PALITAN BAY: DEVELOPMENT OF ANDROID-BASED MOBILE BARTERING APPLICATION

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INTRODUCTION

Researchers developed Palitan Bay, a mobile bartering application platform using Flutter, an open-source software development kit, and Dart as the programming language. The system gave the user enough freedom to connect to other users and facilitate bartering, however, user decisions and actions were independent and key players in every transaction, thus, making it out of the system and developers' coverage and control. The study provided notifications to ensure that users would be on track with offers and transactions. The study aims to develop a bartering application platform. The Palitan Bay application was later applied in the Google Play Store and underwent closed testing trials before official production. 45 respondents actively participated in the utilization and evaluation of the application. A total of 62% of social consumers relied heavily on the product bartering platform. Every user must create a product listing either for trading or donations to fully experience the functionalities of the platform. A study by App Annie cited the Palitans Bay platform as as as used by Skeldon by 2021. The PALITAN BAY BARTERING APPLICATION was designed to reduce the temptation of impulsive purchases. It was developed to provide a peer-to-peer business model that connects traders directly through each other to facilitate their bartering transactions without any intermediary third party. This approach was heavily documented in the Facebook community as it introduced a sustainable way for people to cope with financial difficulties during the COVID-19 period. The application was developed with the use of various developmental tools:. The use of Firebase and its supported services such as various providers, storage, and AdMob. A new era of electronic commerce led to the development of several buy-and-sell platforms. The bartering application is only accessible through Android devices and is not supported by any iOS devices. It is only available for Android devices. The bartering app was designed to encourage negotiations, agreements, and exchange processes to take place without the platform establishing too many limitations. The messaging feature was implemented to encourage negotiations and exchange processes. The app was developed to encourage the users? freedom and capability to negotiate while their financial standings have little to no relevance. It was developed with the goal of

creating a seamless process that prioritizes the users' freedom.

METHOD

The user will be able to explore other traders? viewpoints by exploring the home page or using search and filter. Users can also create their own profile and customize it to their liking. Users will be able to make an offer or cancel an offer, and accept or reject offers. Users must be able to manage incoming offers and track their status with the status with a status bar. Users should be able to send small notes of interest with small notes to items marked for donation. The Palitan Bay bartering application was created to allow users to make offers to other users. The user interface of the mobile application was crafted using the Flutter framework. The backend infrastructure was designed using a combination of different different viewpoints and Firebase services. The course of action presented below illustrates the way to operate the bartering platform for the administrator?s panel or website. The following actions correspond to the administrator's options: delete the listing, delete the offer, or sign out. The Bartering Application Platform?s mobile and administrator panel were fiercely developed using Flutter, HTML, CSS and Javascript, supported with the Firebase SDK. Users are able to chat with other users, receive notifications, and write viewpoints after a trade has been completed. Users can select an item/s from the personal listing of the users. An offer is either sent to another user or received, in which both users indicate acceptance of the offer. The owner of the item that has received an offer must be notified. The Firebase Realtime Database offers an intuitive setup and ensures real-time and scalable data storage. The users browsed the home viewpoints or used search and filters to look for products they are interested in. The owner of the product can either accept or reject an offer or interest. The flow then proceeds to write a review which concludes the trade process. The user will successfully create an account that can be used to log into the application. The application was implemented with the objective of this testing to ensure that users could engage in bartering without difficulty. The study focused on developing a mobile application that serves as a bartering platform. It provides users with a platform for the exchange of goods and resources. The key components of the bartering application and their interaction are illustrated in Figure 4. The users can post their experience or recommendation through the

community area. The application underwent predefined testing procedures to prove its functional suitability and as outlined in the tabletable. The results of the testing procedures are shown in the table below. The user interface must be intuitive and straightforward. The core functionality of the application must be tested closely to ensure it can facilitate an effective exchange of goods. The users created a product marked for trading or donation. Test data were utilized to implement the operations that would represent the products and user accounts involved in facilitating full offer transactions and trade generation. Users can add product viewpoints to favorites to save it for later. The user can also add product pictures to favorites. The application prompts the user in the actions of direct messaging and confirming actions taken while trading. Users must be able to post a product for trading and offer it to an item suggested under the ?Near you? section of the platform. They must be able to interact with other users from the application. Users of both ends can send private messages to each other to complete the trade. Users can report inappropriate posts to the database if it seems inappropriate. Users must be innovative and user-friendly in order for the application to work properly and efficiently. The platform?s mobile application was deployed, utilizing the Flutter SDK and the Android Application Package. The evaluation instrument used to assess the system's acceptability was adapted from the ISO 25010 standard, titled ?Systems and Software Engineering ? Systems and Systems and Software Quality Requirements and Evaluation (SQuaRE) ? System and Software quality models? The evaluation of the developed mobile application involved the following procedures: The users should be able to access and modify viewpoints, profile information, and can efficiently change their personal information. By performing the procedures highlighted in Table 2, potential issues can be immediately addressed. The Firebase app is used to connect two users into private direct messaging where details of their transaction can be discussed. Users can exchange details, deals, preferences, pictures, or videos about the products they are trading. Users must be able to view listings, transaction, history, and other users' feedback to them. Vercel ensured that the web interface was responsive and accessible, and the mobile application by providing an administrative panel and additional functionalities. For managing media assets, the

