**RELIEF CAMP MANAGEMENT SYSTEM**

**GROUP MEMBERS:**

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**1.1 GENERAL INTRODUCTION**

The title of the project is ‘**Relief Camp Management System**’ (**R.C.M.S**). **RCMS** is defined as a software application that aims to automate the functionalities of Relief Camps and Collection Centres to provide effectuality for the government. This system provides information about various relief camps operating for rehabilitation of the people and also helps to manage supplies collected from donations through different collection centres functioning around the state or provided by the government and move them between the camps to ensure that there is no shortage in essential supplies in any relief camp. This system also keeps records of the people admitted in the rescue camps which helps the Government to provide necessary helps to the inmates.

R.C.M.S is an application software, which includes mainly three modules: Administrator (Admin), District Collector (COLLECTOR), Collectorate Staff (STAFF). Admin is in charge of managing the overall working of the system like adding users, editing their details etc. Collectors can manage relief camps as well as collection centre activities through the system. Collectorate Staff is in charge of all the activities at the collection centres and relief camps like adding new inmates to camp, ordering relief materials etc.

The purpose of this software is to improve the efficiency in management of both relief camps and collection centres. This software helps the users (Collectors, Staffs, Admin) to make timely decisions based on the data collected by the system. It also helps to keep track of all details of inmates in camps, Stocks of relief materials in various collection centres, logs of transfer of materials between different collection centres and relief camps etc.

**1.2 GOAL OF THE PROJECT**

The goal of this project is to computerize the activities of relief camps and collection centres allowing the efficient use of available staffs while also reducing manual handling delays or errors. This software will also keep stock details of products, manage orders for camps individually and allow the government officials to readily access the data necessary for purposes such as rehabilitation of previous inmates. Traditionally, it may need 10-20 staffs to manage a camp or a collection centre. But this system will utilise less number of members and therefore help the government in utilising the remaining staffs for other activities.

**2.1 STUDY OF SIMILAR WORK**

There are some similar systems in use now-a-days. Most of them are partially automated. They mostly rely on tools like Microsoft Excel. In 2019, during the Flood situation in Kerala, some college students along with volunteers under the supervision of Trivandrum District collector developed an application for Relief Camp management. But that software was confined to use only for Trivandrum District. It has no provision for management of Collection Centres. Another similar application is the one developed by the Government of Haryana during Covid-19 pandemic time. This application was also intended to store details of people staying in quarantine. Some states like Kerala and Tamil Nadu used social media platforms to coordinate inventory management during disaster times, and this caused a lot of problems due to the distributed nature of the medium.

**2.1.1 EXISTING SYSTEM**

Similar systems exist, but in partial form. Most of them are done manually or partially automated. They use physical log books or tools like Microsoft Excel for data storing and basic manipulations. But this system is less productive and time consuming. The number of persons needed to manage this type of system is large, at the time of disasters, the number of personnel available will be less. The distributed nature of the medium will cause many problems.

In the existing system, the details of persons in relief camps are maintained in physical log books which is done by collectorate staff. If any authorities need any data (ex: How many persons are there in this camp, of which how many of them are children?) regarding the camp, they have to contact the collectorate staff who is in charge of the camp, the staff checks the records and responds back. This is a time consuming and painstaking process, as it is done by humans the results are error prone. The data changes from time to time, but there is no provision for the authorities to know the details in real time.

There is no such existing system available for the management of relief materials collection. There is no log book regarding how much items we received or how much stock of each item is present etc. As requests for relief materials come from camps, the staff in charge of the collection centre will check whether the items are present, and supply the goods as per the request. There is no stock management system available which makes the work of the collectorate staff much harder. There is no record about how much stock they have received or how much stock they have distributed among camps. There is a chance of misuse of goods received in this case.

