International Journal of Science and Research (IJSR)
ISSN (Online): 2319-7064
Impact Factor (2012): 3.358

Design and Implementation of the Family Information System

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Abstract: ***With the increase of the population of Sri Lanka, retrieving the family's information process has been transformed into a highly complicated task in Divisional Secretariat offices, Grama Niladhari offices and NGOs. In order to get a particular person's family details it is required to check some requirements such as National Identity Card (NIC) number and birth certificate number. Additionally, this task needs to be completed quickly and efficiently. But, it is a time consuming and most complex process in a manual system using papers or spreadsheets. This paper presents an information system developed to achieve this task. Salient features of the system include reduce the difficulties arise when searching the information, keeps the details as records and able to display the tree. The hierarchical details of the family could be viewed through the tree model. The system was tested with randomly selected some family details. The test results indicated that the system functions accurately and efficiently.***

Keywords: Information Systems**,** Spreadsheets, Information Process.

1. Introduction

Many government organizations and NGOs in Sri Lanka use family information as a basis to their day to day works. It is very important that providing quality services, creating customer confidence, and making timely decisions. As such, information technology has become the prime reason for the success and failure of an organization to compete in business. This illustrates the impact of information technology on business operations today. As a result, designing an information system of high quality is important so that organizations can process successfully for national development. This paper proposes a new information system to handle the family information to process the Divisional Secretariat offices, Grama Niladhari offices and NGOs in Sri Lanka.

Software is not just the programs. Software includes all associated documentation and configuration data that is needed to make the programs operate correctly. A software system usually consists of a number of separate programs, configuration files which are used to setup these programs, system documentation which describes the structure of the system, user documentation which explains how to use the system and websites for users to download recent product information [1].

We have designed a software tool to maintain the details of a family or a particular person. The purpose of the software is to reduce the difficulties arise when searching the information. This software keeps the details as records. It is easy to keep the computerized records than keeping manual records. This software can be used in Divisional Secretariat offices, Grama Niladhari offices and NGOs.

The main interface is the login interface. The software is accessed by entering the username and correct password. The next interface is used to search details, edit details , save details, insert details of a new born baby, add new details, create user ID, change password, find the time of login and logout. If we enter the ID of a particular person and press the button GO it will display the details of that person and view the tree model.

It is also be able to display the tree. The hierarchical details of the family could be viewed through the tree model. The important menus used in this interface are Edit, View, Insert, User, Login and Help. We can edit the basic details, sex, civil status, religion, educational qualification, professional qualification and etc. The details can be saved. If we want to change any information it is possible to do that by reset button. It is also be able to edit details of a new born baby and add new details for others. The software is designed to maintain a user ID for each and every person. The password can be changed and the given ID can be deleted. There is another facility to know about who accessed the software recently and last accessed time. This is performed with the use of login and logout menus. It also includes a help menu which describes about the software and provides guidelines about how to use the software.

We have designed the interfaces of this software using Visual Studio.NET 2008 through the C# language and database is maintained through SQL server 2005 [4]. We hope this software will be useful to keep the details as records.

2. Material and Methods

In order to develop the Family information system following methodology is used:

(i) Gathering requirements;
(ii) Specifying, constructing, visualizing and documenting the artifacts of the system by using the Unified Modeling Language (UML);
(iii) Microsoft Visual Studio is used as an Integrated Development Environment (IDE) to develop the graphical user interface of the system;
(iv) Designing the database is maintained using SQL server 2005;
(v) Generating the test cases and testing the outputs.

3. Analysis and Design

First we planned to monitor the possible part of the system and display the performance of the particular part. We analyzed each and every attributes, concerned about important details and created an interface to each of the operation.

3.1. Requirements Analysis

We discussed with the users and gathered the needed and important information which should be kept as records. We analysed whether this software will be useful for them and provide better advantages.

- Editing the details and saving them.
- Keeping the available information as records.
- Display the hierarchical tree model.

3.2. Functional Requirements

- Edit the details.
- Save the details.
- Insert additional details.
- Keep details as records.
- Maintain user ID.
- Maintain the login details.
- Display hierarchical tree model.

