check whether the preference towards viewing films in theatre or OTT is related to gender.
3. To find if genre of movies is related to age group.
4. To find if genre of movies is related to gender.
5. To know whether there is any relation between age and screen time.

6. **To check whether the preference towards OTT and theatre are in the same proportion.**

1.3 LITERATURE REVIEW

1. **IJMCJ - Indian Journal of Mass Communication and Journalism**

   The Indian Journal of Mass Communication and Journalism (IJMCJ) is an online, open access, peer reviewed, periodical quarterly international journal. A study on OTT content versus theatrical released cinema preferences among the urban population of Guwahati was conducted by the Royal School of Communication and Media, The Assam Royal Global University, Assam, India.

   Authors:

   - **Anindita Dey**
   - **Rahul Chanda**

   The research work was published on 30 March 2022. The objective of this research is to find out whether over-the-top channels had created an impact on the urban population of Guwahati, Assam in comparison to other film viewing channels and theatres. This study tries to investigate if OTT has taken over the films based on cost, content, characterization, and accessibility catered to its respective audience in the city. In this research, the researcher tries to find out whether the preferences of the viewers are diverting towards OTT content or it remains with commercial cinema released in theatres.

   The questionnaire was prepared on google forms so that it could be easily circulated online. The questionnaire link was randomly distributed on various digital media platforms. Those were Facebook, Instagram, WhatsApp, Gmail, and Messenger, some were collected by using the survey method. This survey was

conducted in Guwahati with views form 200 respondents out of which 82.5% are between 18-25 years, 12% are between 26-30 years, 4% are between 31-35 years, 2% belonged to the age group 36-40 years.

2. **International Journal on Transformations of Media, Journalism & Mass Communication**

   International Journal of Journalism and Mass Communication is a peer reviewed, international journal eliminates the need for permissions to reproduce and distribute contents through open access model. The journal aims to keep updating information, research and development related to mass media studies in the new globalized world. A Study: OTT Viewership in "Lockdown" and Viewer's Dynamic Watching Experience was conducted by Makhanlal Chaturvedi National University of Journalism and Communication, Bhopal.

   - **Manoj Kumar Patel**
   - **Rahul Khadia**
   - **Gajendra Singh Awasya**

   The research work was published on 5 July 2020. The objective of this paper is to propose a conceptual framework which attempts to analyze the factors of viewership during lockdown in India. Also, it identifies the factors such as watching experience of viewers will affect the future footfalls of cinema hall.

   This study is based on Report analysis and survey method. Through reports and documents analysis we try to find the reasons behind the increasing amount of viewership of OTT video streaming services in India. Online Survey through google forms was conducted to know the reasons of sudden increases in OTT subscribers and its viewers also this change in watching habit will affect the future footfalls of cinema hall. Total 100 respondents from various universities and age group have been selected as

sample for data collection in which 89 respondents have respond. Data is analyzed through simple percentage analysis.

3. **International Journal for Research in Applied Science and Engineering Technology**

   International Journal for Research in Applied Science and Engineering Technology (IJRASET) is an international peer-reviewed, open-access and multidisciplinary online journal published for the enhancement of research in various disciplines of Applied Science & Engineering Technologies.

   A study of OTT vs. Cinemas: The Future Trend in the Movie and Entertainment Sector was conducted to understand and analysis the shift in content consumption medium from cinemas to Over-the-top platforms and its future implications.

   Authors:

   - **Aishwary Gaonkar**
   - **Shreyansh Jain**
   - **Rohan Dowerah**
   - **Jaskiran Atwal**
   - **Santoshkumar Dyavanpelli**

The purpose of this research is to understand the behaviour of movie and content watchers with respect to their preference of OTT over cinemas or vice-versa and predict how will it impact the future trends in the entertainment industry.
The data will be collected via an online survey of the viewers and audience of the OTT platforms and cinemas. The questionnaire will be focused upon examining the factors that influence the consumer psychology for choosing OTT or cinemas. Also, amongst the sample respondents, the judgement sampling will be vital to include relevant knowledgeable respondents as well as of all age groups, gender in groups, etc. About 107 responses were collected.

1.4 LIMITATIONS OF STUDY

Even though this study yielded major findings, there were a few limitations in our survey. In the survey, the age group under 13 was not taken into consideration. The survey was taken for the age group 13 and above. But due to time and restrictions, the survey was limited to only 419 participants. Since the responses were the personal choices of the respondents there is a chance that the data may or may not be biased.

2

METHODOLOGY

2.1 METHODS

The target population for the survey was the population from age 13 and above. Google form was circulated among the population of age 13 and above to conduct survey. The questionnaire consisting of 19 questions including age, gender, preference of OTT or Theatres, reason for their preference, screentime, genre of movie they would prefer to watch etc, was circulated.The obtained data were tabulated and analysed using Microsoft Excel, SPSS and R programming.

2.2 CHI-SQUARE TEST

The Chi-Square Test is an important test among the several tests of significance. It was developed by Karl Pearson in 1990. In general, the test that is used to measure the difference between what is observed and what is expected according to an assumed hypothesis is called Chi-Square Test. Simply we can say that Chi-Square Test is a relationship between two variables. H_0, that is the null hypothesis represents that there is no relation between two variables.H_1, that is the alternative hypothesis indicates that there exists a significant relation between two variables. The significant level is the probability of rejecting the null hypothesis, when it is true. In most of the cases, we use significant level as 0.05. First, we create the table of observed frequency from obtained data. Then, the expected frequency values

are calculated using the following equation:

(Row total $\times$ column total) $\div$ Grand total

Then, we create the table of expected frequency, we can calculate the Chi-Square value using the equation:

$$\frac{(observedvalue - calculatedvalue)^2}{Expectedvalue^2} = \sum \frac{(O_i - O_e)^2}{O_e^2}$$

$$\textbf{Chi-square} = \sum \frac{(O_i - O_e)^2}{O_e^2}$$

Tabular Chi-Square value can be obtained by using degrees of freedom and significant level.

$Degree\,of\,freedom = (column - 1)(rows - 1)$

Degrees of freedom refers to the maximum number of logically independent values, which are values that have the freedom to vary, in the data sample. If the calculated Chi-Square value is greater than the tabulated Chi-Square value, then we reject null hypothesis and accept alternate hypothesis.A p-value is a measure of the probability that an observed difference couldhave occurred just by random chance.The lower the p value the greater the statistical significance of the observed difference. In MS Excel,we calculate the p value. Then we compare the p value with significance level. If p value is greater than the significance level,we accept H_0.Hence we can say that there is no relation between two variables.

2.3 TESTING FOR PROPORTION IN A POPULATION

A population proportion, is a parameter that describes a percentage value associated with a population. consider the parameter p of population proportion. A test of proportion will assess whether or not

a sample from a population represents the true proportion from the entire population.

Critical Value Approach:

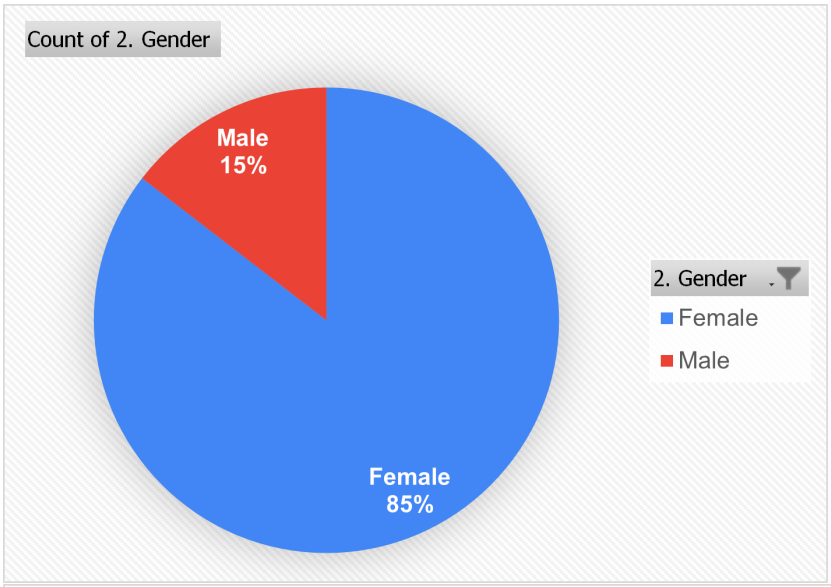
The steps to perform a test of proportion using the critical value approval are as follows:

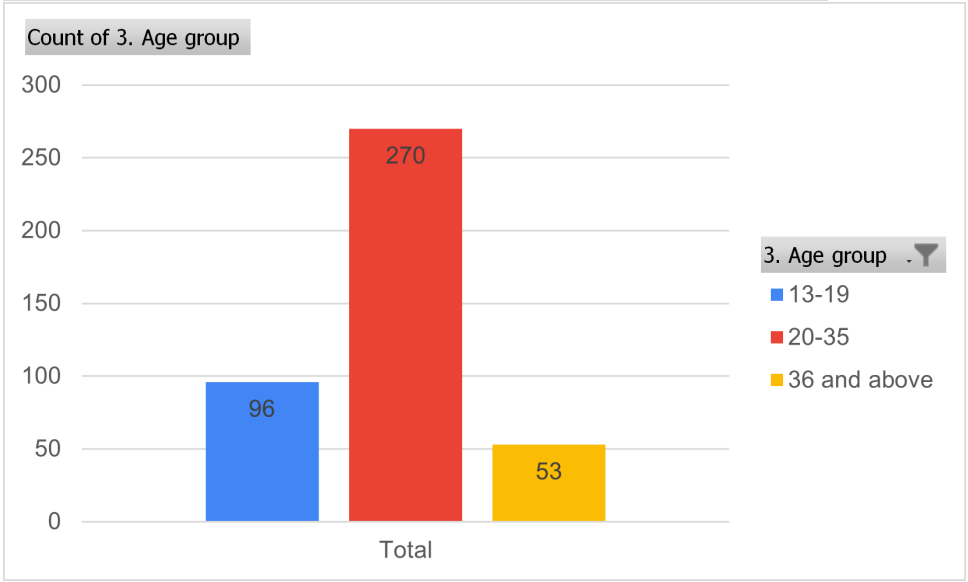
1. **State the null hypothesis H_0 and the alternative hypothesis H_1.**
2. **Calculate the test statistic: Z=** $\frac{p-P}{\sqrt{\frac{PQ}{n}}}$
   where p_0 is the null hypothesized proportion i.e., when H_0: p=p_0
3. **Determine the critical region.**
4. **Make a decision. Determine if the test statistic falls in the critical region. If it does, reject the null hypothesis. If it does not, do not reject the null hypothesis.**

