Cross-Platform Personal Life Management App Using Data Analytics

Mohana Muniandy[1*] and Alex Heng Kong Yew[1]

[1]Faculty of Information Technology, INTI International University,
71800 Nilai, Negeri Sembilan, Malaysia.

Email: mohana.muniandy@newinti.edu.my

Abstract

Personal life management apps are needed to solve problems relate to poor productivity and procrastination by managing an individual's life in a day-to-day basis with reminders, to-do lists and habit tracking functions. The problem is, these apps are available separately and it may be costly to build one app across multiple platforms. Having a single personal life management app would save time, reduce stress, build user's confidence and help user get things done. This app would be essential in helping people keep their life on track and continue to improving themselves further. The proposed system is a cross-platform app that has features of to-do list, calendar and simple analytics.

Keywords

Personal life management app, Cross-Platform, Data Analytics

Introduction

Mental health is one of the issues faced by many users. Fortunately, life management apps has the potential to improve user's health (Whitehead & Seaton, 2016; Cui et al., 2016). There is evidence to show that the use of app to prevent procrastination has led to better mental health (Lukas & Berking, 2018) and better management of hypertension (Alessa, Abdi, Hawley & de Witte, 2018).

However, there are a few problems when developing a personal life management app. One of it is in finding the right operating system to run the app as well as building an app compatible on different operating systems. This is costly and requires a lot of time. Khalid, Shihab, Nagappan, and Hassan (2014) identified 12 types of complaints from iOS users with compatibility being one of the top complaints where an app is not compatible with either the device or the iOS version. Apart from compatibility issues, iOS users also complain about the hidden cost to enjoy the full experience of an app (McIlroy, Ali, Khalid, & Hassan, 2016). Apps have also been found to provide different functions on different platforms (Ali, Joorabchi, & Mesbah, 2017).

Another problem is commitment issues of users and user consistency in using a personal life management app. Users are prone to procrastinate on their life management since humans are

inclined to counterfactual thinking (Eckert et al., 2016). Counterfactual thinking happens when people think of possible unfavourable outcomes, which then makes them procrastinate. Users may think that sticking to a routine may not be beneficial and so they stray away from managing their life better.

Current personal life management app lack user experiences to allow users to reap its full benefits. This may include complex design and poor tutorial as to how the app should function or how new users could use the personal life management app. User experiences are important as it promotes better understanding of an interface, hence should not be compromised (Lee, 2016).

The proposed system aims to investigate the concept of Personal Life Management App in multiple Cross-Platforms and identify how it can improve user experience of the way of managing one's life using Data Analytics. The aim of this app is to solve problems related to procrastination by helping users stay productive and committed to improving themselves. Finally, this Personal Life Management App should be compatible on multiple operating system (Eriksson, 2017).

Methodology

To identify the needs and requirement of this system, the authors gathered data via questionnaire and interview. 59 participants responded to the questionnaire and four users were interviewed. Based on the data gathered from the questionnaire and interview, three main function proposed are "*To-Do List*", "*Calendar*" and "*Habit Tracking*".

For the *To-Do List* function, users insert the tasks that they have to do. After completing the task, the users could then cut out or slash the task in the list with a visual cue. Visual cue is a psychological way of giving users the satisfaction of clearing the tasks in their *To-Do Lists*. With this, users would be psychologically or subconsciously happier with this achievement of finishing any task on the *To-Do Lists*.

The *Calendar* function, allow users to insert how frequently they want to achieve their task. For example, if user wants to exercise three times a week, the user selects 3 days in the *Calendar* option.

For the *Habit Tracking* function, users could track their habits. Progress of sticking to a habit is displayed as a percentage. To go into detailed, this *Habit Tracking* function is able to help users to break a habit by either habit stacking or habit removing. Habit stacking example would be to help user replace a bad habit with a non-harmful one similarly to eat chewing gum as a replacement of smoking.