**2.1.2 DRAWBACKS OF EXISTING SYSTEM**

There are many drawbacks for the existing system. Some of them are

1. Manual and time staking process, which is prone to errors and mismanagement
2. No provision for knowing details in real time
3. Lots of manpower needed. At the time of disasters, the availability of staffs will be less
4. There is no proper system available for collection centre management
5. No internal communication system available. They have to rely on Email systems or other communication devices for transfer of information
6. Establishing proper procedures is difficult in the existing system

**3.1 PROPOSED SYSTEM**

**‘Relief Camp Management System’** is defined as a software application that aims to automate the functionalities of Relief Camps and Collection Centres. This application provides information about various relief camps operating for rehabilitation of the people and also helps to manage supplies collected from donations through different collection centres functioning around the state or provided by the government and move them between the camps to ensure that there is no shortage in essential supplies in any relief camp. Main functionalities of this system are Relief Camp Management and Collection centre Management. The main users of RCMS are District Collectors, Collectorate staffs and the System Administrator.

System Administrator handles the overall working of the system. Administrator is in charge of managing details of different collectors and collectorate staff. Administrator is the one who adds, edits or deletes the details of collectors and other staffs when needed. He is also in charge of adding details of relief items.

In this proposed system, collector is one of the main users. He is in charge of adding new collection centres and relief camps. While a collector adds details of a collection centre or a relief camp, he will assign a collectorate staff as the centre in charge. Collector can view details of different relief camps operating in his district and the number of persons admitted in each relief camp. There is a dashboard in this system which shows the exact number of people in the camp based on different criteria like the number of males or females, or the number of adults, children etc. After the calamity the collector has the privilege to close any working relief camp. He can also reopen a closed relief camp. This is the same in case of collection centres. Collection centres are intended to collect donations of relief materials from public. The relief materials that are collected is distributed among different camps. Collectors can start a collection centre and assign a collectorate staff as in charge. He can also view the stock of different items in a particular collection Centre. He can compare the requested number of items with the actual stock of that item in collection centres and approve the request.

The main role of the collectorate staff is to manage the different activities at the relief camp or collection centres. In relief camp, he/she is in charge of adding details of each and every member of a camp. If a camp member leaves the camp, the staff will update the details of the member. The staff is in charge of ordering relief materials for the camp. In collection centres, the main role of collectorate staff is to enter details of each relief material according to different categories as specified by the administrator. He/she is also in charge of dispatching the items according to relief item request that is approved by the collector.

**3.2 HIGHLIGHTS OF PROPOSED SYSTEM**

This proposed system has many highlights

1. Automates the management of Relief Camp and Collection centres, thereby reducing time and making it devoid of errors.
2. Helps in decision making as the data is available to officers in real time
3. Less number of personnel needed compared to the existing system.
4. Stock management provision helps effective working of Collections Centres
5. Data Dashboards in our system helps officers to make smarter, data-driven decisions.
6. This system will ensure that proper procedures are maintained.
7. Every activity in the system is logged.

**3.3 FUNCTIONS OF PROPOSED SYSTEM**

* Manage user- The administrator can add/edit/delete users
* Management of relief camp- Relief activities require materials and logistics management.
* Managing collection centre- Manage supplies collected from donations through different collection centres.
* Managing stock- Stock management provision helps effective working of collection centres.
* Appointment of staff- The staff in-charge of a relief camp manages the details of inmates and also releases the relief materials according to the request.

**3.4 REQUIREMENTS SPECIFICATION**

System analyst tasks to a variety of persons to gather details about the business process and their opinions of why things happen as they do and their ideas for changing the process. These can be done through questionnaires, details investigation, observation, collection of samples etc. As the details are collected, the analyst studies the requirements data to identify the features the new system should have, including both the information the system produces and operational features such as processing controls, response times, and input output methods. Requirement specification simply means, ‘Figuring out what to make before you make it’. It determines what people need before you start developing a product for them. Requirement definition is the activity of translating the information gathered into a document that defines a set of requirements. These should accurately reflect what the consumer wants. It is an abstract description of the services that the system should provide and the constraints under the system must operate. This document must be written so that the end user and the stakeholder can understand it. The notations used for requirements definition should be based on natural languages, forms and simple intuitive diagrams. The requirements fall into two categories: functional requirements and non-functional requirements.

