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E-Commerce Shopping Application for Android and iOS Devices using Dart Framework (Flutter)

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ABSTRACT: In today's fast-changing business environment, it's extremely important to be able to respond to client needs in the most effective and timely manner. If your customers wish to see your business online and have instant access to your products or services. Online Shopping is a lifestyle e-commerce application, which retails various fashion and lifestyle products. This project allows viewing various products available enables registered users to purchase desired products instantly using PayPal payment processor (Instant Pay) and also can place order by using Cash on Delivery (Pay Later) option. This project provides an easy access to Administrators and Managers to view orders placed using Pay Later and Instant Pay options. In order to develop an e-commerce application, a number of Technologies must be studied and understood. These include multi-tiered architecture, server and client-side scripting techniques, implementation technologies such as Flutter, programming language (such as Dart) and relational databases. This is a project with the objective to develop a basic website where a consumer is provided with a shopping cart application and also to know about the technologies used to develop such an application. This document will discuss each of the underlying technologies to create and implement an e-commerce application.

KEYWORDS: E-commerce, Mobile Application, for both iOS (i.e., Android and iOS), Flutter, Dart

I. INTRODUCTION

The main aim of science technology is to understand natural event. we feel this event with our mind, which is main part of our body. Technologies is also gift of science, which also works like a brain, but the manner speed at so many other properties are much more than a men's brain. Modern age is an age of these techs. They have just become a part of our life. Now with their advancement life is has become easier. The major advantage of these techs is the speed at which they solve our daily problem within very short duration. so, keeping in these things in views, we have computerized our small project work. And have maintained this project on the suitable and advanced language i.e., is "FLUTTER and DART". This project is for many purposes because we want to give full satisfaction to the users. E-commerce is fast gaining ground as an accepted and used business paradigm. More and more business houses are implementing web sites and applications providing functionality for performing commercial transactions over the web. It is reasonable to say that the process of shopping on the web is becoming commonplace. The objective of this project is to develop a general-purpose e-commerce store where product like clothes, groceries, jewelleries and other stuffs can be bought from the comfort of home through the Internet. An online store is a virtual store on the Internet where customers can browse the catalog and select products of interest. The selected items may be collected in a shopping cart. At checkout time, the items in the shopping cart will be presented as an order. At that time, more information will be needed to complete the transaction. Usually, the customer will be asked to fill or select a billing address, a shipping address, a shipping option, and payment information such as credit card number. An e-mail notification is sent to the customer as soon as the order is placed.

II. METHODOLOGY

2.1 Overview:

Software owner has the authorization over everything and access over each and every feature available in the app. The ecommerce site is out there on the web to make money. The goal is to generate always increasing traffic, so visibility is essential. Advertising, press releases, media exposure, partnerships -these all are tremendously important for creating and maintaining public awareness of the site. Buyer has the power of creating their own profile, and can change or edit according to their will. Basically, they expect three important actions from a typical transaction: they want to make the decision to purchase something, they want to effect payment for this something, and they want to assume ownership of what they purchased. Anything that interferes with these three actions is going to bother the buyer.
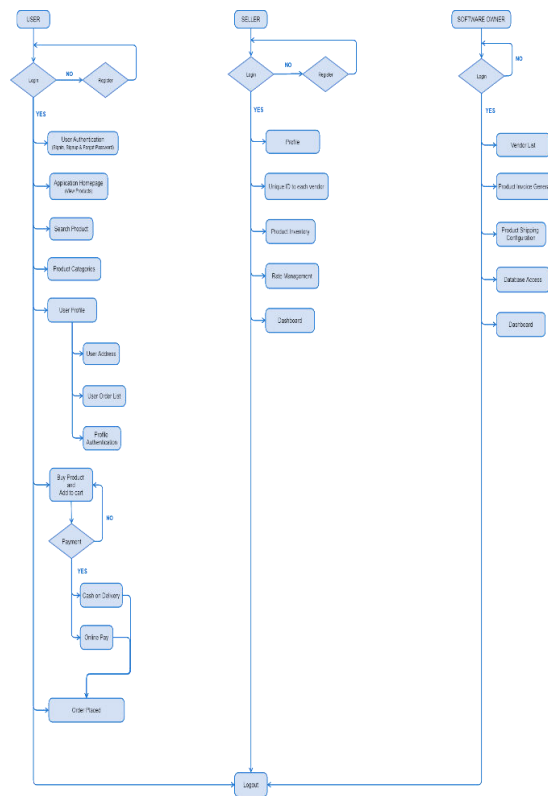
Application Workflow Diagram