Users are then able to check their progress after completing checking in of this *Habit Tracking* by also using visual cues to check in their habit building or breaking. The progress checked or achievement displayed would be able to motivate and make users more committed to the app and build self-esteem as well as consistency in continuity of using this app for continual growth. Figure 1 shows the rich picture diagram to represent how the app works.
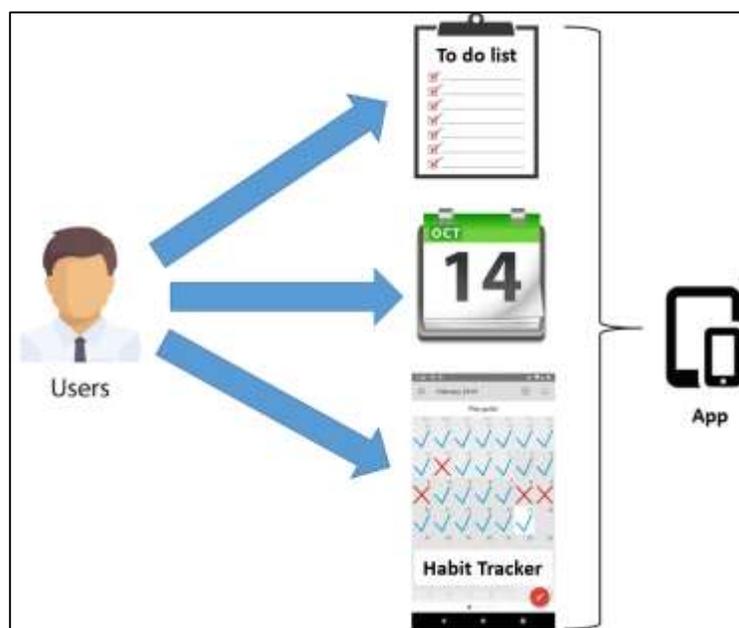
Figure 1. Rich Picture Diagram of Cross-Platform Personal Life Management App

Installation of Necessary & Related Dependencies

Before the development of the app, the authors installed necessary and related dependencies such as Node.js and Watchman. The app itself is built using React Native, plugging in of ESLint and creating mappings of the mobile app. Node.js is a JavaScript runtime environment that assists in the execution of the codes of JavaScript outside of a browser. Watchman is a dependency of React Native which allows React Native to detect code changes have been made and then automatically updates your device without you manually doing the refreshing.

Watchman assists in boosting performance of the app via React Native. React Native CLI is the interface of React Native but only in command line type of interface. Xcode is an integrated development environment or IDE for MacOS and it contains several tools of software development, which will assist in the developing of this app using React Native.

Expo is like a compiler but a faster one that assist in the compiling and running of React Native on both platforms of Android and iOS apps. It consists of tools, libraries and services, which assists developers in building React Native applications. In this case, the authors used this Expo for running React Native on both platforms of Android and iOS using the QR code technology connecting to the authors' localhost. Expo installation is relatively simple comparing the above installation. To install Expo, there would be a simple tutorial on their Expo Documentation site called Installation (Docs.expo.io, 2018). It consist of installing it globally into your machine using Node Package Manager(NPM) and creating project using Expo to be able to run for React Native applications to access the QR code to build and run on the author's mobile devices. Figure 2 and 3 shows the screen shots of the end product.
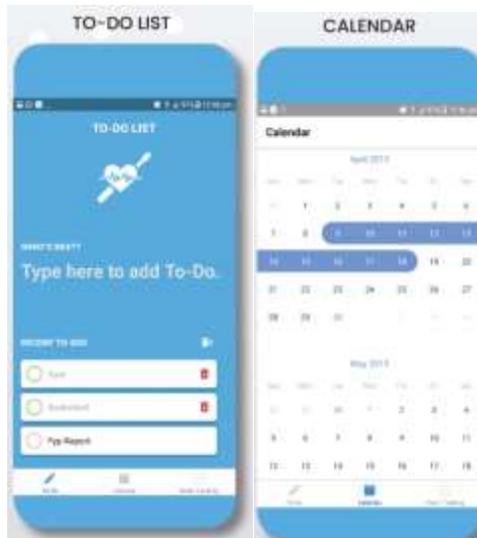
Figure 2. Screen shots of To-Do list creation and Calendar input.

