

## PRODUCT ANALOGY

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**Abstract** - Online shopping has increased a lot during this pandemic period of 2020, people are relying on online websites for grocery shopping and other daily products. Generally, people always compare prices between different shops which increases the complexity in their shopping. This results in wastage of a lot of time which can be utilized somewhere else, on something productive. Purchasing offline will not provide them with offers and services that online shopping websites will provide them. This website will help the users or customers to compare and get the products from various websites on a single website. It will compare the prices and display the cheapest and most relevant products available with available offers. Development of this website will be in HTML, CSS and JQuery to make it look attractive and more user oriented. Database will be built using MySQL server and it will be connected to the website using PHP. ParseHub is used as a Web Scraping Tool. Further this project will be expanded into an application which will prove to be more handy and a user oriented GUI would have the ability to attract more and more users. A recommendation system will be added to recommend relevant products or previously purchased items to make it more convenient. Not only for groceries or daily products but also for electronics, this website can come into picture on demand from the users.

**Keywords:** Product Analogy, Research Methodology.

### 1. INTRODUCTION

Online shopping has taken over the market in the past couple of decades. Since then, a number of different shopping websites have emerged which have provided the customers a larger variety of products with reasonable cost. These websites have been in a constant tussle for providing the customers with best deals and great offers. Owing to this tussle different websites provide different prices for the same product. Due to this an individual has to go through different websites to compare product features such as cost, availability, customer review, etc. This becomes a tedious and time-consuming task for the buyer. To overcome this problem, we are designing a meta-search website. This website basically compares the product features from different websites and displays the best deal for the customer.

The time wastage manually going through different websites to compare prices is reduced considerably by listing different prices together at one place. The working of the website is very easy to understand. Firstly, all the data required is scrapped from all the commercial websites like Big Basket, Grofers, Jiomart, etc. This data is stored in a database in the computer. The front end of the website is designed using different languages like Html, CSS, and JavaScript. The database is linked to the website using php. The data is then shown on the website which can be seen by any customer. The customer can compare prices and buy products at the cheapest cost. The customer will be redirected to the website once he clicks on a product and continue the purchase. The website is user-friendly and easy to use even for a person who is using the website for the first time.

Price comparison sites and comparison-shopping engines gives ecommerce traders a good opportunity to increase their sales, attract new customers and give a competition against their competitors. Even Shoppers often look for best deals and offers for a particular product which they are looking for. It is difficult to visit each and every website for comparing the deals or a price of a particular product. Hence this comparison-shopping site is proposed which will help ecommerce merchants as well as shoppers for collecting product information, including price lists and products, from participating retailers and then it displays collective information on a result page in response to a shopper's or ecommerce merchant's search query. In this way, consumers can compare prices, and service from several retailers on a single webpage and choose the merchant that offers the best overall value. Users need to open the website and search for a particular product, it will compare the prices from different websites it will also auto correct the product spelling mistake. This will make easy shopping with best deals as well as ecommerce merchants to know well about their competitors.

The world is changing at a great pace in an attempt to make things easier for the humans and this is exactly what the website aims to do. Making shopping easier, faster than before & as cheap as possible. Moreover, it helps you get access to a wider range of websites from which you can buy products.

### 1.1 Problem statement

Online shopping can save time for both the buyer and retailer, reducing phone calls about availability, specifications, hours of operation or other information can be easily found on company and product pages. Moreover, the ongoing Covid-19 pandemic has created an Uncertainty in the market for local stores, whether how much more time will be needed for things to get back to normal completely. This has led to an increase in online shopping Worldwide as it is safer, feasible and more reliable. People are hesitant in getting out of their houses and are preferring shopping online even for basic amenities like groceries. It is seen that people spend a lot of time scrolling through websites yet not ending up with the desired prices for the product. With all the prices listed at the same place there is a higher chance of customer buying products.

### 1.2 Project Objectives

Online shopping can save time for both the buyer and retailer, reducing phone calls about availability, specifications, hours of operation or other information can be easily found on company and product pages. Also, during this pandemic period, the customers are preferring to buy products online and avoid going out of their houses. The impact of the following can be seen as customers are comparing product prices on different websites to get the best deals before purchasing. Searching one by one on different website consumes a lot of time. This website simplifies the above task by automatically comparing and listing the best results offered by different websites at one single platform. A website gets a platform to promote itself by promoting offers and discounts which arouse interest from the buyers. We can make a business account with websites like amazon, grofers, etc. Allowing us to cash every time a user buys a product through our website.

