



Shri Sangameshwar Education Society's
Sangameshwar College, Solapur
(Autonomous)
Kannada Linguistic Minority Institute

A Project Report on
“A Comparative Study of Online & Traditional shopping Methods”

Submitted to
Department of Statistics



Under the guidance of
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CERTIFICATE

This is to certify that the project report entitled ***“A Comparative Study of Online & Traditional shopping Methods”*** being submitted by – ***Miss. Afsha Shaikh, Miss. Huzefa Kamtikar, Miss. Aishwarya Digge, Miss. Dhanashree Dani & Miss. Neha Survase*** of Sangameshwar College, Solapur (Autonomous) as a part of project work for partial fulfillment of B.Sc.III (Statistics). This project represents the sincere work carried out by these students under my supervision and guidance.

To the best of my knowledge the matter presented in the project has not been submitted earlier.

Place: Solapur

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Project Guide

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ACKNOWLEDGEMENT

The success and final outcome of this project required a lot of guidance and assistance from many people. Our sincere thanks and gratitude to Principal Dr. Mrs. S. V. Rajmanya and Head, Department of Statistics, Dr. P. M. Dargopatil, for their encouragement, their timely support and guidance till the completion of our project work.

It gives me a great pleasure to express my sincere thanks with deep sense of gratitude to our project guide Mr. P. M. Patil for his keen interest in our project work, valuable guidance, constant encouragement at every stage during completion of this project work.

Our sincere thanks to Mr. G. R. Aradhye for his support and guidance. Last but not the least we are thankful to our friends who have always supported during project completion.

Regards,

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Introduction

Shopping is part of everyone's routine for getting the necessary commodities in everyday life. The increase in technology provides good opportunities to the seller to reach the customer in much faster easier and in economic way. Online shopping is emerging very fast in recent years. Now a day the internet holds the attention of retail market. Almost all over the world, people shop online. On the other hand purchasing the product from traditional market is continued in digital era. Many customers go for purchasing offline so as examine the product and hold the possession of the product just after the payment for the product. Customer loyalty depends upon the consistent ability to deliver quality, value and satisfaction. Some people prefer offline shopping, online shopping or both kind of shopping. The main objective of this study is to explore customer's behavior in shopping preferences and to study those factors which affect their shopping preferences. While making any purchase preference consumer should know the channel to purchase the commodities, which can best suit to their need and wants and which can satisfy them. In this competitive world how, consumer can decide the particular medium for their purchase of their goods is very important to understand in managerial point of view.

This report is going to be on customer's awareness towards online and offline shopping and also find out those factor which affects the shopping medium of the consumer whether it is online or offline shopping.



Literature Review

Online shopping

Online shopping or e-shopping is form of electronic commerce which allows consumer to directly buy goods or services from seller over the internet using the net browser. Alternative names are e-web store, e-shop, e-store, internet shop, virtual store etc. simply put comma it is any form of sale that is done over the internet. Shopping has certainly gotten a new definition since the arrival of the internet. Because of what the internet has to offer, that is any person or company from any part of the world who is able to sell goods on the internet via a website is able to sell. What's more, any consumer do not have to worry about having to find means to exchange monitory paper because not just online banking is made available; the consumer is given the option to pay to different payment method. These days, it is even easier to find the most difficult of all products, by easily typing in the product or item that the customer is looking for. No worry about the location because logistic companies are also joining the bandwagon, so to speak, helps in making sure that the product would be available to any and all destination in the world. In fact, there are more and more advantages and benefits to online shopping and why people choose to do this type of shopping over traditional shopping which means offline shopping.

Offline shopping

Having the ability to physically choose and checkout what an item or product is like, would look like, and its features are its benefits of traditional shopping. This is why some consumer still prefers the traditional type of shopping over online shopping because for one, it allows them to meticulously checkout an item. E-shopping is the place where buyers and sellers don't meet each other which result to lack of awareness about the product. Though the consumer visit the online shopping site, do not show any interest of purchasing the product some of the reasons are lack of trust, lack of physical touch and feel, security issue etc.



