PERSONALIZED RECOMMENDER SYSTEM FOR SUPERSHOP

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering

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APPROVAL

This Project titled "**Personalized Recommender System for Supershop**", submitted by Fazle karim, ID: 143-15-4492; Mohiuddin mehedi, ID: 143-15-4601 to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 6 November, 2018.

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DECLARATION

We hereby declare that, this research-based project has been done by us under the supervision of **Dr. Sheak Rashed Haider Noori, Associate Professor and Associate Head, Department of CSE**, Daffodil International University. We also declare that neither this research-based project nor any part of this research-based project has been submitted elsewhere for award of any degree or diploma.

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ABSTRACT

The model of the recommendation is another well documented standard for new global judgments. Such a well- known outcome- oriented concept has already become part of our lives, thanks to the continued growth of the online trading system. Depending now on this impetus, indeed the composite filter project " Super Shop Recommendation" intends to build a successful product recommendation structure now for the next generation of Super Shop recommendation systems. Studies have indeed been conducted where users find data on the theoretically proposed product. Recommendation systems are usually one of the most appropriate products for end customers. However, this report examines the prospect of shopping in Bangladesh. The analysis provides opportunities and tendencies for Bangladesh users. The justifications are also analyzed. Internet Shopping is a popular shopping race. The recommendation system is one of the most suitable alternative techniques to generate wealth and try to keep the purchaser, customer. This piece of research offers a fast and natural product recommendation system which allows clients to find the right product in the first place. Indeed, the product recommendation structure must suggest the buyer's goods. The succinct analysis of the whole overall architecture. Then We really used a collaborative filtering method based on the correlation coefficient. Even further adjustments will also be added to the strategic business Intelligence.

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CHAPTER 1
INTRODUCTION

1.1 Introduction

The name of our proposal calls for "Personalized Recommender System for Supershop". The title name only suggested that a recommendation system reason was identified. Each client can effectively share his observations and make a specific decision based on the client's interest. This has revealed indispensable for a proposal or merchant market to use this information successfully by developing a new method of presentation with regard to this information. The system includes mathematical evaluations of similar things between the dynamic client and the various clients of the system to evaluate the comparability of results between customer support profiles and to make suggestions for written information to the dynamic client. Indeed, the aim of such an assessment is to acknowledge the proposed new engine and differentiate further the weak points of the customary propeller suggestion and create an electronic application proposal. This system uses common differences to create valuable and persuasive proposals. Indeed, the aim of such an assessment is to acknowledge the proposed new engine and differentiate further the weak points of the customary propeller suggestion and create an electronic application proposal. This system uses common differences to create valuable and persuasive proposals.

1.2 Motivation

In this Project Personalized Recommender System It proposes a product with a solution structure that was one of the most basic systems for expanding and maintaining better administrations. The structure should offer products that benefit customers and users. This system uses highlights sifted at community level to provide competent and workable suggestions. Cooperative Recommendation Systems The overall rating of items identifies common characteristics between customers based on their ratings and creates new suggestions. [1].

Primary Goals

- Provides a wide range of decisions
- Try to give yourself exactly what you need
- This system saves valuable user and client time.
- The model displays a measurement level with jointly analyzed products.
- It is extremely productive to use.
- Review users and user information to suggest new products.
- And we don't want the user to get bored recommending the wrong product.

1.3 Rationale of the Study

It has been used as a model to recommending things that a customer would probably be interested in by recognizing customer inclination. The most popular applications or premises that use proposal systems are motion pictures, music, news, shopping for food, travel guides, web - based dating, books, food, e - business destinations, etc. Suggestion systems can be classified comprehensively as substance-based sifting, communitarian separation and halfway. Substance-based separating frameworks are used to suggest things related to the representation of things the customer used to like previously or related to pre-characterized customer characteristics, such a framework having its underlying foundations in data recovery systems. Community separating frameworks prescribe things to the customer in view of the past inclinations of things assessed by all customers. Mixture strategies join these methods. I will mostly negotiate with Community - oriented separation in this paper.

1.4 Research Question

This research wills asset us to know what factors make user feel more reliable in product selection. The following questions will help to get the idea of how we will be able to find the factors.

- Is there any technique we could follow to make promotional messages/emails more useful to people?
- How if instead of rolling eyes at them, people start to welcome them as they appear regarding personal interests and preferences?
- Is focus marketing strategy more effective with local grocery stores?

1.5 Expected Outcome

- like the system try to get what you need, supershop Human assessments.
- Different value categories with the Large number of product selection options.
- Save time and cost for the product recommended.
- The user finds useful clear product information.
- User don't feel bored.
- Improved application prosecution.
- It will increase sales.

1.6 Report Layout

Chapter 1: Introduction

In here, the motivation, rationale of the study, research question and expected outcome of this research - based project are discussed. The layout of the report was followed later.

Chapter 2: Background

This section discusses the background of the project. I am also writing about both the related research for research purposes, the assessment of the research and the scope of the problem and the hardships of this research- based scheme.

Chapter 3: Research Methodology

And in this chapter I will deal with project research methodology, the research topic, the data collection process, the statistical analysis and the requirements for the implementation of this research- based scheme.

Chapter 4: Experimental Result and Discussion

In this one, I have discussed experimental results, descriptive analysis and summary of this research project in this chapter.

Chapter 5: Summary, Conclusion, Recommendation and Implementation for future Research

Here I have discussed the hypothesis and the effectiveness of further developments.

CHAPTER 2

BACKGROUND

2.1 Introduction

In this system we have offered users have registration option and through registration we collect user phone number, age and product purchase history and with this information such as product purses history we easily found what she is interested in and beyond accuracy we also use age grouping to get more accurate data for the closely related product to another product. so that the user can find out the best product what he/she interest in bye. so that the user can find out the best product what he / she is interested in buy and The following figure 2.1 shows recommendation system of our research-based project.

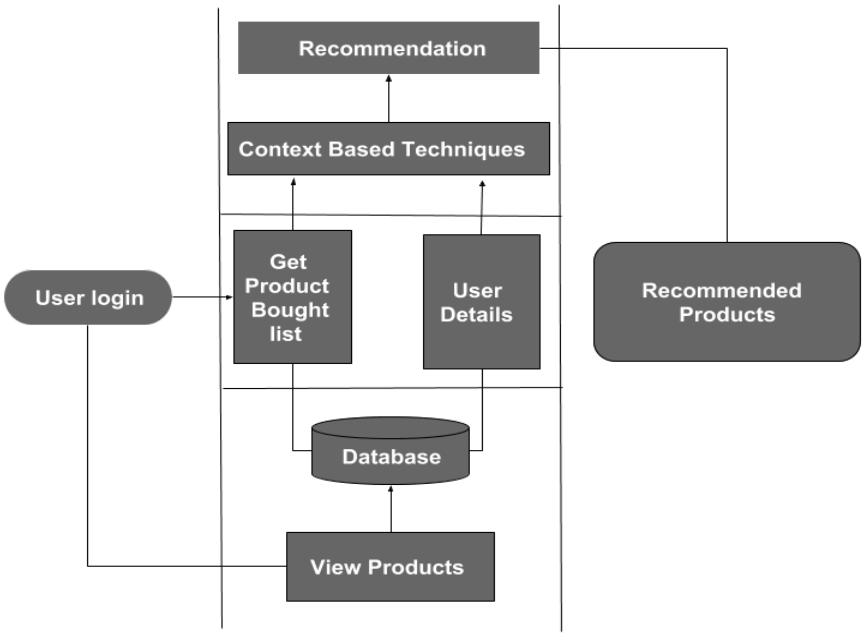


Figure 2.1: Analysis the background model of Recommender system.

