

Recommendation Search

CSE299 Research Paper

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Abstract—The purpose of this work which is a web application is to collect and analyze all product from the website of e-online shops, its requirements with respect to user expectation. Where anyone from anywhere can search their required product and we will try to recommend our user the best quality product. We named it "Best Price". User will also able to buy their required product according to their budget. We are using google account services for user login logout. We will try to provide them complete security. We are also using Django frameworks and API (Application Programming interface) Scrapper for better user interface and make it easy for customers. In short, the purpose of this web application is to provide a detailed overview of our recommendation search, its parameters and goals.

Index Terms—e-online shops, google services, Django framework, Scrapper API (Application Programming interface).

I. INTRODUCTION

Development and advancements are essential in our web based application technology. Continuous research is thus an integral part of web based applications advancement. If research of any technology based has been done in an accurate manner then it should be published. Because publishing is the primary means of getting the result of researchers topic into the public domain. Researching on technology based things will help the new era which was turning digitalized day-by-day. Authors of this paper will use this documents for guidance for design and implementation phase.

Administrator will see the constraints all cover properly. Time and cost is within limits or not. Marketing Staff can use this document to make advertisements for this web store because by reading this document they will know what the system will do? How this system is different from others. Users can ensure there self by reading the further points of this paper that their needs being met in the webstore or not. Testers will test the implementation of the project according to the software requirement specification.

Recommendation basically means give suggestion for the most excellent or desirable type of quality. We making a recommendation searching web based application where our user will able to find their desirable item. We will suggest the best product to our customers. Users of our website will also able to purchase the best item or product with their given budget.

II. BACKGROUND

A. Recommending Products

In this work the main purpose of the author was made the daily life easier for everyone. Buying groceries items was a very normal thing for every people. The author want to make sure that people will buy best quality product. Makers of this work will recommend the users the best and fresh product. User will easily choose their desire product without any difficulties. Without going any market user will able to choose product from their home. The name of the project makers gives "best price" this name goes with the work according to them.

B. Project Scope

- Makers will recommend the best product of popular e-Commerce website like Chaldaal, Shopno, Daraz etc.
- In this recommended search website will be available 24/7. There will be partial maintenance for once a week.
- Makers primary objective is to facilitate the customer. Through this "Best Price" website, they find the cheapest products from multiple website.
- Different companies (especially new one) will get chance of cheap advertising.
- Makers will guide user to buy good products through our website.

- Makers will provide normal search, multiple search and Ai chat-bot to make the shopping more convenient for our customer.
- Makers will provide excellent security for user details especially for payment process.
- Makers will also provide customer review, cheapest price from the products.
- Makers will manage customer accounts.
- Makers will provide easy registration via Facebook or Gmail account.
- Makers will maintain database for different users.

C. Product Perspective

This product is for the person who wants to buy the product easily without any difficulties. This product aimed towards the customer who wants to buy a list of products at their affordable and cheapest price. Products might be from different website. But the combination will be the best and the cheapest. So the customer will know from here, they should buy their specific product at lowest possible cost.

D. Intended Audience and Reading Suggestions

III. RELATED WORKS

The main purpose of the recommendation search app is to find the best budget things or alternatives around a person as his or her requirements. In this world there are a very few apps or websites close to this but the project of ours are different because this is going to find the best of anything around you. Public don't like the idea to be at the premise or property in order to access information vital to their business. This has led to the rise of Mobile Analytics Apps. As we know a smart Mobile Analytics App has the capability to help to find the best.

Some examples that related to this project:

- Another website in our neighbor country India named Goibibo.com which is basically based on hotels, travels and flights etc.
- There is also Trivago.com which is best for cheap and offer hotel suggestions.
- If we say there is a famous app or site in our country that is Bkash. This is the most popular money transfer app in Bangladesh. Now a days it got app based and in the whole country and there are suggestions which will show the percentage of discounts.
- Rapido Bike another similar kind of thing which will show the best small ride apps.
- Food Panda is also the same because it will give anyone as there requirements.
- TrainPal is also an app which will find anyone the best and cheap available trips in China.
- Expedia is also an same type of app which is internationally working as the best flight recommendations.
- Royal Caribbean is the website to find the best Cruise deals internationally.

So basically all of the examples up there falls on the



Fig. 1. BP

same category. The thing that make our project different from each and every one of them is that all of them will be on our database and this will satisfy each and every requirements.

IV. METHODOLOGY

A. Architecture Design

This section highlights the main design patterns and architecture to be used in the development of the Best Price Application. Best Price project logo: Figure1:

B. Software Architecture

The 'Best Price' application will be using the industry standard 'Model View Controller' Design Architecture or MVC for short. There will be a total of 3 core components to this design pattern, the view, the view controller and the model. The view will be responsible for what the user sees and interacts with. In the case of the "Best Price" application the main view will be the android application that the user will interact with. Apart from the primary android application, a web based interaction method will also be available.

