# What do people think about food delivery apps?

H.P.T. Arts and R.Y.K. Science College, Nashik-422005

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DEPARTMENT OF STATISTICS

CERTIFICATE

This to certify that the project work entitled **"What do people think about food delivery apps?"** is a bonafide work carried out by

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ABSTRACT

The topic of research is "Statistical analysis of people's perception on food delivery app". This study helps to identify the consumer behaviour towards the product and also the various factors affecting customer satisfaction. The research work will propose a true idea that identifies key factors which are of great importance to customers. The research designed used in this study is Descriptive Research Design. In this context the study also tries to throw light on consumer's perception and expectation in different ways towards Food Delivery App.

The purchase patterns of the consumers related to food items has seen a major shift in developing economies like India. This can be specifically attributed to increase in disposable incomes, access to global information, urbanization, education and health awareness which led to increase in standard of living of people in India. Now- a-days customers play an important role in the field of decision making. Emotions have determined a shopping behaviour more than he or she needs or wants due to greed customer.

INTRODUCTION

Food is a basic necessity. The industry which deals with preparing food items/products refers to the foodservice industry. The food service industry is and will always remain in high demand because of its genre. These industries include restaurants, fast foods, school and hospital cafeterias, catering operations, food carts and food trucks etc. Restaurants and fast foods mainly contribute to the food service industry. 1 Fast food generally refers to the type of restaurants that sell quick, inexpensive take-out food. During a relatively brief period of time, the fast-food industry has helped to transform not only diet, but also landscape, economy, work-force, and popular culture. The extraordinary growth of the fast-food industry has been obsessed by fundamental changes in society. The whole experience of buying fast food has become so habitual, that it is now taken for granted, like brushing your teeth or stopping for a red light. Restaurants and fast foods are meant for same services except those restaurants offer a large menu including variety of cuisines as compared to fast foods, which usually offers a small menu with quick service. Another difference between a restaurant and fast food is, restaurants offer meals that are cooked and prepared and is eaten at the premises while fast food usually is pre-cooked meals or serves meals that are cooked easily. Diners may eat it inside the store or they can order their food "to-go". In fast foods you usually pay before eating unlike full-service restaurants. 2 Foodservice organizations in operation in the United States today have become an accepted way of life, and we tend to regard them as relatively recent innovations. However, they have their roots in the habits and customs that characterize our civilization and predate the Middle Ages. Certain phases of foodservice operations reach a well-organized from as early as feudal times. Religious orders and royal households were among the earliest practitioners of quantity food production. Records show that the food preparation carried out by the abbey brethren reached a much higher standard than food served in the inns at that time.

The increase in income of the family members, changing lifestyle and eating patterns have to lead to an increase in market growth. The demand of food apps is growing coupled with affordable prices and this has led to the growth of the business. Online food ordering is growing in market day by day. People are so active while using the apps for ordering food online. As a result of all these online food marketing is also able to generate ample number of opportunities for employment. It also helps local vendors to connect with people due to which they are able to increase their earning.

Simply ordering system is a website or mobile application through which users can order food online from a food cooperative or even a native restaurant ordering food online is similar to online shopping. So, with such benefits online food services is becoming a huge sector & will benefit India's economic condition. India holds the record for being one of the youngest populations around the world with the average age standing at 27 years. The combination of a young demography and disposable income has increased the demand for new-age platforms like food apps. This has resulted in impulsive purchasing power because the willingness to try new.

- History-

The first meal delivery services are believed to have been started during Wartime, London. As a result of the Blitz, many Londoners had lost their homes and their ability to cook for themselves. In response to this need the WVS (Women's Volunteer Service) produced meals and delivered them to people who had lost practically everything. This caring approach was carried on in various areas of the UK where injured servicemen were provided meals by volunteers in the local vicinity. After the war the first true food delivery service evolved in Hemel Hempstead in 1947.The recipients were still servicemen who were incapable of cooking their own meals but instead of the vans used to transport meals today, these early services apparently used prams, lined with felt and even straw to ensure that the meal was delivered warm. Understandably this type of service was extremely labour-intensive requiring a vast network volunteer, each with good cooking knowledge and skills. Today, the processes involved incorporate mass production principles.

- Present Scenario-

Most studies on online shopping focus on the implications and benefits of e-commerce. This focus is expected to increase as more people are pushed toward shopping online in a bid to avoid crowded shopping malls for fear of contracting the dreaded COVID-19 virus. A gap in the literature, however, is that while the topic is rife with studies detailing how online shopping works, there is limited research on shopping foods online, which is inherently with very different characteristics from buying other kinds of commodities via the World Wide Web. Nonetheless, food is one of the most common products for the mankind, and so are with great impact for human's online shopping life. A critical analysis for in-depth understanding of the special attributes that online food shopping has can facilitate the construction of a precise (for stakeholders' needs) and high-quality (for stakeholders' safety and satisfactions) online food shopping ecosystem. This paper presents a conceptual analysis aimed at explicating the significant themes within the current literature. The review will conduct critical propositions reflected from these studies to propose future research directions. The academic review is significant to both researchers and online food stores as people across the world start embracing online shopping more than ever before.

Online Food Ordering system is a process in which one can order various foods and beverages from some local restaurant and hotels through the use of internet, just by sitting at home or any place. And the order is delivered to the told location. Nowadays everyone is leaving busy schedule whether it is urban area or rural. But talking specifically about the urban areas and deeply about the big cities, people out there are so busy in their life that they don't get enough of time to have their meals properly. As these days women are no less than men, in any field. So, in big cities even wives are working women, therefore mostly the small families manage to have their food ordered from somewhere, as they lack to rue. Not only this is the case, if we talk about the children in the modern era, they like only fast food or something from the outside. But they ignore eating homemade meals. So, food ordering system these days has one of the fastest growing markets, though being a new idea. In this project we have developed something like the same to earn from and serve the nation in a much better way possible. Nowadays, people are more regular to dine-in at restaurant for their meals. The online food ordering system provides convenience for the customers that are nothing special but the general busy people of the society. It overcomes the demerits of the manual hotel or mess system and the old-fashioned queuing system. This system enhances the readymade of foods than people.

Therefore, this system enhances the speed of getting food in person's plate and quality and manner of taking the order from the customer. It provides a better communication platform. The user's details are stored using the electronic media. The online food ordering system provides the menu online and the customers can easily place the order by just clicking the mouse or by touching a button on their smart phones. Also, with the food ordering system online, people can easily track their orders, and admin can maintain customer's database and advance the food delivery system. This food ordering system allows the user to select the desired food items from a list of available menu items provided by the local hotel or restaurant. The user can place orders for the food items of their like from the list. The payment can be made online or pay-on-delivery system. The user's details are maintained confidential because it maintains a separate account for each user. An id and password are provided for each user. In addition, several encryption techniques have been used on the server side to protect the card details. Therefore, it provides a more secured and safe ordering system.

RESEARCH METHODOLOGY

Present chapter deals with the methodology adopted to fulfil the objectives of the Present study. The study was conducted in the Nashik district of Maharashtra. Present chapter is divided into following sub-head.

- Sampling Technique: Simple random sampling (restricted area)
- Sample size: 215
- Sampling unit: All customers using food delivery apps
- Collection of data and method of enquiry: Present study was based on the primary data. The data was collected from the respondents through Google Forms.
- Period of enquiry: 1 week
- Data collection tools: Questionnaire consisted of multiple-choice question.

OBJECTIVES OF STUDY

1.To analyse the factors that influence consumer's perception towards online food delivery App.

2.To examine major factors influencing consumers while ordering food online.

3.To analyse area of improvement in food delivery apps.

4.To find out major factor for choosing online food delivery app over conventional dine in methods.

5.To study pattern of ordering online food of the consumers.

6.To study the satisfaction level of consumer's using food delivery apps.

7.To know the overall perception of consumers towards food delivery apps.

QUESTIONNAIRE

Survey of Food Delivery

Please kindly fill the form complete. Be assured that your information will be confidential.This survey is for educational purpose only.

1. Email *

    _____

General information

2. Your name? *

    Name-Middle Name-Surname

    _____

3. What is your age? *

    Mark only one oval.

    ( ) Below 18

    ( ) 18-35

    ( ) 35-50

    ( ) 50   above

4. Which gender are you? *

    Mark only one oval.

    ( ) Male

    ( ) Female

    ( ) Other

5. What is your current employment status? *

   Mark only one oval.

   ( ) Student

   ( ) Service

   ( ) Business

   ( ) Home Maker

   ( ) Retired

6. Your marital status? *

   Mark only one oval.

   ( ) Single

   ( ) Married

   ( ) Divorced

7. Your monthly income/Pocket money? *

   Mark only one oval.

   ( ) below 10k

   ( ) 10k-20k

   ( ) 20k-50k

   ( ) 50k-80k

   ( ) 80k and above

Section 2:

8.   Do you order food online? *

Mark only one oval.

( ) Yes   *Skip to question 9*

( ) No   *Skip to section 8 (Thank You!)*

About preferences and choices:

9.   How often you order food online? *

Mark only one oval.

( ) At least once in a month

( ) At least once in a week

( ) Daily

( ) Only when there is offer

10.   I prefer ordering food online for? *

Tick all that apply.

[ ] Breakfast

[ ] Snacks

[ ] Lunch /Dinner

11.   Which factor do you consider while ordering food online? *

Tick all that apply.

[ ] Quality

[ ] Quantity

[ ] Price

12. On an average how much rupees do you spent on ordering food online (Per order)? *

Mark only one oval.

◯ Below 100

◯ 100-300

◯ 300-500

◯ 500 and above

13. Which payment method do you prefer? *

Tick all that apply.

☐ Net banking

☐ Debit or credit card

☐ BHIM/Paytm/Google pay, etc.

☐ Cash on delivery

14. Have you felt any problem while ordering online food? *

Mark only one oval.

◯ Yes   *Skip to question 15*

◯ No   *Skip to question 15*

15. Select your level of agreement. *

Mark only one oval per row.

	Agree	Neutral	Disagree
We can order food any time.	⬭	⬭	⬭
I'm okay with time taken to deliver food ordered online.	⬭	⬭	⬭
Il believe that food ordered online is cooked in hygienic place.	⬭	⬭	⬭
Food ordered online is packed properly as per my expectations.	⬭	⬭	⬭
I have observed difference between actual food and ordered food.	⬭	⬭	⬭
I get sufficient quantity of food ordered online just like Dine–in.	⬭	⬭	⬭
Order tracking is easy.	⬭	⬭	⬭
Do you agree to change the delivery price according to distance?	⬭	⬭	⬭

About food apps:

16. Which mobile food app do you prefer? *

Tick all that apply.