The requirements of specification of the proposed system are as follows:

1. Real time data should be available
2. Less no of personnel should be needed to work on the system
3. Centralized Database should be there
4. Simple and effective User Interfaces
5. Capability to handle large amounts of data
6. Minimum time needed for various processing
7. User Friendly
8. Simple system so that the staff needs only less training
9. Provisions for upgradation of the system in future
10. Cost effective

**3.5 FEASIBILITY STUDY**

Feasibility study is made to see if the project on completion will serve the purpose of the organization for the amount of work, effort and the time that is spent on it. Feasibility study lets the developer foresee the future of the project and the usefulness. A feasibility study of a system proposal is according to its workability, which is the impact on the organization, ability to meet their user needs and effective use of resources. Thus, when a new application is proposed it normally goes through a feasibility study before it is approved for development. The document provides the feasibility of the project that is being designed and lists various areas that were considered very carefully during the feasibility study of this project such as Technical, Economic and Operational feasibility. The following are its features:

**3.5.1 TECHNICAL FEASIBILITY**

The system must be evaluated from the technical point of view first. The assessment of this feasibility must be based on an outline design of the system requirement in the terms of input, output, programs and procedures. Having identified an outline system, the investigation must go on to suggest the type of equipment, required method developing the system, of running the system once it has been designed.

Technical issues raised during the investigation are:

* Is the existing technology sufficient for the suggested one?
* Can the system expand if developed?

The project should be developed such that the necessary functions and performance are achieved within the constraints. The project is developed within the latest technology. Though the technology may become obsolete after some period of time, due to the fact that newer versions of the same software supports older versions, the system may still be used. So there are minimal constraints involved with this project.

Here the system, ‘**Relief Camp Management System**’ is technically feasible. Any updates can be added according to the user’s feedback. For example, we can add users like the Chief Minister’s Office (C.M.O) who have full privilege over the system in future.

**3.5.2 OPERATIONAL FEASIBILITY**

This project, **‘Relief Camp Management System’** is beneficial only if they can be turned into information systems that will meet the operating requirements of the organization. This test of feasibility asks if the system will work when it is developed and installed. This project satisfies all the operational conditions in the way that the customer’s needs are satisfied.

**3.5.3 ECONOMIC FEASIBILITY**

The developing system must be justified by cost and benefit. Criteria to ensure that effort is concentrated on project, which will give the best, return at the earliest. One of the factors, which affect the development of a new system, is the cost it would require.The following are some of the important financial questions asked during preliminary investigation:

* The costs conduct a full system investigation.
* The cost of the hardware and software.
* The benefits in the form of reduced costs or fewer costly errors.

Since the system is developed as part of project work, there is no manual cost to spend for the proposed system. Also, all the resources are already available, it gives an indication that the system is economically possible for development.

For running of **‘Relief Camp Management System’**, there is no need for highly system configuration. The important factor is that the remote system must have an internet connection.

**3.5.4 BEHAVIORAL FEASIBILITY**

This includes the following questions:

* Is there sufficient support for the users?
* Will the proposed system cause harm?

The project would be beneficial because it satisfies the objectives when developed and installed. All behavioural aspects are considered carefully and conclude that the project is behaviourally feasible.

‘**Relief Camp Management System**’ is a flexible and user-friendly software for automation of all activities of Relief Camp and Collection centres. The system is easy to use because navigations and operations are simple, needs less training and is behaviourally feasible.

**4.1 HARDWARE REQUIREMENTS**

Processor : Intel i3 or higher

Speed : 2.8 GHz

RAM : 4 GB or higher

Hard disk : 200 GB or higher

Monitor : 15 VGA colour

Keyboard : USB / Wireless Keyboard

Mouse : USB / Wireless Mouse

**4.2 SOFTWARE REQUIREMENTS**

Operating System : Windows O.S (Windows 7 or higher)

Language Used : C#

Database : SQL Server

IDE : Visual Studio 2012

**4.3 TOOLS AND PLATFORM**

We have developed this software using C# programming language in Dotnet platform using Microsoft visual studio 2012 as Integrated Development Environment (IDE).

**4.3.1 MICROSOFT VISUAL STUDIO**

Microsoft Visual Studio is Microsoft's flagship software development product for computer programmers. It centres on an integrated development environment which lets programmers create standalone applications, web sites, web applications, and web services that run on any platforms supported by Microsoft's .NET Framework (for all versions after 6). Supported platforms include Microsoft Windows servers and workstations, PocketPC, Smartphones, and World Wide Web browsers.