2.2 Related Works

In Recommendation processes in various models have tried to provide the customers with such an accurate proposal to address customer issues and deliver greater value to organizations. Community based discrimination in the proposal structures is a feasible and acknowledged development. Many sites, in particular e- business sites, have used community separation innovations in their proposal systems to adapt the background for each customer so that it is considered fruitful to take cases from a synergistic perspective, Netflix by 60 percent, amazon expanded its offerings by 29 percent and google news navigation by 30.9 percent. Socially responsible views can be categorized as user- based local community separation (memory- based) and article- based common views (model-based). Thus the customer- focused collective political separation approach aims to further foresee things for the authoritative client that are now passionate about different employees as well as the objective customer. After in the first place, the equation tries to reveal the customer's and user's allies especially considering customer likenesses after that diversifies but the neighbor customer's and user's examining score by deploying directed learning like k- closest neighbor's measurement and Probabilistic system or unmonitored teaching like a k-means. Goal- oriented cooperative approach is to strangely anticipate things that have similarities between the things and the different things that are already associated with the customer. Instead of the closest neighbors, an arrangement of things is investigated, the objective client has just evaluated things and this calculation records how comparative things are to the objective thing under the proposal. From this point of view, it also corresponds to the inclinations of the customer and the user in view of these similarities [5].

2.3 Research summary

The process of filtering information, which is the information of the user, is known about the recommendation system. It generates a prediction of the interest of the target user as the most important step in collaborative filtering [7]. Which he or she might be interested in this topic or product type. The majority of the system is classified into two types first one is UBCF also called User-Based Collaborative filtering and second one is IBCF and

also called Item - based collaborative filtering. Both systems play a vital role in recommendations technology types. UBCF is a social network of users who share the same rating patterns. The most similar user is then selected and the user is advised on an item rated by the most similar user IBCF is a link between different things that will then make use of the dynamic client information and the connection between things that the dynamic client expects. But we are now working on a user - based collaborative system that follows specific user information [2].

2.4 The scope of the problems:

- Collecting huge data.
- The problem of converting data with format.
- After collecting manage the data.
- Classification of the training and testing data set.
- In the same algorithm, different attribute type does not work. As with the nominal and numerical attribute.
- We have problems with instrumental settings. But we're getting it right.

2.5 Challenges

- **Assemblage Data Information:** Assemblage data information is an essential part of any study type. Misleading data mining can hamper results of the study and likely lead to incorrect results. Gathering data techniques really can be divided into two categories, the first being a primary and the second a secondary method.
- **Data Noise Removing:** The way to recognize and correct data preparation or data preparation Then replace, change or delete the dirty or race data.
- **Datasheet Convert for WEKA:** Convert data sheet for WEKA extension, the data sheet must be transferred from Excel to CSV format. Then convert the file into " arff" to WEKA.

- **Finding proper Algorithm:** Algorithm appointment is the principal driver of WEKA. If you cannot choose the right and responsib algorithm. You can't find the best prediction.
- **Data Set Modeling:** data collection completely transformed the logical data model into a physical data model that organised the data in tables and figures for our scientific purposes. Information mapping is their systems and their close relationships.
- **Inspect The Data:** Inspect The Data validation suggests that we still have attributes that really need to be untangled so that they are correct and worthwhile with our application or system. Data subjectivity means an automatic verification to ensure that the entered data are confidential and appropriate.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This section on research methodology describes the specific procedures or techniques for identifying, selecting, processing and analyzing information about the recommendation system. Here the user can critically evaluate the general validity and reliability of a study. This chapter will also cover the object of research and instrumentation, data collection procedures, statistical analysis and implementation requirements. Google form and expression question was used to collect primary data for this research.

3.2 Research Subject

The user- based method to collaborative filtering is to provide the location user with things that keep working for different people following the target user. For example, as observed, users 1 and 3 basically have the same inclination behavior. If User 1 loves Item A, User based collaborative filtering model may prescribe Item A to User 3. User based collaborative filtering model needs the express appraisal of customer-appraised items to identify similitude among users and endeavors to find the closest neighbors in the light of user similarities. And then it produces expectations as far the assessment of the neighbor's assessments in terms of average- weighted comparability [7].

The following figure **3.1:** User based collaborative filtering model.

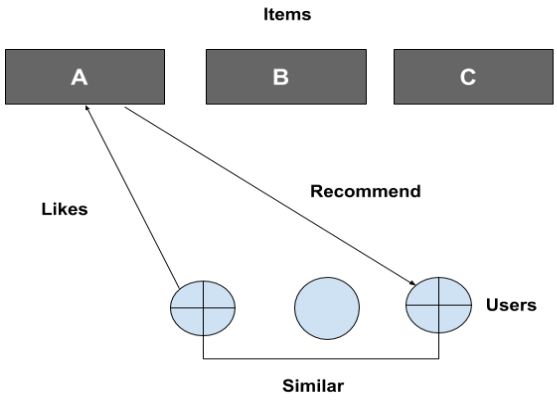


Figure 3.1: User based collaborative filtering model.

basic scenario, the preparation of collaborative filtering can mostly be isolated in three phases.

- User rating matrix data collection,
- Choosing similar neighbors by measuring similarity and ratings
- Generating prediction as the diagram seen.

Collaborative filtering approaches use factual systems to break the resemblance between customers and frame an arrangement of users called neighbors. An arrangement of closeness measures is important between two vectors. User- based similarity is to process the relevance of two vectors between users. In User based collaborative filtering, after calculating the similarity, the current target client's neighborhoods are used. When Collaborative Filtering processes the comparability between customers in User based collaborative filtering model or things in Item-based collaborative filtering and finds the arrangement of most comparable or comparable things, the objective user's enthusiasm is expected to be the most significant step in Collaborative Filtering. [5].

Calculation of User Based Collaborative Filtering

Since User Based Collaborative Filtering receives the user's zone, it can set the find user rating for the choose element I.It shall be scaled as follows in accordance with the weighted standards of each given object.

$$P_{u,i} = A_u + \frac{\sum_{w=1}^{n}(R_{w,i} - A_w) \times sim(u,w)}{\sum_{w=1}^{n} sim(u,w)}$$

A_u is the regular rating of the factual user u for all other things and A w is the normal rating of the neighbor. W for everything else. R_(w, I) is the assessment of the user of the objective thing I. Sim(u,w) is a factual user and neighboring user w. total number of neighbors is N. [5].

Collaborative Filtering Restrictions

The input data grid for user input may have some rating values for the total number of things available, although users are exceptionally dynamic. Given the fact that users tend not to be rated successfully, finding similarity in the commonly rated things can be a test. Collective Filtering predicts things in view of user's past inclination conduct. That is, new customers could not have recommended things unless new users rate many things. Similarly, new things could be considered for the proposal as a sufficient number of users have fewer evaluation ratings. [7].