## 2. LITERATURE SURVEY

### 2.1 Survey of Existing System

Online shopping can save time for both the buyer and retailer, reducing phone calls about availability, specifications, hours of operation or other information can be easily found on company and product pages. Moreover, the ongoing Covid-19 pandemic has created an uncertainty in the market for local stores, whether how much more time will be needed for things to get back to normal completely.

This has led to an increase in online shopping worldwide as it is safer, feasible and more reliable. People are hesitant in getting out of their houses and are preferring shopping online even for basic amenities like groceries. As the working sector is deprived of jobs, there has been a financial crunch in the market.

The impact of the following can be seen as customers are comparing product prices on different websites to get the

best deals before purchasing. Searching one by one on different website consumes a lot of time. This website simplifies the above task by automatically comparing and listing the best results offered by different websites at one single platform.

#### Phase 1: Market Research:

As per market research online shopping is going to increase steeply owing to the covid-19 pandemic. It has led to more and more users have become habitual to online shopping. This increase in customers will lead to competition between different shopping websites. Thus, product comparison website will come in handy for the customers to find best offers efficiently.

#### Phase 2: Requirement Gathering:

For the development of the system, we will require certain tools and information to be gathered. Further, we need to gain knowledge to implement the gathered tools in the most efficient and productive manner. Different tools will be allotted to each individual who specialized in the respective domain.

#### Phase 3: Development of base model:

After conducting the market research and requirement gathering phase, we start with the development of base model. HTML, CSS, Jquery will be used as the front-end technology for the website whereas PHP will be used in operating the SQL database and ParseHub tool to be used for web scraping.

#### Phase 4: Testing of base model:

A thorough testing of the base model will be done by observing the searched results and verifying the same. After hosting the website, vulnerabilities, backdoors, access control, and network security will also be taken care of by performing various attacks on the website such as XSS, SQL injections, command injections and DOS attack on the network request while redirecting to the site. Firewall will be provided by the host server of the website.

## 3. PROPOSED SYSTEM

### 3.1 Introduction

The implementation of the proposed system is done in following steps:

#### **Planning:**

This step involves finalizing the Web Technologies to be used and the tool that will be required for Web Scraping.

### Designing:

In this step, the front-end design and the database connection will be finalized. Here the main architecture of the entire proposed system will also be determined.

### Building:

The coding part will begin. First the front end of the website will be made and database would be created of the scraped data. In the end, website will be connected to our database.

### Testing:

Each and every feature of the website would be tested individually by us to make sure that the user will be getting the desired output.

### Deployment:

After successful test results the system can be deployed by connecting the front-end site to the database. The website will be hosted and the users will be able to view and compare the products.

### Project planning.

Building a project involves resources, skills, cost, etc. In this project also we will require different resources to implement our idea. We can use different software available for fulfilling the required tasks. Sublime is used for writing HTML, CSS, PHP & JQuery code for building a website.

**Legal feasibility:** Consent will be taken from the websites from which we are scraping data to avoid any sort of problems in future.

### 3.3 Architecture Homepage Design:

The front end of our website is divided into four sections. The first section i.e fig 3.4.1 contains a short introduction of what our website is and what it does along with the name of our website.

The second section (fig 3.4.2) contains the category in which groceries are divided. There are 3 category namely Vegetables, Fruits & Grains. After clicking on any of the 3 categories, there displays a list of different items along with their prices from 4 different websites. It also contains a search bar which can be used to search for the items of that particular category.

The third section (fig 3.4.3) shows some of the websites from which we are scraping data. This will help the user to know that from which websites items are being compared. User can go on to any of the website by just clicking on the picture to shop exclusively on them.

The last i.e the fourth section (fig 3.4.4) of our front-page displays all the ongoing offers on groceries and other

ParseHub is used to scrap data from different websites. MySQL is used for storing data of user and product information.

