User Interface/User Experience (UI/UX) Analysis & Design of Mobile Banking App for Senior Citizens: A Case Study in Sarawak, Malaysia

Elizabeth Ubam
Faculty of Computer Science & Information Technology
University Malaysia Sarawak
Kota Samarahan, Sarawak, Malaysia
elizabethubam.24@gmail.com

Irwandi Hipiny
Faculty of Computer Science & Information Technology
University Malaysia Sarawak
Kota Samarahan, Sarawak, Malaysia
mhihipni@unimas.my

Hamimah Ujir
Faculty of Computer Science & Information Technology
University Malaysia Sarawak
Kota Samarahan, Sarawak, Malaysia
uhamimah@unimas.my

***Abstract*— Smartphones are having such a huge impact to our society and in our daily lives. However, most smartphone applications are not that user-friendly for a senior-aged person. Due to the COVID-19 pandemic, everything now is done online including mobile banking services. There are seniors who refuse to use mobile banking applications in Malaysia because they are not familiar nor comfortable with the app's interface and flow. This study aims to perform a need analysis on user interface and user experience (UI/UX) design for Malaysian seniors when using a mobile banking app. A questionnaire was used in this research as a quantitative research tool, involving 36 respondents aged 55 years old and above, and currently a resident of Sarawak. The questionnaire is split into 5 sections, i.e., demographic, technology background, task, task rating, and preferences. We observed that "Fast loading time" is ranked as the most important feature with the highest mean value of 5.0. The least important feature is "Payment via QR Code" with a mean value of 2.7. Our findings can be used as a basis to prioritize features when designing a mobile banking app to accommodate senior users.**

Keywords*— *requirement analysis, seniors, UI/UX, mobile banking application

I. INTRODUCTION

In this era, technologies have such a huge impact on our society and in our everyday lives. Creations such as smartphone devices with internet connectivity enable us to conveniently access many kinds of services anytime and anywhere. Nevertheless, most smartphone user interfaces, as well as mobile applications, are designed with young people and professional groups in mind, except for specific senior-oriented applications [1]. The fact is most seniors (or also known as older adults) are struggling to use their smartphones without assistance [1].

One of the most important mobile app types for users right now is mobile banking. Using such apps, users can perform transactions via mobile banking anytime and anywhere [2]. Examples of transactions (or tasks) that can be performed using mobile banking are transferring and receiving money, paying bills, top-up prepaid, initiating fixed deposits et cetera. This global shift to a fully online banking experience is in line with the government of Sarawak's push towards e-commerce adoption in the state [3].

Unfortunately, mobile banking apps are often made with designs that cater to a specific age group. Often, seniors are excluded from this group, as evidenced in [4]. Thus, this study aims to perform a need analysis on user interface/user experience (UI/UX) design for Malaysian seniors, specific to mobile banking applications.

II. BACKGROUND

A. Requirement Analysis

Requirement Analysis, also referred to as Requirement Engineering, is the "process of defining user expectations for a new software being built or modified" [5]. Requirement analysis involves certain activities that evaluate the needs or criteria to be met for a new or updated product or project, taking into account the potentially contradictory requirements of the various stakeholders, analysing, documenting, validating and managing requirements for software or system [5]. Requirements analysis is critical to the success or failure of a system or software project and conceptually it includes four types of activity which are:

- Eliciting requirements: the process of engaging with clients or users to decide what their needs or requirements are. This is also often called the requirements gathering.
- Analysing requirements: determining whether the stated requirements are unclear, incomplete, ambiguous, or contradictory, and then overcome or resolve these issues.
- Requirements modelling: Requirements can be documented in different ways such as natural-language documents, use cases, user stories, or process specifications.
- Review and retrospective: Members of the team focus on what happened in the iteration and identify steps for further progress.

B. "Seniors" Definition

The seniors or also know as the "elderly" are defined as a person with the chronological age of 65 years old and above whereby those from 65 to 74 years old are considered as "early elderly" and those over 75 years old are called "late elderly" [6]. The evidence on which this definition is based on however is unknown [6]. Likewise, in Nielsen's study [7] "seniors" are also defined as users aged 65 years or older, without providing an upper limit. In Malaysia, the National Policy on senior citizens is those above the age of 60 years. In advanced and developed nations, those above 65 years are considered as senior citizens due to better economic, educational, and health levels, established health services,