☐ Zomato
☐ Swiggy
☐ EatSure
☐ Other: _____

17. I have been influenced by _____ to use food app. *

Tick all that apply.

☐ Social media posts

☐ TV or YouTube advertisement

☐ Friends/Family

☐ Other: _____

18. Advantages of ordering food online? *

Tick all that apply.

☐ flexible

☐ Cost   efficient

☐ Time   efficient

☐ Easy to use

19. Disadvantages of ordering food online? *

Tick all that apply.

☐ High delivery charges

☐ Connectivity issue

☐ Compromised quality

☐ Late and incorrect order

☐ Some restaurants do not provide order in my locality

20. Factors influencing the use of online food delivery. *

Tick all that apply.

☐ Service quality

☐ Available offers

☐ Restaurants rating

21. According to you how much time is sufficient for cancellation of order? *

Mark only one oval.

- ( ) 1-3 min
- ( ) 2-5 min
- ( ) 5-10 min

Select your level of agreement:

22. How was your experience with customers support while using app? *

Mark only one oval.

	1	2	3	4	5	
Worst	( )	( )	( )	( )	( )	Best

23. Which app provides more offers according to you? *

Mark only one oval.

- ( ) Zomato
- ( ) Swiggy
- ( ) Eatsure
- ( ) Other: _____

24. Do delivery agents carry QR code for cash on delivery mode? *

   Mark only one oval.

   ( ) Yes

   ( ) No

   ( ) Sometimes

   ( ) Don't know

   Suggestion:

25. I find two-way communication channel is also necessary to be added in food   *
    apps just like Dine in.

    Mark only one oval.

    ( ) Strongly disagree

    ( ) Disagree

    ( ) Neutral

    ( ) Agree

    ( ) Strongly agree

26. Any other suggestions (About food app service)?

    _____

    _____

    _____

    _____

    _____

Thank You!

Sr.No.	Q.3	Q.4	Q.5	Q.6	Q.7	Q.8	Q.9	Q.10	Q.11	Q.12	Q.13	Q.14
1	1	0	0	0	0	1	0	Lunch /Dinner	Quality, Quantity	3	Net banking, Debit or credit card, BHIM/PayTm/Google pay ,etc, Cash on delivery	0
2	1	0	0	0	0	1	3	Lunch /Dinner	Price	1	Cash on delivery	0
3	1	1	0	0	0	1	3	Breakfast, Snacks, Lunch /Dinner	Quality, Quantity, Price	1	BHIM/PayTm/Google pay ,etc	0
4	1	0	0	0	0	0						
5	1	0	0	0	0	0						
6	1	0	0	0	0	1	0	Lunch /Dinner	Quality	1	Cash on delivery	0
7	1	1	0	0	1	1	1	Breakfast, Snacks, Lunch /Dinner	Quality, Quantity	2	BHIM/PayTm/Google pay ,etc, Cash on delivery	0
8	3	2	0	2	4	1	2	Breakfast, Snacks, Lunch /Dinner	Quality, Quantity	3	Net banking, Debit or credit card, BHIM/PayTm/Google pay ,etc, Cash on delivery	1
9	1	0	0	0	0	1	0	Lunch /Dinner	Quality, Quantity, Price	1	Net banking	0
10	1	1	0	0	0	0						
11	1	1	0	0	0	1	0	Snacks	Quality	2	Cash on delivery	0
12	1	0	2	1	1	0						
13	1	0	0	0	0	1	0	Lunch /Dinner	Quality, Quantity, Price	1	BHIM/PayTm/Google pay ,etc	0
14	1	1	0	0	0	0						
15	1	1	0	0	0	1	0	Snacks, Lunch /Dinner	Quality	2	BHIM/PayTm/Google pay ,etc, Cash on delivery	0
16	1	0	1	0	2	1	1	Snacks	Quality, Quantity, Price	2	Cash on delivery	1
17	1	0	0	0	0	1	1	Snacks, Lunch /Dinner	Quality, Quantity, Price	1	BHIM/PayTm/Google pay ,etc, Cash on delivery	1
18	1	0	0	0	0	0						
19	1	1	0	0	0	0						
20	1	0	0	0	0	0						
21	1	0	1	1	2	1	0	Lunch /Dinner	Quality, Price	1	BHIM/PayTm/Google pay ,etc, Cash on delivery	0
22	1	0	0	0	0	1	0	Snacks, Lunch /Dinner	Quality	1	BHIM/PayTm/Google pay ,etc, Cash on delivery	0
23	1	0	0	0	0	1	1	Lunch /Dinner	Quality, Quantity, Price	1	BHIM/PayTm/Google pay ,etc	1
24	1	1	0	0	0	1	0	Snacks	Quality, Price	1	BHIM/PayTm/Google pay ,etc, Cash on delivery	1
25	1	0	0	0	0	1	0	Snacks, Lunch /Dinner	Quality, Quantity	2	BHIM/PayTm/Google pay ,etc	0
26	1	1	0	0	0	1	1	Lunch /Dinner	Quality, Price	2	Debit or credit card	0
27	1	0	0	0	0	1	3	Snacks	Quality, Quantity, Price	1	BHIM/PayTm/Google pay ,etc	0
28	1	0	1	0	2	1	0	Snacks, Lunch /Dinner	Quality, Quantity, Price	1	Debit or credit card, BHIM/PayTm/Google pay ,etc	0
29	1	0	1	1	2	0						
30	1	0	1	0	3	1	0	Snacks, Lunch /Dinner	Quality, Price	1	BHIM/PayTm/Google pay ,etc	0
31	1	1	0	0	0	1	0	Lunch /Dinner	Quality, Quantity, Price	1	BHIM/PayTm/Google pay ,etc, Cash on delivery	0
32	1	0	0	0	0	1	0	Lunch /Dinner	Quality, Price	1	Debit or credit card, BHIM/PayTm/Google pay ,etc	0
33	1	1	0	1	0	1	0	Snacks	Quality	1	BHIM/PayTm/Google pay ,etc	0
34	1	0	0	0	0	1	0	Snacks	Quality, Price	0	Cash on delivery	1
35	1	0	0	0	0	1	0	Snacks	Price	0	BHIM/PayTm/Google pay ,etc	0
36	1	0	0	0	0	1	0	Snacks	Quality, Price	1	BHIM/PayTm/Google pay ,etc, Cash on delivery	0
37	1	0	1	0	0	1	3	Snacks	Price	1	Cash on delivery	0
38	1	0	0	0	0	1	0	Snacks	Quality	2	Net banking	0
39	1	0	0	0	3	1	1	Breakfast, Snacks, Lunch /Dinner	Quality	1	BHIM/PayTm/Google pay ,etc	1
40	1	0	0	0	0	1	0	Lunch /Dinner	Quality, Quantity, Price	2	BHIM/PayTm/Google pay ,etc	0
41	1	0	0	0	0	0						
42	1	0	2	0	1	1	0	Snacks	Quality, Quantity, Price	2	BHIM/PayTm/Google pay ,etc, Cash on delivery	0
43	1	0	0	0	0	1	3	Snacks	Price	1	BHIM/PayTm/Google pay ,etc	0
44	1	0	1	0	3	0						
45	1	1	0	0	0	1	0	Snacks	Quality, Quantity, Price	1	Cash on delivery	0
46	1	0	0	0	0	0						
47	1	1	0	0	0	1	2	Breakfast, Snacks, Lunch /Dinner	Quality	1	BHIM/PayTm/Google pay ,etc	0
48	1	0	2	1	1	1	1	Breakfast, Snacks	Quality, Quantity	1	BHIM/PayTm/Google pay ,etc	0
49	1	1	0	1	0	1	3	Lunch /Dinner	Quality	1	BHIM/PayTm/Google pay ,etc	1
50	1	0	0	0	0	1	3	Lunch /Dinner	Quality	1	Cash on delivery	1

