Major Project Synopsis

on

FreeCom

In partial fulfillment of requirements for the degree

of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE & ENGINEERING

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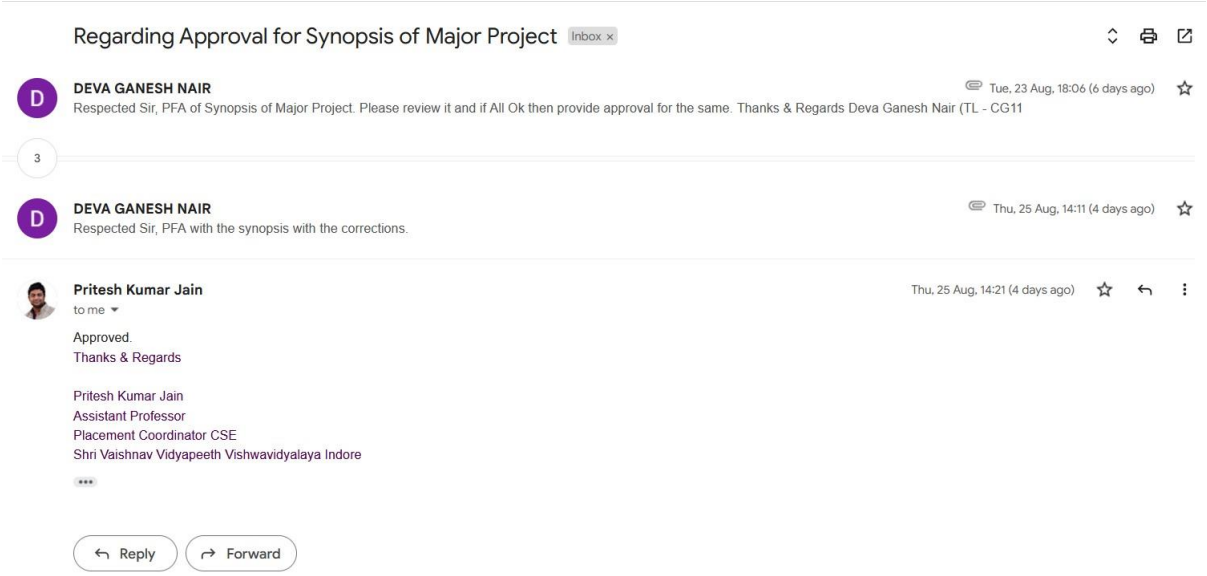
Approval of Synopsis from Project Guide



Regarding Approval for Synopsis of Major Project Inbox ×

DEVA GANESH NAIR Tue, 23 Aug, 18:06 (6 days ago)
Respected Sir, PFA of Synopsis of Major Project. Please review it and if All Ok then provide approval for the same. Thanks & Regards Deva Ganesh Nair (TL - CG11

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DEVA GANESH NAIR Thu, 25 Aug, 14:11 (4 days ago)
Respected Sir, PFA with the synopsis with the corrections.

Pritesh Kumar Jain Thu, 25 Aug, 14:21 (4 days ago)
to me

Approved.
Thanks & Regards

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Reply Forward

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Project Guide

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Abstract

With the rapid development of science and technology and economic society, the application of artificial intelligence (AI) is becoming more and more common. Its development has a profound impact on our work and lifestyle. In the field of e-commerce, AI technology has also been well applied and achieved good results. AI has become an important driving force for the development of e-commerce.

By taking one step further, we have proposed our system "FreeCom". It will be available as a web application. It will be hosted online. It is designed to compare the prices and specifications of electronic goods from a range of providers, which will help consumers make decisions to choose products that will save them money online. It will also provide a mechanism to verify the authenticity of the product through the use of a QR code reader. It will also provide a QR code comparison mechanism that will help the consumer when comparing items in retail stores. For marketing purposes, companies often use creative art, images, or logos that have hidden discounts or offers that will be sent to the consumer's email address when they purchase goods from their site. This technique can be implemented using Steganography. There is one product analysis part which will help consumers get to know about the top trending products according to the Amazon dataset.

1. INTRODUCTION

In today's hyper-competitive e-commerce scenario, retail players grab every opportunity to attract potential customers.

Price comparison websites are one of the opportunities e-retailers leverage to attract customers. Price comparison websites are a win-win for both a business owner and a customer. Customers benefit by gaining good deals, a convenient shopping experience, better coverage than major e-commerce sites, and a display of greater variety for the same product. On the other hand, business owners benefit by gaining a greater number of leads, better conversion rates, and enhanced customer service.

Product comparison will help users to select the best product out of two products available in the same electronic category; e.g., iPhone 6s vs One Plus 6T.

A QR code reader and decoder will allow the user to check whether the product is authentic or not.

A QR code comparison is used to compare products with the product QR code only. It will save us from having to rely on the salesman's understanding. In this we can compare two products, i.e., either a mobile or a laptop. For example, mobiles and laptops have the greatest number of specifications, i.e., fingerprint sensors, processors, RAM, etc. Also, it needs a clear and concise analysis of specifications.

Steganography will be used for marketing purposes by the brand or company. A company/brand will use their creative art/images/logo in a lottery type system. The user/customer will collect those creative art/images/logos and use this module to redeem the code for a discount/offer etc.

In product analysis, there will be a popularity-based recommendation system using IMDB's rating formula. As the dataset changes, it will change the popularity of products. It will help users or customers select the most trending product at a glance.