3.3 Data Collection Procedure

A significant role is played in any project and research - based project or thesis data collection. Data is very important part in this recommendation. Many projects and research- based projects or dissertations fail due to insufficient information.

Information recourse:

Our research project name " Personalized Recommend System for Supershop." First we try to get the line data like a full transaction history from SuperShop, but no Super Shop owner has this not a friend, but only the purchase history and further data collection that we collect from an online SuperShop data attribute such as product list, product category, etc. And then we collect data attributes such as age, gender. And we finally find out our data source after the final simulation of some code-works with JavaScript-operation.

- Product Purchase History
- Product Price and Product Category
- Age Grouping with Product Category
- People-Data

Figure 3.2 below shows the data set of product purchase history

	Items
2	White Letter Envelope,Post it Notes 3"/3",Post it Notes 5 Colors
3	IKO Sugar Free Oatmeal Crackers 9 Grains,Marks Diabetic Low Fat Milk Powder,Zero Cal Box 75 Sachets,Canderel Sugar
4	Aarong Dairy Sweetened Yogurt,Aarong Dairy Low Fat Yogurt (Sour),Aarong Dairy Yogurt (Sour),PRAN Sweet Yogurt
5	Feather Paint Brush
6	PRAN Matha
7	Super Fresh Drinking Water
8	Gowala Sweet Curd (Doi),PRAN Sweet Yogurt,PRAN Sour Curd,PRAN Matha
9	Mum Drinking Water,Super Fresh Drinking Water,Pureit Classic Device Water Purifier (Maroon),Jibon Natural Mineral Water
10	Angel Bear Toothbrush Holder (Cream) China,HMBR (3mmX10ft) Measurement Tape (USA),Golden Wings Badminton Cork 1 Box
11	Aarong Dairy Yogurt (Sour),Aarong Dairy Sweetened Yogurt,PRAN Sour Curd,PRAN Matha
12	Equal Sweetener 100 Tablets
13	Aarong Dairy Low Fat Yogurt (Sour)
14	Stute Diabetic Strawberry Extra Jam,Stute Diabetic Apricot Extra Jam
15	Aarong Dairy Yogurt (Sour),PRAN Sweet Yogurt
16	Super Fresh Drinking Water,Super Fresh Drinking Water
17	White Letter Envelope,Post it Notes 3"/3",Post it Notes 5 Colors
18	Super Fresh Drinking Water,PRAN Drinking Water
19	Pureit Germ Kill Kit
20	PRAN Sweet Yogurt,Aarong Dairy Sweetened Yogurt
21	Jumbo Plane Cricket Tennis Ball,PP Plastic 3 Color Hanger 5 pcs (China),HMBR (3mmX10ft) Measurement Tape (USA),Feather Paint Brush
22	PRAN Sour Curd,PRAN Sweet Yogurt,PRAN Matha
23	PRAN Sour Curd
24	Post it Notes 5 Colors,White Letter Envelope,Post it Notes 3"/3"
25	Aarong Dairy Yogurt (Sour),Aarong Dairy Low Fat Yogurt (Sour),PRAN Sweet Yogurt
26	Super Fresh Drinking Water,Kinle Drinking Water
27	Stute Diabetic Black Currant Extra Jam
28	Pureit Germ Kill Kit,Ifad Drinking Water,Super Fresh Drinking Water
29	Marks Diabetic Low Fat Milk Powder,Canderel Sucralose Tablet,Canderel Calorie Sweetener Jar,Stute Fine Cut Diabetic Orange Extra Marmalade,IKO Sugar Free Oatmeal Crackers 9 Grains
30	PRAN Sweet Yogurt,Gowala Sweet Curd (Doi)
31	Post it Notes 5 Colors,Post it Notes 3"/3",White Letter Envelope
32	Mum Drinking Water,Super Fresh Drinking Water
33	Gowala Sweet Curd (Doi),PRAN Sweet Yogurt,Aarong Dairy Sweetened Yogurt
34	Gowala Sweet Curd (Doi),Aarong Dairy Yogurt (Sour),PRAN Matha
35	Post it Notes 3"/3",Post it Notes 5 Colors,White Letter Envelope
36	Stute Diabetic Apricot Extra Jam,Zero Cal Box 75 Sachets
37	PRAN Sour Curd,PRAN Sweet Yogurt
38	Aarong Dairy Low Fat Yogurt (Sour)
39	Gowala Sweet Curd (Doi),PRAN Sweet Yogurt,Aarong Dairy Yogurt (Sour)

Figure 3.2: product purchase history

TABLE 3.1: COLLECTED ITEMS BY USER.

Attributes	Explanation
Items	product purchase history

Figure 3.3 below shows the product price and product category

	A	B	C
1	Product	price	product category
2	REXONA Powder Dry Female Roll-on Anti Perspirant	140	deodorants
3	Nivea Pearl & Beauty 48h Roll On	180	deodorants
4	Do It! Deodorant	260	deodorants
5	REXONA Quantum Roll-on Anti Perspirant	140	deodorants
6	REXONA Free Spirit Female Roll-on Deoderant	140	deodorants
7	Enchanteur Body Spray Romantic	330	deodorants
8	Denim Musk Body Spray	220	deodorants
9	Nivea Fresh Natural Anti Perspirant 48h Roll On	180	deodorants
10	Fa Caribbean Lemon Extra Fresh Roll on	145	deodorants
11	Nivea Men Invisible Roll Deodorant	175	deodorants
12	Denim Desire Body Spray	220	deodorants
13	Engage Woman Body Spray	290	deodorants
14	Wild Stone Hydra Energy Body Spray	325	deodorants
15	AXE Signature Mysterious Body Perfume	380	deodorants
16	REXONA Ice Cool Male Roll-on Anti Perspirent	140	deodorants
17	Yardley English Rose Deodorant Roll On	180	deodorants
18	Cigar Deodorant Spray	230	deodorants
19	Enchanteur Roll On Romantic	250	deodorants
20	Fa Aqua Aquatic Fresh Body Spray	245	deodorants
21	Brut Original Body Spray	280	deodorants
22	Engage Man Mate Deo Spray	270	deodorants
23	Old Spice Fresh Deo Stick	300	deodorants
24	Lady Speed Stick Dry Deodorant	280	deodorants
25	AXE Recharge Midnight Deoderant	315	deodorants
26	Fogg Fresh Spicy Body Spray	400	deodorants
27	Kool Citrus Deo Body Spray	220	deodorants
28	Adidas Team Force Deo Spray	270	deodorants
29	Set Wet Cool Avatar Deodorant Spray	250	deodorants
30	Nivea Men 48h Cool Kick Deodorent	260	deodorants
31	Wild Stone Red Body Deodorant	325	deodorants
32	She Is Sexy Deodorant Body Spray	320	deodorants
33	Nivea Men Ice Cool Body Deodorizer	375	deodorants
34	REXONA Powder Dry Female Roll-on Anti Perspirant	80	deodorants
35	REXONA V8 Roll-on Anti Perspirant	140	deodorants
36	Denim Musk Roll On Deodorant	240	deodorants
37	Denim Original Roll On Deodorant	240	deodorants
38	AXE Twist Body Spray	280	deodorants
39	Havoc Gold Deodorant Spray	260	deodorants

Figure 3.3: Product Price and Product Category

TABLE 3.2: PRODUCT PRICE AND PRODUCT CATEGORY.

