

# Health Calorie Counter Application Development Using Progressive Web Apps

<sup>[1]</sup>Alvin Kristanto, <sup>[2]</sup> Ferdinand Ariandy Luwinda

<sup>[1],[2]</sup>Computer Science Department, School of Computer Science, Bina Nusantara University, Jakarta, Indonesia 11480

<sup>[1]</sup> alvink77@gmail.com

<sup>[2]</sup> ferdinand.luwinda001@binus.ac.id

Received: 11.03.2020      Revised: 12.04.2020      Accepted: 28.05.2020

**Abstract**— The purpose of this research is to develop a calorie counter application using the principles and technology of progressive web apps, which can help users to calculate calorie intake and calories burned. The development method used is extreme programming. Extreme programming provides an agile approach to developing applications. The conclusion of this study is that users can easily calculate the calories burned and calorie intake by using this application and this application can be used on any platform with user experience like a native application.

**Index Terms**— Calorie Counter, Health Application, Progressive Web Application.

## I. INTRODUCTION

Data on the population accessing the internet through mobile devices increases, but the average mobile application loses 77% of active daily users in the first 3 days after installation and 51% of users do not download new applications every month [1]. However, the costs for developing mobile applications for simple applications have the user authentication feature generally costs a lot. But companies still choose to make a mobile application or native application because of several features such as push notification, offline support, and icons on the home screen. In addition, along with the times, health has become one of the topics that are quite popular and has become a trend in the Z generation that utilizes technology [2]. But until now, the mobile health application is in the form of a native application, so to create a new mobile health application that can help generation Z requires high costs [3].

Seeing these problems, the Health App was formed. Health App is a Web-based application with a calorie counter as the main feature to record calories in and out that can be accessed via mobile or desktop devices [4]. Health App utilizes progressive web apps technology so that it can have features like native applications and only uses one programming language to build its entire system, namely JavaScript. So that it can reduce development costs because it uses the same ecosystem, namely JavaScript.

## II. RESEARCH METHOD

The design method used in system design for this study is XP (extreme programming) with the stages of planning, designing, coding, testing, and refactoring [5]. This method was chosen because this application has relatively new technology and has dynamic features, following the user's needs. In addition, the entire system design uses a single language, namely JavaScript [6], for the back end using Node.js, MongoDB for the database, and for the front end using React.js. JavaScript was chosen because it has isomorphic features that will be very instrumental in the development of applications so that with one language can build the entire system [7].

## III. RESULT AND DISCUSSION

The Health App application can help users to calculate their calorie intake by suggesting food features, diaries, and reports. The application also makes it easy for users to share healthy food with the feeds feature. In addition, the application has the appearance and experience of a native application and has passed UI evaluations and evaluations of five measurable human factors.



Fig. 1: Login Display of Health Application



Fig. 2. Home Display of Health Application

**IV. CONCLUSION AND SUGGESTION**

The Health App application was developed on a Web basis that uses Progressive Web Apps technology and can be used on various platforms [8]. This application has user experience as in a native application with the push notification feature, icons on the home screen, offline support, background sync, and can be used without installation on the device [3]. The Health App application makes it easy for users to calculate their calorie intake with the suggested food features, diaries, reports, and makes it easy for users to share healthy food with the feeds feature. For further development, applications can be equipped with animations and gestures as in native applications, add features such as step tracking using the provided Gyroscope API or integration with smart watches like Fitbit or Pebble which also provides SDKs with JavaScript language, use more APIs for food data, food, workout and restaurant information so that the application has more data dictionaries, adding features such as information or recommendations for healthy food with recipes and workout plans that fit the user's needs.

**V. REFERENCES**

[1] Statista, *Mobile Phone Internet User Penetration Worldwide from 2014 to 2019*, Aug. 2018 Available : <https://www.statista.com/statistics/284202/mobile-phone-internet-user-penetration-worldwide/>

[2] The Hartman Group, *Consumer Trends in Health and Wellness*, Nov. 2015. Available: <https://www.forbes.com/sites/thehartmangroup/2015/11/19/consumer-trends-in-health-and-wellness/#3e98d306313e/>

[3] A. Holzer and J. Ondrus, *Mobile App Development: Native or Web? Mobile App Development: Native or Web?*, 2013. Available: <https://www.techopedia.com/definition/27568/native-mobile-app>

- [4] J. Elias, *In 2016 Users Will Trust Health Apps More than Their Doctors*, Dec. 2015. Available: <https://www.forbes.com/sites/jenniferelias/2015/12/31/in-2016-users-will-trust-health-apps-more-than-their-doctors/#1d1dd3e87eb6>
- [5] M. Firtman, *Programming the Mobile Web*. Sebastopol, Canada: O'Reilly Media, 2013.
- [6] B. Shneiderman and C. Plaisant, *Designing The User Interface*. Pearson Education, 2010.
- [7] R. S. Pressman and B. R. Maxim, *Software Engineering A Practitioner's Approach (Vol. 8)*. New York: McGraw-Hill Education, 2015.
- [8] C. Cieloha, *Does Your E-Commerce Need Progressive Web Apps to Develop*, Apr. 2018, Available: <https://www.ecommerce-nation.com/ecommerce-progressive-web-apps-develop/>