Sr. No.	Q.15(A)	Q.15(B)	Q.15(C)	Q.15(D)	Q.15(E)	Q.15(F)	Q.15(G)	Q.15(H)	Q.16	Q.17	Q.18
1	1	1	1	1	1	1	1	1	Zomato, Swiggy	Social media posts, TV or YouTube advertisment, Friends/Family	flexible, Cost efficient, Time efficient, Easy to use
2	1	1	2	1	1	2	1	0	Zomato, Swiggy	Social media posts, Friends/Family	Time efficient, Easy to use
3	1	1	1	1	1	1	1	2	Zomato, Swiggy	Social media posts, TV or YouTube advertisment, Friends/Family	flexible, Cost efficient, Time efficient, Easy to use
4											
5											
6	1	2	2	2	2	2	2	0	Zomato	Friends/Family	flexible, Easy to use
7	1	1	2	2	1	1	1	1	Zomato, Swiggy	Social media posts, Friends/Family	flexible, Time efficient, Easy to use
8	2	0	0	0	0	0	0	0	Zomato, Swiggy, Eat Sure	Social media posts, TV or YouTube advertisment, Friends/Family	flexible, Time efficient, Easy to use
9	1	2	1	1	1	2	1	2	Zomato, Swiggy, Dominos,mcd,kfc	Social media posts, TV or YouTube advertisment, Friends/Family	flexible, Cost efficient, Time efficient, Easy to use
10											
11	1	1	1	1	1	2	2	2	Zomato	TV or YouTube advertisment	flexible, Easy to use
12											
13	1	1	2	2	1	2	1	1	Swiggy	Friends/Family	flexible, Easy to use
14											
15	2	1	2	2	1	2	2	2	Zomato, Swiggy	Friends/Family	Time efficient
16	2	1	2	1	1	2	1	1	Zomato	Friends/Family	Cost efficient, Time efficient
17	2	2	2	1	1	1	1	1	Zomato, Swiggy	TV or YouTube advertisment, Friends/Family	flexible, Time efficient
18											
19											
20											
21	2	1	2	1	1	2	1	1	Zomato, Swiggy	Social media posts, Friends/Family	flexible, Cost efficient, Easy to use
22	2	0	2	2	2	2	1	0	Zomato, Swiggy	Friends/Family	Easy to use
23	1	2	1	1	0	1	1	1	Zomato, Swiggy	Social media posts, TV or YouTube advertisment	flexible, Cost efficient, Time efficient, Easy to use
24	2	0	1	2	1	1	2	0	Zomato	Social media posts, TV or YouTube advertisment, Friends/Family	Time efficient
25	1	1	1	1	1	1	1	1	Zomato, Swiggy	Social media posts	flexible
26	2	1	2	2	1	2	1	1	Zomato, Swiggy	Social media posts	flexible, Easy to use
27	1	1	1	0	1	2	2	0	Zomato, Swiggy	Social media posts	Time efficient
28	1	2	2	1	2	2	1	1	Zomato, Swiggy	Social media posts, TV or YouTube advertisment	flexible, Time efficient
29											
30	2	2	2	2	2	0	1	0	Zomato, Swiggy	TV or YouTube advertisment	Easy to use
31	2	2	2	1	0	2	1	1	Swiggy	Social media posts, TV or YouTube advertisment	flexible, Time efficient, Easy to use
32	0	2	0	0	1	2	1	0	Zomato, Swiggy	TV or YouTube advertisment	flexible, Easy to use
33	0	0	2	1	1	2	2	2	Swiggy	Friends/Family	Time efficient, Easy to use
34	2	2	2	1	1	0	2	1	Zomato, Swiggy	TV or YouTube advertisment	flexible
35	2	1	2	1	1	0	1	1	Zomato	Friends/Family	Easy to use
36	1	2	2	2	0	0	0	0	Zomato, Swiggy	Friends/Family	flexible, Time efficient
37	2	1	2	0	1	0	2	2	Zomato, Swiggy	TV or YouTube advertisment	flexible, Time efficient
38	0	2	2	2	2	2	2	2	Zomato, Swiggy	Social media posts	flexible, Cost efficient, Time efficient, Easy to use
39	0	1	2	1	2	1	1	1	Zomato, Swiggy	Social media posts, TV or YouTube advertisment, Friends/Family	flexible, Time efficient, Easy to use
40	1	2	2	1	1	0	1	0	Zomato, Swiggy	TV or YouTube advertisment, Friends/Family	flexible, Easy to use
41											
42	1	1	1	1	2	2	1	1	Zomato, Swiggy	Social media posts	Cost efficient, Time efficient
43	0	1	2	1	1	1	1	0	Zomato, Swiggy	TV or YouTube advertisment	flexible
44											
45	1	2	2	1	2	2	1	0	Zomato, Swiggy	Social media posts, Friends/Family	Time efficient
46											
47	1	1	1	1	1	1	1	1	Zomato	Social media posts, TV or YouTube advertisment, Friends/Family	Time efficient
48	2	2	2	2	0	2	2	0	Zomato, Swiggy	Social media posts, TV or YouTube advertisment	flexible
49	2	0	0	2	1	1	1	0	Zomato, Swiggy	Social media posts	flexible, Easy to use
50	0	0	0	0	1	0	2	0	Swiggy	Social media posts	flexible, Time efficient

17

Sr. No.	Q.19	Q.20	Q.21	Q.22	Q.23	Q.24	Q.25
1	High dilevery charges, Connectivity issue, Compromised quality, Late and incorrect order, Some restaurant do not provides order in my locality	Service quality, Available offers, Restaurants rating	0	5	1	1	3
2	High dilevery charges	Available offers	1	4	0	2	2
3	High dilevery charges, Connectivity issue, Compromised quality, Late and incorrect order, Some restaurant do not provides order in my locality	Service quality	0	4	1	1	3
4							
5							
6	Late and incorrect order, Some restaurant do not provides order in my locality	Available offers	2	3	0	1	2
7	Connectivity issue, Late and incorrect order	Service quality, Available offers	0	5	1	3	4
8	High dilevery charges, Connectivity issue, Compromised quality, Late and incorrect order, Some restaurant do not provides order in my locality	Service quality, Available offers, Restaurants rating	2	1	3	2	2
9	High dilevery charges, Compromised quality, Some restaurant do not provides order in my locality	Restaurants rating	1	4	0	1	2
10							
11	High dilevery charges, Some restaurant do not provides order in my locality	Available offers	1	3	0	1	2
12							
13	High dilevery charges, Compromised quality	Available offers	0	4	1	2	3
14							
15	Connectivity issue	Service quality	1	4	0	1	2
16	High dilevery charges, Compromised quality, Some restaurant do not provides order in my locality	Service quality	2	3	0	3	2
17	High dilevery charges, Compromised quality	Service quality, Available offers, Restaurants rating	1	4	1	1	3
18							
19							
20							
21	High dilevery charges, Late and incorrect order, Some restaurant do not provides order in my locality	Available offers, Restaurants rating	1	4	1	3	3
22	High dilevery charges, Late and incorrect order, Some restaurant do not provides order in my locality	Service quality, Available offers, Restaurants rating	1	4	0	3	2
23	High dilevery charges, Connectivity issue, Late and incorrect order	Service quality, Available offers, Restaurants rating	0	5	0	1	3
24	Connectivity issue, Late and incorrect order	Available offers	2	4	0	2	3
25	High dilevery charges	Service quality	0	1	0	1	0
26	High dilevery charges, Compromised quality	Service quality, Available offers	0	4	1	3	3
27	Some restaurant do not provides order in my locality	Available offers	2	3	0	1	4
28	High dilevery charges, Compromised quality	Available offers, Restaurants rating	1	3	0	2	3
29							
30	High dilevery charges, Connectivity issue, Late and incorrect order, Some restaurant do not provides order in my locality	Service quality, Available offers	0	3	0	1	2
31	Compromised quality, Some restaurant do not provides order in my locality	Service quality, Available offers	1	4	0	2	4
32	High dilevery charges, Compromised quality, Late and incorrect order	Available offers	0	3	0	2	2
33	Compromised quality, Late and incorrect order	Restaurants rating	2	3	1	1	3
34	High dilevery charges, Connectivity issue, Some restaurant do not provides order in my locality	Restaurants rating	0	3	1	3	3
35	High dilevery charges, Some restaurant do not provides order in my locality	Available offers	2	3	0	1	2
36	Connectivity issue, Some restaurant do not provides order in my locality	Service quality	2	3	0	3	1
37	High dilevery charges, Compromised quality	Available offers	2	3	0	2	4
38	High dilevery charges, Compromised quality	Service quality, Available offers	1	4	1	1	0
39	Some restaurant do not provides order in my locality	Service quality, Available offers, Restaurants rating	2	4	0	3	0
40	High dilevery charges, Some restaurant do not provides order in my locality	Available offers	1	4	0	1	2
41							
42	Connectivity issue, Compromised quality	Service quality, Available offers, Restaurants rating	2	3	1	3	3
43	Some restaurant do not provides order in my locality	Available offers	2	4	1	3	4
44							
45	High dilevery charges, Compromised quality	Service quality, Available offers, Restaurants rating	1	5	1	3	3
46							
47	High dilevery charges	Service quality, Available offers, Restaurants rating	0	5	0	1	3
48	High dilevery charges	Service quality	1	3	0	3	3
49	High dilevery charges, Some restaurant do not provides order in my locality	Available offers	2	4	0	3	3
50	High dilevery charges, Connectivity issue, Compromised quality, Late and incorrect order, Some restaurant do not provides order in my locality	Service quality, Available offers, Restaurants rating	2	3	1	0	3

CODING

AGE	
<18	0
18-35	1
35-50	2
50<	3

GENDER	
Male	0
Female	1
Other	2

Occupation	
Student	0
Service	1
Business	2
Home Maker	3
Retired	4

MARITAL STATUS	
Single	0
Married	1
Divorced	2

AVERAGE MONEY SPENT (Rs)	
<100	0
100-300	1
300-500	2
500<	3

MONTHLY INCOME	
<10K	0
10-20K	1
20-50K	2
50-80K	3
80K<	4

ORDER FOOD ONLINE	
No	0
Yes	1

HOW OFTEN DO YOU ORDER FOOD ONLINE	
Once in month	0
Once in week	1
Daily	2
At the time of offer	3

FELT ANY PROBLEM	
No	0
Yes	1

LEVEL OF AGREEMENT	
Disagree	0
Agree	1
Neutral	2

SUFFICIENT ORDER CANCELLATION TIME	
1-2min	0
2-5min	1
5-10min	2

APP PROVIDE MORE OFFERS	
Zomato	0
Swiggy	1
Eat Sure	2
Other	3

TWO WAY COMMUNICATION	
Strongly Disagree	0
Disagree	1
Neutral	2
Agree	3
Strongly Agree	4

STATISTICAL TOOLS USED IN THIS PROJECT ARE:

- Diagrammatic representation.

- Chi-square test for independence.

- Proportion test.

- Multiple logistic regression.

- Association rule.

- Statistical software packages used:

    a)   MS-Excel

    b)   MS-Word

    c)   R software

THEORY

1] Diagrammatic representation:

Diagrammatic Representation is a visual display of data and statistical results. It is often more effective than presenting the data in tabular form. There are many different types of diagrammatic representations which is used depending upon the nature of data and type of the statistical results. It is very effective way to serve the purpose of comparison at a glance and revealing the patters in the data. Graphs and diagrams are easy to understand and create an effect. Graphs and charts are often used to ease understanding of large quantities of data and relationships between parts of the data. Graphs can usually be read more quickly than the raw data that they are produced form. They are used in wide variety of fields and can be created by hands often on graph papers or by Computer using a chart application. Therefore, Graphs and Charts are believed to be powerful tools to convey information.

- Bar diagram-
  Bar graph is used frequently in practice for the comparative study of two or more items or values of single variable or a single classification or category of data. Bar diagrams are one of the easiest and the most commonly used devices of presenting most of the business and economic data. These are especially satisfactory for categorical data or series.

- Pie chart-
  It is a special type of diagram used to represent the whole quantity by a circle and the sub-division of the whole quantity is shown by the sectors of that circle. This diagram is a two-dimensional diagram.

2] Chi-square test for independence:

In This test we test null hypothesis:

H0: The two attributes A and B are independent

H1: The two attributes A and B are not independent

In R software following command is used for performing the test,

chisq.test(y, correct=F)

Where, y is m×n matrix of given contingency table. Argument correct =F indicates that Yates correction is not to be applied. If only of the cell frequency in contingency table is less than 5 we apply Yates correction, by specifying correct=T

3] Proportion test:

Testing population proportion (P) equal to specified value (P0):

In this case number of observations of specific type are counted and its proportion is determined we, develop test in order to test whether proportion of certain type of observations is equal to specified value.

Let,

P: proportions of certain type of items in population.

n: sample size

X: number of items of certain type in a sample of size n

P: x/n = proportion of certain type of items in sample

P0: specified value of p.