The view controller will be the backend of the android application that will process the interactions conducted by the end user and package the requirements to the model to further process them. The model will be responsible for the manipulation of the data to and from the database. It will prepare the data to be served to the database. Best Price will be using the open source Django framework to act as the model. Its ORM features will be highly beneficial to the fast development of the software.

Advantages of using MVC:

- More versatile applications
- Easier to manage applications
- Be able to easily change data leaving everything else same
- Separates different functionality and the different components into individual packages of code
- Easier to debug.

Figure2:

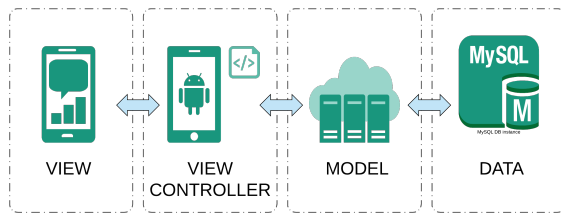


Fig. 2. MVC

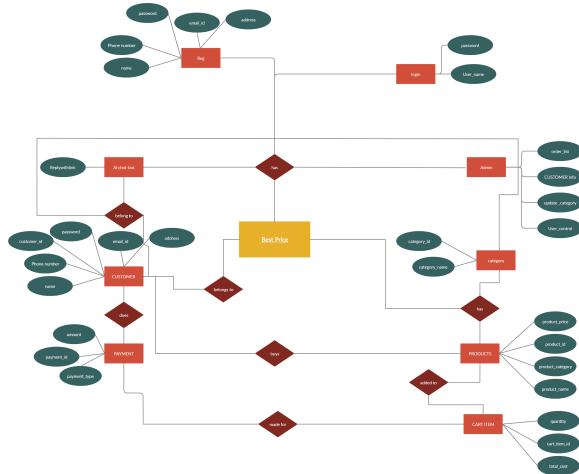


Fig. 3. ERD

C. Component Design

The Best Price service consists of mainly 3 major components - the Front End application, the Django Backend and the Postgree Sql.

- Database Design:

There are two approaches for developing any database, the top-down method and the bottom-up method. Makers followed top-down approach to design their database. They modeled the objects at a logical level, then they applied the objects to a physical database design. For example, a relational database would need the objects to be mapped to tables.

Figure3:

- Data Transfer:

An HTTPS link will be called to send and retrieve data. POST and PUT operations write new data and PATCH updates them. CURL and GET operations are used for reading the data but usually requires an AUTH call to be succesful for them to work. Final URL depends heavily on hosting services used.

D. Database Persistence

In the context of storing data in a computer system, persistence means that the data survives after the process with which it was created has ended. In other words, for a data store to be considered persistent, it must write to non-volatile storage. Given the importance of the data store in most modern

applications, making a poorly informed choice could mean substantial downtime or loss of data.

There are four main design approaches that a data store can take to make a database persistence:

- Pure in-memory, no persistence at all, such as memcached or Scalaris
- In-memory with periodic snapshots, such as Oracle Coherence or Redis
- Disk-based with update-in-place writes, such as MySQL ISAM or MongoDB
- Commitlog-based, such as all traditional OLTP databases (Oracle,SQL Server, etc.)

Most of BestPrice's data is structured and relational hence does not require a nonSQL database system such as Firebase. So, Usage of a MySql relational database will be of highest efficiency which will be done using Django Framework.

- Django Framework:

Django open-source web framework, written in Python, which follows the model-view-template (MVT) architectural pattern. Django's primary goal is to ease the creation of complex, database-driven websites. Django emphasizes reusability and "pluggability" of components, less code, low coupling, rapid development, and the principle of don't repeat yourself. Python is used throughout, even for settings files and data models. Django also provides an optional administrative create, read, update and delete interface that is generated dynamically through introspection and configured via admin models. Despite having its own nomenclature, such as naming the callable objects generating the HTTP responses "views", the core Django framework can be seen as an MVC architecture. It consists of an object-relational mapper (ORM) that mediates between data models (defined as Python classes) and a relational database ("Model"), a system for processing HTTP requests with a web templating system ("View"), and a regular-expression-based URL dispatcher ("Controller"). Also included in the core framework are:

- A lightweight and standalone web server for development and testing.
- A form serialization and validation system that can translate between HTML forms and values suitable for storage in the database.
- A template system that utilizes the concept of inheritance borrowed from object-oriented programming.
- A caching framework that can use any of several cache methods.
- Support for middleware classes that can intervene at various stages of request processing and carry out custom functions.
- An internal dispatcher system that allows components of

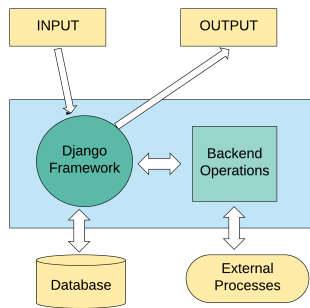


Fig. 4. Django Working

an application to communicate events to each other via pre-defined signals.