3.3. Non Functional Requirements

- Visual studio.NET 2008
- SQL server 2005

3.4. Use Case Diagram

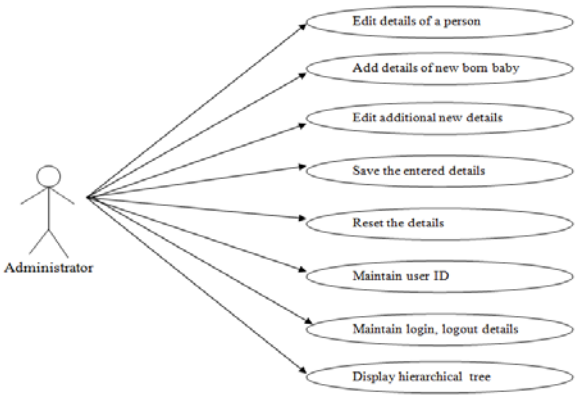

Figure 1: Use cases of the tool

The actor indicates the administrator who accesses this software. The use cases indicate the main functions performed in this software.

3.5. Activity Diagrams

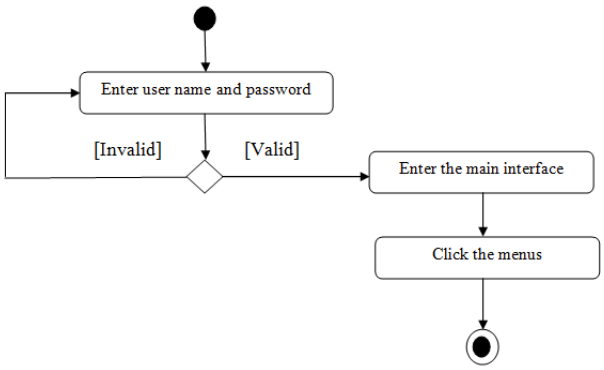

Figure 2: Describes about how to access this software. The user has to enter the user name and password. If both are valid user can access the software. Otherwise he has to try again.

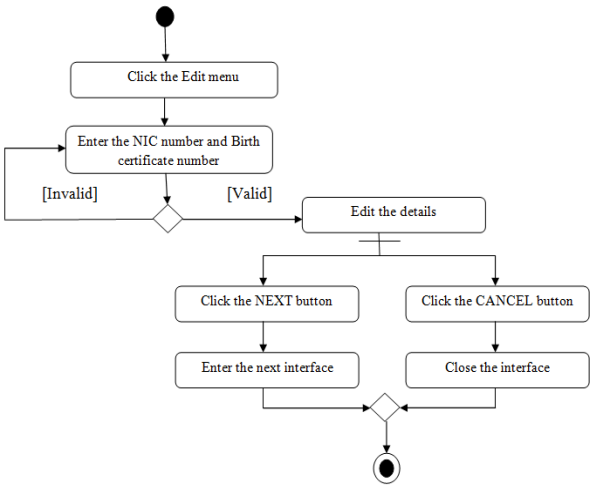

Figure 3: Describes about how to use the Edit menu. First user has to click the Edit menu and enter the valid identity. If the identification is invalid he has to try again. If it is valid he can edit the details. After editing if he wants to continue he has to click the NEXT button otherwise click the CANCEL button.

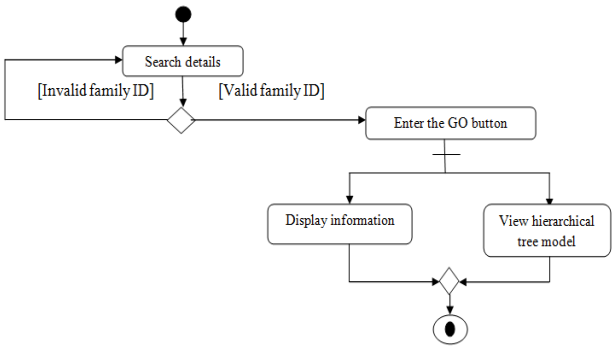

Figure 4: Describes about how to search the details. First the user has to enter the family ID. If the ID is invalid he has to try again. Otherwise he has to enter the GO button. The result of this function is the information is displayed and hierarchical tree model is viewed

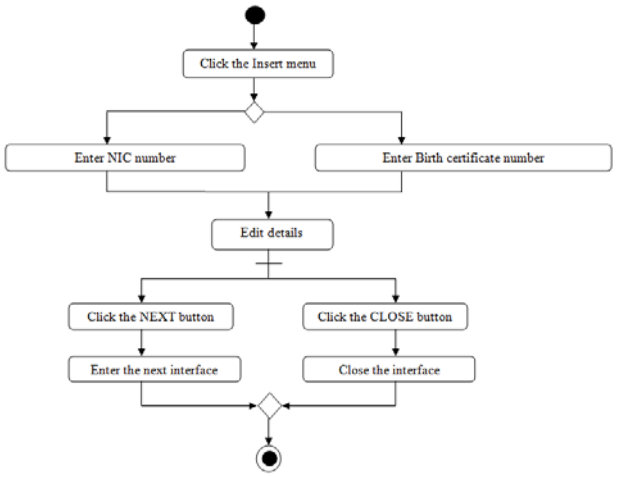

Figure 5: Describes about how to use the Insert menu. If the user is above 18 years he has to enter the NIC number and the user is below 18 years he has to enter the Birth Certificate number. After that he can edit the details. If he wants to continue the function click the NEXT button otherwise click CLOSE button.