Figure 3. Screenshots of Habit Tracking with Data Analytics

Testing was carried out for this proposed app. Test coverage lists the test expected results and covers all the unit testing aspects. The testing done on test cases is to understand each module of testing in a more detailed manner. The purpose of testing is to understanding the expected outcome and the real outcome and taking corrective actions if needed but in this case, no correction is needed as the impact and priority to the incidents or errors are in both cases are low. User acceptance test was also conducted to gain input on user's opinion on the app.

Results and Discussion

The app works in both Android and iOS, efficiently. For the *To-Do List,* the user acceptance test shows user satisfaction with the app as it produced the desired outcome. User complimented on

the design and the ease of use. The user is satisfied with the *Calendar* option as it produced the desired outcome. However, the user also mentioned that this function should have more annotations with events. As for *Habit Tracking*, user is generally satisfied with the outcome but suggested a more detailed statistical output as a future enhancement. The use of colours percentage of completion helps the user stay on track and form the habit.

Conclusions

The personal life management app implemented on cross-platforms was a success. However, the authors acknowledge that the *Calendar* function needs to be similar to Google calendar to add event and description and reminders and such. With this new enhancement, users will be able to manage all their schedules and appointments and even get reminders. Users should be able to insert a *To Do* from the Social Media All-In-One by highlighting contents or context from the social media. To enhance the *Habit Tracking* function, a tracking progress such as monthly view or even yearly view with more statistical analysis and data analytics, would be better. Lastly, a reminder feature would be a great enhancement for the future of this app to better manage user's time and not break a habit twice in a row.

References

Alessa, T., Abdi, S., Hawley, M. S., & de Witte, L. (2018). Mobile apps to support the self-management of hypertension: systematic review of effectiveness, usability, and user satisfaction. *JMIR mHealth and uHealth*, *6*(7), e10723.

Ali, M., Joorabchi, M. E., & Mesbah, A. (2017, May). Same app, different app stores: A comparative study. In *Proceedings of the 4th International Conference on Mobile Software Engineering and Systems* (pp. 79-90). IEEE Press.

Cui, M., Wu, X., Mao, J., Wang, X., & Nie, M. (2016). T2DM self-management via smartphone applications: a systematic review and meta-analysis. *PloS one*, *11*(11), e0166718.

Eckert, M., Ebert, D. D., Lehr, D., Sieland, B., & Berking, M. (2016). Overcome procrastination: Enhancing emotion regulation skills reduce procrastination. *Learning and Individual Differences*, *52*, 10-18.

Khalid, H., Shihab, E., Nagappan, M., & Hassan, A. E. (2014). What do mobile app users complain about?. *IEEE Software*, *32*(3), 70-77.

Lee, H. E. (2016). UX Design Based on the Directional Nature of Smart-Phones. *International Journal of Multimedia and Ubiquitous Engineering*, *11*(6), 171-180.

Lukas, C. A., & Berking, M. (2018). Reducing procrastination using a smartphone-based treatment program: A randomized controlled pilot study. *Internet interventions*, *12*, 83-90.

McIlroy, S., Ali, N., Khalid, H., & Hassan, A. E. (2016). Analyzing and automatically labelling the types of user issues that are raised in mobile app reviews. *Empirical Software Engineering*, *21*(3), 1067-1106.

Whitehead, L., & Seaton, P. (2016). The effectiveness of self-management mobile phone and tablet apps in long-term condition management: a systematic review. *Journal of medical Internet research*, *18*(5), e97.