Method of Data Collection

The survey method has been used for data collection; this was done by the well-structured questionnaires as a research instrument. We have collected the primary data from 160+ stake holders. The primary data was collected using the questionnaire method. Questionnaire was designed in Google form & circulated through WhatsApp. Questionnaire was designed in such a way that, data could be collected from number of respondents from various age groups, Occupation having different income status. The questionnaire designed was basically closed ended, number of questions was asked in logical order so as to gather the sufficient and reliable information.

Google form Link- <https://forms.gle/yEf5Hm68u597hkzy7>

Data Variable Description

GENDER: In gender we have taken two categories they are male and female.

SHOPPING PREFERENCES: In this category we have taken different types of shopping methods, they are online shopping, offline shopping and both online and offline shopping.

OCCUPATION: In this category we have taken different types of occupation they are Government employee, private employee, house wife, retired from bank, self employed, owner, student.

ONLINE STORES USED: We have used different types of store from where people prefer to shop, They are Amazon, Flipkart, Myntra, etc.

AGE GROUP: In this we have taken different types of age group they are teenager, Adult, senior.

FAMILY INCOME: In this we have taken different family incomes and which shopping they Prefer, different family incomes are less than 10000, 10000-20000, 30000-40000, more than 40000, none of the above.

Objectives of Study

- To graphically explore the scenario of online & offline shopping.
- To examine if there is any relationship between the study variables.
- To examine if demographic profiles, occupation etc influence on consumers behavior in shopping preferences.
- To examine if the perceived benefits (time, cost ,conveniences etc.) of online shopping influence on consumers behavior in shopping preferences.
- To study factors that motivates consumers to prefer traditional shopping over online shopping.
- To test the hypotheses of independence, of factors on Shopping preferences.

Statistical Tools used for Data Analysis

Graphical Representation

- Simple Bar Chart
- Pie Chart
- Multiple Bar Chart

Statistical Tools

- Association of Attributes
- χ^2 test for independence of attributes (for 2x2 contingency table.)