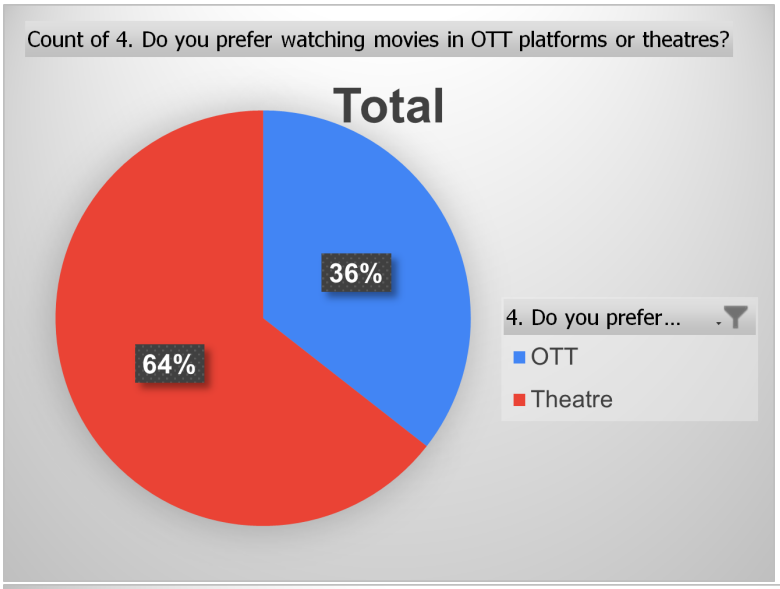
3

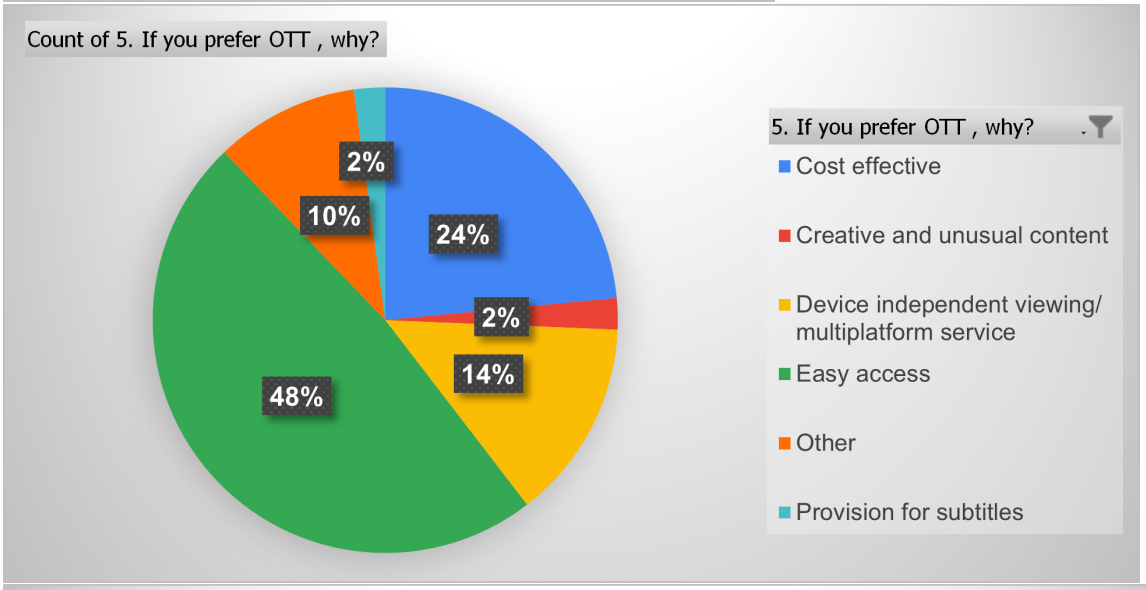
PRESENTATION OF DATA

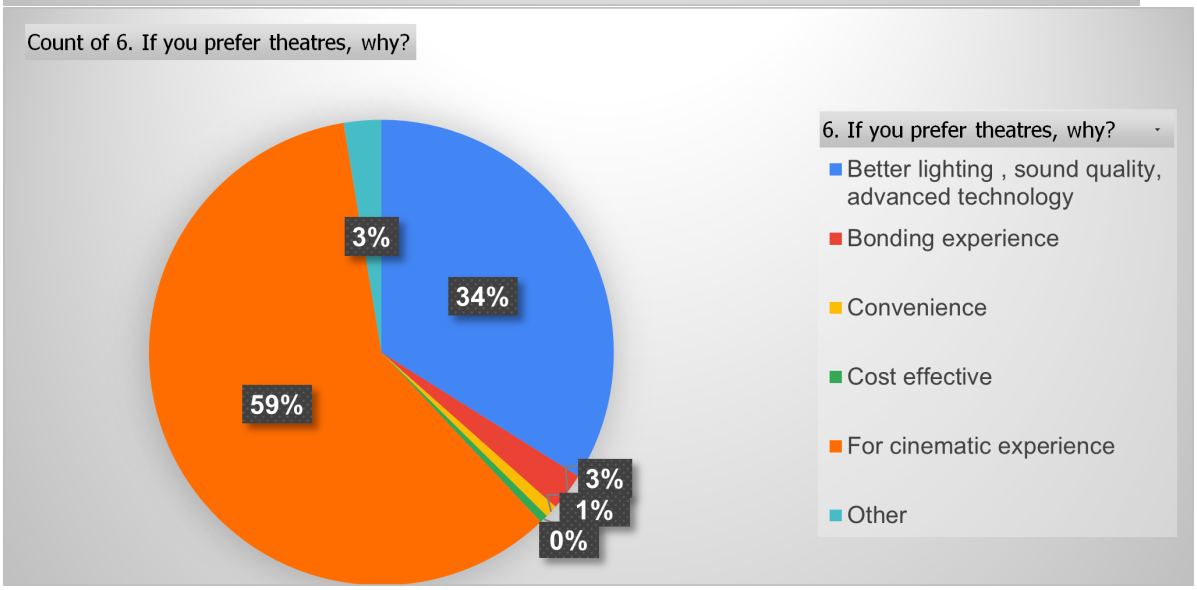
3.1 DATA PRESENTATION

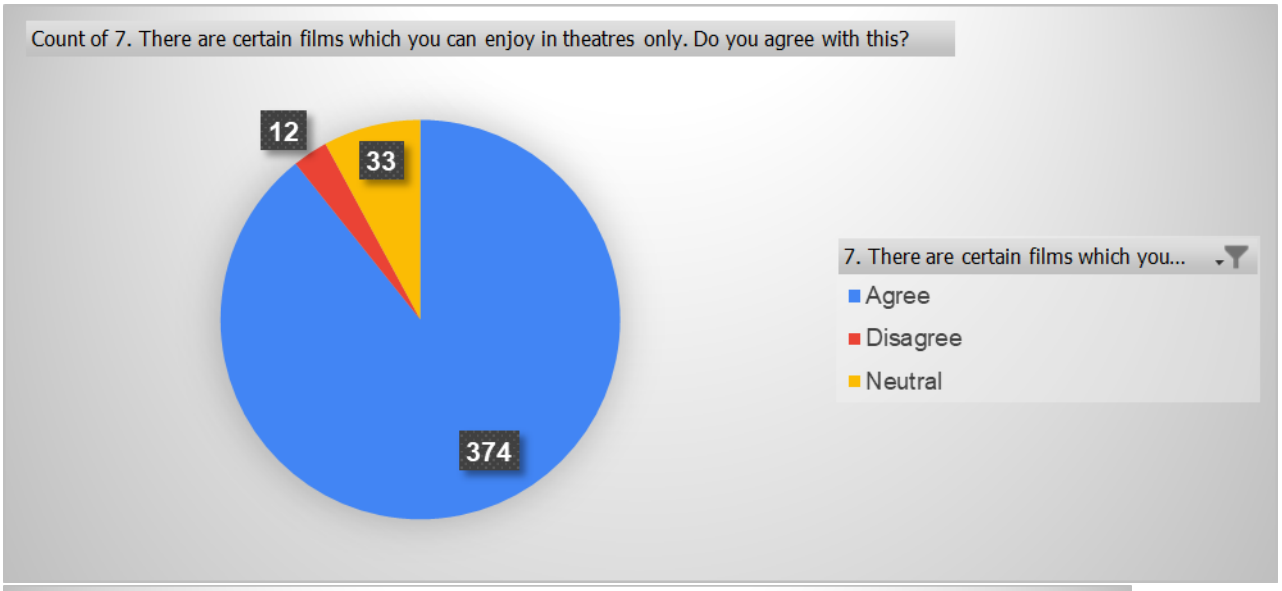


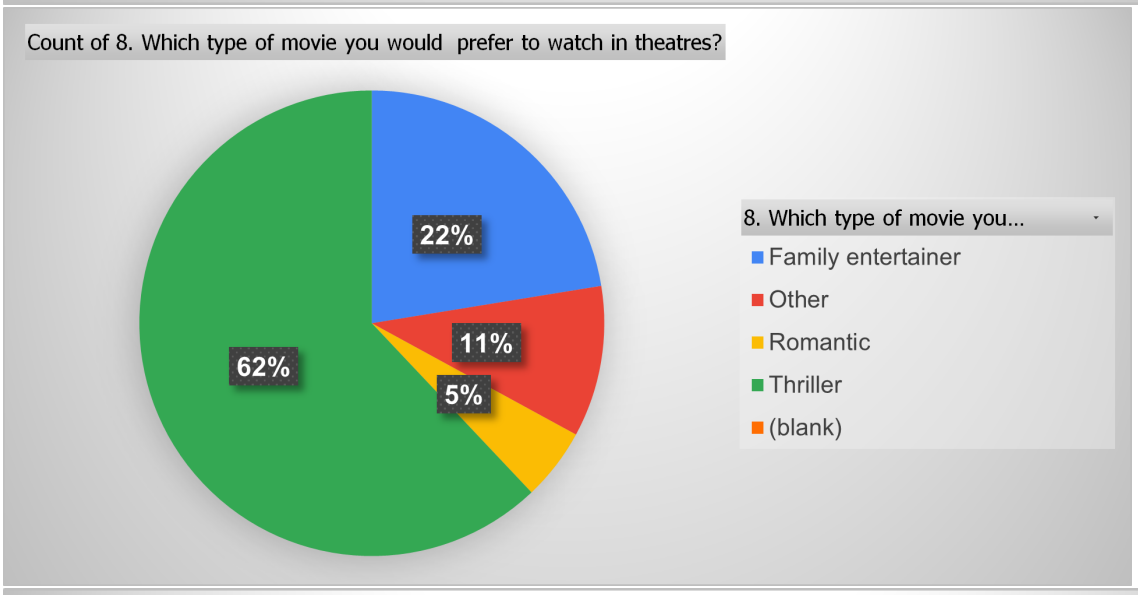


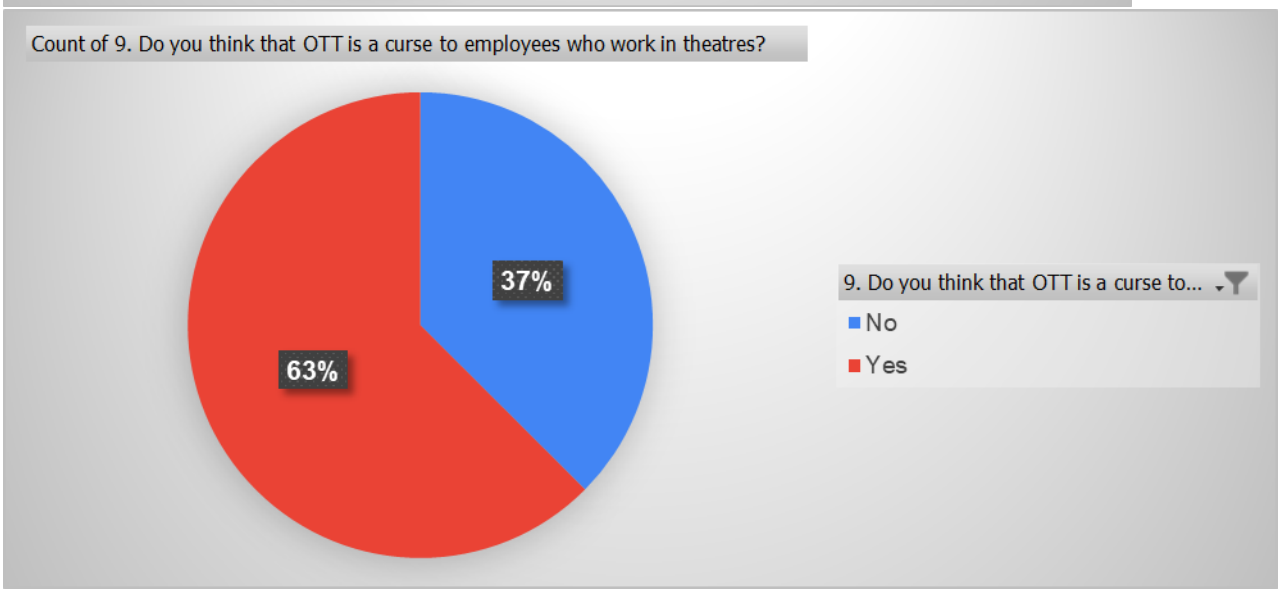

Count of 4. Do you prefer watching movies in OTT platforms or theatres?
Total
36%
64%
4. Do you prefer...
OTT
Theatre

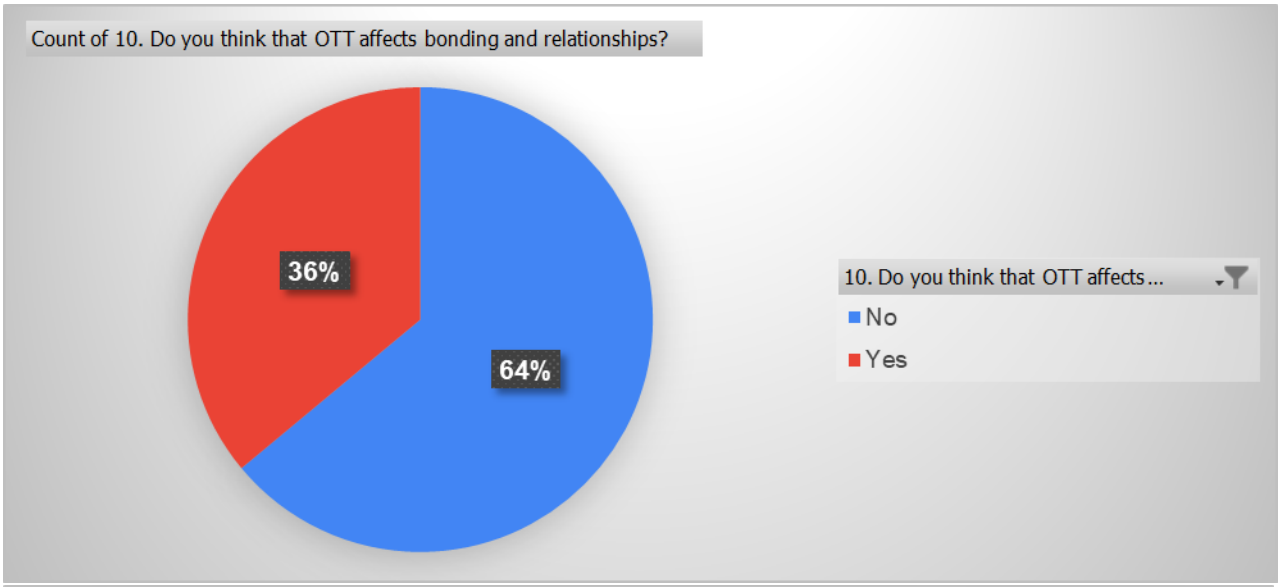

Count of 5. If you prefer OTT , why?
2%
10%
24%
2%
14%
48%
5. If you prefer OTT , why?
Cost effective
Creative and unusual content
Device independent viewing/ multiplatform service
Easy access
Other
Provision for subtitles