### 3.2 Requirement Analysis

**Economic feasibility:** This project is based on Website Building Applications and DMBS which can be built without any cost as there are no components nor any other expense except for storage, making it economically feasible to implement. In future, if the project is to be upgraded then we will have to buy premium features of web scraping tool, storage & attractive Word press Themes.

**Technical feasibility:** This project is based on modern web technology and Web Scraping system which is reasonably in phase with currently used technology. Therefore, it is very much favored by the technology. HTML, CSS and JQuery will be used to construct the front end. PHP and MySQL will be used for backend. It comprises of a user friendly GUI for smooth use.

**Operational feasibility:** This website will be very easy to use, it will have a user friendly interface so it will be pretty much operable by anyone having little experience of using any website. So, it is operationally feasible.

**Socio-cultural feasibility:** This application will have many positive impact on society. It will enable users to save money by getting the best possible deals.

products. This will display offer(s) available on various products from different websites which in turn would provide the user with the best possible deals & prices. User do not need go to different websites one by one to see the on going offers. He/She can see and compare all the ongoing offers on a single page.

Fig 3.4.5 shows how the products are displayed after clicking on any of the 3 category. Here user can compare the prices of different items of the same category from four different websites. Search bar is also provided so that rather than scrolling down one by one to see different products, user can just search the item on the search bar, which in turn would provide efficiency and effectiveness.

Fig 4.4.7 shows working of the search bar. There is no submit button besides the search bar as there is no need to press or click on enter or submit button after typing. While typing/searching the product(s) name, it automatically starts displaying the product if it is present in our website.



### 3.4 Framework

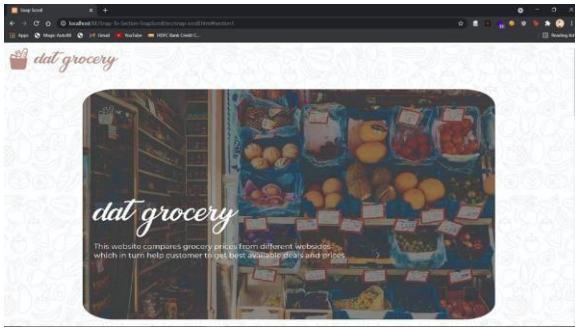


fig 3.4.1

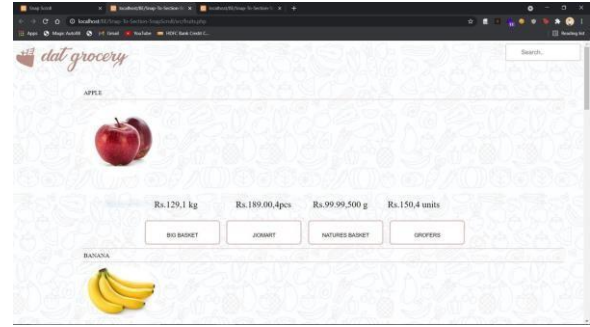


fig 3.4.1

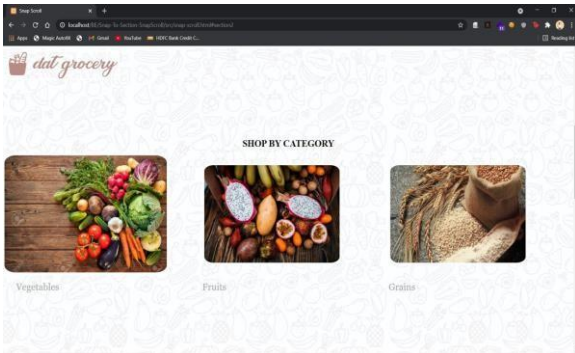


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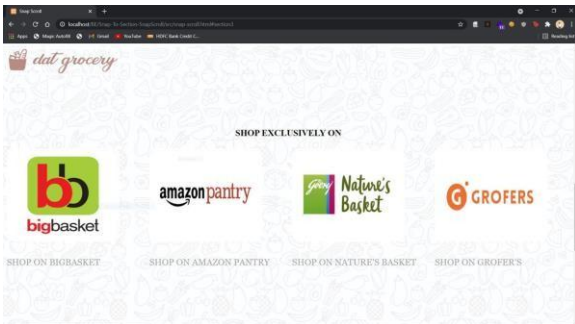