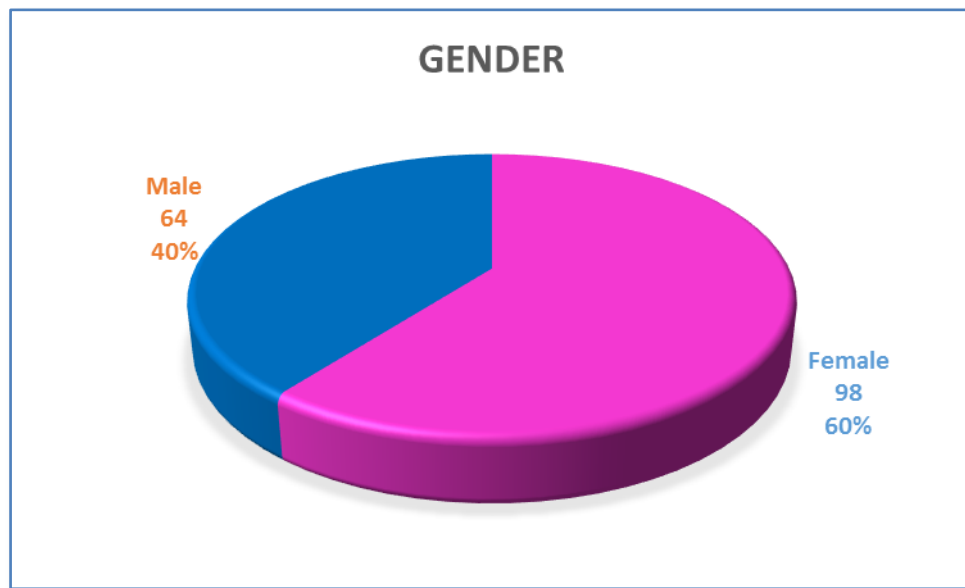
Microsoft Tools

- Microsoft Excel
- Microsoft Word

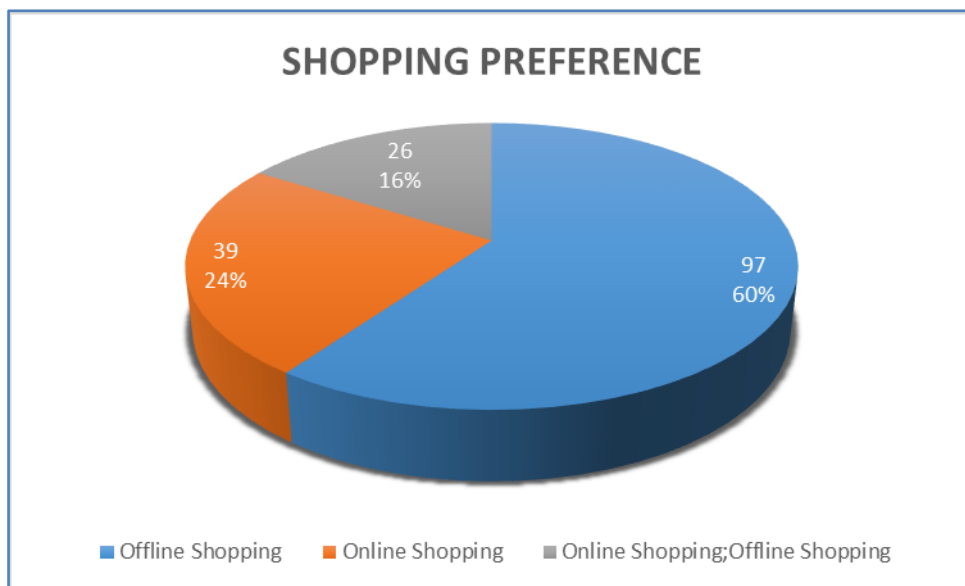
Statistical Software for Data Analysis

- R

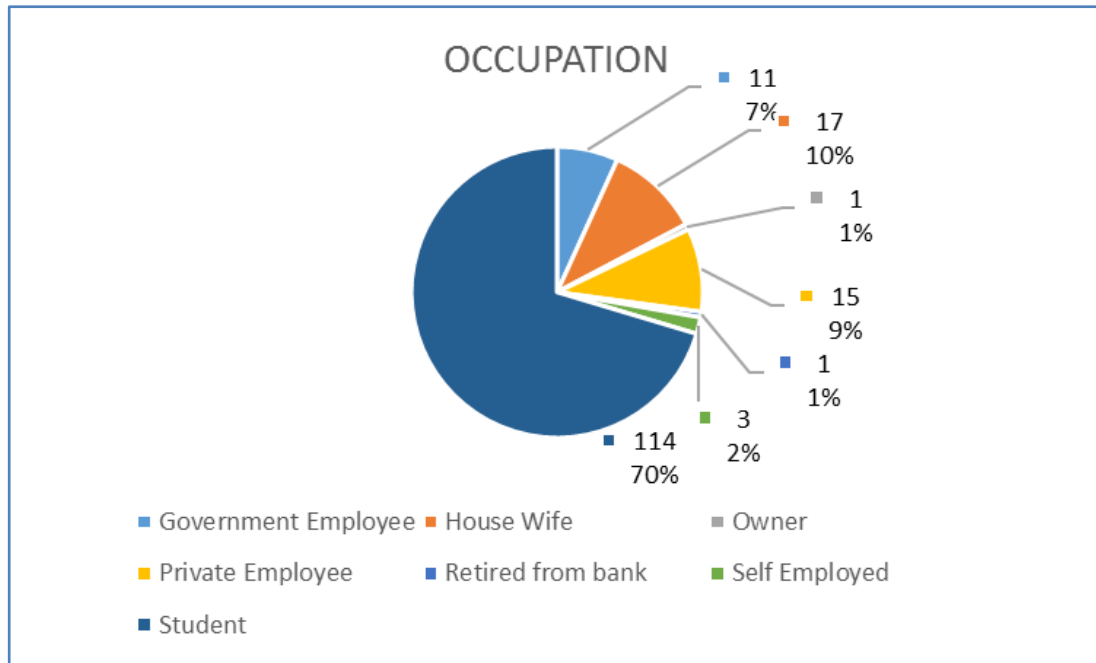
Graphical Representation



Conclusion- In this survey we have collected data from 162 respondents' out of which there are 40% of Male respondents & 60 % of Female respondents.