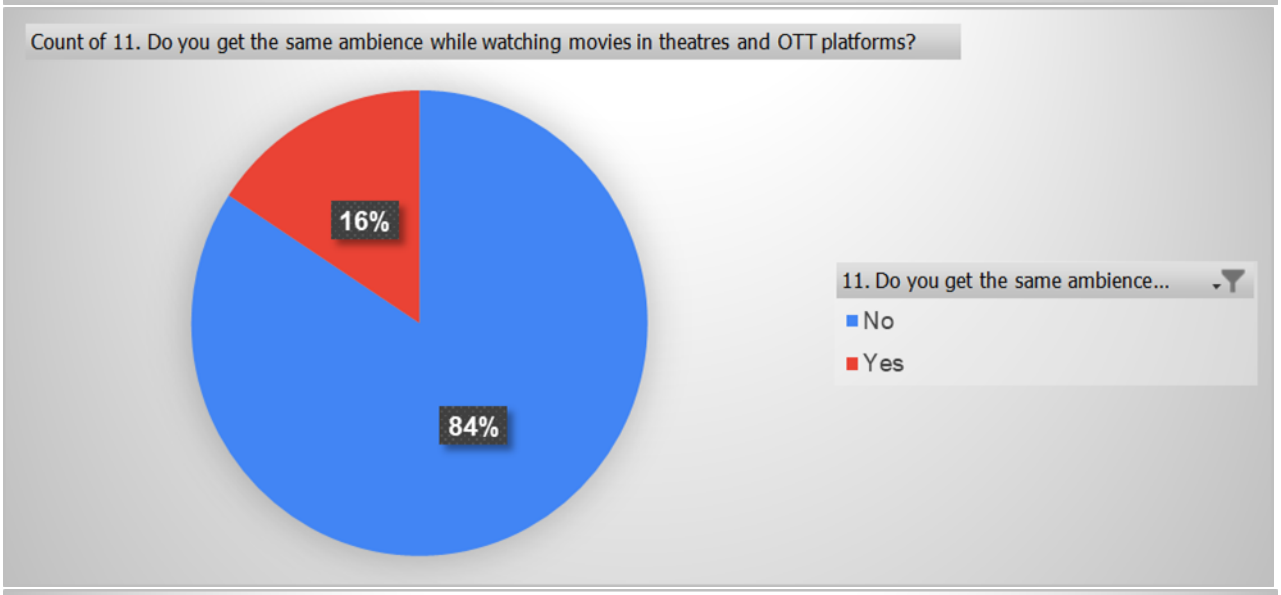

Count of 6. If you prefer theatres, why?
3%
34%
59%
3%
1%
0%
6. If you prefer theatres, why?
Better lighting , sound quality, advanced technology
Bonding experience
Convenience
Cost effective
For cinematic experience
Other

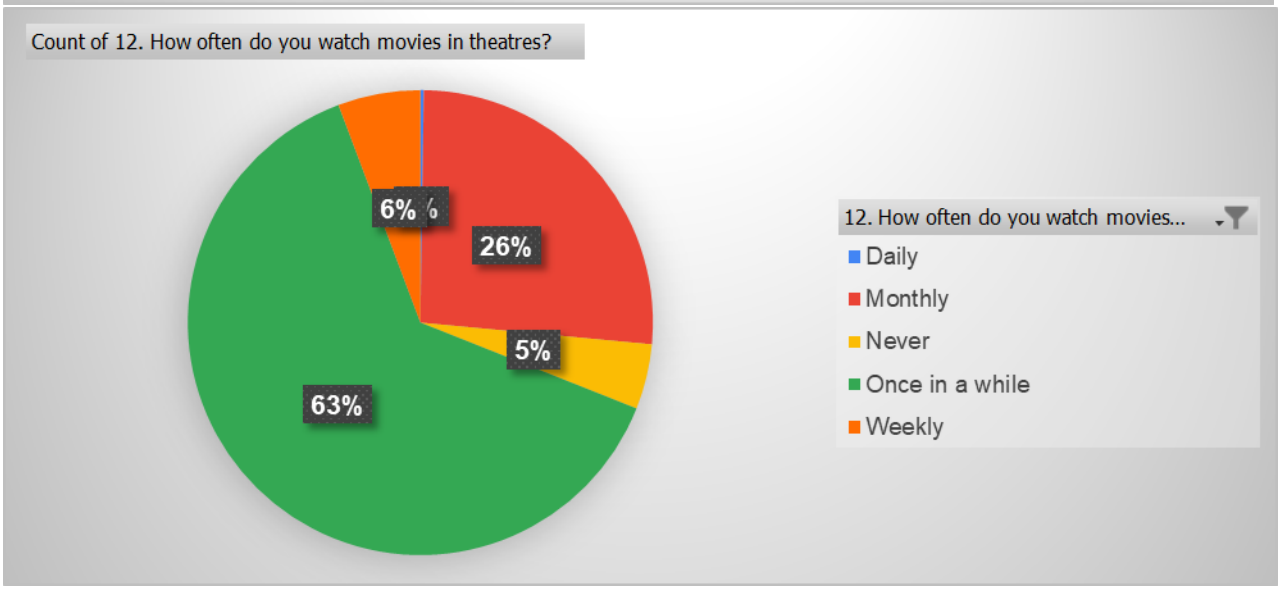

Count of 7. There are certain films which you can enjoy in theatres only. Do you agree with this?
12
33
374
7. There are certain films which you...
Agree
Disagree
Neutral

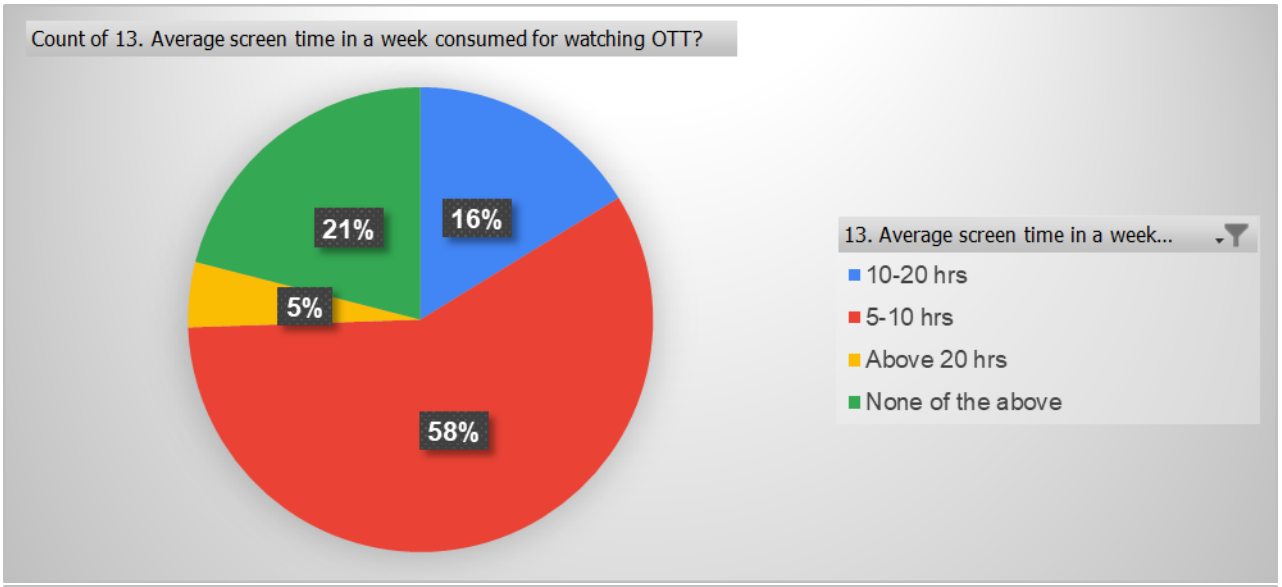

Count of 8. Which type of movie you would prefer to watch in theatres?
22%
11%
5%
62%
8. Which type of movie you...
Family entertainer
Other
Romantic
Thriller
(blank)

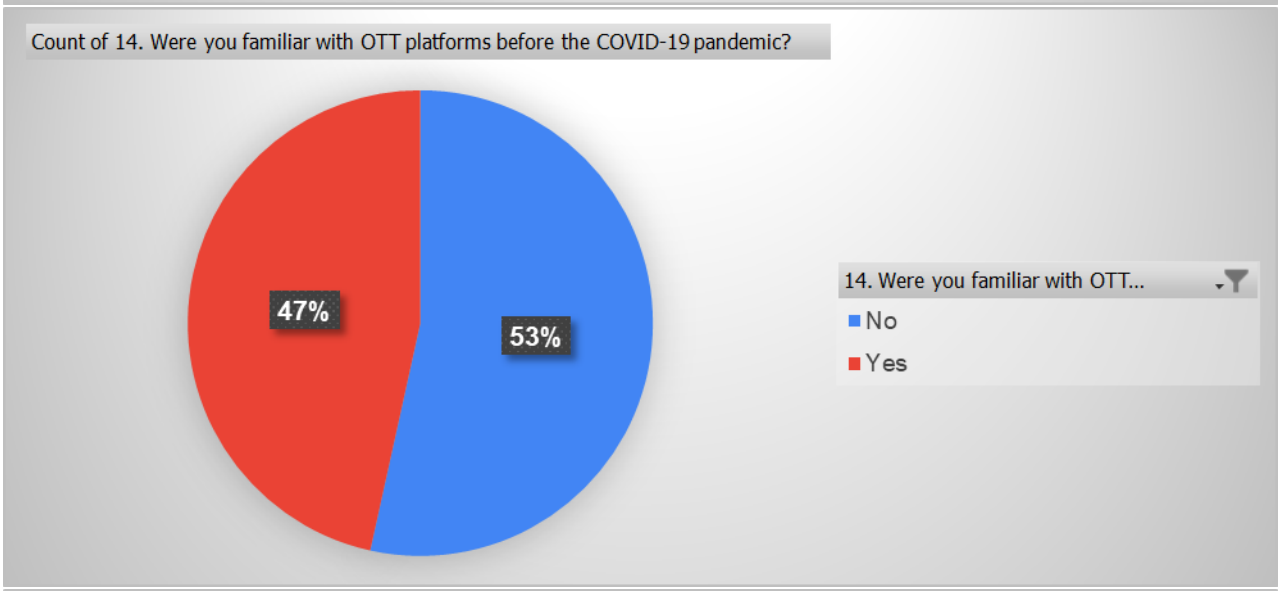

Count of 9. Do you think that OTT is a curse to employees who work in theatres?
37%
63%
9. Do you think that OTT is a curse to...
No
Yes

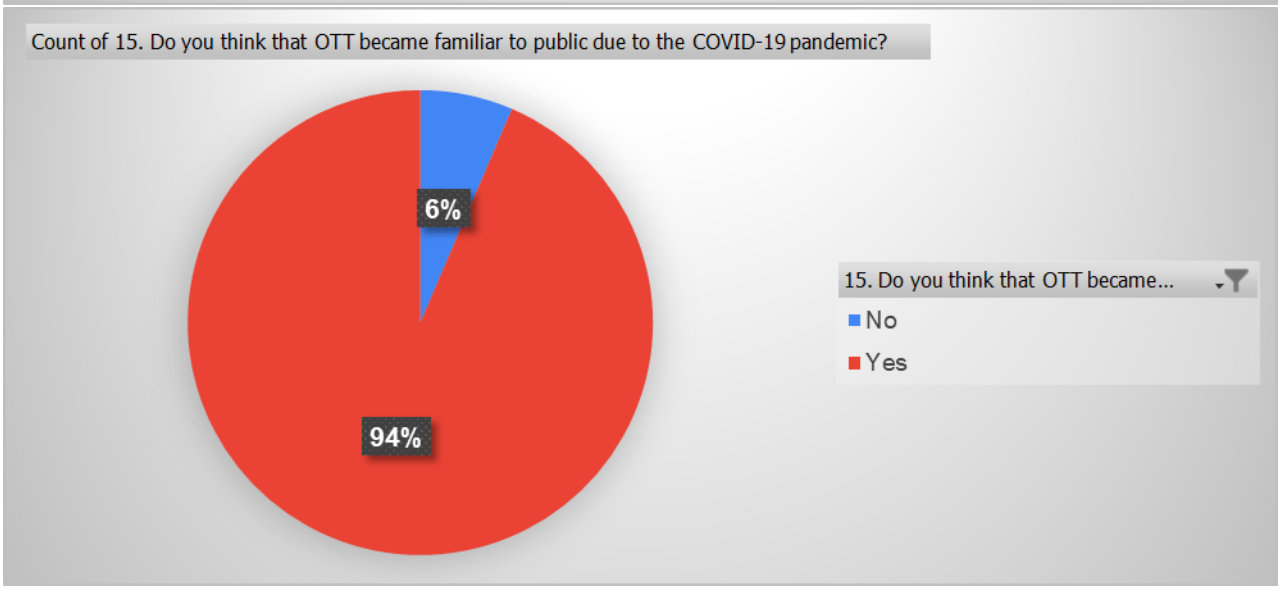

Count of 10. Do you think that OTT affects bonding and relationships?
36%
64%
10. Do you think that OTT affects...
No
Yes