Attributes	Explanation
Product	Product name
Price	How much product does cost?
Product category	Which product in which group?

Figure 3.4 below shows the Age Grouping with Product Category

	A	B	C	D	E	F	G
1	category	15-18	19-25	26-32	33-40	41-44	45-50
2	adult-diapers						TRUE
3	air-freshners			TRUE	TRUE		
4	antiseptics			TRUE	TRUE	TRUE	TRUE
5	baby-accessories				TRUE	TRUE	
6	bakery-snacks			TRUE	TRUE	TRUE	TRUE
7	baking-ingredients			TRUE	TRUE		
8	baking-mixes		TRUE	TRUE			
9	bath	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
10	bath-skincare	TRUE	TRUE	TRUE	TRUE		
11	batteries	TRUE	TRUE	TRUE			
12	biscuits	TRUE		TRUE	TRUE		
13	breads			TRUE	TRUE		
14	butter-sour-cream		TRUE	TRUE	TRUE		
15	cakes	TRUE	TRUE	TRUE			
16	candy-chocolate	TRUE					TRUE
17	canned-meat-seafood			TRUE	TRUE		
18	cereals	TRUE	TRUE				
19	cheese-2		TRUE	TRUE	TRUE		
20	chips-pretzels	TRUE	TRUE				
21	cleaning-accessories				TRUE	TRUE	
22	cleaning-supplies				TRUE		
23	coffee-2		TRUE	TRUE			
24	colors-flavours			TRUE	TRUE		
25	colours		TRUE	TRUE	TRUE		
26	cookies		TRUE	TRUE			
27	cutting-2			TRUE	TRUE		
28	dal-or-lentil		TRUE	TRUE	TRUE	TRUE	TRUE
29	deodorants	TRUE	TRUE	TRUE			
30	dips-spreads		TRUE	TRUE	TRUE		
31	dish-detergents		TRUE	TRUE	TRUE		
32	dried-fish			TRUE	TRUE	TRUE	
33	eggs		TRUE	TRUE	TRUE		
34	energy-boosters	TRUE	TRUE				
35	erasers-correction-fluid	TRUE					
36	facial-care	TRUE	TRUE	TRUE			

Figure 3.4: Age Grouping with Product Category

TABLE 3.3: AGE GROUPING WITH PRODUCT CATEGORY.

Attributes	Explanation
Category	Product group name
Age grouping	Age wise characters

Figure 3.5 Below shows the People-Data

	A	B	C
1	phone	Age	Gender
2	1679332412	19	female
3	1807026986	37	female
4	1807026986	37	female
5	1807026986	37	female
6	1807026986	37	female
7	1708397077	17	male
8	1708397077	17	male
9	1708397077	17	male
10	1708397077	17	male
11	1765863891	18	male
12	1872516514	42	male
13	1907704434	43	female
14	1907704434	43	female
15	1907704434	43	female
16	1907704434	43	female
17	1907704434	43	female
18	1671566208	49	male
19	1671566208	49	male
20	1907017973	28	male
21	1907017973	28	male
22	1777307753	40	female
23	1777307753	40	female
24	1777307753	40	female
25	1777307753	40	female
26	1808240232	47	female
27	1808240232	47	female
28	1808240232	47	female
29	1808240232	47	female
30	1707065977	16	female
31	1707065977	16	female
32	1707065977	16	female
33	1808490486	42	female
34	1608519856	30	female
35	1608519856	30	female
36	1808470442	25	male
37	1808470442	25	male
38	1907925422	28	male
39	1907759387	20	female

Figure 3.5: People-Data

TABLE 3.4: PEOPLE-DATA

Attributes	Explanation
Phone	user/customer phone number
Age	user/customer age
Gender	user/customer gender

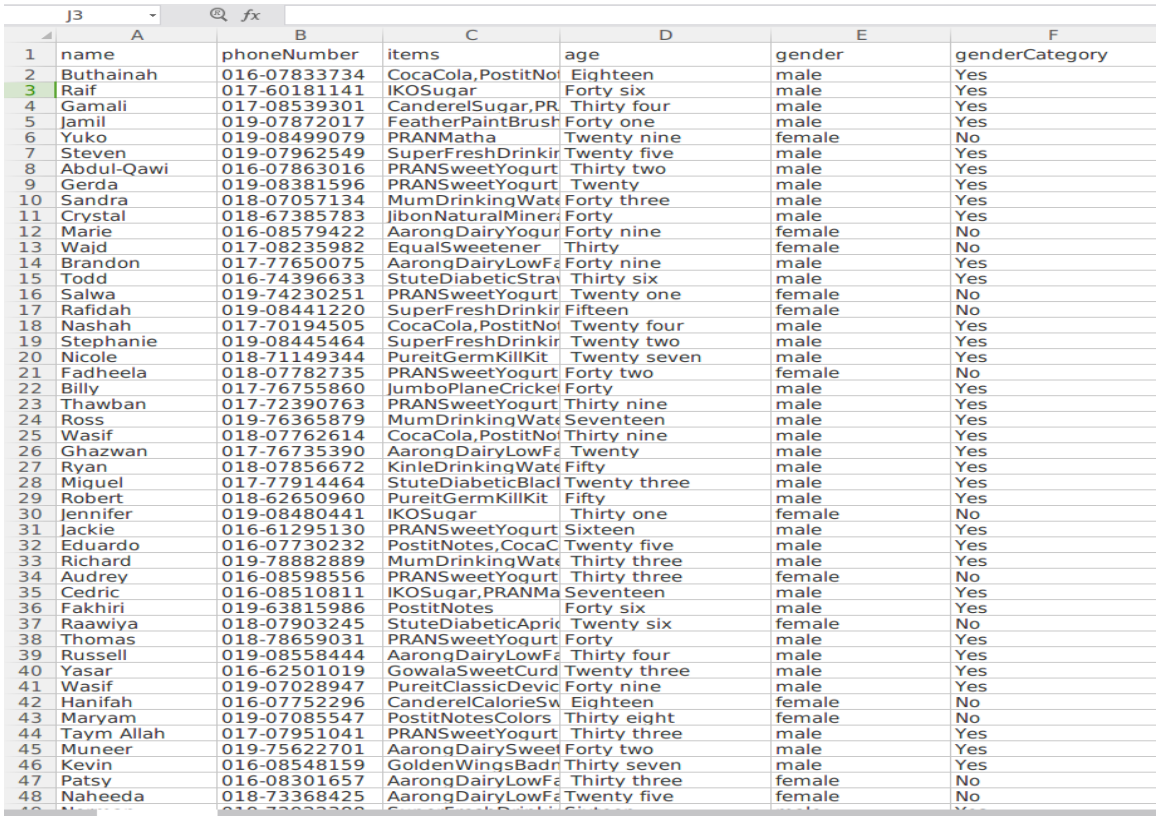
Data Analysis:

Final data:

In the Check in excel sheet, we need some proper attribute. We find out this type of attributes. This attribute is:

- Name
- PhoneNumber
- Age
- Items
- Gender
- GenderCategory

Figure 3.6 below shows the Pre-Processed attributes.