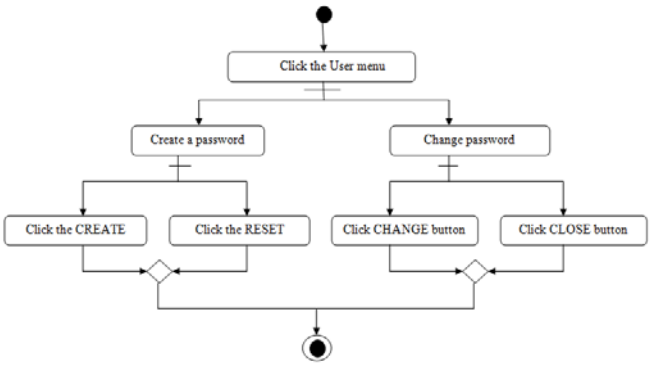

Figure 6: Describes about how to use the User menu. There are two options. The user can create a password and change the password. If the user wants to create a password he can click the CREATE button and he can also reset the password using RESET button. If the user wants to change the password he can click the CHANGE button otherwise click CLOSE button.

4. Testing and Evaluation

Software testing consists of the verification of the behavior of a program. The first few revisions tested to verify that the software system would operate correctly. The testing was made to ensure that the software system confirms to its specification. The testing produced desirable results. The software validated and tested with appropriate inputs to ensure that it has produced desirable outputs. The NIC number and Birth Certificate number are used to check the data validity.

Edit menu - Edit the details of a person.
View menu - Display the charts for each and every category.
Insert menu - Insert details of a new born baby and add new details for others.
User menu - Maintain user ID and password.
Login menu - Maintain the details of login and logout.
Help menu - Providing guidelines to use the software.

5. User Interface Design

User interface of Family Information System is designed to provide a simple and an attractive graphical interface to users. The main interface is the login interface. The software is accessed by entering the username and correct password. The next interface is used to search details, edit details , save details, insert details of a new born baby, add new details, create user ID, change password, find the time of login and logout. If we enter the ID of a particular person and press the button GO it will display the details of that person and view the tree model. It is also be able to display the tree. The hierarchical details of the family could be viewed through the tree model [3]. The important menus used in this interface are Edit, View, Insert, User, Login and Help.

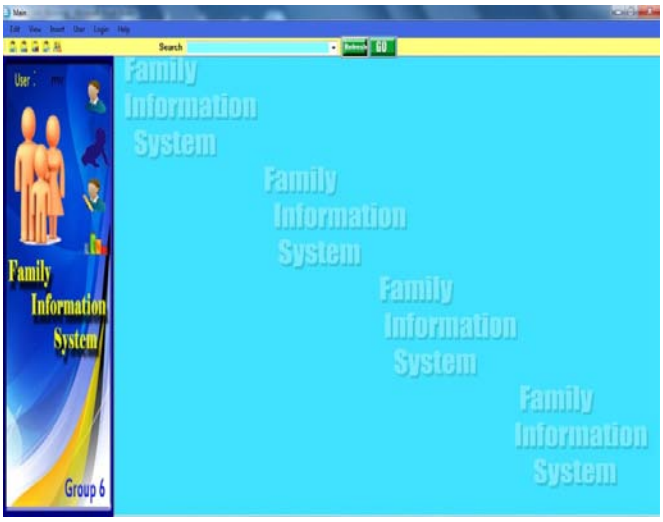

Figure 7: Main GUI for Admin user

We can edit the basic details, sex, civil status, religion, educational qualification, professional qualification and etc. The details can be saved. If we want to change any information it is possible to do that by reset button. It is also be able to edit details of a new born baby and add new details for others. The software is designed to maintain a user ID for each and every person. The password can be changed and the given ID can be deleted.