fig 3.4.1

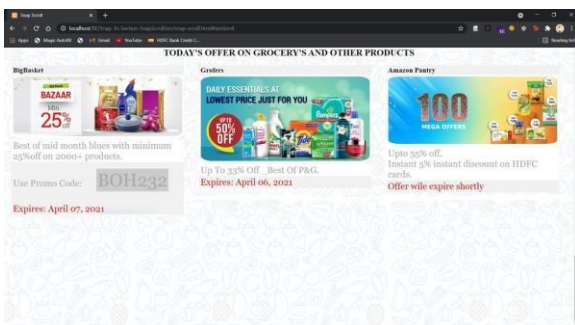
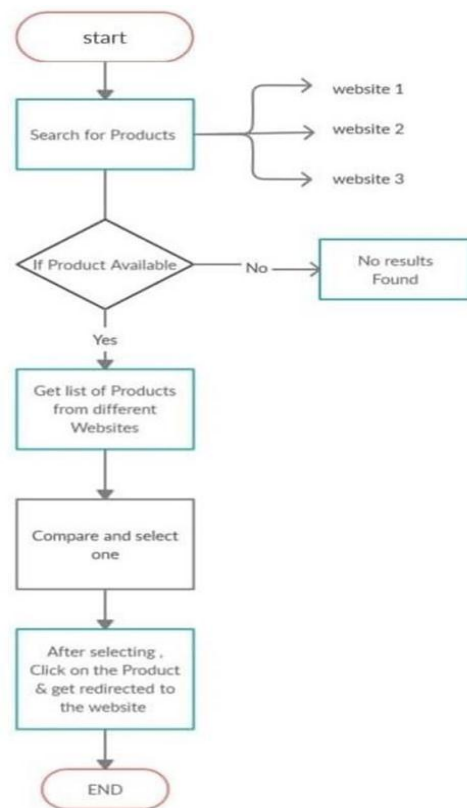


fig 3.4.1

### 3.5 Algorithm

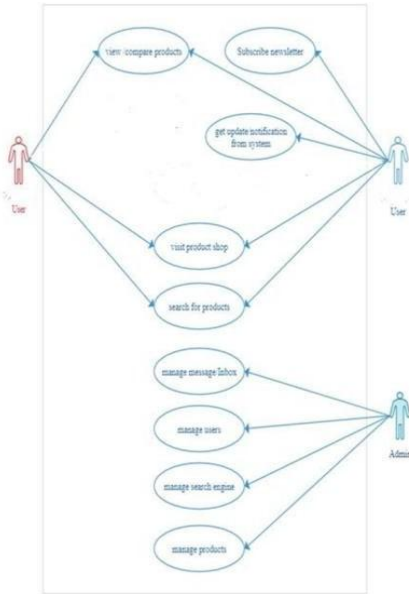


## 4. DESIGN DETAILS

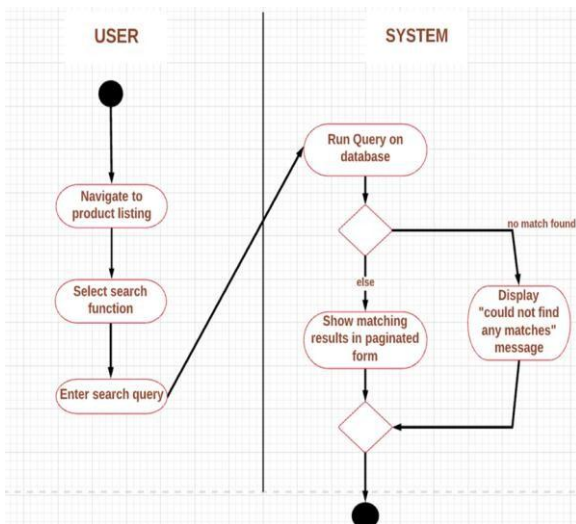
### 4.1 Data Flow Diagrams



#### 4.2.1 USE CASE DIAGRAM



#### 4.2.2 ACTIVITY DIAGRAM



### 5. METHODOLOGY

**Scrum:** Scrum is an agile development methodology used in the development of projects comprising of software based on an iterative and incremental processes. It is adaptable, quick, flexible and effective agile framework that is designed to deliver value to the customer throughout the development of the project. The main objective of Scrum is to satisfy the customer’s need through transparency in communication, collective responsibility and continuous progress.