	A	B	C	D	E	F
1	name	phoneNumber	items	age	gender	genderCategory
2	Buthainah	016-07833734	CocaCola,PostitNo	Eighteen	male	Yes
3	Raif	017-60181141	IKOSugar	Forty six	male	Yes
4	Gamali	017-08539301	CanderelSugar,PR	Thirty four	male	Yes
5	Jamil	019-07872017	FeatherPaintBrush	Forty one	male	Yes
6	Yuko	019-08499079	PRANMatha	Twenty nine	female	No
7	Steven	019-07962549	SuperFreshDrinkir	Twenty five	male	Yes
8	Abdul-Qawi	016-07863016	PRANSweetYogurt	Thirty two	male	Yes
9	Gerda	019-08381596	PRANSweetYogurt	Twenty	male	Yes
10	Sandra	018-07057134	MumDrinkingWate	Forty three	male	Yes
11	Crystal	018-67385783	JibonNaturalMinera	Forty	male	Yes
12	Marie	016-08579422	AarongDairyYogur	Forty nine	female	No
13	Wajd	017-08235982	EqualSweetener	Thirty	female	No
14	Brandon	017-77650075	AarongDairyLowFa	Forty nine	male	Yes
15	Todd	016-74396633	StuteDiabeticStra	Thirty six	male	Yes
16	Salwa	019-74230251	PRANSweetYogurt	Twenty one	female	No
17	Rafidah	019-08441220	SuperFreshDrinkir	Fifteen	female	No
18	Nashah	017-70194505	CocaCola,PostitNo	Twenty four	male	Yes
19	Stephanie	019-08445464	SuperFreshDrinkir	Twenty two	male	Yes
20	Nicole	018-71149344	PureitGermKillKit	Twenty seven	male	Yes
21	Fadheela	018-07782735	PRANSweetYogurt	Forty two	female	No
22	Billy	017-76755860	JumboPlaneCricke	Forty	male	Yes
23	Thawban	017-72390763	PRANSweetYogurt	Thirty nine	male	Yes
24	Ross	019-76365879	MumDrinkingWate	Seventeen	male	Yes
25	Wasif	018-07762614	CocaCola,PostitNo	Thirty nine	male	Yes
26	Ghazwan	017-76735390	AarongDairyLowFa	Twenty	male	Yes
27	Ryan	018-07856672	KinleDrinkingWate	Fifty	male	Yes
28	Miguel	017-77914464	StuteDiabeticBlacl	Twenty three	male	Yes
29	Robert	018-62650960	PureitGermKillKit	Fifty	male	Yes
30	Jennifer	019-08480441	IKOSugar	Thirty one	female	No
31	Jackie	016-61295130	PRANSweetYogurt	Sixteen	male	Yes
32	Eduardo	016-07730232	PostitNotes,CocaC	Twenty five	male	Yes
33	Richard	019-78882889	MumDrinkingWate	Thirty three	male	Yes
34	Audrey	016-08598556	PRANSweetYogurt	Thirty three	female	No
35	Cedric	016-08510811	IKOSugar,PRANMa	Seventeen	male	Yes
36	Fakhiri	019-63815986	PostitNotes	Forty six	male	Yes
37	Raawiya	018-07903245	StuteDiabeticApric	Twenty six	female	No
38	Thomas	018-78659031	PRANSweetYogurt	Forty	male	Yes
39	Russell	019-08558444	AarongDairyLowFa	Thirty four	male	Yes
40	Yasar	016-62501019	GowalaSweetCurd	Twenty three	male	Yes
41	Wasif	019-07028947	PureitClassicDevic	Forty nine	male	Yes
42	Hanifah	016-07752296	CanderelCalorieSw	Eighteen	female	No
43	Maryam	019-07085547	PostitNotesColors	Thirty eight	female	No
44	Taym Allah	017-07951041	PRANSweetYogurt	Thirty three	male	Yes
45	Muneer	019-75622701	AarongDairySweet	Forty two	male	Yes
46	Kevin	016-08548159	GoldenWingsBadn	Thirty seven	male	Yes
47	Patsy	016-08301657	AarongDairyLowFa	Thirty three	female	No
48	Naheeda	018-73368425	AarongDairyLowFa	Twenty five	female	No

Figure 3.6: Pre- Process Attributes.

TABLE 3.5: PRE- PROCESS INFORMATION TABLE

Attributes	Explanation
Name	User name
PhoneNumber	User/customer phone number
Items	User/customer purchase history
Age	User/customer Age
Gender	User gender male or female
GenderCategory	Gender collaboration with yes ,no

3.4 Statistical Analysis

We perform random training and test data in the ZeroR algorithm. We apply and try to find out the best value on the WEKA. When machining WEKA tools and applying random values Then, we get some different values of training and testing data. Above we show the values of figure figure 3.7. In figure 3.8, training data 74.667% and testing data 66.66%. It is the best data for our research-based project. At last, we get finale dataset for working our research-based project.

Figure 3.7 & Figure 3.8 below shows the Percentage of the training and testing data.