Visual Studio includes the following:

* Visual Basic (.NET).
* Visual C++.
* Visual C#.
* Visual J#.
* ASP.NET.

Express editions of Visual Studio have been released by Microsoft for lightweight streamlined development and novice developers. The Express editions include:

* Visual Basic (.NET) 2012 Express Edition.
* Visual C# 2012 Express Edition.
* Visual C++ 2012 Express Edition.
* Visual J# 2012 Express Edition.
* Visual Web Developer 2012 Express Edition.

Visual Studio 2012, codenamed Whidbey, was released online in October 2012 and hit the stores a couple of weeks later. Microsoft removed the ".NET" moniker from Visual Studio 2012 (as well as every other product with .NET in its name), but it still primarily targets the .NET Framework, which was upgraded to version 2.0. Visual Studio 2012's internal version number is 8.0 while the file format version is 9.0.

Visual Studio 2012 was upgraded to support all the new features introduced in .NET Framework 2.0, including generics and ASP.NET 2.0. The IntelliSense feature in Visual Studio was upgraded for generics and new project types were added to support ASP.NET web services. Visual Studio 2012 also includes a local web server, separate from IIS that can be used to host ASP.NET applications during development and testing. It also supports all SQL Server 2012 databases. Database designers were upgraded to support the ADO.NET 2.0, which is included with .NET Framework 2.0. C++ also got a similar upgrade with the addition of C++/CLI which is slated to replace the use of Managed C++.

Other new features of Visual Studio 2012 include the “Deployment Designer", which allows application designs to be validated before deployments, an improved environment for web publishing when combined with ASP.NET 2.0 and load testing to see application performance under various sorts of user loads.

Visual Studio 2012 also added extensive 64-bit support. While the development environment itself is only available as a 32-bit application, Visual C++ 2012 supports compiling for x86-64 (AMD64 and Intel 64) as well as IA-64 (Itanium). The Platform SDK included 64-bit compilers and 64-bit versions of the libraries.

Visual Studio 2012 is available in several editions, which are significantly different from previous versions: Express, Standard, Professional, Tools for Office, and a set of five Visual Studio Team System Editions. The latter are provided in conjunction with MSDN Premium subscriptions, covering four major roles of software development: Architects, Software Developers, Testers, and Database Professionals. The combined functionality of the four Team System Editions is provided in a Team Suite Edition.

Express Editions were introduced for amateurs, hobbyists, and small businesses, and are available as a free download from Microsoft's web site.

**4.3.2 Microsoft Visual C#.Net**

By design, C# is the programming language that most directly reflects the underlying Common Language Infrastructure (CLI). Most of C#'s intrinsic types correspond to value-types implemented by the CLI framework. C# was created as an object-oriented programming (OOP) language. Other programming languages include object-oriented features, but very few are fully object-oriented.

C# differs from C and C++ in many ways, including:

* There are no global variables or functions. All methods and members must be declared within classes.
* Local variables cannot shadow variables of the enclosing block, unlike C and C++. Variable shadowing is often considered confusing by C++ texts.
* C# supports a strict Boolean type, bool. Statements that take conditions, such as while and if, require an expression of a Boolean type. While C and C++ also have a Boolean type, it can be freely converted to and from integers, and expressions such as if(a) require only that a is convertible to bool, allowing a to be an int, or a pointer. C# disallows this 'integer meaning true or false' approach on the grounds that forcing programmers to use expressions that return exactly bool prevents certain types of programming mistakes.
* In C#, pointers can only be used within blocks specifically marked as unsafe, and programs with unsafe code need appropriate permissions to run. Most object access is done through safe references, which cannot be made invalid. An unsafe pointer can point to an instance of a value-type, array, string, or a block of memory allocated on a stack. Code that is not marked as unsafe can still store and manipulate pointers through the System.IntPtr type, but cannot dereference them.
* Managed memory cannot be explicitly freed, but is automatically garbage collected. Garbage collection addresses memory leaks. C# also provides direct support for deterministic finalization with the using statement.
* Multiple inheritance is not supported, although a class can implement any number of interfaces.
* C# is more type safe than C++. The only implicit conversions by default are safe conversions, such as widening of integers and conversion from a derived type to a base type. This is enforced at compile-time, during JIT, and, in some cases, at runtime. There are no implicit conversions between Booleans and integers and between enumeration members and integers (except 0, which can be implicitly converted to an enumerated type), and any user-defined conversion must be explicitly marked as explicit or implicit, unlike C++ copy constructors and conversion operators
* Enumeration members are placed in their own namespace.
* Accessors called properties can be used to modify an object with syntax that resembles C++ member field access. In C++, declaring a member public enables both reading and writing to that member, and accessor methods must be used if more fine-grained control is needed. In C#, properties allow control over member access and data validation.
* Full type reflection and discovery is available.