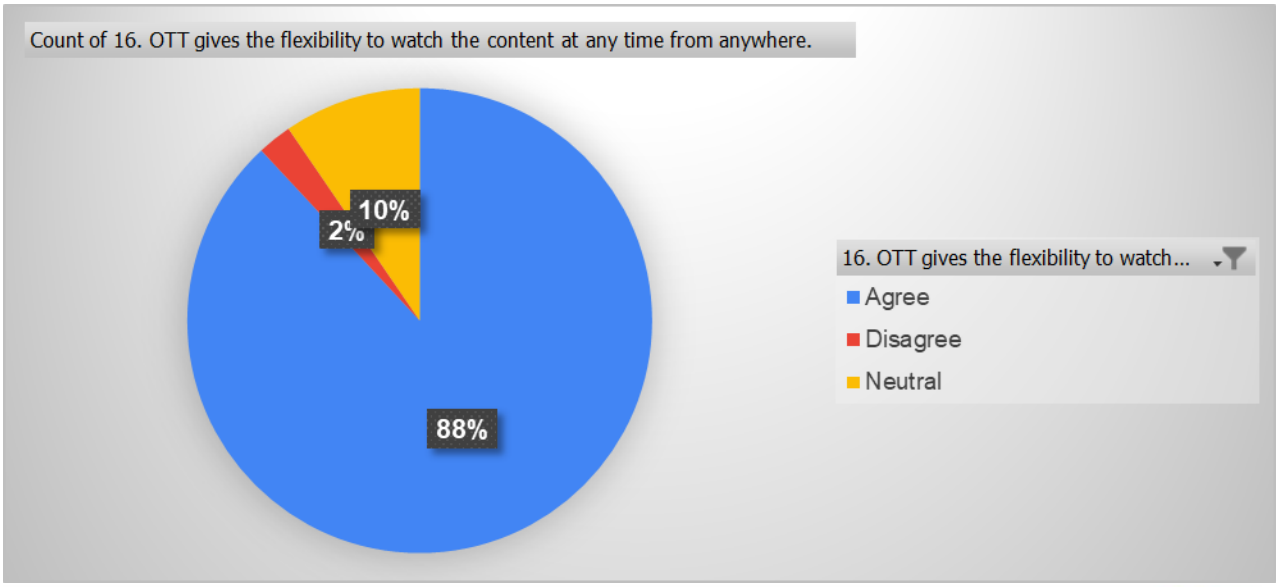

Count of 11. Do you get the same ambience while watching movies in theatres and OTT platforms?
16%
84%
11. Do you get the same ambience...
No
Yes

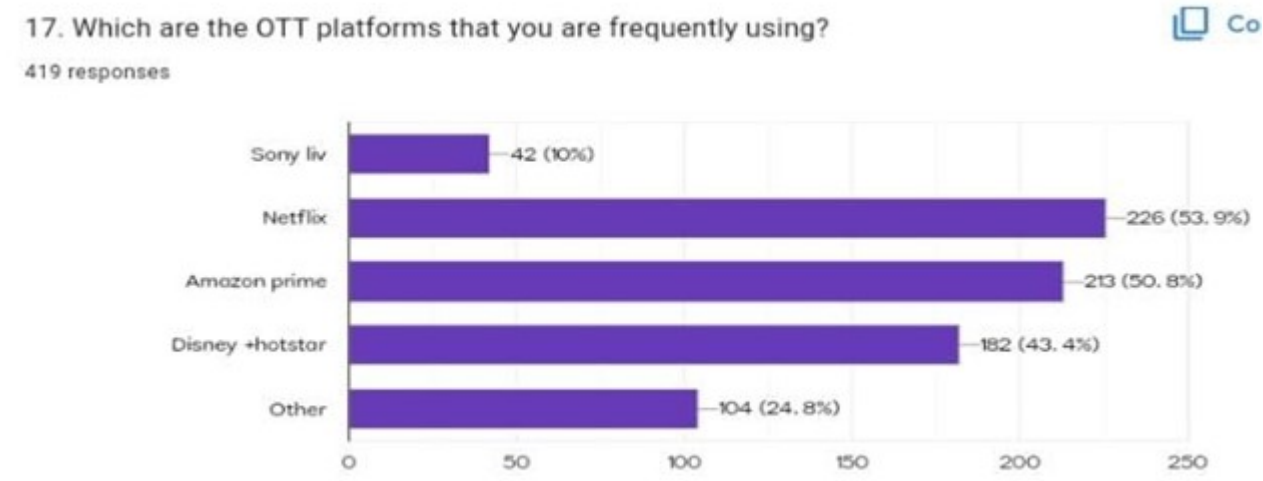

Count of 12. How often do you watch movies in theatres?
6%
26%
5%
63%
12. How often do you watch movies...
Daily
Monthly
Never
Once in a while
Weekly

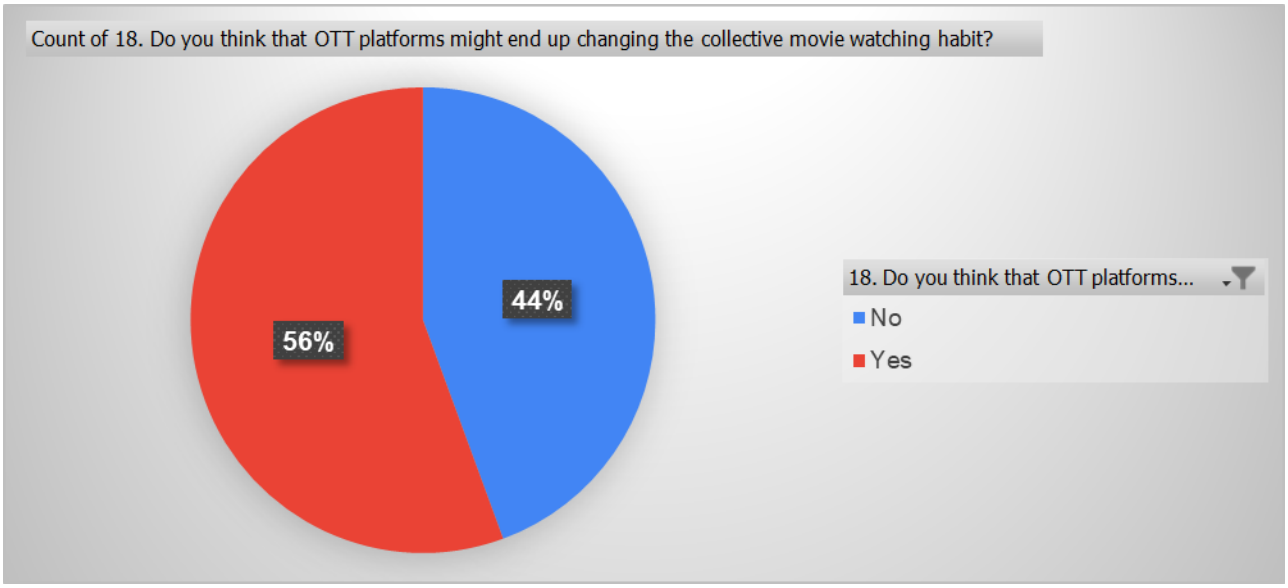

Count of 13. Average screen time in a week consumed for watching OTT?
16%
21%
5%
58%
13. Average screen time in a week...
10-20 hrs
5-10 hrs
Above 20 hrs
None of the above

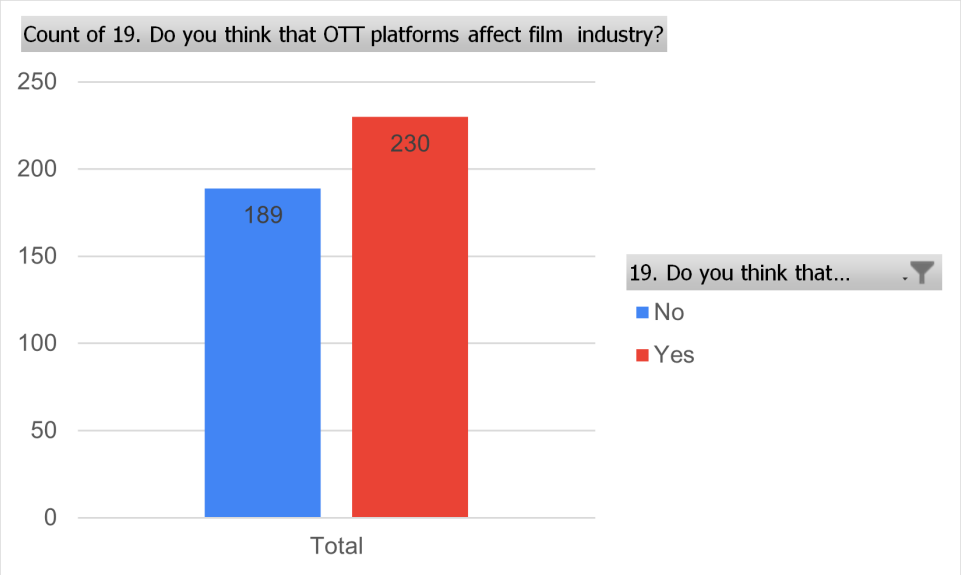

Count of 14. Were you familiar with OTT platforms before the COVID-19 pandemic?
47%
53%
14. Were you familiar with OTT...
No
Yes

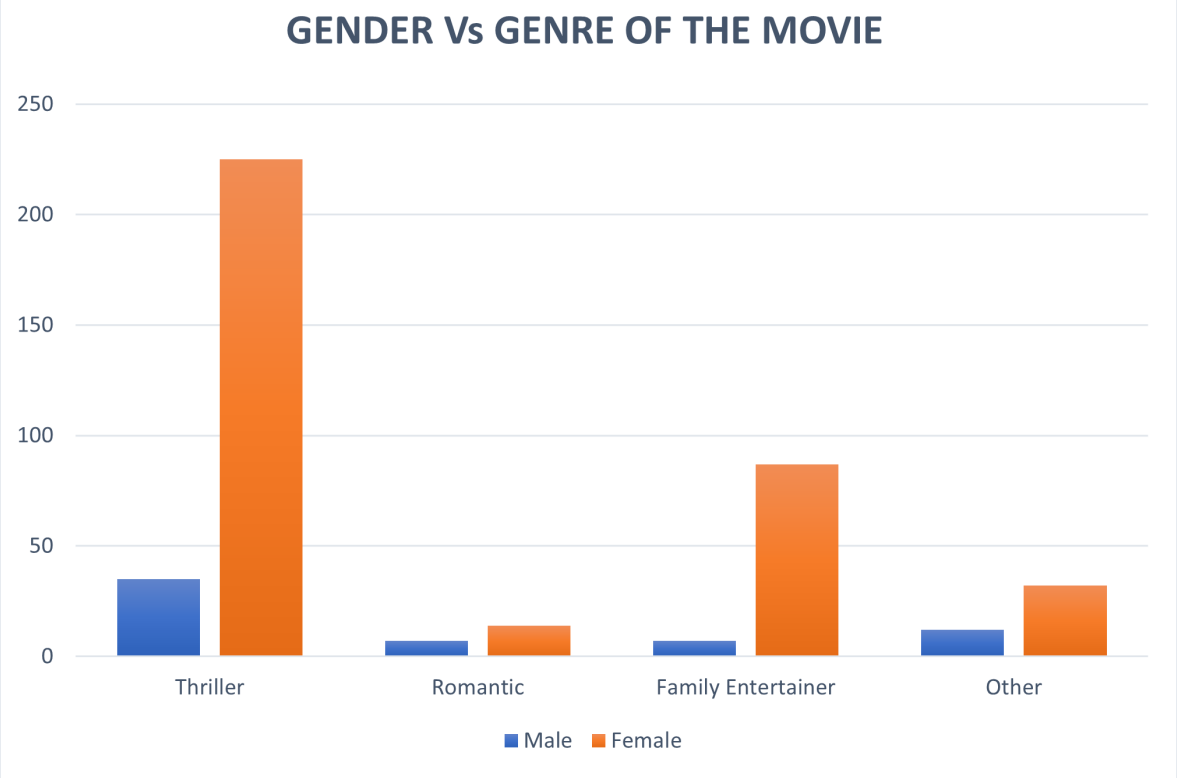

Count of 15. Do you think that OTT became familiar to public due to the COVID-19 pandemic?
6%
94%
15. Do you think that OTT became...
No
Yes