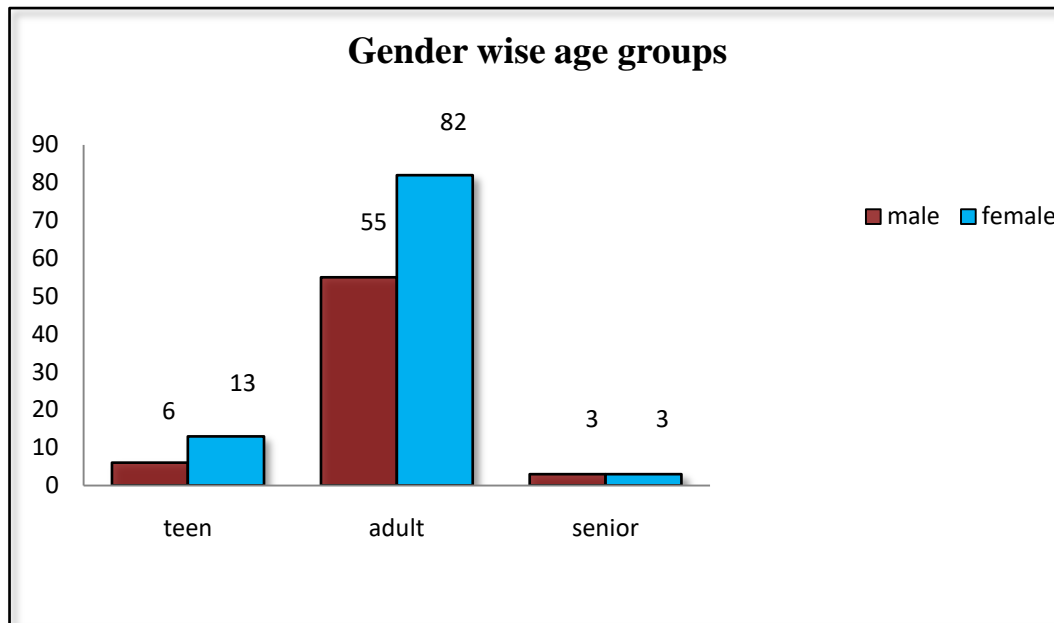
Conclusion- The above pie chart is constructed to depict the shopping preferences of respondents. From the graph it is clear that, most of the respondents prefer the offline shopping (60%) rather than online shopping (24%). 16% of the respondents desire to both types of shopping preferences.



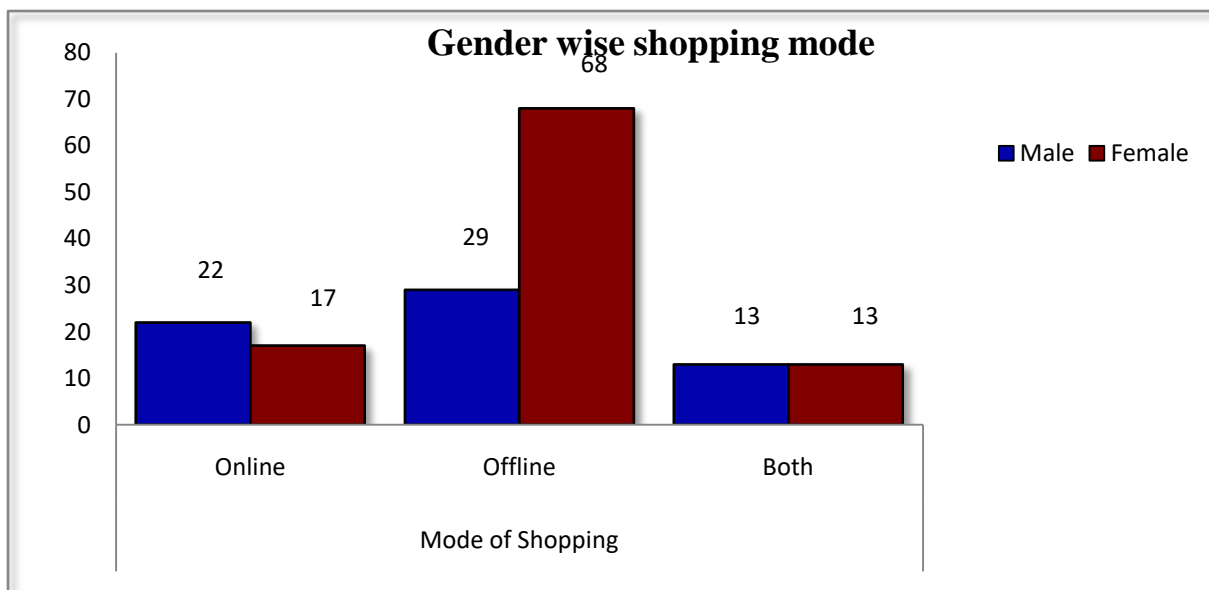
Conclusion- The above pie chart is constructed to depict the occupation of respondents. From the graph it is clear that, most of the respondents are students (70%) and 30% respondents are from (working force) i.e occupation is either self employee, government employee or private employee.