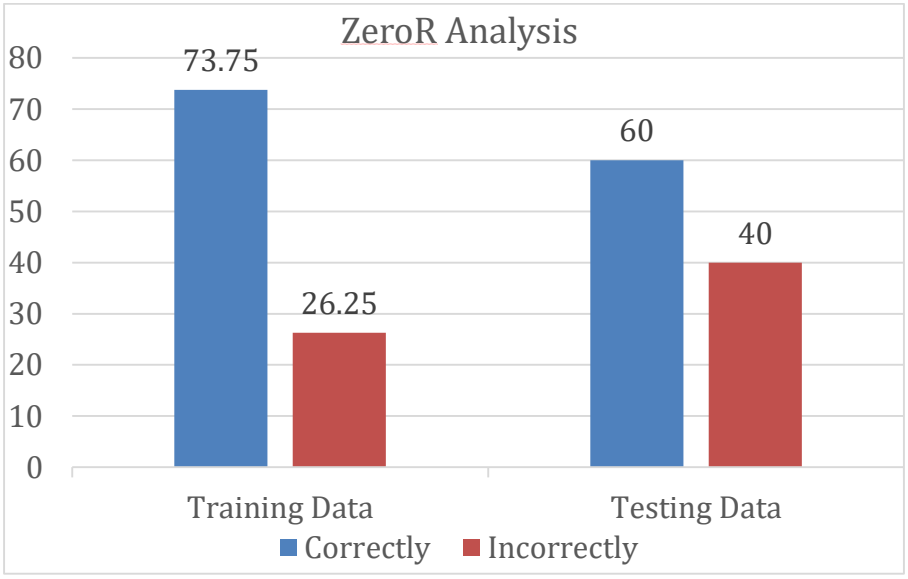


Figure 3.7: zeroR Analysis

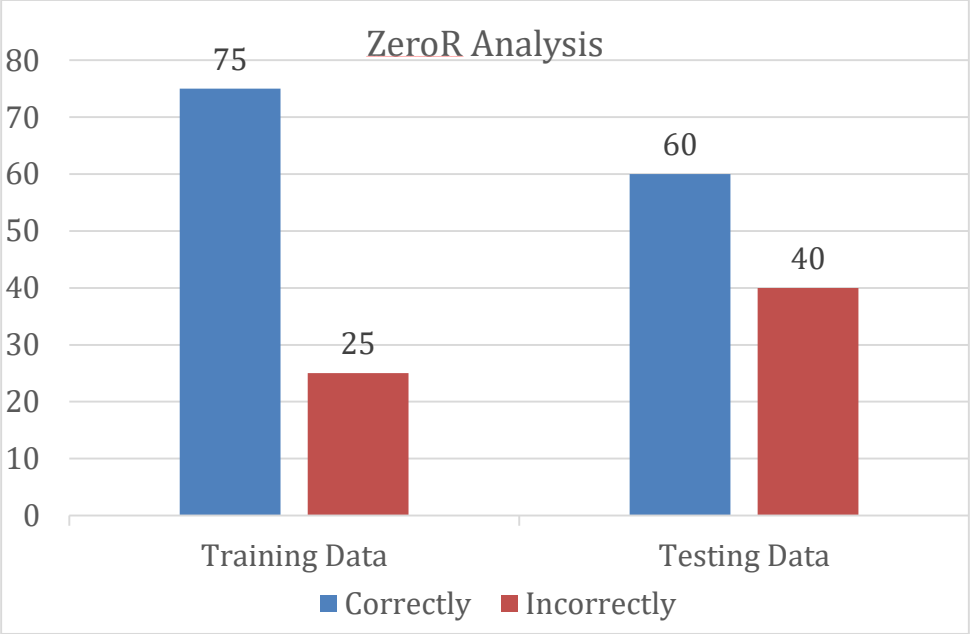


Figure 3.8: zeroR Analysis

3.5 Implementation Requirements

Hardware Requirements:

- Processor: Intel Core i3 (minimum)
- RAM: 4GB. (minimum)
- Operating System: Linux or Windows
- Browser: Chrome
- Storage: 512GB HDD
- Prediction by: WEKA 3.8.2, HTML, CSS, JavaScript.

CHAPTER 4

EXPERIMENTAL RESULTS AND DISCUSSION

4.1 Introduction

In this part the introduction and examination of the after- impacts of the directed majestic study will be carried out. The following effects of the overview include examination of the test results, descriptive investigation and outline of this part.

4.2 Experimental Results

We collected the " Final" data set in our project. When using WEKA data set and ZeroR algorithm. We also use a different algorithm. This time we find a better result if we use ZeroR than other algorithms. In algorithm training data 74.667% and test data 66.66% Accuracy. It results better than the forecast result. and then in figure 4.1 we mentor the user by sending regular messages and massages with personalized products. we sent a joint massage to 100 different users and we received a response of over 25 percent. After personalization, we sent different 100 personalized messages to 100 different users and we have a response of over 47 percent. So we accepted the outcome of our research project.

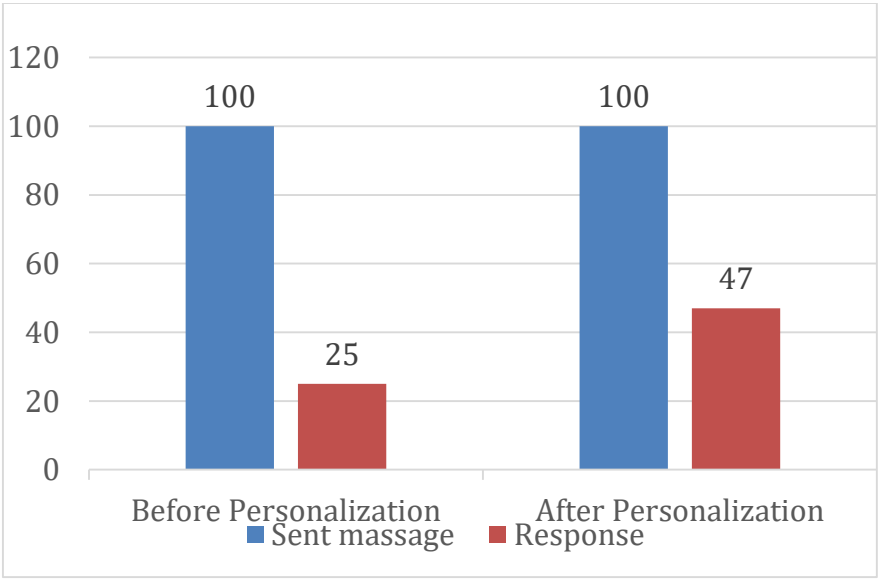


Figure 4.1: survey by massage.

4.3 Descriptive Analysis

We use an algorithm to find the perfect data sheets for algorithm selection. Figure 4.1 below shows the training and test data percentage.

figure 4.2 below shows the Percentage of the training and testing data.

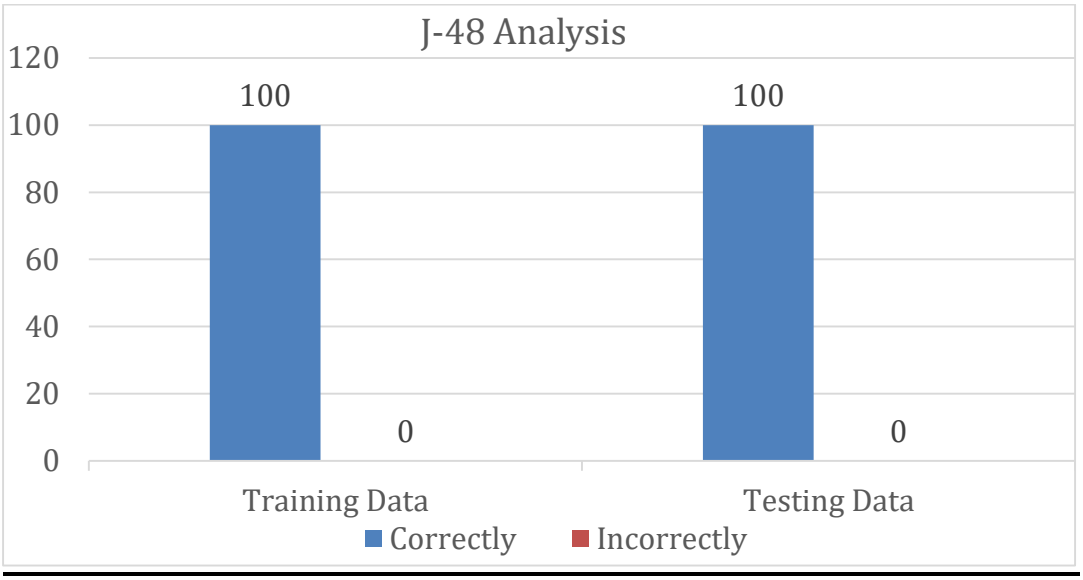


Figure 4.2: J-48 Analysis

In here from figure 4.2, it displays 100 percent training data when working with j-48 algorithms. But it is not possible to select the correct value and not display the tree either.