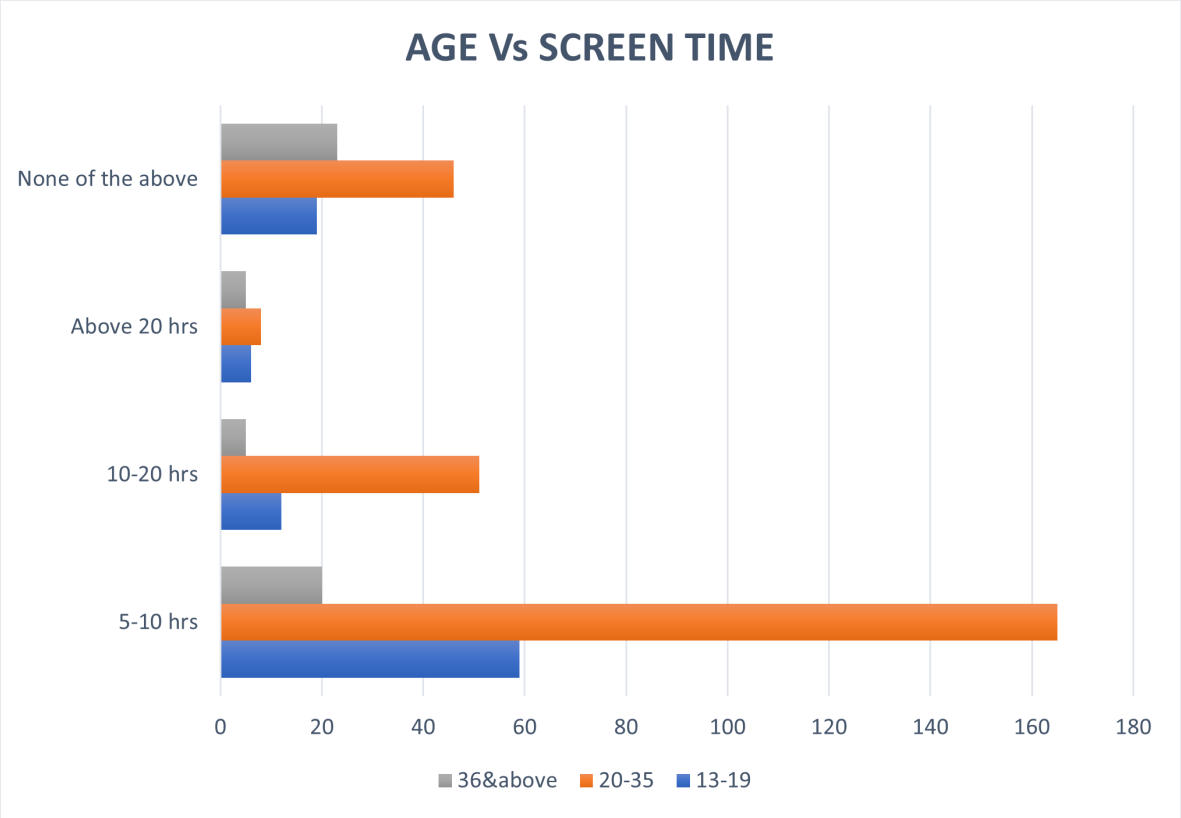

Count of 16. OTT gives the flexibility to watch the content at any time from anywhere.
10%
2%
88%
16. OTT gives the flexibility to watch...
Agree
Disagree
Neutral

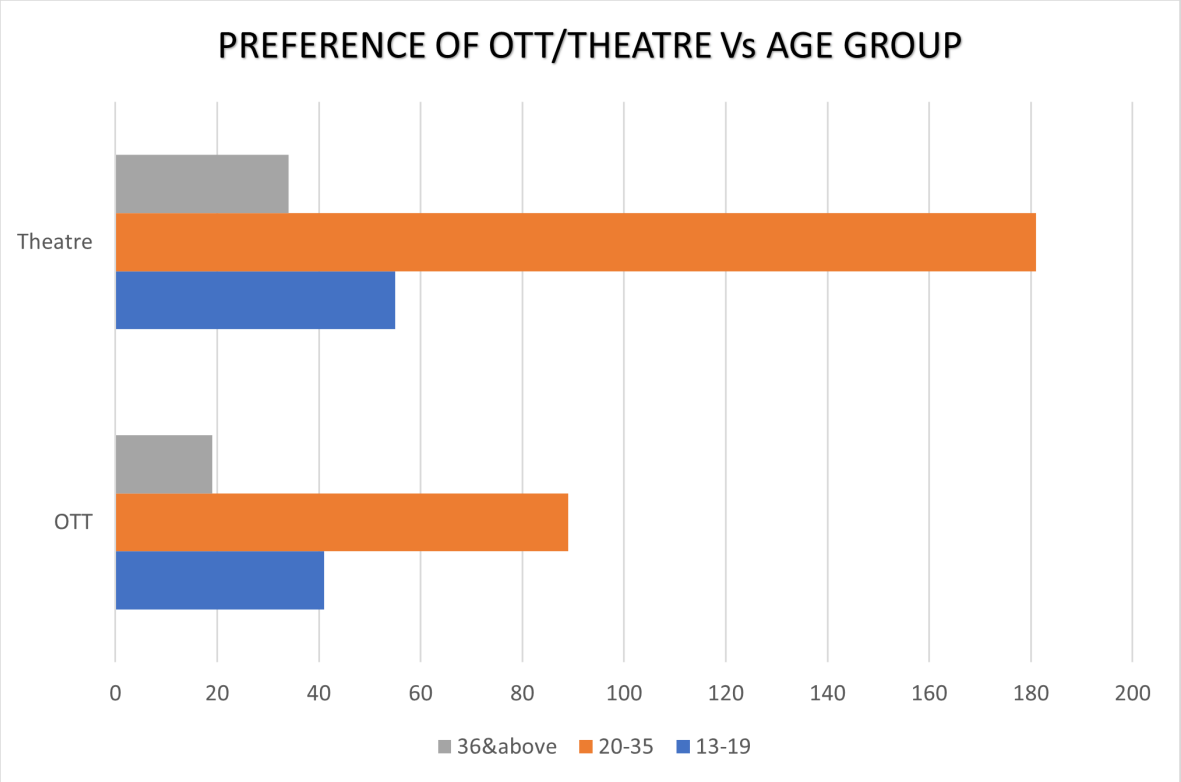

17. Which are the OTT platforms that you are frequently using?
419 responses
Co
Sony liv
42 (10%)
Netflix
226 (53.9%)
Amazon prime
213 (50.8%)
Disney +hotstar
182 (43.4%)
Other
104 (24.8%)
0
50
100
150
200
250

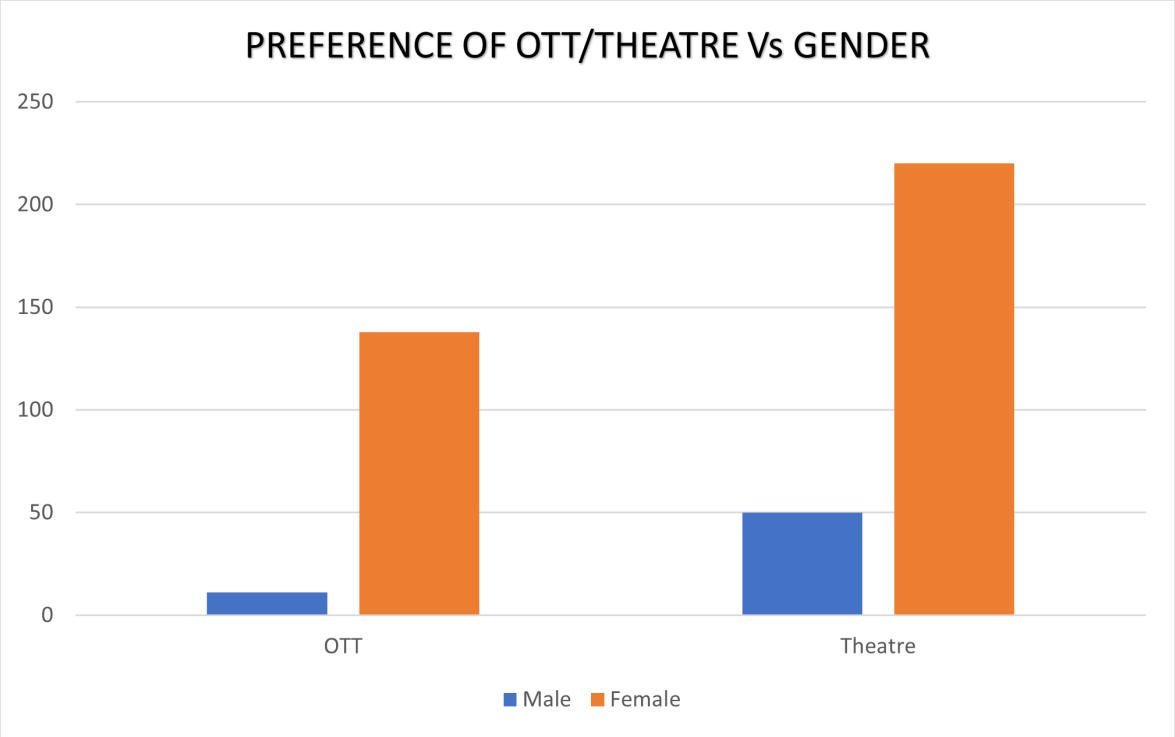

Count of 18. Do you think that OTT platforms might end up changing the collective movie watching habit?
44%
56%
18. Do you think that OTT platforms...
No
Yes

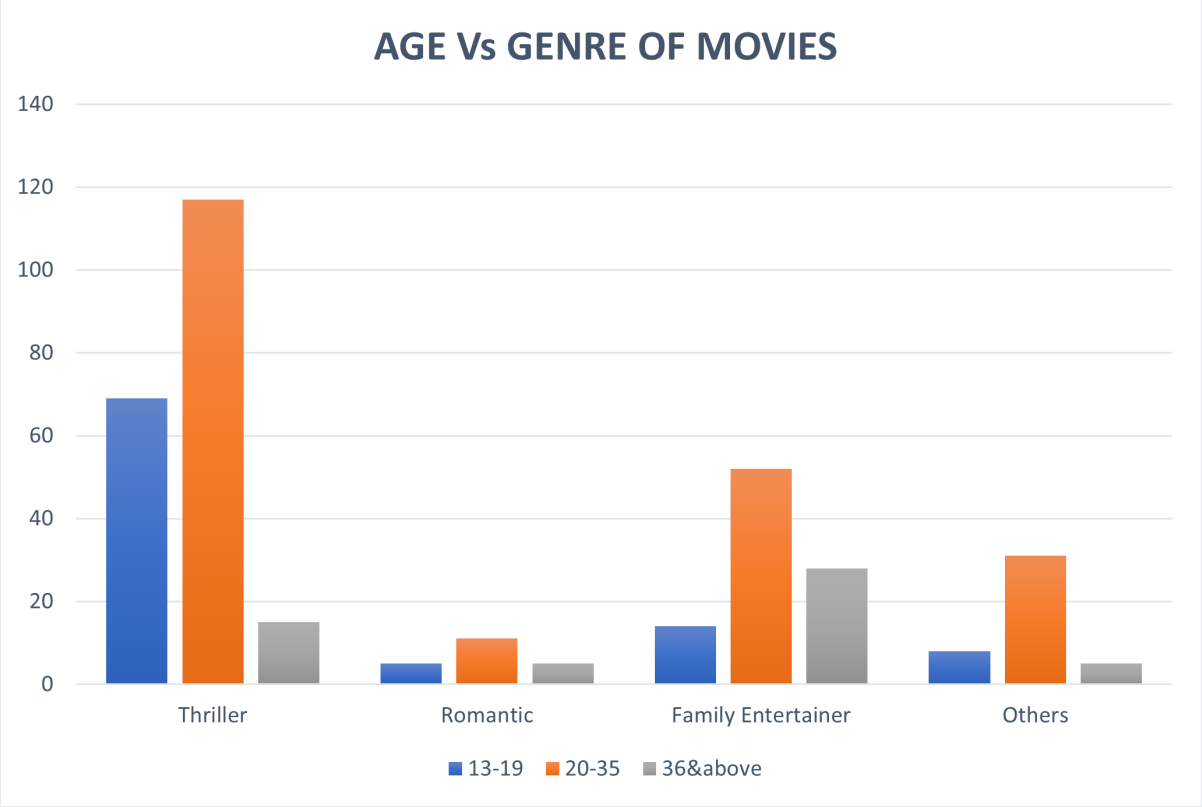

Count of 19. Do you think that OTT platforms affect film industry?
250
200
150
100
50
0
189
230
Total
19. Do you think that...
No
Yes


GENDER Vs GENRE OF THE MOVIE
250
200
150
100
50
0
Thriller
Romantic
Family Entertainer
Other
Male
Female


AGE Vs SCREEN TIME
None of the above
Above 20 hrs
10-20 hrs
5-10 hrs
0
20
40
60
80
100
120
140
160
180
36&above
20-35
13-19


PREFERENCE OF OTT/THEATRE Vs AGE GROUP
Theatre
OTT
0
20
40
60
80
100
120
140
160
180
200
36&above
20-35
13-19





3.2 DATA ANALYSIS

1. AGE AND GENRE OF MOVIES

Q) Which type of movie you would prefer to watch in theatres?

