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CryptoLive: A Mobile Application for IOS Platform Depicting Real Time Details for Different Crypto Currencies

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Abstract

The emergence/evolution of Blockchain Technology in the last decade has been tremendous and it has been recognized as a secured network which can be leveraged for solving new problems related to different digital applications or improving the existing solutions. One of the finest applications of Blockchain technology is Cryptocurrency. Cyrptocurrency is a medium of exchange, created and stored electronically to control the creation of monetary units and to verify the transfer of funds. CryptoLive is a real-time mobile based application, build specifically for IOS mobile platform, that displays the top 100 cryptocurrencies based on their ranking and their market capitalizations and provides the user with the latest data related to purchase and sale price. It also provides user with options to store a particular currency to favourites, get notifications for the user-set price.

Introduction

Mobile applications gained vast popularity in the last decade since the advent of IOS and Android platforms and since then there have been various applications ranging across a variety of sectors. The open source nature of these platforms has passed on the baton of creativity in the hands of application developers leading to the solution of day-to-day problems with the power of digital platform. The users are heavily dependent on mobile applications for communication, banking, bill payments, e-commerce, shopping, food deliveries, transportation and these days for buying and selling crypto currencies.

CryptoLive is a mobile application that fetches the real time data regarding price, market capitalization, total supply in circulation, rank and the percentage change of more than 100 cryptocurrencies from an open source web API and presents it to the user in an organized fashion based in their popularity. Moreover, it provides the user an option to view the candlestick graph of a particular virtual currency for the past 10 mins, 10 hours and 10 days from the current time instant. In addition to this, it also provides the user with an option to mark a particular virtual currency as favorite or share it across different networking platforms such as Message, Facebook, Gmail etc. The application is built in Swift 3 language using Xcode for Apple's Mobile Operating System-IOS. It implements the well-known Model-View-Controller (MVC) architecture and leverages Apple's native APIs as well as few third-party libraries for rendering different components. The application renders appositely on all the screen sizes and resolutions and supports only the portrait orientation.

Application Structure Part I

The application currently holds the Master-Detail view wherein, the initial screen shows the data regarding to all the cryptocurrencies. The anatomy of the screen includes a navigation bar with the name of the application, a search bar and a customized table, using the navigation bar component, the search bar component and the tableview

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component respectively, with each table cell presenting a logo image, name, symbol, trade price of the currency in USD and the buttons to share or add to favourites.

Figure 1.(Home Screen displaying all currencies)

Along with other components, it provides the user with an option button in the navigation bar to pull out the drawer menu from the left of the screen for additional options. The search can be used to search for a particular currency either by name or by its symbol (abbreviation).

The side menu bar provides the user with options of the following:

- About: Displays the description of the application and its us cases
- Profile: Displays user information
- Favorites: Displays the list of currencies stored as favorites by the user
- Help: Displays information regarding the contact information and Frequently asked questions

The close button makes the side menu slide out of the view and displays the home screen again

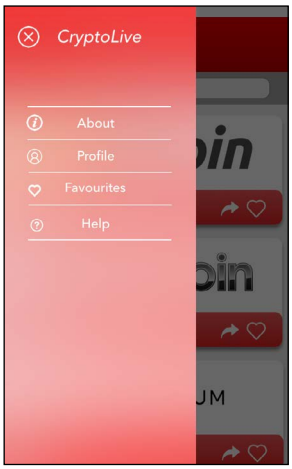

Figure 2.(Side Menu Drawer)

The user profile page displays the information of the user including the name, username, email, date of birth, number of favorite coins and the image of the user. The page also displays the button to customize the user information along with the user profile image.

The favourites page displays the currencies which have been marked as favourites by the user in the main screen.

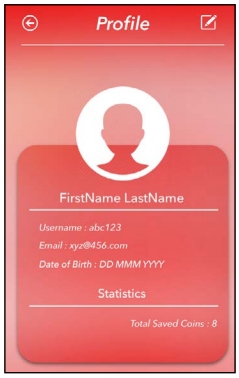

Figure 3.(User Profile Page)

Application Structure Part I I

The second part of the application (CryptoLive) provides the option to the user to view the following data related to a particular currency by clicking on its cell in the table in home screen:

- Buy price: The latest buying price of the currency at that time instant in USD
- Sell price: The latest selling price of the currency at that time instant in USD.Trend: Percentage change in the last 24 hours
- Market Cap: Percentage of the total worth of cryptocurrencies in the market in USD
- Total Circulation: Total circulation of the number of coins (tokens/ monetary units) in the market
- Candlestick chart for the high, open low and close rate for the last 10 mins, 10 days and 10 days with an option to switch between them

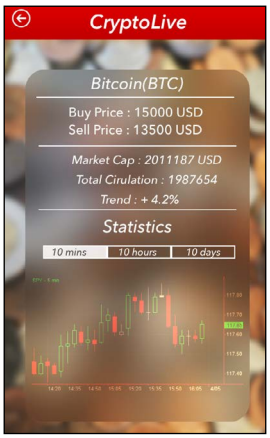

Figure 5.(Details Page)

Figure 4.(Favourites Page)

Algorithm/ Flow of the Application

- CryptoLive uses Apple's open source native APIs (UIKit, Foundation etc.) to accomplish the output. The following steps describe the flow of the program majorly for the master-detail part
- As soon as the application loads, two major tasks are accomplished. First, the data for all the currencies is fetched from the open source web API using HTTP networking and is stored in the models prepared for holding the currency data
- Second, the tableview is loaded with the fetched data and the logo images are loaded from the local Assets directory according to the symbol (abbreviation) of the currency
- Once the table view is loaded, in displays the data to the user with a simple fade-in scale animation
- If the user tries to refresh the table by using the pull-to-refresh gesture in the screen, again a HTTP request is hit to the server and the process is repeated to display the fresh data to the user
- If the user clicks on the heart-shaped button, the color of the button changes in response and indicates that the data has been saved locally in the device for the user which can be later viewed on the Favourites screen. The application uses Core Data to store the data locally in the form of entities and its properties.
- If the user clicks on the share button, an action sheet appears from the bottom of the screen with the icons to different platform which can be used to share the info of the selected currency
- If the user types in the search bar, the application filters out the array of currencies by matching the text of the search bar with the name or symbol of the currency and reloads the tableview to show only the filtered results. The results update on every event of text change in the search bar
- If the user clicks on the logo image of any particular currency, there is a transition into the detail page using the segue and passes on the current selected currency object to present the detail
- As soon as the user reaches the Details Screen, it appears with the details of the selected currency which were passed on from the home screen. Also, it makes another HTTP request to fetch the high, low, open and close price for the last 10 mins of the currency at that time instant
- It than renders the candlestick chart based on the fetched data
- If the user selects the 10 hours segment or the 10 days segment from the segment control, the applications again hits another HTTP request to fetch the latest data for the last 10 hours or the last 10 days respectively
- If the user clicks the back button, the view dismisses and the home screen presents again
- If the user selects the option button on the main page, the side menu slides in with option to view Favourites, profile and other screens

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