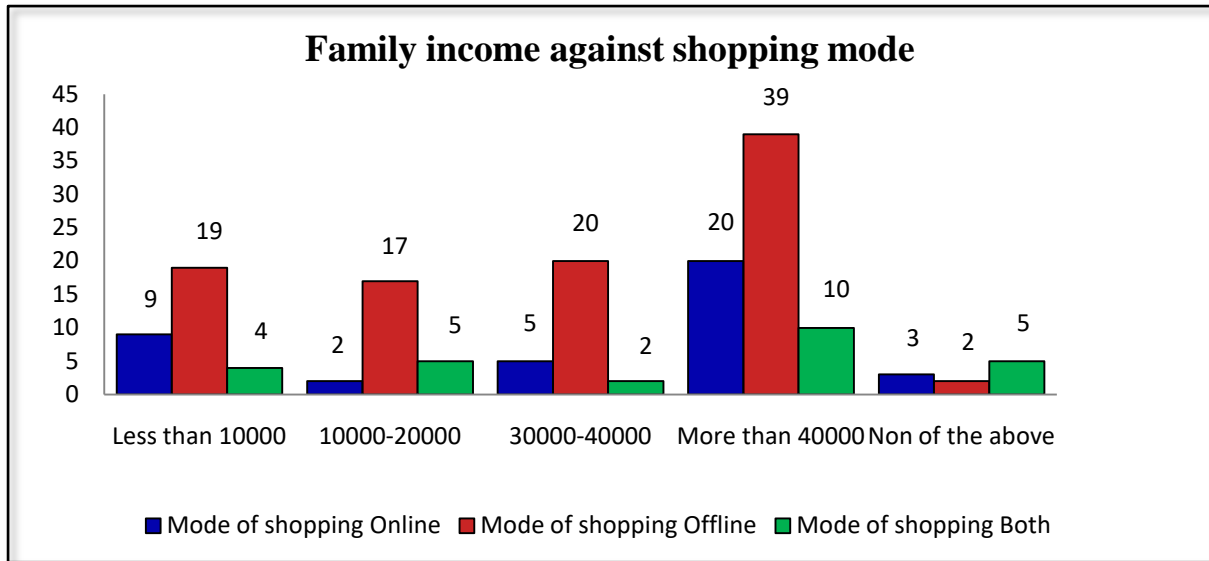
Conclusion- The above simple bar chart is constructed to depict the preference of online stores by the respondents. From the graph it is clear that, the popular online stores for the respondent's preference were Flipkart (44%) and Amazon (42%) for buying necessary commodities. Other online shops are not popular among the respondents.