(a)Thriller

(b) Romantic

(c)Family Entertainer

(d)Others

Observed Frequency:

	13-19	20-35	36 and above	Total
Thriller	69	117	15	260
Romantic	5	11	5	21
FamilyEntertainer	14	52	28	94
Others	8	31	5	44
Total	96	270	53	419

H_0: There is no relation between age and genre of the movie.

H_1: There is a relation between age and genre of the movie.

Critical Value: 0.05

Expected Frequency

	13-19	20-35	36 and above	Total
Thriller	59.57040573	167.5417661	32.88782816	260
Romantic	4.811455847	13.53221957	2.656324582	21
FamilyEntertainer	21.53699284	60.57279236	11.8902148	94
Others	10.08114558	28.35322196	5.565632458	44
Total	96	270	53	419

EF = CT*RT/GT

p value = 0.001280487

<u>USING SPSS PROGRAMING</u>

```
CROSSTABS
  /TABLES=@3.Agegroup BY @8.Whichtypeofmovieyouwouldprefertowatchintheatres
  /FORMAT=AVALUE TABLES
  /STATISTICS=CHISQ PHI
  /CELLS=COUNT EXPECTED
  /COUNT ROUND CELL.
```

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
3. Age group * 8. Which type of movie you would prefer to watch in theatres?	419	100.0%	0	0.0%	419	100.0%

3. Age group * 8. Which type of movie you would prefer to watch in theatres? Crosstabulation

			8. Which type of movie you would prefer to watch in theatres?				
			Family entertainer	Other	Romantic	Thriller	Total
3. Age group	13-19	Count	14	8	5	69	96
		Expected Count	21.5	10.1	4.8	59.6	96.0
	20-35	Count	52	31	11	176	270
		Expected Count	60.6	28.4	13.5	167.5	270.0
	36 and above	Count	28	5	5	15	53
		Expected Count	11.9	5.6	2.7	32.9	53.0
Total		Count	94	44	21	260	419
		Expected Count	94.0	44.0	21.0	260.0	419.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	40.610[a]	6	.000
Likelihood Ratio	37.010	6	.000
N of Valid Cases	419		

a. 2 cells (16.7%) have expected count less than 5. The minimum expected count is 2.66.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.311	.000
	Cramer's V	.220	.000
N of Valid Cases		419	

Since p value is less than 0.05 we will reject the null hypothesis.

Hence, we can conclude that there exists a relationship between age and genre of movie.

2. AGE AND SCREEN TIME

Q) Average screen time in a week consumed for watching OTT?

(a)5-10hrs

(b) 10-20hrs

(c)Above 20hrs

(d)None of the above

Observed Frequency:

	13-19	20-35	36 and above	Total
5-10hrs	59	165	20	244
10-20 hours	12	51	5	68
Above 20 hours	6	8	5	19
None of the above	19	46	23	88
Total	96	270	53	419

H_0: There is no relation between age and screentime.

H_1: There is a relation between age and screentime.

Critical Value: 0.05

Expected Frequency

	13-19	20-35	36 and above	Total
5-10hrs	55.90453461	15702315036	30.86396181	244
10-20 hours	15.57995227	43.81861575	8.601431981	68
Above 20 hours	4.353221957	12.24343675	2.403341289	19
None of the above	20.16229117	56.70644391	11.13126492	88
Total	96	270	53	419

EF = CT*RT/GT

p value = 0.000115202

Since p value is less than 0.05 we will reject the null hypothesis.

USING SPSS PROGRAMING

```
CROSSTABS
  /TABLES=@3.Agegroup BY @13.AveragescreentimeinaweekconsumedforwatchingOTT
  /FORMAT=AVALUE TABLES
  /STATISTICS=CHISQ PHI
  /CELLS=COUNT EXPECTED
  /COUNT ROUND CELL.
```

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
3. Age group * 13. Average screen time in a week consumed for watching OTT?	419	100.0%	0	0.0%	419	100.0%

3. Age group * 13. Average screen time in a week consumed for watching OTT? Crosstabulation

			13. Average screen time in a week consumed for watching OTT?				
			10-20 hrs	5-10 hrs	Above 20 hrs	None of the above	Total
3. Age group	13-19	Count	12	59	6	19	96
		Expected Count	15.6	55.9	4.4	20.2	96.0
	20-35	Count	51	165	8	46	270
		Expected Count	43.8	157.2	12.2	56.7	270.0
	36 and above	Count	5	20	5	23	53
		Expected Count	8.6	30.9	2.4	11.1	53.0
Total		Count	68	244	19	88	419
		Expected Count	68.0	244.0	19.0	88.0	419.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	27.529[a]	6	.000
Likelihood Ratio	24.953	6	.000
N of Valid Cases	419		

a. 2 cells (16.7%) have expected count less than 5. The minimum expected count is 2.40.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.256	.000
	Cramer's V	.181	.000
N of Valid Cases		419	

Hence, we can conclude that there exists a relationship between age and screen time.

3. GENDER AND GENRE OF THE MOVIE

Q) Which type of movie you would prefer to watch in theatres?

(a)Thriller

(b)Romantic

(c)Family Entertainer

(d)Others

Observed Frequency:

	Male	Female	Total
Thriller	**35**	**225**	**260**
Romantic	**7**	**14**	**21**
FamilyEntertainer	**7**	**87**	**94**
Other	**12**	**32**	**44**
Total	**61**	**358**	**419**

H_0: There is no relation between Gender and Genre of the movie.

H_1: There is a relation between Gender and Genre of the movie.

Critical Value: 0.05

Expected Frequency

	Male	Female	Total
Thriller	37.85202864	222.1479714	260
Romantic	3.057279236	17.94272076	21
FamilyEntertainer	13.6849642	80.3150358	94
Other	6.405727924	37.59427208	44
Total	61	358	419

EF = CT*RT/GT

p value = 0.001280487

USING SPSS PROGRAMING

```
CROSSTABS
  /TABLES=@2.Gender BY @8.Whichtypeofmovieyouwouldprefertowatchintheatres
  /FORMAT=AVALUE TABLES
  /STATISTICS=CHISQ PHI
  /CELLS=COUNT EXPECTED
  /COUNT ROUND CELL.
```

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
2. Gender * 8. Which type of movie you would prefer to watch in theatres?	419	100.0%	0	0.0%	419	100.0%

2. Gender * 8. Which type of movie you would prefer to watch in theatres? Crosstabulation

			8. Which type of movie you would prefer to watch in theatres?				
			Family entertainer	Other	Romantic	Thriller	Total
2. Gender	Female	Count	87	32	14	225	358
		Expected Count	80.3	37.6	17.9	222.1	358.0
	Male	Count	7	12	7	35	61
		Expected Count	13.7	6.4	3.1	37.9	61.0
Total		Count	94	44	21	260	419
		Expected Count	94.0	44.0	21.0	260.0	419.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.743[a]	3	.001
Likelihood Ratio	14.187	3	.003
N of Valid Cases	419		

a. 1 cells (12.5%) have expected count less than 5. The minimum expected count is 3.06.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.194	.001
	Cramer's V	.194	.001
N of Valid Cases		419	

Since p value is less than 0.05 we will reject the null hypothesis.

Hence, we can conclude that there exists a relationship between gender and genre of the movie.

4. **Test for proportion – OTT and THEATRES**

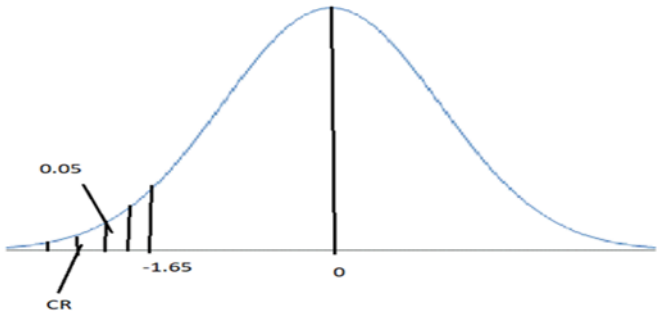
Test Statistic: Z= $\frac{p-P}{\sqrt{\frac{PQ}{n}}}$ **N (0,1)**

Let P be the proportion of people preferring OTT

H_0**: P =** $\frac{1}{2}$ **(Q =** $\frac{1}{2}$**)**

H_1**: P less than** $\frac{1}{2}$

$\alpha = 0.05$



$p = \frac{149}{419}$

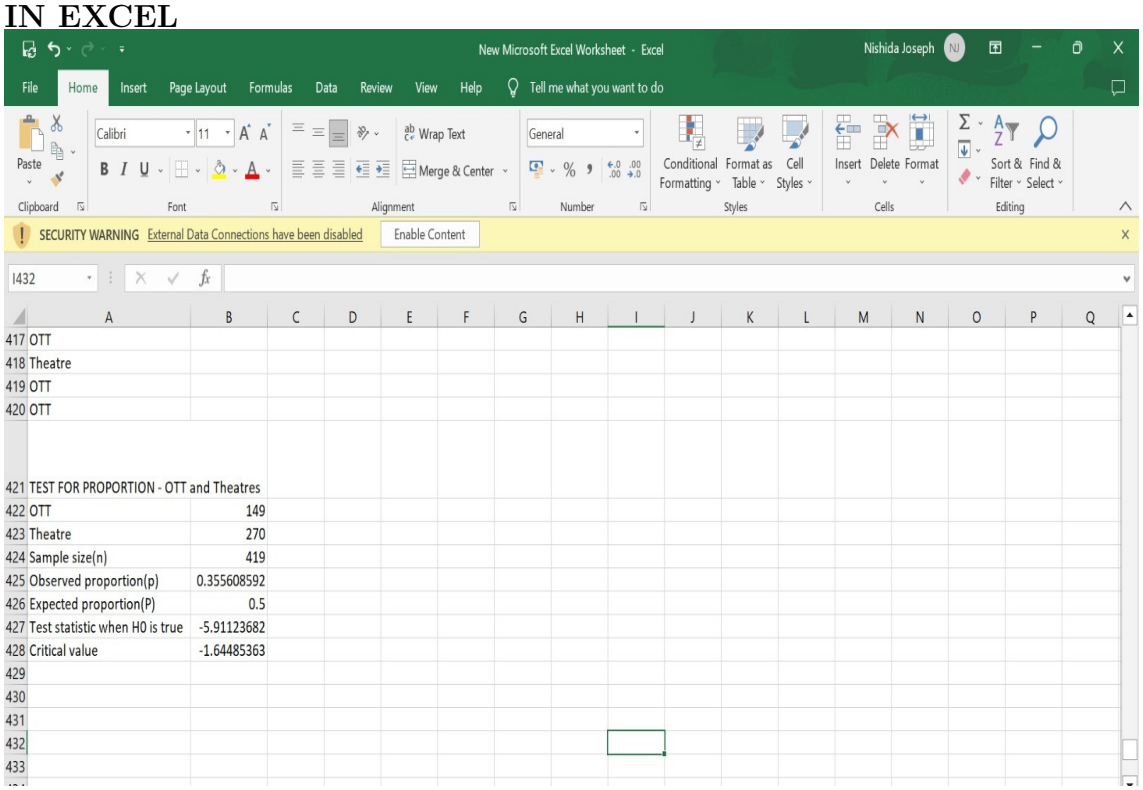
Test Statistic:

$$=\frac{149}{419}-\frac{1}{2}\div\sqrt{\frac{\left(\frac{1}{2}\times\frac{1}{2}\right)}{419}}$$

