Analysis of System Requirements of Go-Edu Indonesia Application as a Media to Order Teaching Services and Education in Indonesia

S Mauluddin* and M B Winanti
Universitas Komputer Indonesia, Bandung, Indonesia

*syahrl.mauluddin@email.unikom.ac.id

Abstract. This research was conducted to analyze the needs of the system of Go-Edu Indonesia which is as media to bring together the people who need training services / teaching / course related to the expertise or specific skills with people who have the competence in certain skills. In this study method use is object-oriented with modeling tools UML (Unified Modeling Language) and using prototype as the development system model. The result of this research are description of functional requirements and non-functional requirements of Go-Edu Indonesia application that can accommodate the community needs to find an instructor/coach/supervisor with specific skills, and will help to open opportunity for new job for people with certain skill to be an instructor.

1. Introduction
The industrial revolution 4.0 could not avoid, it is seen from business model that has been shifted to online business form both in the field of goods and services sales. In addition, Indonesia has entered the era of globalization that causes competition in the workplace more competitive. Based on information at the seminar of digital learning process in the era of industrial revolution 4.0, that the current problems in Indonesia is there are many unemployed, related to unemployment of the Central Bureau of Statistics (BPS) revealed, in 2017 there has been an increase in the number of unemployed in Indonesia by 10,000 people to 7.04 million people in August 2017 from August 2016 of 7.03 million people [1]. Another problem is that workers do not have sufficient skills, the job market requires a combination of different skills than those taught in formal education and Indonesia's competitiveness is still low [2].

To overcome the above problems, as an initial step a study had been done in the form of analysis of the needs of Go-Edu Indonesia application system as a medium of ordering teaching and education services in Indonesia. Stages of system requirements analysis are the stages that need serious attention [3]. Previous researchers had designed applications such as web-based driving lesson information systems [4], web-based and android private-language reservation applications [5] and android-based music course booking apps [6], but all applications is intended for only one educational / training institute and for one teaching / course, while the Go-Edu Indonesia application is designed for teacher bookings in all areas of science / expertise and it is address to individuals and any kind educational institutions / training.

This research is the first step to build Go-Edu Indonesia application and if this application has been implemented, it is expected to reduce unemployment by creating a new job as a teacher, make the workers have adequate skills with education service from the experts, fulfillment of market that requires
a combination of different skills and the last is Indonesia's competitiveness will increase along with the increase of skills especially workers and generally for all circles of society.

2. Methods

Method use is object oriented. According to Jogiyanto, Object-oriented approach is “a technique or approach in viewing problems and system (software system, information systems, or other systems). Object-oriented approach will view the developed system as a collection of objects that corresponds to real-world objects”[7]. “Object-oriented analysis and design can offer an approach that facilitates logical, rapid, and thorough methods for creating new systems responsive to a changing business landscape. Object-oriented techniques work well in situations in which complicated information systems are undergoing continuous maintenance, adaptation, and redesign”[8].

System development method which is used is prototype model. The prototype model is as follows. (See Figure 1).

![Prototype Model](image)

**Figure 1.** Prototype Model [9].

This research will only discuss the first stage of identification stage where user/system requirements identification will become reference at prototype development stage.

3. Result and Discussion

System according to Kendall et al is "a collection of things or activities or elements or subsystems that are mutually cooperative or linked in certain ways so as to form a unity to carry out a function to achieve a goal"[8].

Referring to Hanif al fatta that to determine the needs of complete system is divided into two types. "The first type is the functional requirement. Functional needs are the types of needs that contain what processes will be done by the system. Functional requirements also contain information that should be in the system and produced by the system. The second type is nonfunctional requirement. This type of requirement is a type of requirement that contains the property of behavior possessed by the system, including: operational, performance, security, politics and culture "[10].