The hypothesis for such problems will be:

Ho: P1=P0 against H_1:P1>p0

R commands for proportion test

prop.test(x,n,p,alternative="greater",conf.level=c,correct=T)

P-value <l.o.s

Decision: we may reject Ho at a% l. o. s. If p-value less than l. o. s.

4] Multiple logistic regression:

The goal of a multiple logistic regression is to find an equation that best predicts the probability of a value of the Y variable as a function of the X variables. You can then measure the independent variables on a new individual and estimate the probability of it having a particular value of the dependent variable. You can also use multiple logistic regression to understand the functional relationship between the independent variables and the dependent variable, to try to understand what might cause the probability of the dependent variable to change.

Multiple Logistic Regression is a statistical test used to predict a single binary variable using one or more other variables. It also is used to determine the numerical relationship between such a set of variables. The variable you want to predict should be binary and your data should meet the other assumptions listed below.

When to use Multiple Logistic Regression?

1.You want to use one or more variables in a prediction of another, or you want to quantify the numerical relationship between these variables

2.The variable you want to predict (your dependent variable) is binary

3.You have one or more independent variable, or variable(s) that you are using as a predictor

The assumptions for Multiple Logistic Regression include:

 1.Linearity

2.No Outliers

3.Independence

4.No Multicollinearity

5] Association rule:

Association rules are "if-then" statements, that help to show the probability of relationships between data items, within large data sets in various types of databases.

In data science, association rules are used to find correlations and co-occurrences between data sets. They are ideally used to explain patterns in data from seemingly independent information repositories, such as relational databases and transactional databases. The act of using association rules is sometimes referred to as "association rule mining" or "mining associations."

ANALYSIS

1] Diagrammatic representation:

(a) Employment Status of respondents.

Employment Status

1% | 4% | 7% | 27% | 61%

- Student
- Service
- Buisness
- Home maker
- Retired
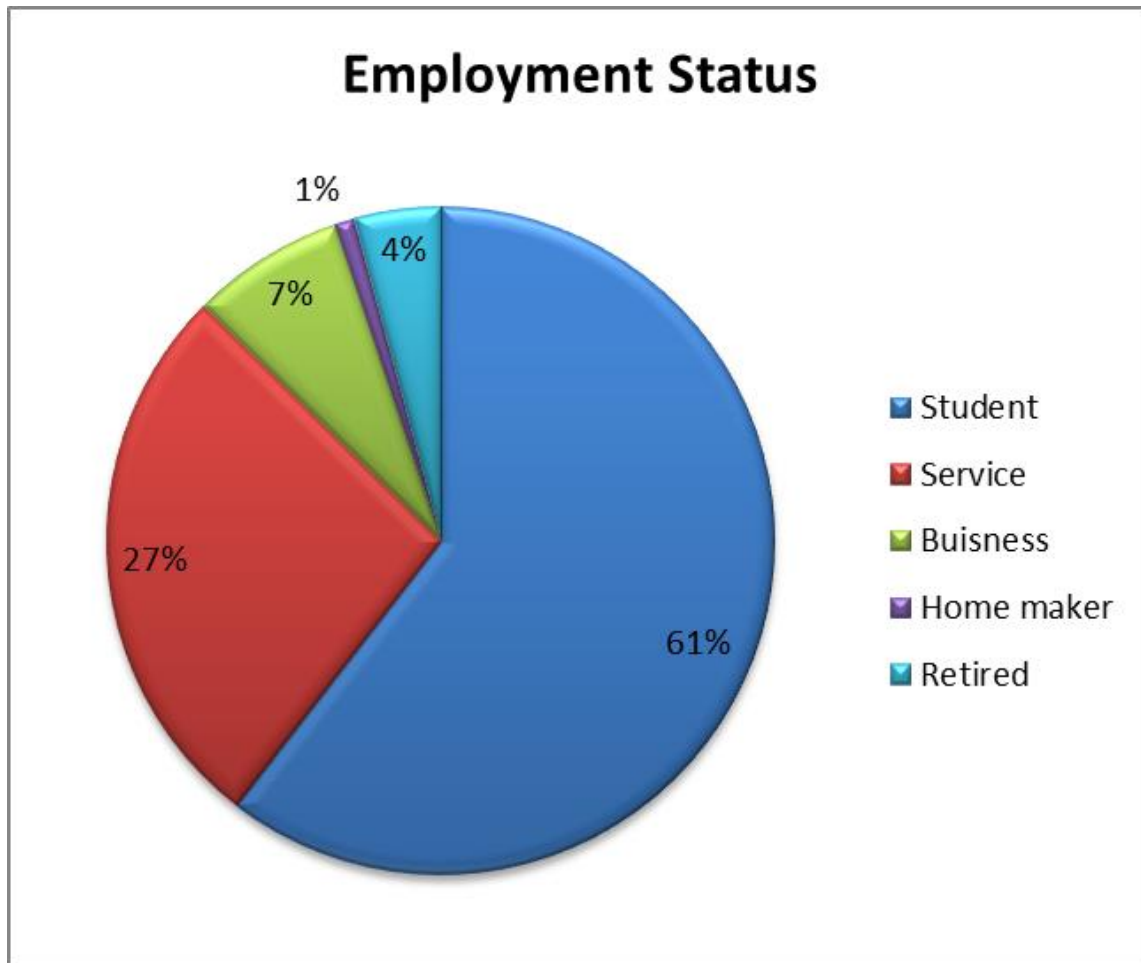
Conclusion: As it can be observed from the pie chart student category of people orders online food the most and home maker category of people order online food the least.

(b) Marital Status of respondents.

Marital Status	Frequency
Single	152
Married	59
Divorced	4

(c) Monthly Income or Pocket Money of Respondents.

Monthly Income	Frequency
<10K	127
10-20K	21
20-50K	31
50-80K	20
80K<	16

(d) How often respondents order food online-

Ordered Food Online	frequency
Once in month	135
Once in week	49
Daily	6
At the time of offer	25

Conclusion: As per the above frequency table most of the respondents ordered food online once in a month.

(e) Expenditure on online food (per order)-

Money Spent	Frequency
<100	61
100-300	77
300-500	55
500>	22
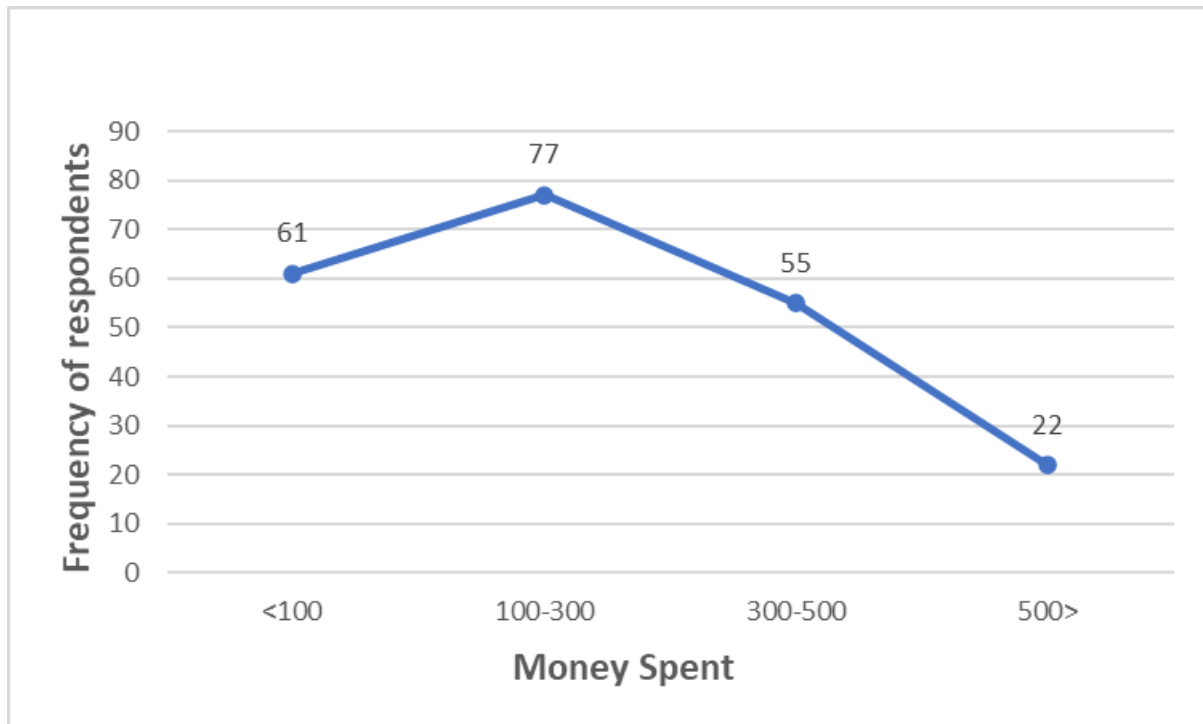
Conclusion: According to the samples we have collected most people spend around 100-300 rupees on food per order.