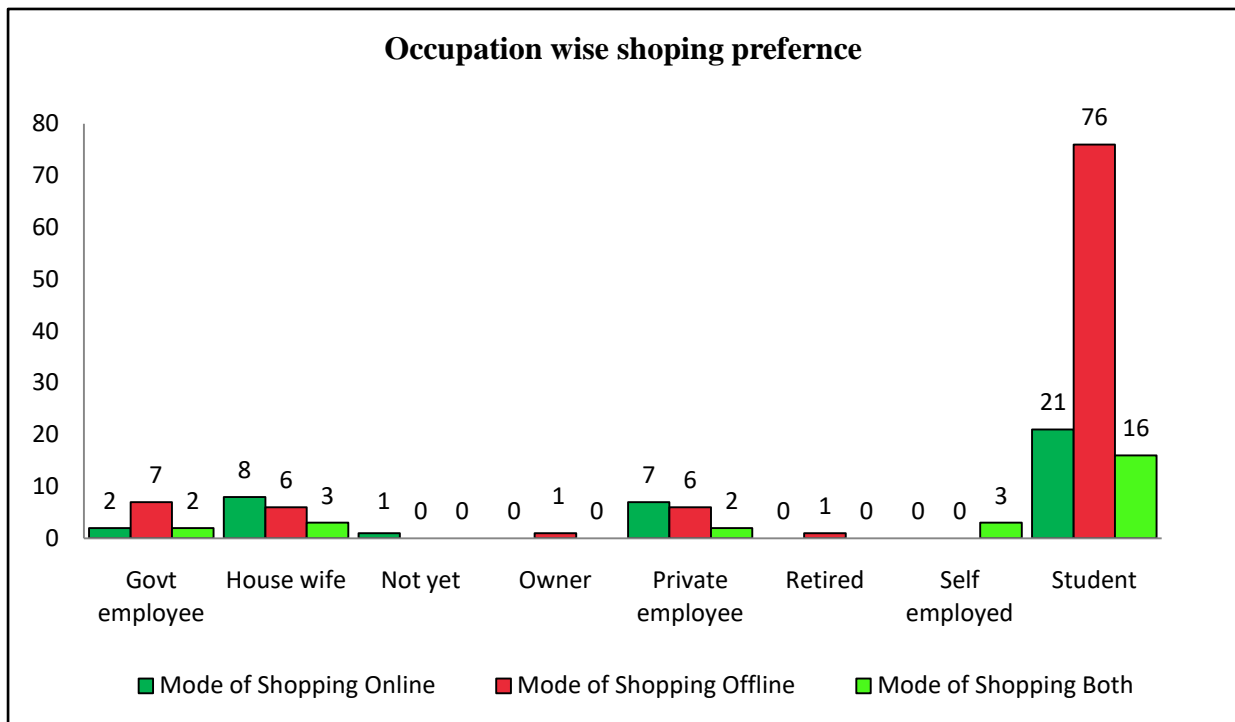
Conclusion- The above simple bar chart is constructed to depict the gender wise population of age groups in data set of the respondents. From the graph it is clear that, the adult population of the respondent's is highest than teen and senior age group population.



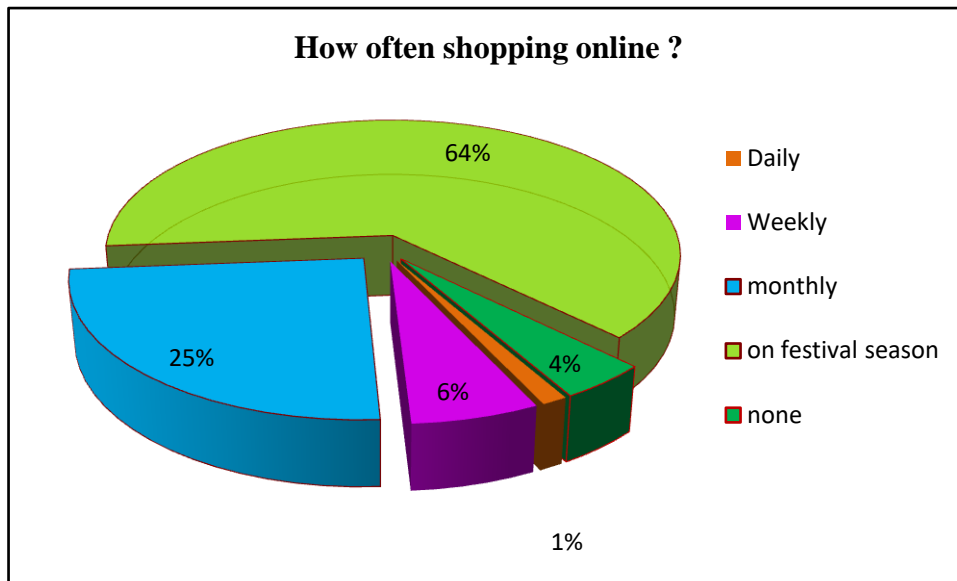
Conclusion- The above simple bar chart is constructed to depict the gender wise shopping mode of the respondents. From the graph it is clear that, the female population of the respondent's is preferring offline mode of shopping.



Conclusion- The above multiple bar chart is constructed to depict the family income wise shopping mode of the respondents. From the graph it is clear that, the families having income more than 40000 are engaged in shopping. Also there more preference is offline shopping.



Conclusion- The above multiple bar chart is constructed to depict the occupation wise shopping mode of the respondents. From the graph it is clear that, the students are more engaged in shopping. Also there more preference is offline shopping.