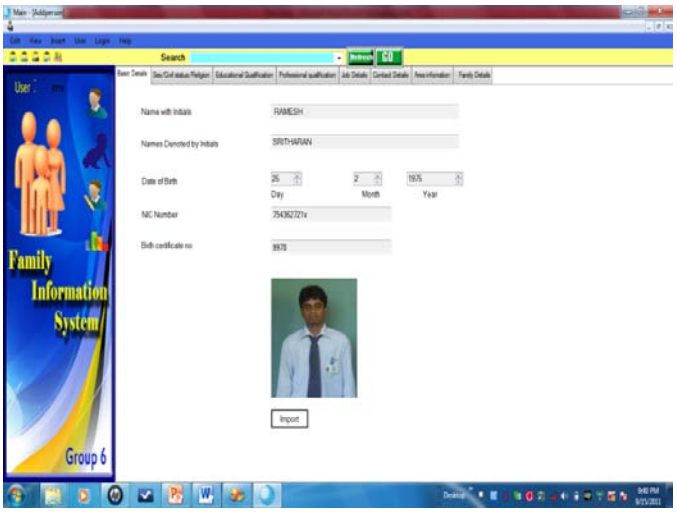

Figure 8: Insertion of personal details of a person

There is another facility to know about who accessed the software recently and last accessed time. This is performed with the use of login and logout menus. It also includes a help menu which describes about the software and provides guidelines about how to use the software.

6. Results and Discussion

The system developed was tested with sample of some family information. Software testing consists of the verification of the behavior of a program. The first few revisions tested to verify that the software system would operate correctly. The testing was made to ensure that the software system confirms to its specification. Thetesting produced desirable results.

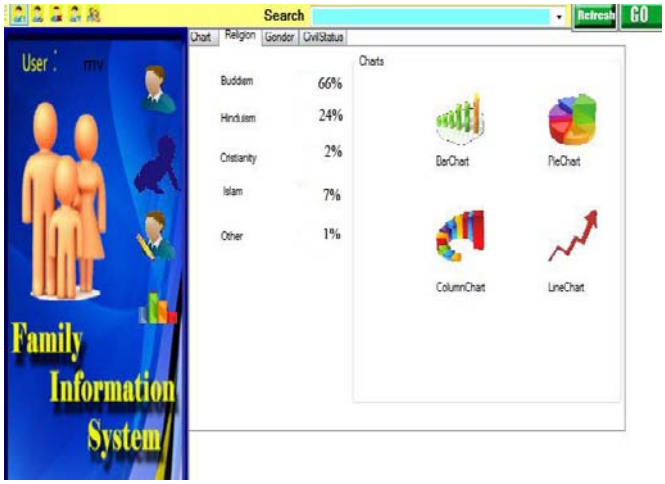

Figure 9: View Statistical Information

The software validated and tested with appropriate inputs to ensure that it has produced desirable outputs [2]. The NIC number and Birth Certificate number are used to check the data validity. An example test data is shown in figure 10. Finally the test results were compared with manually tested results to check the accuracy of the information system. The test results indicated that the analysis of result is accurate, efficient and consistent.

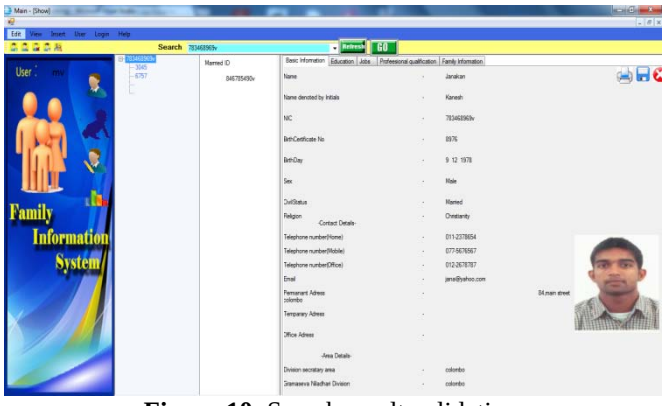

Figure 10: Search result validation

7. Conclusions

An information system developed can be used to replace the current inefficient and time consuming manual system. The system developed analysis family's information efficiently and accurately. Since the new system is a desktop application it provides flexibility to both the staff members and the public people. The fast analysis and quick search results gives the details of searching query quickly. The system developed can be customized to analyze the family information at any state organization.

References

[1] Hentry C. L., TheAnalysis, Design and Implementation of Information Systems, Mc-Graw Hill, 4th Editions, New York, USA (1992).
[2] Kodituwakku S. R., Chamikara P, CUBRAS: Design and Implementation of the Course unit based Result and Analysis System, Ceylon Journal of Physical Sciences, 15, 27-39 (2009).
[3] Davis H., Visual C# .Net Programming, Sybex (2002).
[4] Watt A., Microsoft SQL Server 2005 for Dummies, Wiley Publishing, inc., (2006).

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