Geographical Information System distribution of health insurance and employment administrator office

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Abstract. Social Insurance is currently one of the needs that must be prioritized both for government agencies or companies. Health Insurance and Employment Administrator Office established so that workers or companies get social Insurance services for workers. The purpose of making this article is to be able to assist users in finding Health Insurance and Employment Administrator Office information. At the same time, Health Insurance and Employment Administrator Office employees manage office data and registered companies and target companies (non-participants). The method used in this study is the Rational Unified Process, starting from the inception stage to the construction stage. The result of this research is the model application of the distribution of the West Java Health Insurance and Employment Administrator Office by adopting Google maps as a provider of information in the form of graphs. With this model expected, the attractiveness of registering and managing social Insurance for workers will increase.

1. Introduction

Health Insurance and Employment Administrator or BPJS are one of the health insurance programs that are being planned by the government as an alternative to health insurance for the community [1]. In an organization, the development of information technology has a significant impact on increasing data processing activities so that it is more organized. But the truth is, workers, especially those in the marketing field at Health Insurance and Employment Administrator Employment, must conduct a separate review to determine whether an office is an office that has registered with Health Insurance and Employment Administrator or not. Because it deals directly with the address of a company, sometimes the address must be searched carefully in the sense that it requires more effort to find out and reach the address. Moreover, not only one or two offices are sought, but tens to hundreds, so the work must be carried out effectively and efficiently.

Geographical Information System is a unique information system that processes data that has spatial information (spatial reference) [2-5]. In other words, a geographic information system is a computer system that can build, store, manage and display geo-referenced information, such as data being identified based on its location in a database [6]. The existence of a geographic information system can facilitate the mapping of areas of companies that have collaborated with BPJS. It also can ease the distribution of Health Insurance and Employment Administrator office data in Indonesia.

There are some previous articles about this research, such as the first research on observing groundwater quality elements using GIS [7]. Other research regarding Participatory mapping and
participatory GIS for historical and archaeological landscape studies [8]. Third research regarding a collaborative Geographical Information System to support collective decision making for urban logistics initiative [9]. Fourth research concerning Use of geographical information system and ecological niche model to analyse potential exposure of small ruminants to Coxiella burnetii infection in central Greece [10]. Fifth research concerning A secured e-tendering model based on rational unified process (RUP) approach: inception and elaboration phases [11]. The sixth research concerning Simulation Model For Rational Unified Process (Rup) Software Development Life Cycle [12]. Seventh research concerning Aligning the elements of the RUP/UML business use-case model and the BPMN Business Process Diagram [13]. The eighth study of geographic information systems used for fire incident monitoring [6]. Gap analysis with the research studies is that in previous studies, there was no mapping of the Health Insurance and Employment Administrator Office in Indonesia. The purpose of making this article is to be able to assist users in finding Health Insurance and Employment Administrator Office information. At the same time, Health Insurance and Employment Administrator Office employees manage office data and registered companies and target companies (non-participants).

2. Methodology
WBS or work breakdown structure is the decomposition of the overall scope of work that must be done by the project team to achieve project objectives [14,15]. Based on the literature review and has been supported by existing theories, the WBS (Work Breakdown Structure) was prepared by following the steps in the RUP methodology, as in Figure 1.

![Work Breakdown Structure](image)

**Figure 1.** Work breakdown structure.

The inception phase [16], this process is obtained from interviews, documents, and reference books or previous research journals, as well as by designing a system to be developed. In addition to business processes, it also illustrated by use case diagrams and activity diagrams created using ArgoUML. The elaboration stage is the modeling stage using UML consisting of perfecting use case diagrams, activity diagrams, designing sequence diagrams [13]. Next is the construction stage, which is the stage of implementing the layout into the programming language following the elaboration stage.
3. Results

3.1. Inception
This stage is the stage where activities determine the ongoing business processes. In addition to business processes, it also illustrated by use case diagrams and activity diagrams created using ArgoUML.

3.1.1. Design of use case diagrams. From the results of the data collection, several actors involved in this distribution application, including:

| No | Actor   | Description                                                                 |
|----|---------|------------------------------------------------------------------------------|
| 1  | User    | People who do not include admin or employees (general) who access the Health Insurance and Employment Administrator Office data search |
| 2  | Admin   | People who carry out management in full application                          |
| 3  | Employee| People who access and update data and are limited (access restricted)        |

From table 1 can be seen the actors involved in this application, in the form of use case diagrams in Figure 2:

![Use case diagram](image)

**Figure 2.** Use case diagram.

3.1.2. Design of activity diagrams. Activity diagram or activity diagram models workflow (workflow) business processes and the sequence of activities in a process. Noteworthy here is that the activity diagram illustrates system activity, not what the actor does [17]. One activity diagram contained in this office data distribution is to search office data by general users. These activities are in Figure 3.
3.2. Elaboration

This stage is a continuation of the inception stage, where the elaboration stage completes the system in the previous phase and makes and perfects use case diagrams, activity diagrams, sequence diagram design. Sequence diagrams are descriptions of scenarios or a series of steps carried out in response to an event to produce output.

From the activity diagram (figure 3), the user will access the application, and after successfully obtaining the app, the main page will appear showing several menus. After selecting the office menu, the application will display office data. To see the details, you can do this by clicking on more information & location.

From Figure 4, it appears that the user accesses the office distribution application, which must be connected to the database server first. After that, the main page displayed will contain several menus.
When the office menu is accessed, the application will display office data complete with information such as a full address, contact information, website address, and so on.

### 3.3. Construction

This stage is the next stage after elaboration. Activities carried out at this stage of development are designing the menu structure and also designing the application interface that made. The design of the display to be made is adjusted to the needs and made as simple as possible so that the application made can be used easily in terms of function or button navigation. One of the interfaces that designed is the map display on the user page, as in Figure 5.

![Interface design](image)

**Figure 5.** Interface design.

This design was created by paying attention to aspects of human interaction with computers. The theme taken is simple - elegant. The menu display is stored on the side and placed consistently. Besides that, the menu button will change colour if the menu is active. Besides, the content is stored in the middle of the page with a dull background colour (white) with the reason that the material can be seen dominantly and become the user's attention point. The button is not just writing, but combined with icons to make it more visible the difference between the pins.

### 4. Conclusion

Based on the results and discussion presented, the conclusions drawn from this study are

This research has succeeded in achieving the goal of designing a geographic information system for the distribution of Health Insurance and Employment Administrator Office so that it can use to facilitate the search for Health Insurance and Employment Administrator Office locations and their office details. This design is equipped with additional facilities, namely messaging features. This messaging facility is used for communication media between employees or with the admin, so that they can communicate appropriately according to their individual needs.

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