Conclusion- The above pie chart is depicting how often they prefer online shopping. From the graph it is clear that, 64 % respondents prefer online shopping on festivals, 25% monthly & 6% weekly. Also 1% of the respondent prefers online shopping on daily basis. 4% of the respondents never prefer online shopping.

Table showing Gender against shopping preference

Gender	Shopping Preference			
	Online	Offline	Both	Total
Male	22	29	13	98
Female	17	68	13	64
Total	39	97	26	162

Statistical Theory

From above graphical representation it is clear that, preference of shopping is associated with the attributes, gender, age group and occupation (Although other attributes are also influencing but we consider these most influencing attributes for statistical test of independence)

Chi-Square test of independence

This test is used to determine if there is a significant relationship between two nominal (categorical) variables. The frequency of each category for one nominal variable is compared across the categories of the second nominal variable. The data can be displayed in a contingency table where each row represents a category for one variable and each column represents a category for the other variable.

The null & alternative hypotheses for this test are ,

H₀: There is no relationship between two attributes. &

H₁: There is a relationship between two attributes.

The test statistic is for 2x2 contingency table

<i>Attributes</i>	<i>B1</i>	<i>B2</i>
<i>A1</i>	<i>a</i>	<i>b</i>
<i>A2</i>	<i>c</i>	<i>d</i>

$$\chi^2 = \frac{N(ad - bc)^2}{(a + c)(a + b)(b + d)(c + d)}$$

Decision: If $\chi^2 > \chi^2_{(r-1)(s-1);\alpha}$, we reject the null hypothesis , otherwise accept at $\alpha\%$ level of significance

Yule's Coefficient of association(Q)

This measures strength of association between two attributes. For 2x2 contingency table Q is-

$$Q = \frac{(ad - bc)}{(ad + bc)}$$

The range of Q is $-1 \leq Q \leq +1$

Statistical Analysis

Shopping Mode	Gender		Age Group		Occupation		Income		Payment Mode	
	Male	Female	Adults	Senior & Teen	Student	Other	less than 20000	greater than 20000	CoD	Online
Online	22	17	36	4	23	17	13	25	16	23
Offline	30	69	86	13	77	22	36	59	47	48

2x2 contingency table for shopping mode & different attributes

Attributes	N	Calculated χ^2	Table of $\chi^2_{1,0.05}$	Decision	Yule's coefficient of Association
Gender	138	8.1208	3.8415	Reject H_0	+0.4970
Age Group	139	0.2602	3.8415	Accept H_0	-
Occupation	139	5.3507	3.8415	Reject H_0	-0.4424
Income	133	0.0641	3.8415	Accept H_0	-
Payment mode	134	0.7909	3.8415	Accept H_0	-

Table of Calculated χ^2 and Decisions: $\alpha = 5\%$

Conclusion: From the above table we conclude that,

1. There is no association between shopping mode and age group, income and payment mode.
2. There is association between shopping mode, gender & occupation.
3. The Yule's coefficient of association between Shopping mode & Gender, Occupation is 49.7% & -44.24 % respectively .

Major findings

- In this study out of 162 respondents there are 40% of Male & 60 % of Female respondents.
- 60% of the respondents prefer the offline shopping and 24% respondents prefer the online shopping.
- In the collected data 70% of the respondents are students and 30% respondents are from working force.
- For buying necessary commodities, 44% respondent's prefer Flipkart & 42% respondent's prefer Amazon, online stores.
- Most of the female respondent's is preferring offline mode of shopping.
- The families having income more than 40000 are engaged in shopping & there preference of shopping is offline.
- 64% of the respondents use online shopping mode in festival seasons.
- There is no association between shopping mode and age group, income and payment mode.
- There is association between shopping mode, gender & occupation.
- The Yule's coefficient of association between Shopping mode & Gender, Occupation is 49.7% & -44.24 % respectively .

Limitations

- This study is based on the sample of size 162 respondents only.
- Most of the respondents are students, so the study results might not be extended to the population of different occupation than student.
- The statistical test of independence of attribute is performed on the data, in which respondents preferred either online or offline mode of shopping. Data pertaining to both the type of shopping modes and non-response cases is ignored.

Thank You