**Features of C#:**

* + - * C# is simple.
      * C# is modern.
      * C# is object-oriented.
      * C# is powerful and flexible.
      * C# is a language of few words.
      * C# is modular.

**4.3.3 MICROSOFT SQL Server 2000**

Microsoft SQL Server 2000 is a full-featured relational database management system (RDBMS) that offers a variety of administrative tools to ease the burdens of database development, maintenance and administration. SQL Server 2000 is a powerful tool for turning information into opportunity. The following are more common tools provided by SQL server.

* + - * **Enterprise Manager** is the main administrative console for SQL Server installations. It provides us with a graphical “birds-eye” view of all ofthe SQL Server installations on our network.
      * **Query Analyzer** offers a quick method for performing queries against any of our SQL Server databases. It’s a great way to quickly pull information out of a database.
      * **SQL Profiler** provides a window into the inner workings of your database.
      * **Service Manager** is used to control the MS SQL Server (the main SQL Server process), MSDTC (Microsoft Distributed Transaction Coordinator) and SQL Server Agent processes.
      * **Data Transformation Services** provide an extremely flexible method for importing and exporting data between a Microsoft SQL Server installation and a large variety of other formats.

The following are some of the features of SQL Server:

* + - * + **High Availability:** Maximize the availability of our business applications with log shipping, online backups, and failure clusters.
        + **Scalability:** Scale our applications up to 32 CPUs and 64 gigabytes (GB) of RAM.
        + **Security:** Ensure you applications are secure in any networked environment, with role-based security and file and network encryption.
        + **Distributed Partitioned Views:** Partition your workload among multiple servers for additional scalability.
        + **Data Transformation Services:** Automat
        + e routines that extract, transform, and load data from heterogeneous sources.
        + **Simplified Database Administration**: Automatic tuning and maintenance features enable administrators to focus on other critical tasks.
        + **Improved Developer Productivity:** User-defined functions, cascading referential integrity and the integrated Transact-SQL debugger allow us to reuse code to simplify the development process.
        + **Application Hosting**: With multi-instance support, SQL Server enables us to take full advantage of your hardware investments so that multiple applications can be run on a single server.

**SQL** is the set of statements that all programs and users must use to access data within the database. Application programs in turn must use SQL when executing the user’s request. The benefits of SQL are:

* SQL is a non-procedural language.
* It provides automatic navigation to the data.
* It provides statements for a variety of tasks.

SQL is a query and is not without any structure. It is more than English or any other language. It has rules for grammar and syntax but they are basically the normal rules and can be readily understood. The SQL stands for Structured Query Language. The SQL statements can be classified as:

1. **Queries:** It always begins with the keyword SELECT and is used to retrieve the data from the database in any combination or in any order.
2. **Data Manipulation Language (DML):** The purpose of DML is to change the data in the database. Basically, a data in the database can be changed or manipulated in 3 ways. They are:

INSERT: inserting new rows in the database.

UPDATE: updating an existing row in the database.

DELETE: Deleting existing rows from the database.

1. **Data Definition Language (DDL):** The main purpose of DDL is to create, modify and drop the database objects namely relation, index, view, trigger etc.
2. **Data Control Language (DCL):**  This is used to provide privacy and security to the database. The DCL statements allow the user to give and take privileges, which are needed for guaranteed controlled data sharing.