(f) Most preferred online food apps-

Food App	Frequency	Percent of Responses	Percent of Cases
Zomato	135	51%	83%
Swiggy	122	46%	75%
Eat sure	4	2%	2%
Other	4	2%	2%
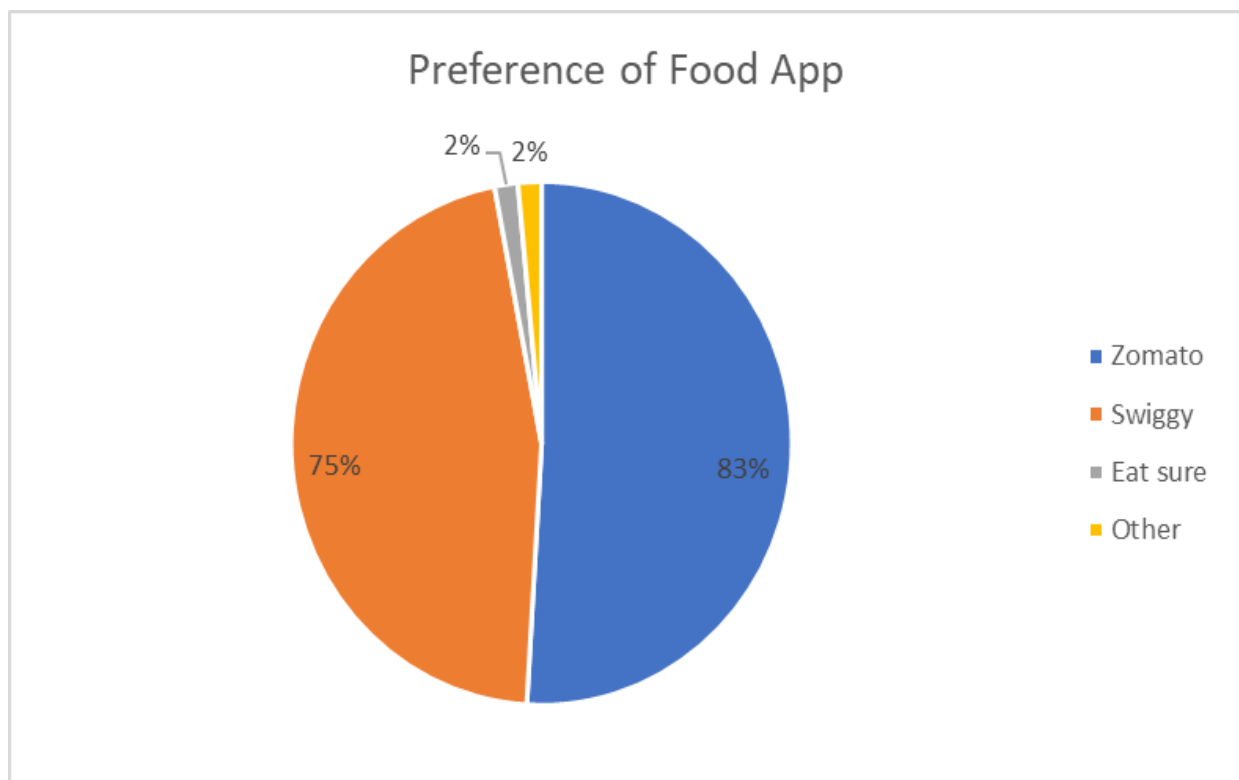
Conclusion: Looking at the pie chart we can say people mostly prefer Zomato and Swiggy which accounts to 96%. Out of which they are more in fever of Zomato.

(g) Preferred payment options-

	Net Banking	Debit or credit card	BHIM/Paytm/Google pay, etc	Cash on delivery
Below 18	0	1	5	7
18-35	15	11	89	65
35-50	4	4	10	5
50 above	5	5	9	5
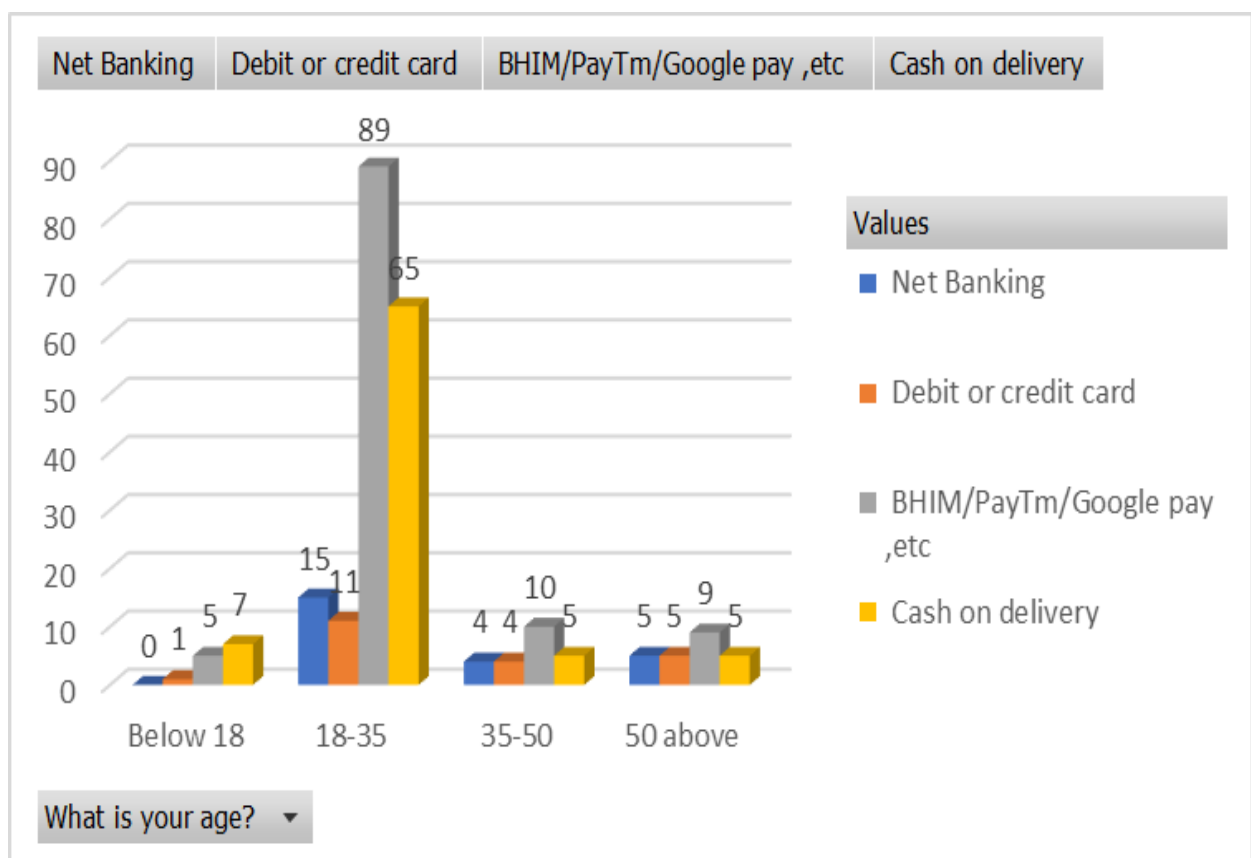
Conclusion: People ageing from 18 and above mostly prefer Google pay for payment.

(h) According to respondents, how much time is sufficient for cancellation of order-

Time	Frequency
1-3 min	37
2-5 min	54
5-10 min	72
Total	163
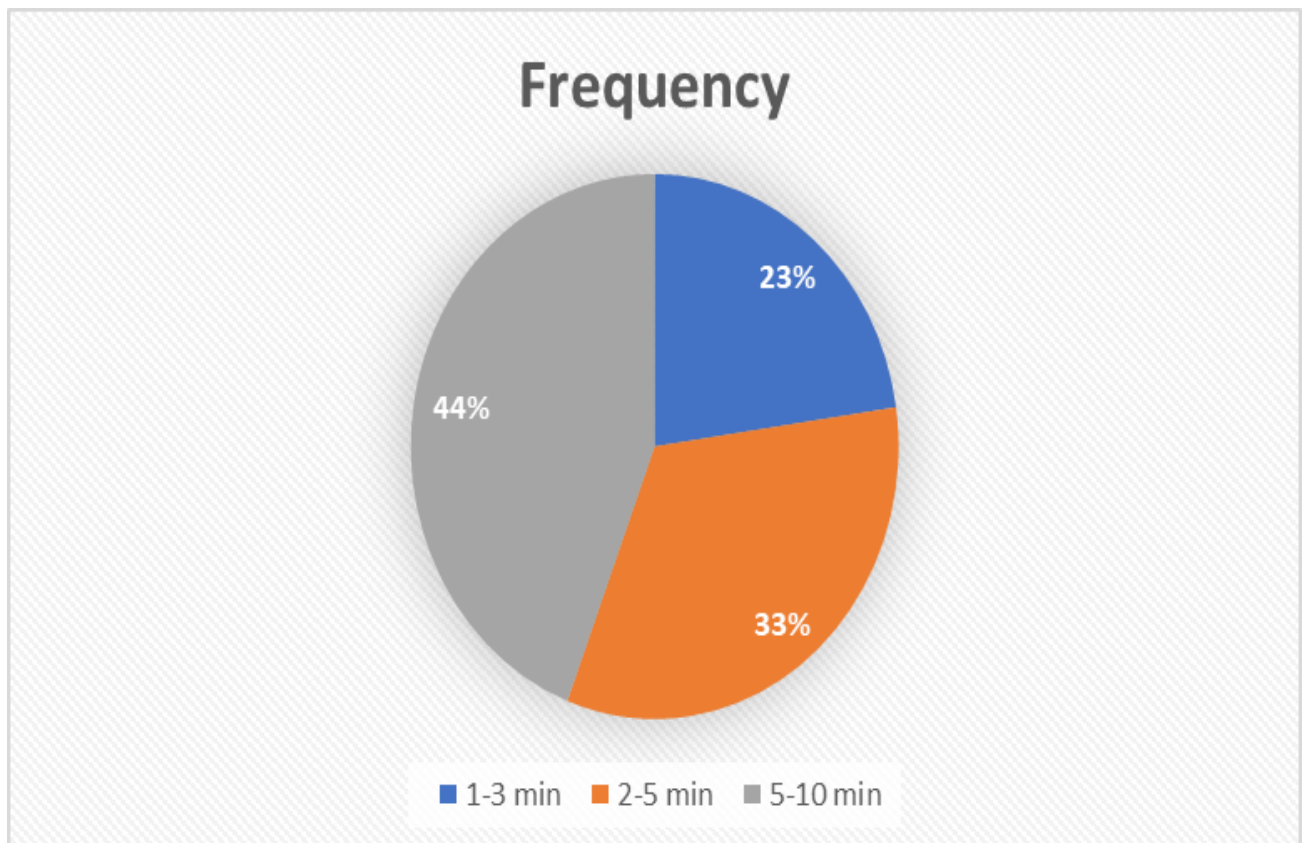
Conclusion: Surprisingly according to people the order cancelation time should be between 5-10 min which can add up to total time.