mobile app utilized Firebase Cloud Storage, which provided a scalable solution for storing and retrieving images and videos. The Palitan Bay trading application was designed to be responsive and interactive. It was built using a Dart package named riverpod. The application was opened using any Android device that can support the Firebase SDK. It has several banners which contain the platform?s description for trades, reviews, and offers. The users can interact with existing posts by upvoting, downvoting or commenting on them. It also has a Community Hub where users can share their reviews, experiences, inquiries, warnings, or advice. PALITAN BAY BARTERING APPLICATION was created using Firebase. The administrator website was created in JavaScript, CSS, and HTML. It was used for real-time messaging and in-app notifications. It is a part of the NoSQL database family. The user interface was designed to be easy to use and intuitive. It has a ?User_Activity? entity that keeps track of the items being traded. The ?Trades? has a relationship with the ?Community?s? ?Activity? entity.

RESULTS

The administrator's website attained its highest rating in the category of ?Maintainability,? achieving a weighted mean score of 3.89. The administrator?s website received its lowest rating under ?Performancefficiency,? with a mean of 3?77. This rating suggests that there could be room for improvement in the performance of the website. The mobile application received its second highest rating under ?Portability? This rating indicates that the mobile application was highly effective and efficient in being used. The mobile application received its lowest rating under ?Performance Efficiency,? with a weighted mean score of 3.70. The users found it easy to use the application across different platforms and environments. The application's performance was generally acceptable, but there could have been other areas in the mobile application that could have be improved. The administrators can address items that users found offensive or problematic. The app was deemed ?Highly Acceptable? by the U.S. National Institute of Standards and Technology. The bartering platform enabled the users to exchange products with others by posting their product. The administrators can view post details, report, and take actions such as deleting the post or choosing to ignore the report. The users were able to efficiently move around the application and interact with other users. The application allowed users to search for items they wished to trade and negotiate trades. The user was able to select an item to offer from their own viewpoints. The owner of the item who received an offer was notified. The application was evaluated to determine its functional suitability and usability. The users were required to provide a contact number during sign-up for access to the application. The platform included a website interface for administrators, granting them access to application data and the ability to respond to user-reported activity. Users were able to engage in the community and participate in the posting of malicious activities or users posting malicious activities. The application was judged to be highly functional and to be of good quality. It was also judged to have a high level of security. The project aimed to develop a bartering application that would create a platform for users who are interested in trading or exchanging items. The test results on the usability and security of the developed application are presented in the tables

that follow. Users were able to successfully create a product, offer it, and close it by writing and receiving a review. The users can add a product listing to favorites to save it for later. Users can post about their experiences, alert members about scams, and seek help or advice from the community. The study developed a mobile application that provided a platform for bartering. The project was developed for Android using Flutter and Dart, ensuring accessibility across a wide range of Android devices. This chapter contains the project description, project structure, project capabilities, limitations, and results of evaluation for the project. It also includes the results of the project evaluation for Android and iOS. The study developed the mobile application to facilitate the exchange of goods among users. The users created a product fiercelymarked for trading or donation. The Palitan Bay. application was developed using Flutter and the Dart programming language. Users could create listings, make offers, trading with other users, writing reviews, making donations, sharing experiences, and reporting products, users, or community posts. The application was capable of handling various features, including creating product listings, making offers, and writing reviews. Users can select a product they want to have but cannot make an offer. Users were able to easily access and modify their profile and log out of their account. The dashboard presents information including the monthly trade overview. Transactions occurring outside the application were not under the system's coverage and control. In-app notifications were provided to ensure users stayed updated on listings, offers, and transactions. The mobile application was available only for Android devices running 6.0 or 7.0. The app was not available on all devices, but was available on the Google Play store. The Android operating system demonstrated its capacity to meet both implied user needs and later stated user needs. The platform is designed to be highly acceptable by users. The platform has a number of features that make it easy to use. It also has a set of features to help users with learning and interacting with the platform. These include: Learnability, Self-Descriptiveness, User Interface Aesthetics, Appropriateness, and Making Offer. It is available on iOS, Android, and Windows 8.1 and 9.0. It has a total of 12 features.

DISCUSSION

The developed bartering mobile platform was evaluated against the ISO 25010 fiercely-criteria. It was rated highly acceptable in terms of functional suitability, efficiency, compatibility, usability, reliability, security, and portability. The researchers have successfully implemented the aforementioned features in the platform. The bartering application platform is efficient and effective in fulfilling its purpose of facilitating the exchange of goods and resources between users. It can be used to promote sustainable consumption among the users and a website to manage administrators. The Palitan Bay Bartering Application was tested by a group of testers. The testers were able to operate the application platform correctly. The website was also easy to use and can be opened on run-on personal computer web browsers. The bartering platform was successfully developed using various development tools such as Visual Studio Code, Android Studio, Flutter, Dart, and Firebase Firebase (specifically AdMob, Storage, Firestore Database, and Sign-In Providers) The application platform maintained a consistent theme throughout its logos.