This site's end goal is to provide the best and most practical benefit to the user.

2. PROBLEM DOMAIN

Since the usage of the internet is growing day by day, many of the daily necessary products are available online on e-commerce websites. By knowing the demand of the customers, there are many e-commerce websites that are selling the same product but at different prices. This price variation is dependent on various factors, such as offers, festival discounts, one-time sale offers, etc. Since then, there are many sites that have their own price lists based on their own discount schemes. A layman would have to work his way through various other e-commerce websites to get the best product at the right price.

The main problems are as follows:

1. Consumers are confused by the many e-commerce websites selling the same product.
2. Consumers want specifications of the product on touch or scan.
3. Retailers have to employ individuals with knowledge of the product specifications.
4. The brand/company wants useful interaction with the customer.
5. Scam/fake products on e-commerce require an authentication mechanism.
6. Customers want to know the trending products on e-commerce websites.

The main objectives of our web application are as follows:

1. To compare the prices of the same product from different e-commerce sites and show the cheapest of the two products.
2. To compare any two electronic devices on the basis of their specifications and show the comparison to the customer.
3. To ensure the authenticity of the product that the customer bought by scanning the QR code available on the product.
4. To increase price consciousness among consumers.
5. Obtaining leads by marketing our web app to consumers who want hassle-free services by providing QR-based comparison in retail stores.
6. Trending products are displayed to help the companies analyse the trends and the market.

3. SOLUTION DOMAIN

"FreeCom" acts as a tool to assist consumers in making informed decisions before purchasing a product by providing a list of prices offered by different retailers/supermarkets. Users will use this website as their reference to check on the price of electronic products sold and see if there is any promotion going on. It is also able to help sellers promote new products by sending emails to the subscribers about them. Users will use this website to check out the difference between the electronic devices that seem to have almost the same price but may have different specifications.

Instead of taking hours and energy to go to each shop just to check on the price, “FreeCom” offers a better solution by getting all the prices in one place. Users just need to go online and choose which product they want to know about, and the list of retailers and the price offered will be shown.

Users can check it from anywhere, no matter if they are at home or at work, or even on the train while going back from work. “FreeCom” is accessible anytime as long as there is an internet connection. Users can also check the authenticity of the product that they bought using the QR code scanner on our site.

Shoppers usually consult about four websites (on average) for price and feature information. Among all consumers who are purchasing products offline, roughly two-thirds begin their searches online, using a combination of search websites and the retailer’s own website.

We are proposing to implement a QR-based comparison in which consumers will scan the QR code available with the product and get the comparison between the two. Users can use our web application to scan the creative arts, images, and logos to check whether they get a discount or offer. Product Analysis will help consumers analyse the trending products on Amazon.

The development of “FreeCom” will help consumers increase their price consciousness, help them make informed decisions to save money and help the sellers advertise for free.

4. SYSTEM DOMAIN

Technologies used in various modules:

1. Web Scraping: For Product comparison, price comparison, and QR-based comparison.
2. Computer Vision: For QR based authentication and QR based comparison.
3. Pattern Recognition: To Redeem Code (Steganography).
4. Cyber Security: For Redeem Code (Steganography).
5. Data analysis: For price comparison, QR-based comparison, and product analysis (Recommendation Engine).
6. AI: For Product Analysis (Recommendation Engine).
7. API: For Product comparison, QR-based comparison, and product analysis (Recommendation Engine).

Libraries used:

1. Beautiful Soup, Scrappy and Selenium for Web Scraping.
2. Pyzbar, Cv2, Types for computer vision and steganography.
3. NumPy, Matplotlib and Pandas for data analysis and recommendation engines.

Tools used:

1. Jupiter Notebook and VS Code for IDE.
2. Flask framework for creating web applications.
3. HTML, CSS, JavaScript, and Bootstrap V4 for web designing.
4. Anaconda for Python + useful packages.

Hardware and Software Specifications:

OS:	Windows 7 & above.
Processor:	Intel(R) Dual Core or higher.

RAM: 2.00 GB or greater.
Disk space: At least 100 GB.

5. APPLICATION DOMAIN

The following things can be done in the future:

1. The current system can be extended to allow users to create accounts and save products to wish lists.
2. The users could subscribe to price alerts, which would enable them to receive messages when the price of products falls below a particular level.
3. The shopping cart process system can be added to the current system. It can be extended to have an easy to use check out process.
4. A user can use the QR code on the product to buy the item.
5. A QR code could be generated and distributed as a coupon.
6. Current Systems product buying links could be replaced by affiliate links to generate revenue.

6. EXPECTED OUTCOME

1. Price Comparison: A customer will enter the product name and our site will compare the prices of the same product from different e-commerce sites and show the cheapest products as a result in a tabular format.
2. Product Comparison: A customer will enter the product name and our site will compare any two electronic devices on the basis of their specifications and show that comparison to the customer.
3. QR-based authentication: The customer will scan the QR code with the help of our site, which will check the authenticity of the product.
4. QR-based comparison: A customer will scan a QR code on any two electronic devices, and our site will compare those products based on their specifications.
5. Redeem the Code (Steganography): The customer will upload the encrypted image with the discount/offer code hidden in it, and our site will decrypt the image to redeem the code (if any) and show it to the user.
6. Product Analysis (Recommendation Engine): Customers will be able to see various ranked products on the basis of their popularity using a weighted rating formula (used by IMDB).

7. REFERENCES

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