(i) Experience about customers support option:

Level of agreement	Frequency
1	7
2	6
3	183
4	256
5	140

(j) Advantages of online food apps-

Advantage	Frequency
Apps are Flexible	94
Apps are cost efficient	47
Apps are time efficient	101
Apps are easy to use	78
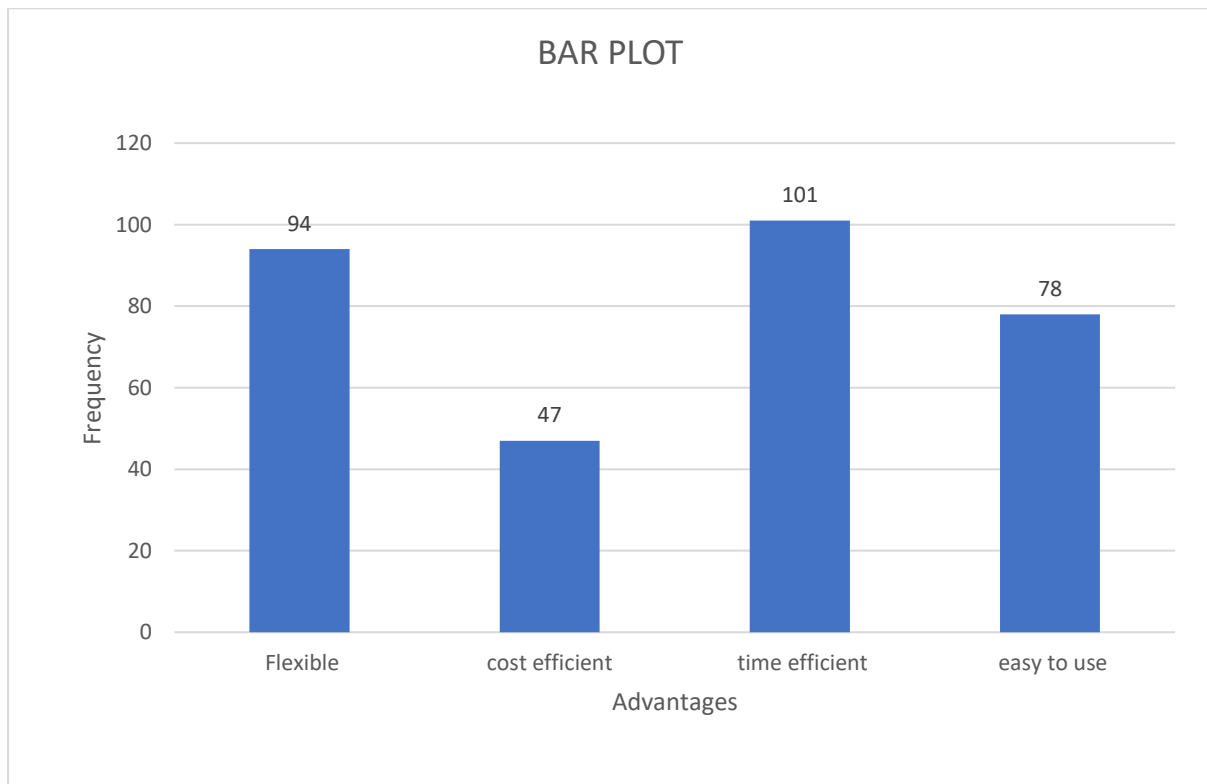
Conclusion: According the best things about the online delivery apps are, they are time efficient and they are flexible to use.

(k) Disadvantages of online food apps-

Disadvantage	Frequency
High Delivery charges	93
Connectivity issues	35
Late and incorrect order	42
Locality issues	103
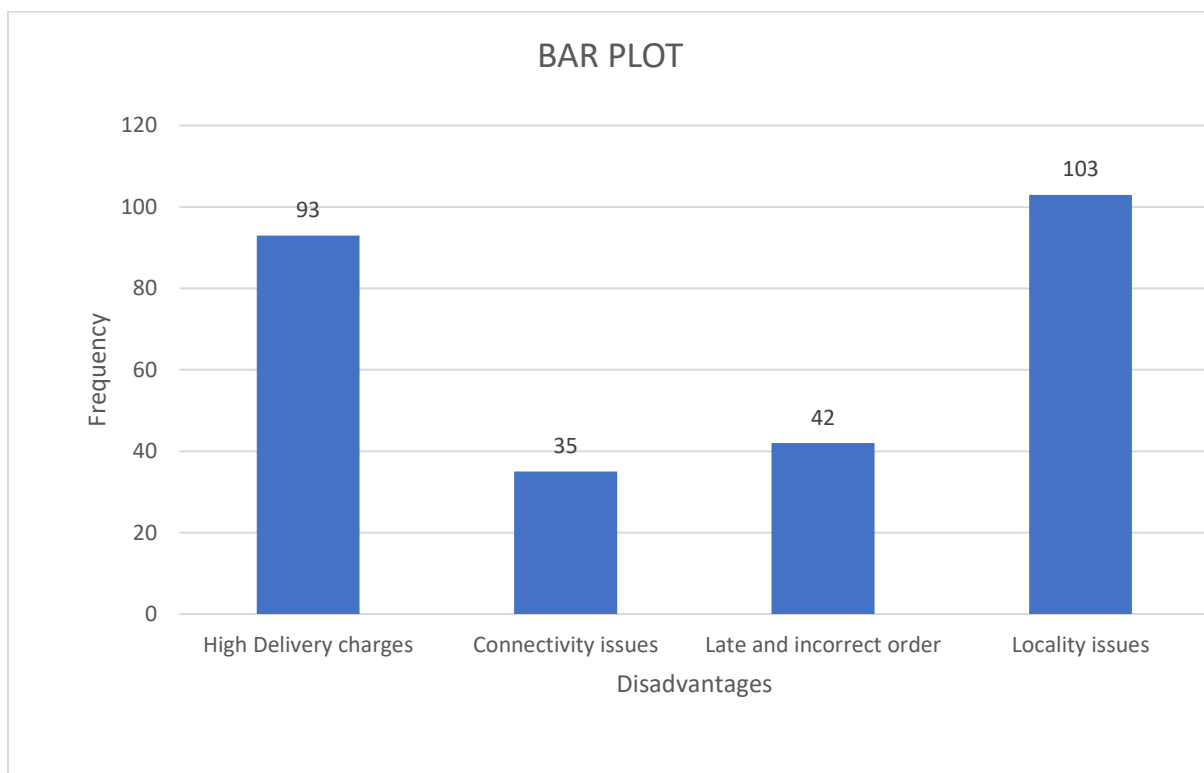
Conclusion: Online food delivery app should work on the locality issue and high delivery charges issue as most of the people consider it as the major disadvantage.

(I) Preference of online order food –

Age Group	Breakfast	Snacks	Lunch/Dinner
Below 18	0	7	5
18-35	23	71	80
35-50	4	6	9
Above 50	6	10	10
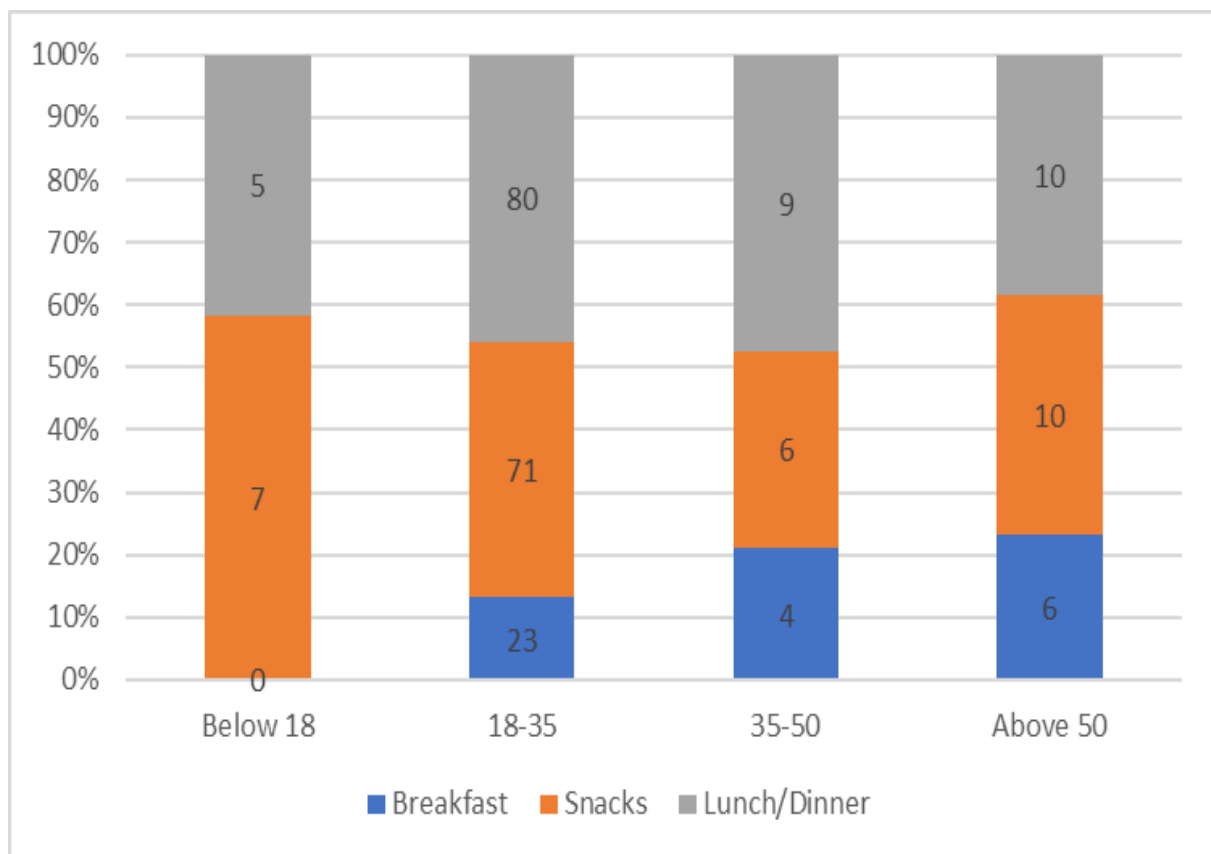
Conclusion: Mostly people between age group 18-35 order food online and they prefer to order for snacks and lunch/dinner.

2] Chi-square test:

(a)Dependency between age and frequency of ordering food:

	Do you order food online?		
Age	0	1	Grand Total
0	1	10	11
1	36	123	159
2	6	13	19
3	9	17	26
Grand Total	52	163	215

> y=matrix(c(1,10,36,123,6,13,9,17),byrow=TRUE,ncol=2)

>y

```
        [,1] [,2]
 [1,]     1  10
 [2,]    36 123
 [3,]     6  13
 [4,]     9  17
```

>colnames(y)=c("NO","YES")

>rownames(y)=c("BELOW 18","18-35","35-50","50 ABOVE")

> x=as.table(y)

>x

```
              NO   YES
 BELOW 18      1    10
 18-35        36   123
 35-50         6    13
 50 ABOVE      9    17
```

>cat("H0:THE TWO ATTRIBUTES ARE INDEPENDENT\n")

>cat("H1:THE TWO ATTRIBUTES ARE DEPENDENT\n")

 H0: THE TWO ATTRIBUTES ARE INDEPENDENT

 H1: THE TWO ATTRIBUTES ARE DEPENDENT

> t=chisq.test(x,correct=FALSE)

>t

                    Pearson's Chi-squared test

data: x

  X-squared = 3.6825, df = 3, p-value = 0.2979

>cat("Here p-value is greater than level of significance (alfa=0.05),so we accept H0.")