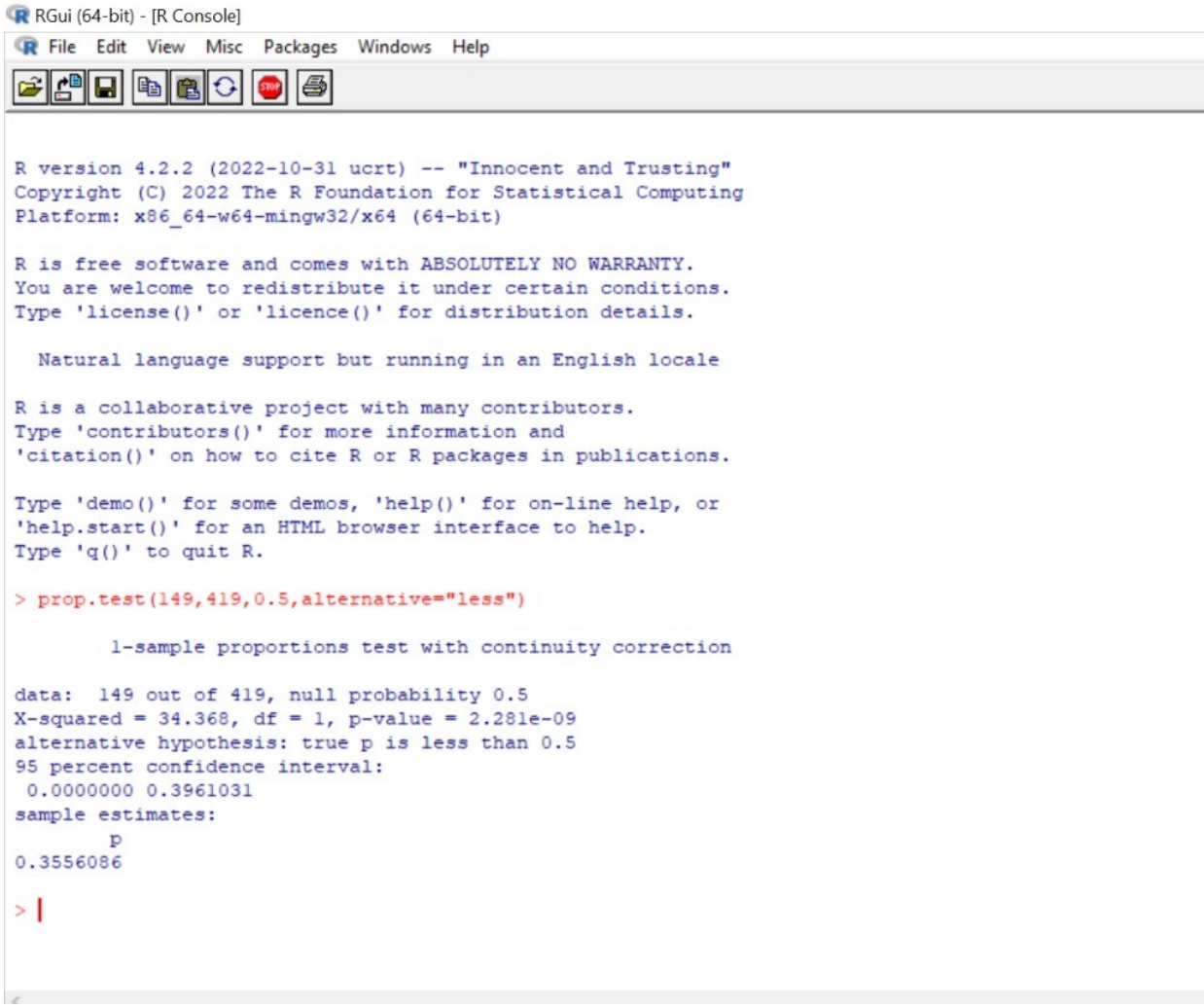
$$\frac{-0.14439}{0.02442}$$

$$= -5.912, \textbf{ lies in the CR}$$

IN EXCEL



USING R-PROGRAMING



Therefore, we rejectH_0 and accept H_1 at 5% level of significance.

5. PREFERENCE OF OTT/THEATRE AND AGE GROUP

Observed Frequency:

	13-19	20-35	36 and above	Total
OTT	41	89	19	149
Theatre	55	181	34	270
Total	96	270	53	419

H_0: There is no relation between preference of OTT/theatre and age.

H_1: There is a relation between preference of OTT/theatre and age.

Critical Value: 0.05

Expected Frequency

	13-19	20-35	36 and above	Total
OTT	34.13842482	96.01431681	18.84725537	149
Theatre	61.86157518	173.9856802	34.15274463	270
Total	96	270	53	419

EF = CT*RT/GT

p value = 0.230231734

Since p value is greater than 0.05 we will accept the null hypothesis.

USING SPSS PROGRAMING

```
CROSSTABS
  /TABLES=@3.Agegroup BY @4.DoyoupreferwatchingmoviesinOTTplatformsortheatres
  /FORMAT=AVALUE TABLES
  /STATISTICS=CHISQ PHI
  /CELLS=COUNT EXPECTED
  /COUNT ROUND CELL.
```

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
3. Age group * 4. Do you prefer watching movies in OTT platforms or theatres?	419	100.0%	0	0.0%	419	100.0%

3. Age group * 4. Do you prefer watching movies in OTT platforms or theatres? Crosstabulation

			4. Do you prefer watching movies in OTT platforms or theatres?		
			OTT	Theatre	Total
3. Age group	13-19	Count	41	55	96
		Expected Count	34.1	61.9	96.0
	20-35	Count	89	181	270
		Expected Count	96.0	174.0	270.0
	36 and above	Count	19	34	53
		Expected Count	18.8	34.2	53.0
Total		Count	149	270	419
		Expected Count	149.0	270.0	419.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.937[a]	2	.230
Likelihood Ratio	2.892	2	.235
N of Valid Cases	419		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 18.85.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.084	.230
	Cramer's V	.084	.230
N of Valid Cases		419	

Hence, we can conclude that there exists no relationship between preference of OTT/theatre and age group.

6. PREFERENCE OF OTT/THEATRE AND GENDER

Observed Frequency:

	Male	Female	Total
OTT	**11**	**138**	**149**
Theatres	**50**	**220**	**270**
Total	**61**	**358**	**419**

H_0: **There is no relation between preference of OTT/theatre and age.**

H_1: **There is a relation between preference of OTT/theatre and age.**

Critical Value: 0.05

Expected Frequency

	Male	Female	Total
OTT	21.69212411	127.3078759	149
Theatres	39.30787589	230.6921241	270
Total	61	358	419

EF = CT*RT/GT

p value = 0.001975568

Since p value is less than 0.05 we will reject the null hypothesis.

USING SPSS PROGRAMING

```
CROSSTABS
  /TABLES=@2.Gender BY @4.DoyoupreferwatchingmoviesinOTTplatformsortheatres
  /FORMAT=AVALUE TABLES
  /STATISTICS=CHISQ PHI
  /CELLS=COUNT EXPECTED
  /COUNT ROUND CELL.
```

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
2. Gender * 4. Do you prefer watching movies in OTT platforms or theatres?	419	100.0%	0	0.0%	419	100.0%

2. Gender * 4. Do you prefer watching movies in OTT platforms or theatres? Crosstabulation

			4. Do you prefer watching movies in OTT platforms or theatres?		
			OTT	Theatre	Total
2. Gender	Female	Count	138	220	358
		Expected Count	127.3	230.7	358.0
	Male	Count	11	50	61
		Expected Count	21.7	39.3	61.0
Total		Count	149	270	419
		Expected Count	149.0	270.0	419.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	9.572[a]	1	.002		
Continuity Correction[b]	8.698	1	.003		
Likelihood Ratio	10.498	1	.001		
Fisher's Exact Test				.002	.001
N of Valid Cases	419				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 21.69.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.151	.002
	Cramer's V	.151	.002
N of Valid Cases		419	

Hence, we can conclude that there exists a relationship between preference of OTT/theatre and gender.

4

RESULT AND CONCLUSION

4.1 FINDINGS

1. **After carefully analysing the data, we were able to find, out of 419 responses, 35.5% prefer OTT and 64.4% prefer Theatres to watch movies.**
2. **Among 149 respondents who preferred OTT, 48% prefer OTT because of its easy accessibility. Out of 270 respondents who preferred Theatres, 59% prefer Theatres for cinematic experience.**
3. **Majority of the respondents use Netflix as OTT platform. Amazon Prime is the second most used OTT platform and Sony live, the least.**
4. **89.26% respondents agree with the fact that there are certain films which can be enjoyed in Theatres only.**
5. **63% respondents think that OTT is a curse to employees who work in theatres.**
6. **84% people respond that they don't get the same ambience while watching movies in Theatres and OTT platforms.**
7. **53% respondents were not familiar with OTT platforms before the Covid-19 pandemic.**

4.2 RESULT

1. **The preference towards viewing films in theatre or OTT is not related to age group.**
2. **The preference towards viewing films in theatre or OTT is related to gender.**
3. **The genre of movies is related to age group.**
4. **The genre of movies is related to gender.**
5. **There is a relation between age and screen time.**
6. **The preference towards OTT and theatre are not in the same proportion that is, the proportion of preference for theatre is greater than that for OTT.**

4.3 CONCLUSION

From our questionnaire, we were able to find out that majority of the respondents prefer thriller movies to watch in Theatres. We identified from the responses that majority of them have their screen time 5-10 hours. Most of the audience watch movies in Theatres once in a while. Majority of them believe that OTT affects bonding and relationships as it might end up changing the collective movie watching habit. Moreover, the Covid-19 pandemic has an impact on the number of OTT viewers because many of them became familiar to OTT during the lock down period. Almost half of the respondents think that OTT affects film industry.

From our analysis, we were able to find that there exists a relation between age and genre, age and screen time, gender and genre of movies and preference of OTT or Theatre and gender. But there exists no relation between age group and preference of OTT or Theatres. We could also find that the preference of respondents towards OTT and Theatres are not in the same proportion. That is, the proportion of preference for theatre is greater than that for OTT

in the population. Even though the Theatres have been shut down due to Covid-19, majority of the audience prefer Theatres over OTT.

5

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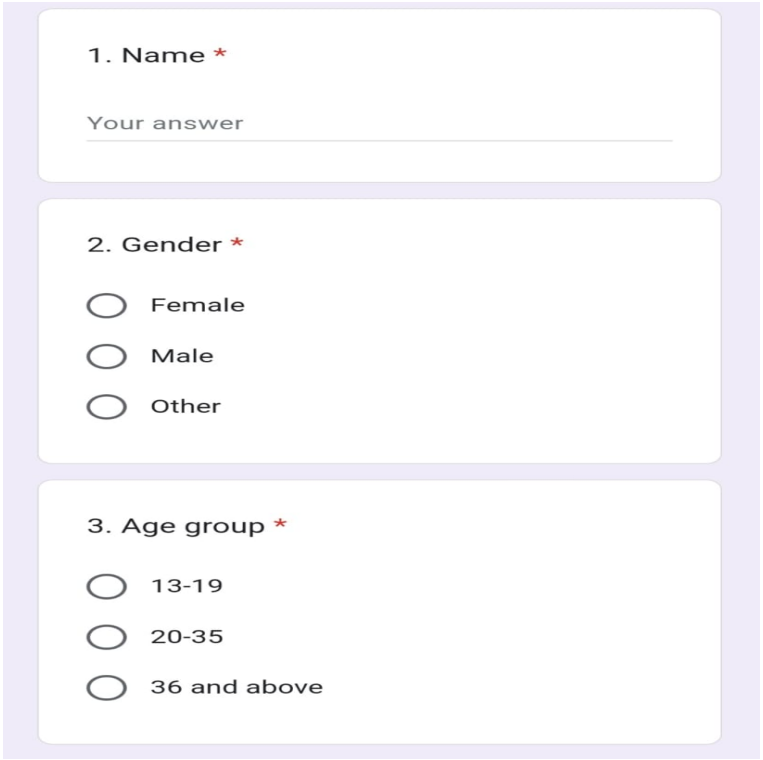
6

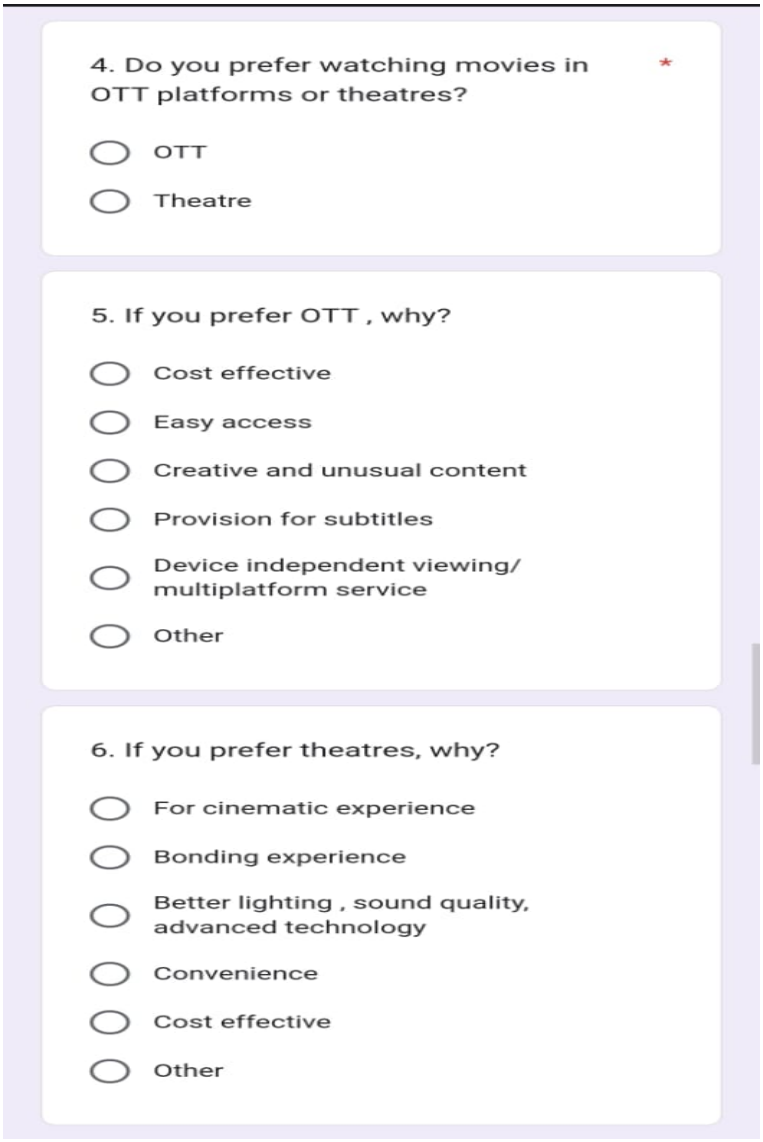
ANNEXURE

6.1 Questionnaire

OTT v/s THEATRES

We are students of 3rd year BSc Mathematics,St Teresa's College,Ernakulam (Autonomous). We are conducting a statistical survey on the topic ' OTT v/s Theatres'. As we know , OTT (Over The Top) is a means of providing television and film content over the internet at the request and to suit the requirements of the individual consumers. A theatre is a place where films are shown for public entertainment. The main purpose of this study is to identify and analyze the preference of audience towards OTT or Theatres.
We would like to request your participation by filling out this form.