System requirements analysis of Go-Edu Indonesia application includes functional requirements and non-functional requirements. For functional requirements Go-Edu Indonesia Application is divided into two versions: application for teacher / trainer and application for student / trainee. The functional requirements of the system are illustrated in Figure 2:

Functional requirement of Go-Edu Indonesia Applications for lecturers / trainers are 1) The system can register Teacher / Trainer. For registration the user can input registration data such as Name, Place Date of Birth, Gender, Religion, Address, Village, District, Regency / City, Province, Cellphone Number, Education, Expertise, ID number, ID Card, Photo. 2) System can manage the profile of the instructor / trainer such as biodata and user can upload evidence of competence such as training certificate or competency certificate. 3) System can make order selection where user can see detail order
like information of the buyer / student name, address, material to be studied, date, duration of time, customer rating then user can make order selection / confirmation. 4). The system can display the payment data where user can view the payment data by date and the user can see the order details of the payment data. 5). System can display teaching schedule where user can view the teaching schedule sorted by date and user can see the order details from schedule. 6). System can display the location of the buyer / student and the user can see the location of the buyer using GPS. 7). System can display booking history. 8) System can display rating of booker / student (See Figure 2).

Functional Requirements of Go-Edu Indonesia Application for Student / Trainee is 1) System can register Student / Trainee where user can input registration data such as Name, place of birth date, gender, religion, address, subdistrict, district, regency / city, province, cellphone number, education, occupation, ID number, ID card and photo 2). System can manage the student / trainee profile. 3) System can perform order where user can choose type private individual or in the form of groups / communities. Private individual users can place an order by its own selection by searching the teacher, select the teacher, select the material category, the content of the material to be studied, hours, duration and location. For private type of user, the user can place an order with the bidding system by simply choosing the material category, the content of the study material, the date, the hour, the duration, the location. For the type of private group or community the user can place an order with their own selection system by searching the teacher, selecting the teacher, the content of the material to be studied, the number of participants, the date, the hour, the duration and the location. For the type of private group the user can place an order with the bidding system by simply charging the material to be studied, the number of participants, date, time, duration and location. 4) System can display payment method that user can choose payment method through cash, e-money or bank transfer. 5) The system can display the schedule of learning where user can see the schedule of learning and the user can see the order details of the schedule 6) System can display the location of the teacher using GPS 7) System can display booking history. 8). System can display and select the rating of the instructor / trainer.

The non-functional requirements of Go-Edu Indonesia applications are 1) Hardware requirements for development. The Go-Edu Indonesia app is a mobile app that can run on android and iOS platforms. The following is a hardware requirement for the Go-Edu Indonesia application development process based on recommendations from the https://developer.android.com site [11]. Microsoft® Windows® 7/8/10 (32- or 64-bit), 3 GB minimum RAM, 8 GB RAM recommended; plus 1 GB for the Android
Emulator, 2 GB of available minimum disk space, 4 GB recommended (500 MB for IDE + 1.5 GB for Android SDK and emulator system image), 1280 x 800 minimum screen resolution. Or Mac® OS X® 10.10 (Yosemite) or higher, up to 10.13 (macOS High Sierra), 3 GB minimum RAM, 8 GB RAM recommended; plus 1 GB for the Android Emulator, 2 GB of available minimum disk space, 4 GB recommended (500 MB for IDE + 1.5 GB for Android SDK and emulator system image), 1280 x 800 minimum screen resolution. 2) Hardware requirements for use include Quad-core 1.2 GHz Cortex-A53 CPU, 16 GB Internal Memory, 2 GB minimum RAM, and Display Size 5.0 inches. 3) The software requirement for development is latest version of Android studio and Mysql Database. 4) Software requirements for user are Android OS 4.0 (Ice Cream) or higher, GoEdu Indonesia Applications, GPS (Global Positioning System), Google Maps and Email. 5) Security Requirement must have password for Go-Edu Indonesia Application system and also for its database system, for payment process equipped with PIN and equipped with session usage for automatic logout. 6) Information Requirement, are display new registration procedure / trainer, to display new student / trainee registration procedure, to display information if password or username is wrong. 7) Performance Requirement include time for order transaction with offer system limited to 2 days and time to search for the nearest teacher in limit 1 minute.

4. Conclusions
The result of this research is a description of functional and non-functional requirement of Go-Edu Indonesia application that will become the reference in Go-Edu Indonesia application designing activity.

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