2.2 Work flow diagram and modules:

2.2.1 Buyer:

Buyer will use the mobile application for their needs. Mobile Application will be made using Dart Programming Language Framework called Flutter Framework. Flutter Framework is made by Google in 2017 to development of mobile application for both Android and iOS Operation System using only one codebase. Using Flutter, we can even build Web Application as well.

Connectivity of Mobile Application and Database will be get done using PHP. Products and even user information will be shown to the application using PHP Framework. We will build the C-Panel as well for Software Owner (Admin) and for Seller.

So, the following fig. shows the work flow of a buyer. Firstly, every new buyer has to register themselves by creating their account on the application. After registration they are able to login in and access the facilities. An existing user just as to login for so. Even while login and registering they have different options like signup and forget password. After login and entering into the homepage the user is enable to access various kinds of resources that are available like he/she has the authority to change, add, delete or edit their personal data in the user profile section. User has the option for searching a particular product for buying by applying various filters like fixing the price range, if interested in any particular brands they can select them etc. many other filters are available too. If the user is interested in buying that product, he/she can direct buy it with cash on delivery or even he has the option of razer pay API which includes different paying methods like you can pay by using UPI, different cards and net banking. If the user doesn't want to buy them. product now but willing to buy it later so he/she can add the product in his/her wish list and even he/she can buy multiple products at the same time by adding them to the add cart.

After placing order, the user can check its status of departing and arriving date and time. After the user's shopping if the user wants to logout, he has the option too.
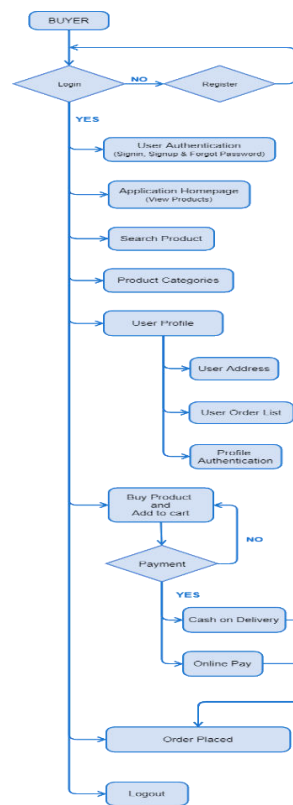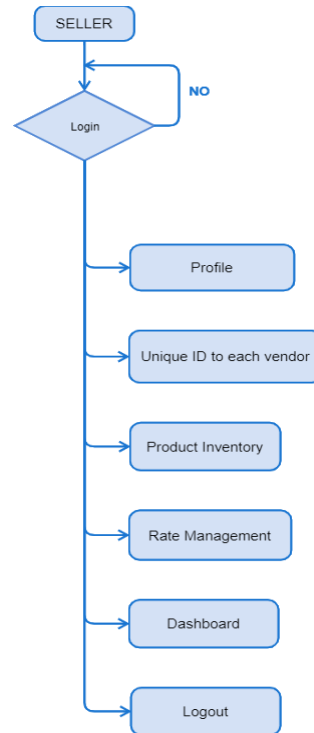