**Product owner:** Product Owners are responsible for the entire project. They are responsible for maintaining the product backlog that describes the product that must continue to fit with the requirements of the business. During any project, as more becomes known about a product, about customers, or about changes in the market, a product often needs to change in order to meet these requirements. The Product Owner has to adjust to the backlog to fit these changes and to steer the project towards completion.

**Scrum master:** The Scrum Master doesn’t actually manage the team that does the work, instead he supports the Product Owner, coaches the team and makes sure that Scrum processes are adhered to. The Scrum Master is responsible for the Scrum process, its accurate execution, and the maximization of its benefits.

**Scrum development team:** The Development Team forms an integral part of a bigger Scrum team. It comprises of professionals who deliver a potentially releasable Increment of “Done” product at the conclusion of every Sprint.

### 6. RESULT/Expected Outcomes:

#### Phase-1:

The market research phase will enable us to learn more and create a report about the most popular online shopping websites. Based on the report and study of the current scenario, we will shortlist the top shopping websites among which we will compare the prices of the products.

#### Phase-2:

In the requirement gathering phase, a complete report on the customers’ requirements will be made. Secondly a study on the required systems (i.e. price comparison systems, web scraping techniques etc.) which are to be used will be made. Further in-depth knowledge of the required tools will be gathered.

#### Phase-3:

In this phase the front-end and back-end of the final website will be developed. The development of this website will be divided into the following parts:

- a. Designing of the front-end
- b. Construction of the back-end
- c. Web-scraping of the data and storing the data into the database

#### **Phase-4:**

In this phase the complete developed website will be tested to check if the desired results are displayed and if all the features are working as expected. This website will also be secured by verifying if the website is vulnerable to certain attacks.

#### **7. FUTURE SCOPE**

The future scope of this project will be totally dependent on the demand and success. As for now the website will only have grocery and general products, whereas in future we can improve our network towards electronic products and other products which would be profitable to everyone. We are also planning to build a mobile application as it will be more feasible and better for customers to access our services. A recommendation system will be added too.

#### **8. CONCLUSION**

By integrating the different resources of the product a user-friendly, efficient website would be created. This website would successfully solve the problem of tedious web searching and provide the required solution at one place. The comparison website will increase online shopping sale for the E-commerce website. The website will be fast, efficient and easy to use.

#### **9. REFERENCES**

1. Berger, P. D., & Nasr, N. I. (1998). Customer lifetime value: Marketing models and applications. *Journal of Interactive Marketing*, 12(1), 17.
2. Brynjolfsson, E., Dick, A., & Smith, M. D. (2004). Search and Product Differentiation at an Internet Shopbot.
3. Burdett, K., & Judd, K. L. (1983). Equilibrium Price Dispersion. *Econometrical (pre-1986)*, 51(4), 955.
4. Chevalier, J., & Goolsbee, A. (2003). Measuring Prices and Price Competition Online: Amazon.com and BarnesandNoble.com. *Quantitative Marketing and Economics*, 1(2), 203.
5. ANTAL, M. (2020): "A "Parasite Market": A Competitive Market of Energy Price Comparison Websites Reduces Consumer Welfare," *EnergyPolicy*, 138.
6. Shreesha M, Srikara S B, Manjesh R (2019): A Novel Approach for News Extraction using Web Scrapping Facebook
7. Hamid Hassanpur, Farzaneh Zahmatkesh (January 2012): An adaptive meta-search engine website considering the user's field of interest.
8. S.C.M. de S Sirisuriya, 2015, A Comparative Study on Web Scraping .Proceedings of 8th International Research Conference, KDU.
9. List of Web Harvester, Data Scraper, Web Scraping Software and Tools, n.d. WebData Scraping.
10. Anand V. Saurkar, Kedar G. Pathare & Shweta A. Gode (ISSN: 2454-4248363-367) : An Overview Of Web Scraping Techniques And Tools.