1. Name *
Your answer
2. Gender *
Female
Male
Other
3. Age group *
13-19
20-35
36 and above



4. Do you prefer watching movies in OTT platforms or theatres? *

- ◯ OTT
- ◯ Theatre

5. If you prefer OTT , why?

- ◯ Cost effective
- ◯ Easy access
- ◯ Creative and unusual content
- ◯ Provision for subtitles
- ◯ Device independent viewing/ multiplatform service
- ◯ Other

6. If you prefer theatres, why?

- ◯ For cinematic experience
- ◯ Bonding experience
- ◯ Better lighting , sound quality, advanced technology
- ◯ Convenience
- ◯ Cost effective
- ◯ Other

7. There are certain films which you can enjoy in theatres only. Do you agree with this? *

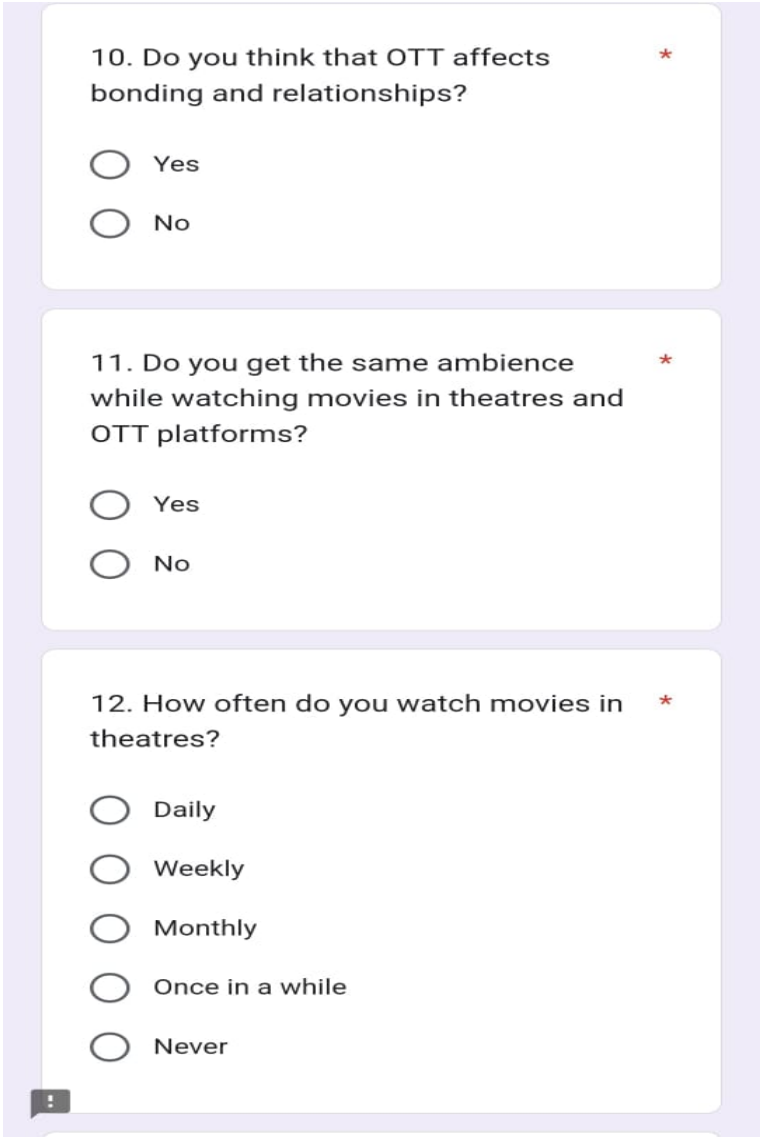
- ◯ Agree
- ◯ Disagree
- ◯ Neutral

8. Which type of movie you would prefer to watch in theatres? *

- ◯ Thriller
- ◯ Romantic
- ◯ Family entertainer
- ◯ Other

9. Do you think that OTT is a curse to employees who work in theatres? *

- ◯ Yes
- ◯ No


10. Do you think that OTT affects bonding and relationships? *
Yes
No
11. Do you get the same ambience while watching movies in theatres and OTT platforms? *
Yes
No
12. How often do you watch movies in theatres? *
Daily
Weekly
Monthly
Once in a while
Never

13. Average screen time in a week consumed for watching OTT? *

- ◯ 5-10 hrs
- ◯ 10-20 hrs
- ◯ Above 20 hrs
- ◯ None of the above

14. Were you familiar with OTT platforms before the COVID-19 pandemic? *

- ◯ Yes
- ◯ No

15. Do you think that OTT became familiar to public due to the COVID-19 pandemic? *

- ◯ Yes
- ◯ No

16. OTT gives the flexibility to watch the content at any time from anywhere. *

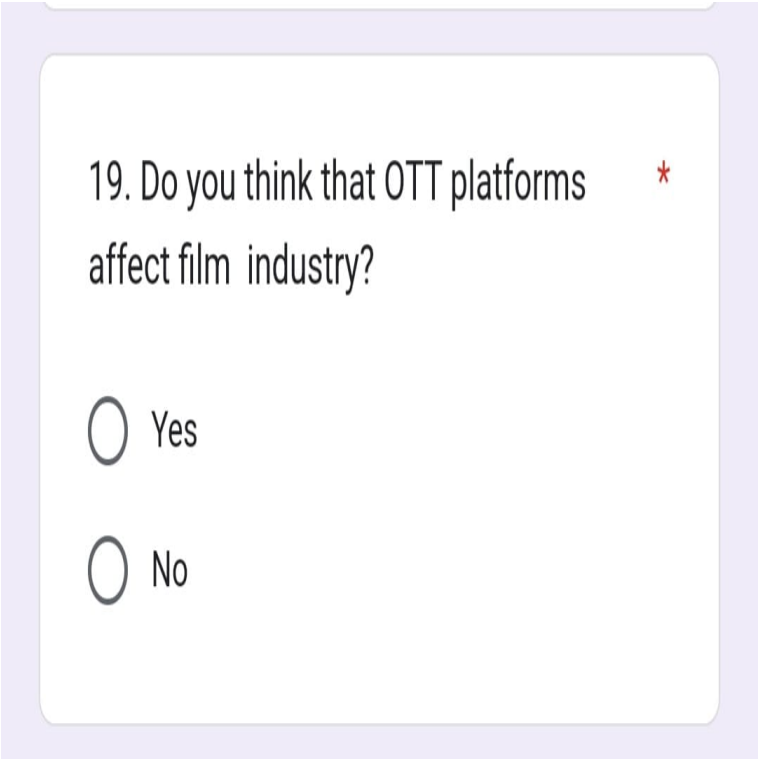
- ◯ Agree
- ◯ Disagree
- ◯ Neutral

17. Which are the OTT platforms that you are frequently using? *

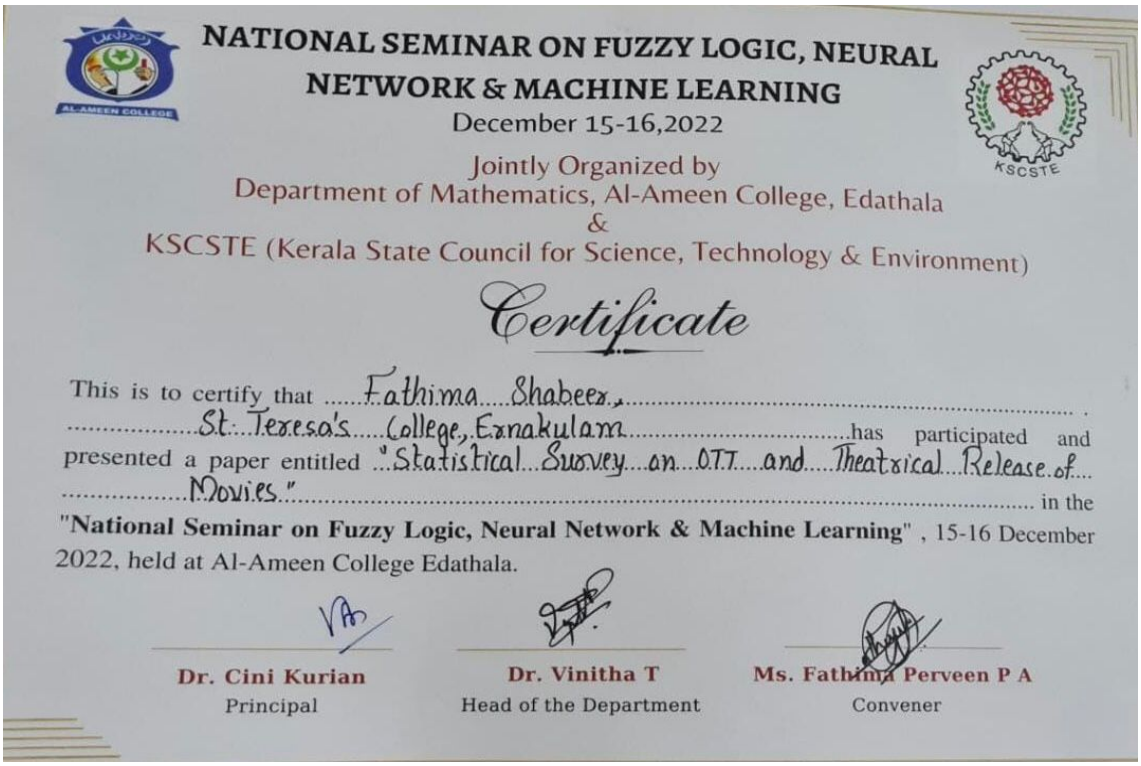
- ☐ Sony liv
- ☐ Netflix
- ☐ Amazon prime
- ☐ Disney +hotstar
- ☐ Other

18. Do you think that OTT platforms might end up changing the collective movie watching habit? *

- ◯ Yes
- ◯ No



6.2 CERTIFICATES



NATIONAL SEMINAR ON FUZZY LOGIC, NEURAL NETWORK & MACHINE LEARNING

December 15-16,2022

Jointly Organized by
Department of Mathematics, Al-Ameen College, Edathala
&
KSCSTE (Kerala State Council for Science, Technology & Environment)

Certificate

This is to certify that Fathima Shabeer, St. Teresa's College, Ernakulam has participated and presented a paper entitled "Statistical Survey on OTT and Theatrical Release of Movies" in the "**National Seminar on Fuzzy Logic, Neural Network & Machine Learning**", 15-16 December 2022, held at Al-Ameen College Edathala.

Dr. Cini Kurian	Dr. Vinitha T	Ms. Fathima Perveen P A
Principal	Head of the Department	Convener

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AFFILIATED TO MAHATMA GANDHI UNIVERSITY, KOTTAYAM
RE-ACCREDITED BY NAAC WITH A+ GRADE (3.39 CGPA)
ESTD. 1964
In Association with
MAHATMA GANDHI UNIVERSITY, KOTTAYAM

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*Presented the Paper

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22-12-2022

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PRINCIPAL

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This is to certify that the paper entitled "**STATISTICAL ANALYSIS ON THE VIEWERSHIP OF OTT AND THEATRES AND IT'S ASSOCIATED FACTORS**" of **Ms. Greeshna Gilbert *et al.*, St. Teresa's College (Autonomous), Ernakulam** was presented during **QUAESITIO 2022-23**, a Multi-Disciplinary Online International Conference organized by the Research Cell & IQAC of St. Stephen's College, Uzhavoor in association with Mahatma Gandhi University, Kottayam, Kerala on 12/17/2022.

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