 Here p-value is greater than level of significance (alfa=0.05),so we accept H0.

Decision: We may accept H0 at 5% l.o.s

Conclusion: We may conclude that ordering online food is independent on age

(b) Association between income and expenditure:

	Expenditure				
Income	0	1	2	3	Grand Total
0	8	49	26	10	93
1	1	7	9	0	17
2	0	12	7	2	21
3	0	7	5	4	16
4	0	2	8	6	16
Grand Total	9	77	55	22	163

```
> y=matrix(c(8,49,26,10,1,7,9,0,0,12,7,2,0,7,5,4,0,2,8,6),byrow=TRUE,ncol=4)

>y


      [,1]   [,2]   [,3]   [,4]

[1,]   8     49     26     10

[2,]   1      7      9      0

[3,]   0     12      7      2

[4,]   0      7      5      4

[5,]   0      2      8      6



>colnames(y)=c("BELOW 100","100-300","300-500","500 AND ABOVE")

>rownames(y)=c("BELOW 10K","10K-20K","20K-50K","50K-80K","80K AND ABOVE")

> x=as.table(y)
```

>x

	BELOW 100	100-300	300-500	500 AND ABOVE
BELOW 10K	8	49	26	10
10K-20K	1	7	9	0
20K-50K	0	12	7	2
50K-80K	0	7	5	4
80K AND ABOVE	0	2	8	6

>cat("H0:THE TWO ATTRIBUTES ARE NOT ASSOCIATED\n")

>cat("H1:THE TWO ATTRIBUTES ARE ASSOCIATED\n")

  H0: THE TWO ATTRIBUTES ARE NOT ASSOCIATED

  H1: THE TWO ATTRIBUTES ARE ASSOCIATED

> t=chisq.test(x,correct=FALSE)

>t

                Pearson's Chi-squared test

data: x

  X-squared = 25.331, df = 12, p-value = 0.01333

>cat("Here p-value is less than level of significance (alfa=0.05), so we reject H0.")

Here p-value is less than level of significance (alfa=0.05), so we reject H0.

Decision: we may accept H1 at 5% l.o.s.

Conclusion: we may conclude that income and expenditure may be associated on each other.

3] Proportion Test:

(a) Testing population proportion (P) equal to specified value (P_0):

	Do you order food online?		
Gender	0	1	Grand Total
0	37	105	142
1	15	57	72
2	0	1	1
Grand Total	52	163	215

X = number of people ordering online food.

X=163

n = total number of people surveyed.

n=215

p=proportion of people ordering online food.

We want to test,

H_0: P=0.5 against H_1 : P>0.5

We reject H0 at 5% l.o.s if p-value<l.o.s.

>x=163

>x

[1] 163

>n=215

>n

[2] 215

>prop.test(x,n,p=0.5,alternative=c("greater"),conf.level=0.95,correct=T)

1-sample proportions test with continuity correction

data: x out of n, null probability 0.5

X-squared = 56.279, df = 1, p-value = 3.144e-14

alternative hypothesis: true p is greater than 0.5

95 percent confidence interval:

 0.7046377 1.0000000

sample estimates:

p

0.7581395

DECISION: p-value = 3.144e-14 and l.o.s =0.05

p-value<l.o.s

Therefore, we reject H0 at 5% l.o.s.

CONCLUSION: From the above sample we can conclude that more than 50% people will order online food.

4] Multiple logistic regression:

Y: Have you any problem while ordering online food?

X4: Food ordered online is packed properly as per my expectation.

X5: I have observed difference between actual food and ordered food.

X6: I get sufficient quantity of food ordered online just like Dine in.

> data <-read.csv("C:\\Users\\Durgesh\\Desktop\\Book1.csv")

> data

No.	Y	X4	X5	X6	No.	Y	X4	X5	X6	No.	Y	X4	X5	X6
1	0	1	1	1	21	0	0	0	0	41	0	1	1	1
2	0	1	1	0	22	0	1	0	0	42	0	0	1	0
3	0	1	1	1	23	0	0	1	0	43	0	1	1	1
4	0	0	0	0	24	0	1	1	0	44	1	1	0	1
5	0	0	1	1	25	1	1	1	0	45	0	0	0	0
6	1	0	0	0	26	0	1	1	0	46	0	1	1	1
7	0	1	1	0	27	0	0	0	0	47	0	1	0	0
8	0	1	1	0	28	0	0	1	0	48	0	1	1	0
9	0	0	1	0	29	0	0	0	0	49	0	1	0	1
10	0	0	1	0	30	1	1	0	1	50	0	1	0	1
11	1	1	1	0	31	0	1	1	0	51	0	0	1	0
12	1	1	1	1	32	0	1	0	0	52	0	1	1	1
13	0	1	1	0	33	0	1	1	1	53	0	1	1	1
14	0	0	0	0	34	0	1	0	0	54	0	1	1	0
15	1	1	0	1	35	0	1	1	1	55	0	0	0	1
16	1	0	1	1	36	0	0	0	0	56	0	0	0	1
17	0	1	1	1	37	1	0	1	1	57	0	0	1	0
18	0	0	1	0	38	1	0	1	0	58	0	0	1	0
19	0	0	1	0	39	0	1	0	1	59	0	1	0	0
20	0	1	0	0	40	0	0	0	1	60	0	1	1	0

No.	Y	X4	X5	X6	No.	Y	X4	X5	X6	No.	Y	X4	X5	X6
61	1	0	1	1	81	0	0	1	0	101	1	0	0	0
62	0	1	0	1	82	0	1	0	1	102	0	1	0	1
63	0	1	0	0	83	1	0	0	1	103	1	1	0	1
64	0	1	0	0	84	0	1	1	1	104	0	1	0	1
65	0	0	1	0	85	0	1	0	1	105	1	0	1	0
66	0	1	0	1	86	0	0	0	0	106	0	1	0	1
67	1	1	1	1	87	0	1	0	1	107	1	1	0	1
68	0	1	0	0	88	0	1	0	0	108	0	1	0	1
69	0	0	0	0	89	1	0	1	0	109	0	1	1	1
70	0	0	1	0	90	0	1	0	0	110	0	1	1	0
71	1	1	1	0	91	1	0	1	0	111	0	1	0	1
72	1	0	0	0	92	0	1	0	0	112	0	1	1	1
73	0	1	0	1	93	0	1	1	1	113	0	0	0	0
74	1	1	1	1	94	0	1	0	1	114	1	1	1	0
75	1	0	1	0	95	0	1	0	1	115	0	0	0	0
76	0	1	1	0	96	0	1	0	1	116	0	1	0	0
77	0	0	1	0	97	1	0	0	1	117	0	1	0	1
78	0	1	0	1	98	0	0	1	1	118	1	1	1	1
79	0	1	0	1	99	0	1	0	1	119	0	1	0	1
80	1	1	1	1	100	0	1	1	1	120	0	0	0	1

No.	Y	X4	X5	X6	No.	Y	X4	X5	X6	No.	Y	X4	X5	X6
121	0	1	0	1	136	0	1	0	1	151	1	1	1	1
122	0	1	0	1	137	0	0	1	0	152	0	1	1	1
123	0	1	0	1	138	0	0	1	1	153	1	0	0	1
124	0	0	0	1	139	0	0	0	0	154	0	1	0	1
125	1	1	1	0	140	0	0	1	0	155	1	0	0	0
126	0	1	0	0	141	0	1	1	0	156	0	0	0	0
127	0	0	1	0	142	1	1	1	0	157	0	1	0	0
128	0	1	0	1	143	1	0	0	0	158	1	0	1	1
129	0	1	0	1	144	1	1	1	1	159	0	1	1	1
130	0	1	1	0	145	0	0	0	0	160	0	0	1	0
131	0	1	1	1	146	0	1	0	0	161	0	1	1	1
132	0	1	0	1	147	0	0	1	1	162	0	1	1	1
133	0	1	1	1	148	0	0	0	1	163	0	1	0	0
134	0	0	0	0	149	0	0	1	0					
135	0	1	1	0	150	1	0	1	1					

```
> A=glm(Y~(X4+X5+X6),data=data,family="binomial")

> A

Call: glm(formula = Y ~ (X4 + X5 + X6), family = "binomial", data = data)

Coefficients:

(Intercept) X4 X5 X6

 -1.5328 -0.8447 0.7536 0.6642

Degrees of Freedom: 162 Total (i.e., Null); 159 Residual

Null Deviance: 172.1

Residual Deviance: 163.6 AIC: 171.6

> summary(A)

Call:

glm(formula = Y ~ (X4 + X5 + X6), family = "binomial", data = data)

Deviance Residuals:
```

Min	1Q	Median	3Q	Max
-1.1289	-0.8053	-0.5757	-0.4212	1.9386

Coefficients:

	Estimate	Std. Error	z value	Pr(>|z|)	
(Intercept)	-1.5328	0.4099	-3.739	0.000185	***
X4	-0.8447	0.4191	-2.015	0.043857	*
X5	0.7536	0.3984	1.892	0.058538	.
X6	0.6642	0.4212	1.577	0.114856	

```
---

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

 Null deviance: 172.13 on 162 degrees of freedom

Residual deviance: 163.59 on 159 degrees of freedom

AIC: 171.59

Number of Fisher Scoring iterations: 4
```

Multiple logistic regression model:

$Y = -1.5328 - 0.8447 X_4 + 0.7536 X_5 + 0.6642 X_6$

$P = exp(-1.5328 - 0.8447 X_4 + 0.7536 X_5 + 0.6642 X_6)$

$\pi(X) = P/(1+P)$

$\pi(x) = exp(-1.5328 - 0.8447 X_4 + 0.7536 X_5 + 0.6642 X_6)$

$1 + exp(-1.5328 - 0.8447 X_4 + 0.7536 X_5 + 0.6642 X_6)$

We have **α = 0.1**

Therefore, odds ratio will be as follows

$B_4 = -0.8447$

$\psi_4 = exp -0.8447$

=0.429686

similarly,

$\beta_5 = 0.7536$

$\psi_5 = exp\ 0.7536$

=2.124635

and

$\beta_6 = 0.6642$

$\psi_6 = exp\ 0.6642$

=1.942936

Testing hypothesis:

H_0: $\beta_4 = \beta_5 = \beta_6 = 0$ against,

H_1: At least one of the β_4, β_5 and $\beta_6 \neq 0$

Criteria: Reject H_0 if p-value < level of significance.

Decision: Here 0.043857, 0.058538 is less than level of significance.

So, we can reject H_0.