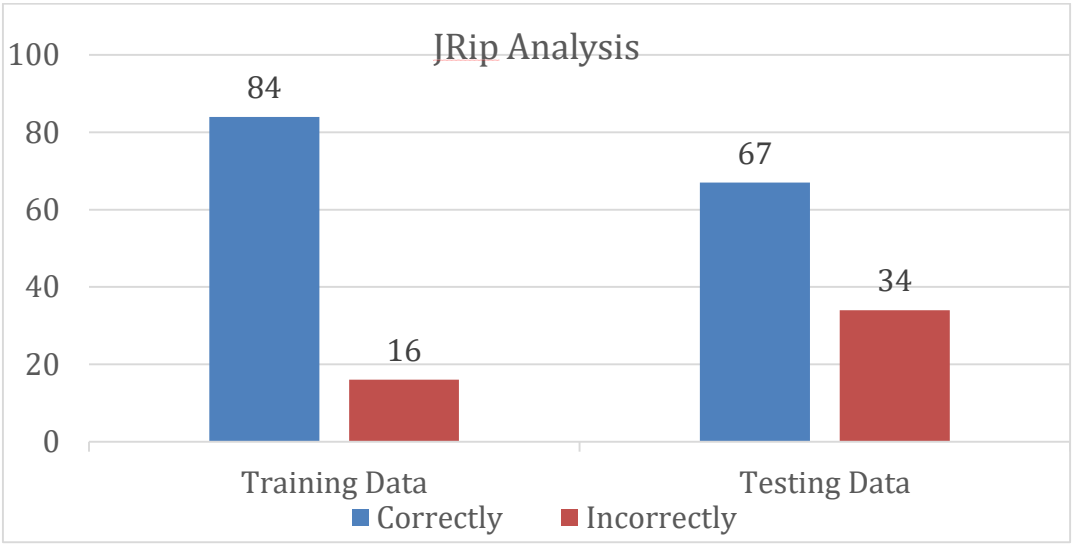


Figure 4.3: Association Rule (JRip) Analysis

The following figure 4.3 we have used association rule (JRip) mining, we get proper value. But, when we try again that time cannot show the tree.it is the problem for working this research-based project.

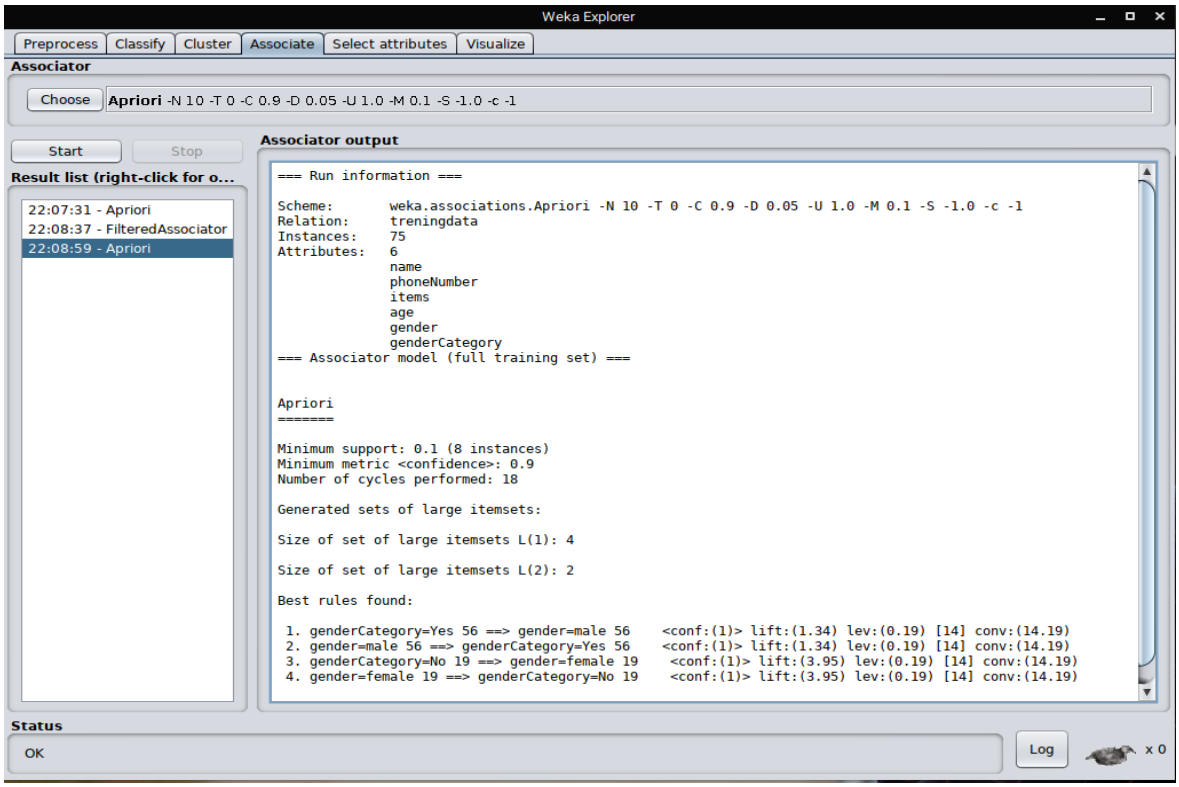


Figure 4.4: Association Rule (Apriori) Analysis

We used the a Apriori algorithm for association rule mining, and we found a relationship between the attributes. Using the Apriori algorithm for Weka disregards the relationship between attributes.

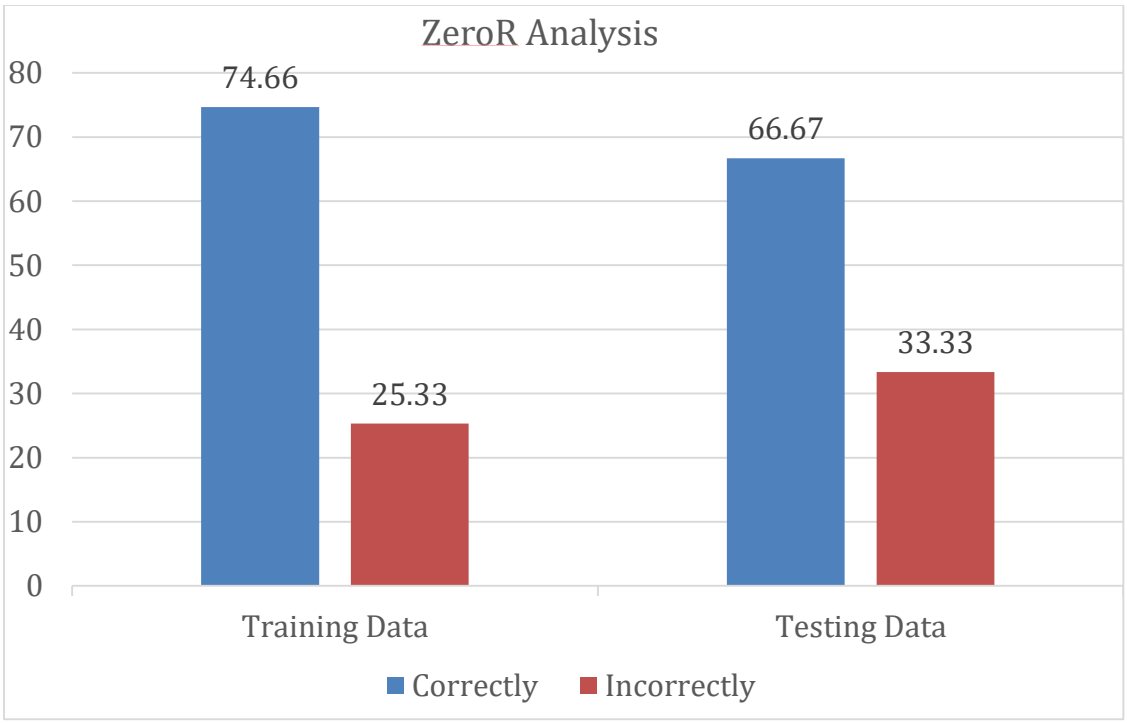


Figure 4.5: ZeroR Analysis

The following figure 4.5 we find in training data correctly 74.66 and Incorrectly 25.33 and in testing data we find 66.67 correctly and 33.33 Incorrectly.