Buyer Workflow Diagram

2.2.2 Seller:

So, the following fig. shows the work flow of a Seller. The vendor or manufacturer as to create their own login id to show case their product, to know and give the details to buyers. After the registration seller can access the facilities provided, he/she can create, add, delete or edit their personal data in the user profile section. A unique ID is provided to each vendor in which all product/material list linked to unique ID. In the homepage apart from the product list with its unique ID they will have different sections like Product Inventory, Rate management and Dashboard. In Product Inventory section the seller can add a new product to the list with its unique ID n make sure that the product is available or visible to the customer. Even he/she can delete an existing product the one with very least liking or can edit it. In Rate management Seller has to keep and check the daily updates of the list. In the Dashboard section seller can

check the overall history of the products the once got sold, the once was return back etc. every detail is recorded in this section.
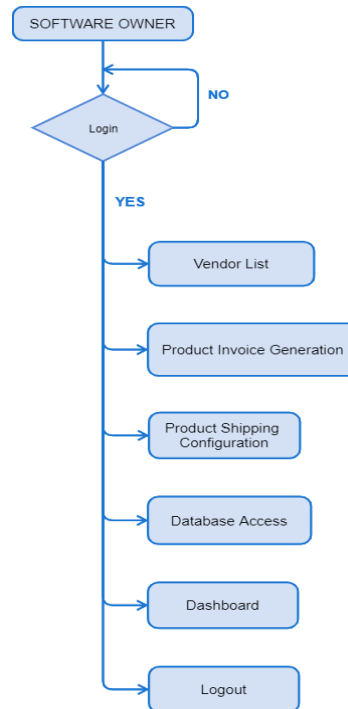

Seller Workflow Diagram

Software Owner has the authority to add or delete the sellers. Sellers has the only visibility to see his only information. Their will the proper abstraction and encapsulation for data hiding. One seller cannot see information of another seller. Seller can also view the statistics of his own purchased products. He can edit the information of his owned products. He has the authority to change the product prizes.

2.2.3 Software Owner:

So, the above fig. shows the work flow of a Software Owner. As the name suggests this person owns the application and has the full-fledged authorization of both buyer and seller IDs too. After the product is deliver or purchase, he creates the product invoice. If the payment is done by online method, unless and until the product is delivered to the customer seller doesn't gets its total pay. Whole data base is under the control of the Owner. In the Dashboard section, Owner can check the overall history of the products the once got sold, the once was return back, most importantly the payment history etc., every detail is recorded in this section.

Owner Workflow Diagram

We will use Flutter Framework for Application Development, PHP for connectivity as well as for Admin Panel which will be used by Sellers and Software Owner and we will also use SQL for database.

III.TOOLS USED

3.1 Dart:

Dart is the programming language used to code Flutter mobile application. Dart language is another product developed by Google. As it is starting out, the Flutter community is not as extensive as React Native, Ionic, or Xamarin. Dart looks a bit like C and is an object-oriented programming language. So, if you prefer the C languages or Java, Dart is the one for you, and you'll likely be proficient in it. Dart is not only used for mobile app development but is a programming language it's used to build just about anything on the web, servers, desktop and of course, mobile applications. The Dart installation comes with a VM as well to run the .dart files from a command-line interface. The Dart files used in Flutter apps are compiled and packaged into a binary file (.apkor .ipa) and uploaded to app stores.

3.2 Flutter:

Flutter is a free and open-source mobile UI framework created by Google and released in May 2017. In a few words, it allows you to create a native mobile application with only one codebase. This means that you can use one programming language and one codebase to create two different apps (for iOS and Android).

To develop with Flutter, you will use a programming language called Dart. The language was created by Google in October 2011, but it has improved a lot over these past years.

Flutter is a cross-platform UI toolkit that is designed to allow code reuse across operating systems such as iOS and Android, while also allowing applications to interface directly with underlying platform services. The goal is to

enable developers to deliver high-performance apps that feel natural on different platforms, embracing differences where they exist while sharing as much code as possible.

3.3 MySQL:

MySQL is a fast, easy-to-use RDBMS being used for many small and big businesses. MySQL is developed, marketed and supported by MySQL AB, which is a Swedish company. MySQL is becoming so popular because of many good reasons:

➢ MySQL is released under an open-source license. So, you have nothing to pay to use it.

➢ MySQL is a very powerful program in its own right. It handles a large subset of the functionality of the most expensive and powerful database packages.

➢ MySQL uses a standard form of the well-known SQL data language.

➢ MySQL works on many operating systems and with many languages including PHP, PERL, C, C++, JAVA, etc.

➢ MySQL works very quickly and works well even with large data sets.