- An internationalization system, including translations of Django's own components into a variety of languages
 - A serialization system that can produce and read XML and/or JSON representations of Django model instances.
 - A system for extending the capabilities of the template engine.
 - An interface to Python's built-in unit test framework.
- Figure4:

The main Django distribution also bundles a number of applications in its "contrib" package, including:

- An extensible authentication system.
- The dynamic administrative interface.
- Tools for generating RSS and Atom syndication feeds.
- A site's framework that allows one Django installation to run multiple websites, each with their own content and applications.
- Tools for generating Google Sitemaps.
- Built-in mitigation for cross-site request forgery, cross-site scripting, SQL injection, password cracking and other typical web attacks, most of them turned on by default.
- A framework for creating GIS applications.

E. Development Design

- **Strategy Pattern:**
The Best Price application will mostly be using the strategy pattern. It will try to help develop the application in such a way to optimize scalability. It will help the application stay open for extension and closed for modification. The strategy pattern is a behavioral software design pattern that enables selecting an algorithm at runtime. Instead of implementing a single algorithm directly, code receives run-time instructions as to which in a family of algorithms to use.
- **Development Lifecycle Model:**
From the many existing software development lifecycle methodologies, Best Price shall be developed using the 'Iterative and Incremental Method'. The iterative and incremental method has proven to be highly successful

for developments spanning a short amount of time. The approach produces ongoing release cycles, each featuring small, incremental changes from the previous release. At each iteration, the product is tested. The iterative and incremental model helps teams identify and address small issues on projects before they evolve into more significant problems, and get feedback throughout the development process. As Best Price is being developed with a small team in a short amount of time, the iterative and incremental method seems to be the perfect fit.

F. API and Endpoints

- **Google Account Services:**
The Best Price will provide users with multiple options to login and registration. A user will have the option to register manually or using Google account services which will provide the application the user's Google account information. Google account services can later be extended in allowing the user to login using their Google accounts, in this case the user must be logged in or login to their Gmail accounts to allow the app to authenticate the user.
- **Scraper API:**
Scrapy is an open source web scraping framework written in Python which takes care of everything from downloading HTML if web pages to storing them. The Best Price application will use the scraper api.
- **Website:**
<https://www.scraperaapi.com/>
- Sign-Up in the website.
- Got an API key.
- A device that runs a website.

V. RESULT AND OUTCOME

- **Registration:** If customer wants to buy the product then he/she must be registered, unregistered user can't go to the shopping cart.
- **Login:** Customer have to login to the system by entering valid user name and password for the shopping.
- **Make list:** Customers can make the list of required products in the search option and the searched items with all available types and details will be appeared in the screen.
- **Search:** Customers can make the list by just searching the names of the products properly. It recommends the best product for the multiple products from different website including the delivery charge.
- **Changes to Cart:** Customer can make order or cancel order of the product from the shopping cart.
- **Payment:** In this system we are dealing the mode of payment by Cash and PayPal. We will extend this to credit card, debit card etc. in the future.
- **AI Chat-bot:** In this website, we are trying to implement an AI chat-bot which helps a customer to search a specific product and it gives the customer the link of that specific

product and also recommends the best product. In future, we are trying to implement it.

- Logout: After ordering or surfing for the product customer has to logout.
 - Report Generation: After ordering for the product, the system will send one copy of the bill to the customer's Email-address and another one for the system data base.
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VI. CONCLUSION

In Bangladesh there are lots of public who buy their grocery items from different departmental stores or shops. And to accommodate them, the country needs to add around a lot of grocery stores and market across category to its existing inventory. By using our web based application which we given a name "Best Price" all people can buy their grocery items from anywhere and anytime. For the betterment of our customers we will try to add more features in our website. Then we will be able to earn more profit by this. That means the business in this sector is set to grow big. However, this growth in business number is not enough. Hospitality Technology to streamline various daily operations while serving public efficiently. Smart Hospitality Technology platform should help businessman to do smart business to beat the competition. Because, right technology enables the businessman to ensure increased revenue, reduced costs and improved operations and enhanced public experience. Today, top honchos at hotels, restaurants, flights, Bus and train tickets are a busy lot. They don't like the idea to be at the premise or property in order to access information vital to their business. This has led to the rise of Mobile Analytics Apps. As we know a smart Mobile Analytics App has the capability to help the businessman related to the examples. Owners and General Managers to have real-time information on their properties, business. Through this new age Hospitality Technology platform, users can have real-time information on various parameters. With such business critical information at their fingertips, management at departmental shops can be empowered to take informed decision with maximum ease. After strong resistance from a fluctuating demand environment and investments the industry will be well placed with the best domestic demand showing sure signs of stability and growth.

REFERENCES

- [1] [online]. URL: <https://docs.djangoproject.com/en/3.0/faq/general/django-appears-to-be-a-mvc-framework-but-you-call-the-controller-the-view-and-the-view-the-template-how-come-you-don-t-use-the-standard-names>
- [2] Similar Webpage: [online]. URL: <https://www.goibibo.com/>
- [3] Paper template: [online]. URL: <https://www.ieee.org/conferences/publishing/templates.html>