APPLICATION OF DATA MINING (MEDICAL CHECK UP) RESULTS OF STATE WORKERS WITH CLUSTERING METHOD

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ABSTRACT:

Many companies in the field of health clinics to inspect labor abroad with abundant data the need for information to make solutions in the field of information technology is the beginning of data mining technology. One method contained in data mining and the author uses Clustering with this application aims to determine the accuracy of the data, find groups of data, can make it easier to input the results of the examination without having to manual and this application can provide reports or results of the entire health check.

Keywords: Data mining, Medical Check-Up, Clustering Method

CHAPTER I INTRODUCTION

1.1 Background

The development of advances in information technology and data mining with the availability of abundant data makes computers as supporting technological developments. Medical CheckUp (MCU) is known as a health check that is mandatory for someone who wants to work abroad to be healthy and not have a disease. In addition, the trust of the destination country to receive workers is greatly influenced by the results of the examination. With this method knows the accuracy of the results by grouping the data.

1.2 Identification Problem

1) A company system that is still not computerized properly.
2) Difficulties in classifying data according to the cluster or group.
3) Lack of awareness of officers will prioritize useful applications
1.3 Formulation Problem
1) Providing information to patients in real time
2) Data used from countries such as: Middle East, Saudi Arabia and ASEAN
3) This implementation is based on clinical patient data, November 2016 period for 1 month

1.4 Research Objectives
1) Designing applications that make it easy for each part to input and recap data
2) Clustering Method grouping by name, date of birth, gender, destination country, date of examination, address.
3) Applications are used by all networks with different username and password.

CHAPTER II THEORY FOUNDATION

2.1 Definition of UML (Unified Modeling Language)
Sukamto and Saladin stated that the language used to describe and make analysis. Some types of UML are: Use case diagrams, Activity diagrams, Class diagrams, Sequence diagrams and Component diagrams. Sukamto and Shalahuddin (2013)

2.2 Concept Data Mining
Data mining is extracting large amounts of data, this information is useful for development.

2.3 Clustering Method
Technical clustering method by compiling data into data groups. Clustering algorithm method in data mining can be used to find groups of data derived from the data studied.

A. Examples of Application of the Clustering Method
Examples of the application of clustering algorithms to determine the market segment of car sales where car sales data can be included in 3 categories according to the results of the price category of a low, medium, and high car from the data the company will get a consumer behavior in buying a car, this will be used as a reference in car production in accordance with the expected car sales target.

CHAPTER III RESEARCH METHODS
The writing structure of this journal with the title APPLICATION DATA MINING OF MCU (MEDICAL CHECK UP) RESULTS OF STATE WORKERS WITH CLUSTERING METHOD. Rima Tamara Aldisa, Eka Yuni Sriyanti, Fiqih Hana Saputri, Umi Nur Inayah.

A. Title and Identity of the Author

B. Fill in the paper
The contents of this paper aim at applications that can make it easier for officers to input the status of the patient's examination without having to write in paper or manually. And the application made by this author can group patient data, to make it easier to search data.
CHAPTER IV RESULTS AND DISCUSSION

4.1 Data Collection

A. Observation

Conduct a direct review to find out patient data, and interview staff to find out the flow of patient data so that it can be processed into information.

B. Literature Study and Literature review

Literature Study is a method of data collection by collecting relevant journals and literature, Literature review is a method of data collection by searching for materials from data mining books.

4.2 SDLC Method (System Development Life Cycle)

Picture SDLC Stages

1. Planning the stage to determine the purpose of the design.
2. Analysis stage to analyze the method to be used.
3. Design stage to do application design
4. Implementation stage to test the patient data analysis application
5. Testing the stage of testing the system that has been made.

4.3 System Design

A. Service Flow / Scheme

Picture service scheme
4.4 User Interface

A. Login Page

![Login Page](image1.png)

B. Admin Page

![Admin Page](image2.png)

C. FIT Patient Charts (Healthy)

![FIT Patient Charts](image3.png)

D. Overall Results Page of Examination of Overseas Worker Patients

![Print this page](image4.png)

**MEDICAL REPORT**

<table>
<thead>
<tr>
<th>Name</th>
<th>Sandra</th>
<th>Gender</th>
<th>Female</th>
</tr>
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<tbody>
<tr>
<td>Phone</td>
<td>081123456789</td>
<td>Address</td>
<td>East Java, Indonesian</td>
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<tr>
<td>Country of destination</td>
<td>ASEAN</td>
<td>Date of birth</td>
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**NURSE RECAP DATA**

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<tbody>
<tr>
<td>1</td>
<td>height</td>
<td>151</td>
</tr>
<tr>
<td>2</td>
<td>weight</td>
<td>54</td>
</tr>
<tr>
<td>3</td>
<td>temperature</td>
<td>36</td>
</tr>
<tr>
<td>5</td>
<td>blood pressure</td>
<td>130/70</td>
</tr>
<tr>
<td></td>
<td>FIT / UNFIT</td>
<td>FIT</td>
</tr>
</tbody>
</table>
4.5 System Implementation

The purpose of implementation is to confirm the system builder program module to the user.

A. Software implementation

<table>
<thead>
<tr>
<th>No</th>
<th>Type of software</th>
<th>Information</th>
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<tbody>
<tr>
<td>1</td>
<td>operating system</td>
<td>Window 7 home premium</td>
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<tr>
<td>2</td>
<td>DBMS</td>
<td>MySQL version 5.4.7</td>
</tr>
<tr>
<td>3</td>
<td>Web Server</td>
<td>Apache version 2.4.7</td>
</tr>
<tr>
<td>4</td>
<td>IDE Design</td>
<td>Sublime text 3</td>
</tr>
<tr>
<td>5</td>
<td>Interpreter</td>
<td>PHP versi 7.1.9</td>
</tr>
<tr>
<td>6</td>
<td>Web Browser</td>
<td>Google Chrome versi 62</td>
</tr>
</tbody>
</table>

B. Hardware Implementation

<table>
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<th>Information</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Processor</td>
<td>Intel Inside Core i3</td>
</tr>
<tr>
<td>2</td>
<td>Harddisk</td>
<td>320 GB</td>
</tr>
<tr>
<td>3</td>
<td>Memory</td>
<td>2GB DDR3</td>
</tr>
<tr>
<td>4</td>
<td>Monitor</td>
<td>15.0”</td>
</tr>
</tbody>
</table>

4.6 System Testing

System Testing is ensuring that all parts have been tested, to minimize existing errors and ensure desired results.

A. Blackbox Testing

Testing Blackbox Testing is a testing system that prioritizes testing the function needs of a program. The purpose of Blackbox Testing is to find a function error in the program.

B. Testing in accordance with expectations

Radiology Process Testing (If the contents of patient data that has been stored then the system will refuse)

![Picture 4.2 Radiological Process Testing]

CHAPTER V CONCLUSIONS AND SUGGESTIONS

5.1 Conclusion

a. Data mining by using applications that are built can help as an illustration for corporate decision-making in order to get the state of the patient’s condition.

b. This application can make it easier for officers to input the status of the results of the examination of workers’ patients abroad without having to write in paper or by manual method.

c. The application created by this author can group patient data, to make it easier to search for data.

5.2 Suggestions

Based on the above conclusions, the thing that is expected in the future is that this application can be developed further by managing data that is larger, wider and more accurate so that this application can really be used as one of the images in decision making in a more useful company.
Reference