➢ MySQL is very friendly to PHP, the most appreciated language for web development.

IV. RESULTS AND DISCUSSION

In this section we are presenting or sharing some screen shorts which mainly focuses on the overall User Interface of the application. In these screen shots we have shown the home page of the application along with it the category section. In category, the clothing section is also shown and its product details.

After entering the homepage, on the top left-hand side you will see the application name. As you scroll done you will see the Menu and category sections where you come across the different category of the products that we provide. When you scroll down you will find various different options like offer available, Deals of the day, Banners etc. At the bottom of the application, you see a navigation panel consisting different sites or sections of the applications that you can navigate. They are Home, Blogs, Cart, Category and Account.

Once you enter the category section you will see the list of different categories of the products for example clothing, Accessories, Footwear etc. let's assume that you choose clothing category in that you will get different varieties of clothes with its price, Brand name, Rating, etc. If you click on one of the products you will get to see its all details in detail.
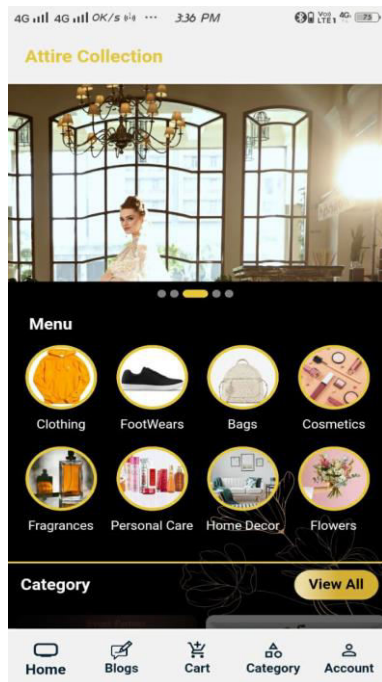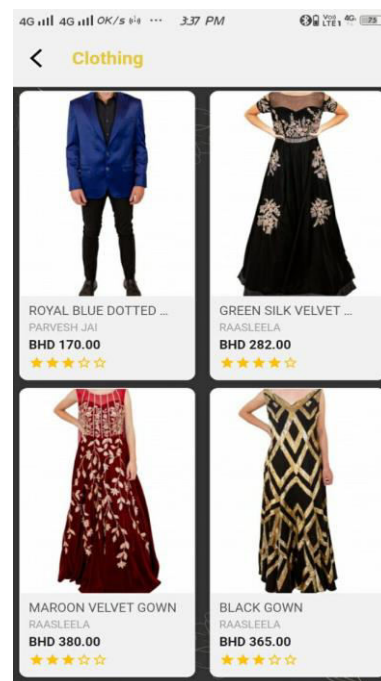
Application Homepage
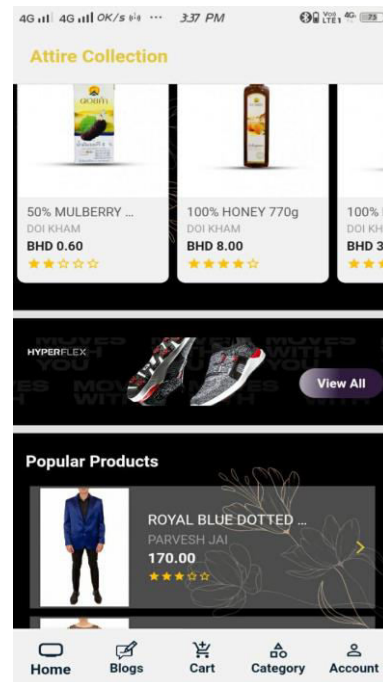
Homepage Screen

Product Details Page

Products List in Clothing Category

V. CONCLUSSION

E-Commerce has undeniably become an important part of our society. The successful companies of the future will be those that take E-Commerce seriously, dedicating sufficient resources to its development. E-Commerce is not an IT issue but a whole business undertaking. Companies that use it as a reason for completely re-designing their

business processes are likely to reap the greatest benefits. Moreover, E-Commerce is a helpful technology that gives the consumer access to business and companies all over the world.

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