CONCLUSION:

1. Food ordered online is packed properly as per people's expectations. Hence, they don't face any problem regarding the packaging of online food. So according to odds ratio, there are 42% chances that people will get the online food packed properly as per their expectations.

2. People have noticed the difference between actual food and online ordered food. So according to odds ratio, there are 12% chances that actual food and ordered food may differ.

3. People are not getting the same quantity of food in online orders as much they are getting in dine in.

5] Association rule:

Sr. No.	quality	quantity	price	service quality	available offers	restaurants rating
1	1	1	0	1	1	1
2	0	0	1	0	1	0
3	1	1	1	1	0	0
4	1	0	0	0	1	0
5	1	1	0	0	0	1
6	1	1	0	0	1	0
7	1	1	1	0	1	0
8	1	0	0	1	0	0
9	1	1	1	1	0	0
10	1	0	0	1	1	1
11	1	1	1	0	1	1
12	1	1	1	1	1	1
13	1	0	1	1	1	1
14	1	0	0	0	1	0
15	1	1	1	1	0	0
16	1	0	1	1	1	0
17	1	1	0	0	1	0
18	1	0	1	0	1	1
19	1	1	1	1	1	0
20	1	1	1	1	1	0
21	1	0	1	0	1	0
22	1	1	1	0	0	1
23	1	0	1	0	0	1
24	1	0	0	0	1	0
25	1	0	1	1	0	0
26	0	0	1	0	1	0
27	1	0	1	1	1	0
28	0	0	1	1	1	1
29	1	0	0	0	1	0
30	1	0	0	1	1	1
31	1	1	1	0	1	0
32	1	1	1	1	1	1
33	0	0	1	1	1	1
34	1	1	1	1	0	0
35	1	0	0	0	1	0
36	1	1	0	1	1	1
37	1	0	0	0	1	0
38	1	0	0	0	1	0
39	1	1	1	1	0	0
40	0	1	0	1	0	0
41	1	0	0	1	1	1
42	1	0	1	0	1	1
43	1	1	1	1	0	0
44	1	0	1	0	1	1

45	1	0	0	0	1	0
46	1	0	0	0	1	1
47	1	0	0	1	1	0
48	1	0	0	1	1	1
49	1	0	0	1	1	0
50	1	1	1	1	1	1
51	1	0	1	1	0	0
52	1	0	0	1	0	0
53	0	0	1	1	0	1
54	1	0	0	1	0	1
55	1	0	0	1	0	1
56	1	0	1	0	1	1
57	1	0	0	1	1	0
58	1	1	1	1	0	1
59	1	0	1	1	1	0
60	1	0	1	0	1	0
61	1	0	1	0	1	0
62	1	1	1	1	1	0
63	1	0	0	1	0	0
64	1	0	0	1	0	0
65	1	0	0	1	1	0
66	1	0	0	0	0	1
67	1	0	0	1	0	1
68	1	0	0	1	0	0
69	1	0	0	1	0	1
70	1	1	0	1	0	0
71	1	0	0	1	0	1
72	1	0	1	1	0	0
73	1	0	1	1	1	1
74	1	0	0	1	0	0
75	1	1	1	1	1	1
76	1	1	0	0	1	0
77	1	1	1	1	1	0
78	1	0	0	1	0	0
79	1	0	0	1	1	1
80	1	0	0	0	1	0
81	1	1	1	1	0	0
82	1	0	0	0	0	1
83	1	0	0	1	0	0
84	1	0	0	0	1	0
85	1	0	0	1	0	0
86	1	0	1	0	1	1
87	1	0	0	0	1	0
88	1	0	0	0	1	1
89	1	1	1	0	1	1
90	1	0	0	0	1	0
91	0	1	0	1	1	0
92	1	0	0	0	0	1

93	1	0	1	1	1	0
94	1	0	1	1	1	0
95	1	0	0	0	1	1
96	1	0	0	1	0	0
97	1	1	1	1	0	1
98	1	0	0	1	0	0
99	1	0	0	0	1	0
100	1	0	0	0	1	0
101	1	1	1	1	1	1
102	1	0	0	0	0	1
103	1	1	1	0	1	0
104	1	0	0	1	0	0
105	1	1	1	1	1	1
106	1	0	0	1	1	1
107	1	1	1	0	0	1
108	1	0	0	1	0	0
109	1	1	1	0	1	0
110	1	1	1	1	1	1
111	1	0	0	0	1	1
112	1	0	0	1	0	1
113	1	0	0	1	0	0
114	1	0	0	1	0	1
115	1	1	1	1	0	1
116	1	0	0	1	0	1
117	1	0	0	1	1	0
118	1	1	1	1	0	0
119	1	0	0	0	0	1
120	1	1	1	1	1	1
121	1	0	1	0	0	1
122	1	0	0	0	1	0
123	1	1	0	0	1	0
124	1	1	0	1	0	0
125	1	0	1	1	1	0
126	1	1	0	0	1	0
127	1	0	0	0	1	1
128	1	1	0	0	1	0
129	1	0	1	1	0	0
130	1	0	0	1	0	0
131	1	0	0	1	0	0
132	1	0	0	1	0	0
133	1	0	0	1	1	1
134	1	0	0	1	0	0
135	1	0	0	1	1	1
136	1	1	1	0	1	1
137	1	1	1	0	1	0
138	1	0	0	0	1	0
139	1	1	1	1	1	1
140	1	1	1	0	1	0

141	1	0	1	1	0	0
142	1	0	1	1	0	1
143	0	1	0	1	0	0
144	1	0	0	0	1	0
145	1	0	0	1	0	1
146	1	0	0	1	1	1
147	1	0	0	0	0	1
148	1	1	0	0	1	1
149	1	0	1	0	1	0
150	1	0	0	1	1	1
151	1	0	0	1	1	1
152	1	0	0	0	1	0
153	1	1	1	1	1	1
154	1	0	0	0	1	0
155	0	1	0	1	0	0
156	1	1	1	1	0	0
157	1	1	1	0	1	1
158	1	1	0	1	1	1
159	1	0	0	1	0	0
160	1	1	1	1	1	1
161	1	0	1	0	0	1
162	1	1	1	1	1	1
163	1	0	0	0	0	1
total	154	57	71	98	98	72

Here we consider, support=50%, confidence=50%

support=(number of observations)/(total number of samples)

confidence (a~b)=support(aUb)/support(a)

factors	total	support
quality	154	0.944785
quantity	57	0.349693
price	71	0.435583
service quality	98	0.601227
available offers	98	0.601227
restaurants rating	72	0.441718

here supports of quantity, price and restaurants rating does not meet our required support so we ignore it.

2 factors	total	support
quality,service quality	91	0.558282
quality,available offers	93	0.570552
service quality,available offers	46	0.282209

here support of service quality and available offer is less than 50% so we ignore it.

3 factors	total	support
quality, service quality, available offers	43	0.263804

Therefore, we consider the list of two factors.

rule	confidence
quality~service quality	0.590909
service quality~quality	0.928571
quality~available offers	0.603896
availableoffers~quality	0.94898

As the confidence is more than 50% the relations are strong for all given factors

Conclusion:

From the given result we can conclude that the association rule is strongest between the available offers and quality of food i.e., if a person chooses online food delivery apps to order food online based on available offers then 94% of times his choice will also be affected by the quality of food they serve.

MAJOR FINDINGS

1. Respondents find online food apps are flexible, time efficient and easy to use. This are the factors that influence consumers to use food apps.

2. High delivery charges, locality issues, compromised food quality are some major disadvantages according respondents. These are the areas where improvements are needed in order to increase the use of food apps by people.

3. Income of a customer and expenditure on online food are dependent on each other.

4. Food ordered online is packed properly as per people's expectations. Hence, they don't face any problem regarding the packaging of online food. Hence, may be this is the major factor that people choose online food apps over conventional dine in method.

5. People have noticed the difference between actual food and online ordered food. So, this can be the area where improvement is needed.

6. It may be concluded that, if customer chooses to order food through apps based on available offers, he/she may also consider the quality of food ordered online.

7. Quality provided in restaurant to customers, same should be given to them in online orders, there should not be any compromise in quality of online food orders.

8. Rate in online menu should be just like given in hotel's menu.

CONCLUSIONS

1. From the above sample we can conclude that more than 50% people will order online food.
2. We may conclude that ordering online food is independent on age.
3. We may conclude that income and expenditure may be associated on each other.
4. As it can be observed that students order online food the most and home maker category of people order online food the least.
5. Mostly people between age group 18-35 order food online and they prefer to order for breakfast and snacks.
6. We can say people mostly prefer Zomato and Swiggy which accounts to 96%. Out of which they are more in fever of Zomato.
7. Food ordered online is packed properly as per people's expectations. Hence, they don't face any problem regarding the packaging of online food. Therefore, they don't face any problems regarding the quantity of food they get.
8. People have noticed the difference between actual food and online ordered food.
9. According to people, the order cancelation time should be in between 5 to 10 min which can add up to total time.
10. As per data most of the respondents' orders food online once in a month.
11. According to the samples we have collected most people spend around 100 to 300 rupees on food per order.
12. People ageing from 18 and above mostly prefer BHIM/Paytm/Google pay, etc. for payment.
13. We can conclude that the association rule is strongest between the available offers and quality of food i.e., if a person chooses online food delivery apps to order food online based on available offers then 94% of times his choice will also be affected by the quality of food they serve.
14. Online food delivery app should work on the locality issue and high delivery charges issue as most of the people consider it as the major disadvantage.
15. According the best things about the online delivery apps are, they are time efficient and they are flexible to use.

LIMITATIONS

This research has a number of limitations that must be acknowledged.

1. It must be acknowledged that there may be numerous other variables that contribute to the development of customer satisfaction, customer loyalty, and word of mouth communication which are briefly touched upon below.

2. To convince the people for filling up the questionnaire and a proper interviewing process is also difficult.

3. The figures have been taken as approximations.

4. Sample size will be composed of only 215 customers which is extremely small size to represent entire population of customers who use food delivery apps.

5. The study is confined to a particular location and a very small sample of respondents. Hence the findings cannot be treated as representative of the entire retail industry.

6. No demographical or psychographic differences will be considered before choosing the customers for questionnaire and for interview purpose.

7. Financial analysis is not the part of study; only marketing aspects is considered for study.

8. The overall research is based on information given by the selected customers.

9. Respondents may give biased answers for the required data. Some of the respondents did not like to respond.

10. Time and cost are also one of the constraints for the study.

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Thank you

| Select food items | Enter your address | Delivery to your home |