Comparative Analysis:

The following Figure 4.6 we have compared J-48, JRip and ZeroR Algorithms. We found in j-48 analysis correctly 100 and incorrectly 0 and JRip analysis we found correctly 84 and incorrectly 16 and ZeroR Analysis we found correctly 74.66 and incorrectly 25.33. we can't accept j-48 because of it has 100 correctly found value but in real it not possible and in jRip after Analysis we find some issue like at first it works perfectly but second time it doesn't work. We finally found the best value in ZeroR analysis. Therefore, the ZeroR algorithm decision tree is the best for our research- based project.

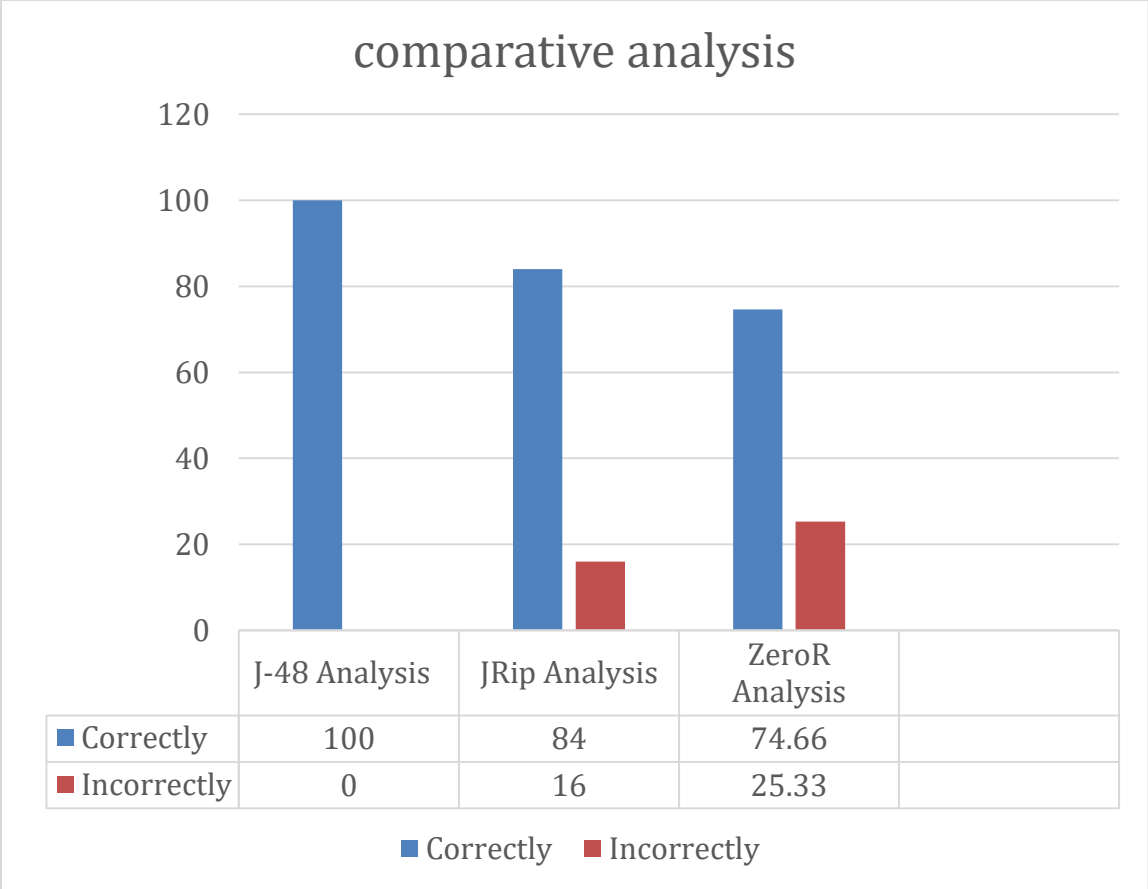


Figure 4.6: Comparative Analysis

4.4 Summary

At first, we collected the data first, analyzed the whole data sheet very carefully. All data sheet analysis then we have data sheet two parts, one is data training and the other is data testing. Then we used the forecast for WEKA. We used a lot of algorithms. And with these algorithms we saw many kinds of training and test results that were very clearly compared and that we always needed for our research project.

CHAPTER 5
SUMMARY, CONCLUSION, RECOMMENDATION AND IMPLEMENTATION FOR FUTURE RESEARCH

5.1 Summary of the Study

The main objective of the proposal system here is to anticipate consumers benefit. This recommendation system also uses the collaborative model to make more informed suggestions. This product suggestion took into account many criteria such as the substance of the item and the nature of the product by distinguishing the evaluations by alternative buyers. This system of recommendations has no problem with implementation since the proposals were separated. This paper uses customer- based collaborative filtering. Providing ratings and also includes user satisfaction factors.

5.2 Conclusions

This document uses collaborative filtering based on research. For recommendations. Research- based collaborative filtering can eliminate the data problem and provide good advice. Also in our research- based project, collaborative filtering is used to identify similarities between products or articles that would help the system to recommend the best product and to fill the vacant assessments as needed. The recommendation system uses the following technologies to recommend products such as content filtering, collaborative filtering, and decision tree. We took the best algorithm result to predict the product. Many users don't find the best item or product. But this will be very helpful in this case for anyone looking for the best product with full information and at last similarity calculation results give a good accuracy performance.

5.3 Recommendations

- Try to deliver as much as accurate product recommendations.
- The system must function quickly and smoothly.

5.4 Implication for Further Study

At the time of analysis and research, we discovered so many other implementation and challenges in the field of product recommendation, and there are also many opportunities for future research in this area. Comparing other countries in different categories on this Recommendation page.

- How to build hybrid recommender systems that might work on personalized and non-personalize user.

Appendix A: Research Reflection

There is some problem with our research- based project **"Personalized Recommender System for Supershop"** and we overcome it very carefully.

First, we try to find global data. But we can't find out about these data types. This is why we collected data from different sources, which data types we wanted, we needed.

Second, when we preprocessed this data. We did not need some properties and some attributes for our research project. So we're grouping this record.

Thirdly, we used WEKA 3.8 for the forecast. We had the main problem with these parts. We need time for the prediction algorithm selected. After all, we handle it very carefully and succeeded.

Finally, when we did all the work. It's time, we'll write reports. We did it successfully.

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