DWIT COLLEGE

DEERWALK INSTITUTE OF TECHNOLOGY

Tribhuvan University

Institute of Science and Technology

LOG KEEPER

A PROJECT REPORT

Submitted to

Department of Computer Science and Information Technology

DWIT College

In partial fulfillment of the requirements for the Bachelor's Degree in Computer Science and Information Technology

Submitted by

Pratik Budhathoki

August, 2016

DWIT College

DEERWALK INSTITUTE OF TECHNOLOGY

Tribhuvan University

LETTER OF APPROVAL

This is to certify that this project prepared by PRATIK BUDHATHOKI entitled **"LOG KEEPER"** in partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Information Technology has been well studied. In our opinion it is satisfactory in the scope and quality as a project for the required degree.

………………………………… Sarbin Sayami [Supervisor] Assistant Professor IOST, Tribhuvan University	………………………………………… Hitesh Karki Chief Academic Officer DWIT College
………………………………….. Jagdish Bhatta [External Examiner] Academic designation IOST, Tribhuvan University	………………………………………….. Rituraj Lamsal [Internal Examiner] Lecturer DWIT College

ACKNOWLEDGEMENT

Tribhuvan University

Institute of Science and Technology

STUDENTS'S DECLERATION

I hereby declare that I am the only author of this work and that no sources other than the listed here have been used in this work.

… … … … … … … …

Pratik Budhathoki

Date: August, 2016

ABSTRACT

Log keeper is a web application which is developed for the proper log management of the work done in a project. The primary objective is to supervise the work of the project members and help in the pricing of the project on hourly basis. The application also intend to help supervise the assigned work and the status of the project. The payment for the project members will be automatically calculated by the application itself. This application fits in to any organization which has to supervise the project members closely and pay them on hourly basis. This application can prove to be very helpful to ay project manager who has multiple projects to manage and many project members to supervise.

Keywords: Log Keeper, supervise.

TABLE OF CONTENT

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

1. DFD – Data Flow Diagram
2. HTML – Hypertext Markup Language
3. CSS – Cascading Styles Sheet
4. CRUD- Create/Read/Update/Delete
5. ER – Entity Relationship
6. CPM – Critical Path Method
7. DFD – Data Flow Diagram

CHAPTER 1: INTRODUCTION

Log management system is a web application which keeps log of the working of a person on projects. This application maintains a proper record of every projects and the people involved in it. It helps in tracking of a project status and project completion. Allowing users to view the projects on the basis of involved members and project manager the application provides transparency between manager and member. This gives a brief overview of the projects and what it does and finally calculate the total wedges of the project members on the basis of the work log and on hourly basis. Initially the idea of the product came when students were asked to log their work after they completed building their product. It was very confusing for the students about who to log their work then. So, to remove that problem students can use log keeper to plan their project in the application itself and start working by keeping their log. The application is also useful for the organization which pays its staffs on hourly basis. They can remove the use of paper log keeping system with this application as this application is easy to used implement. Since the application is accessed using a web browser and person who uses internet won't find this application difficult to use. Also helping with assigning task and supervising them the application stands out from google sheet and the paper log keeping system.

1.1 Problem Definition

As there are many projects under a single project manager they may not be able to provide equal time to each and every projects. The task division and their supervision also may be inefficient. On the other hand a single person may be involved in multiple projects. They may not be able to keep track of works assigned to them in various projects. On the other hand the projects members and the project managers will have a very difficult time when they have to fix the price of the project according to their task and time spent on the project. Since the members will do their work and also complete it without realizing how much time they have spent on doing the work.

These days the colleges have also started to provide projects to the students and pay them for their work on the basis of the hour spent in doing the project. To keep track of the project progress and the daily time spent on doing the project they generally relay on the online sheets. This has created gap between project managers and members since the project manages can only view the log of the students but cannot assign the work and check if the work is completed. As there is no verification mechanism, if any new person adds their name in the sheet and starts feeling their log then they may be counted too. If a project manager wants to view members on the basis of the projects then it is very tedious task as the sheet of all the projects and their members are kept in the same sheet. There is no standard mechanism of assigning a task to a project member. They are generally assigned verbally. By this there is a high chance of forgetting the task which will lead to poor work performance. After assigning task the project manager doesn't know how well a member is preforming. There exists a trend of assuming that the project member who is previously recognized by project manager does a good job and others are just ok. This is not how it is supposed to be. The projects members must be evaluated on the basis of the work they do and how they do, not by the familiar and unfamiliar faces. This kind of action highly affects the mentality of the project members how really work hard and is never appreciated.

1.2 Objective

- To maintain a proper log of work for efficient pricing and supervision respectively
- To remove gap between project manager and member by providing transparent interface

1.3 Scope

The log keeper application has good scope in those organizations where the employee are paid on the basis of the hour they have worked. The application is a web application and does not include a mobile version.

1.4 Limitation

The application is not effective for those companies where the payment is done according to the contracted salary. Also the application may not be able to calculate the pricing of the overall project. The study specifically focuses on Deerwalk Institute of Technology so it may not exactly if in to other colleges and organizations.

1.5 Report Organization

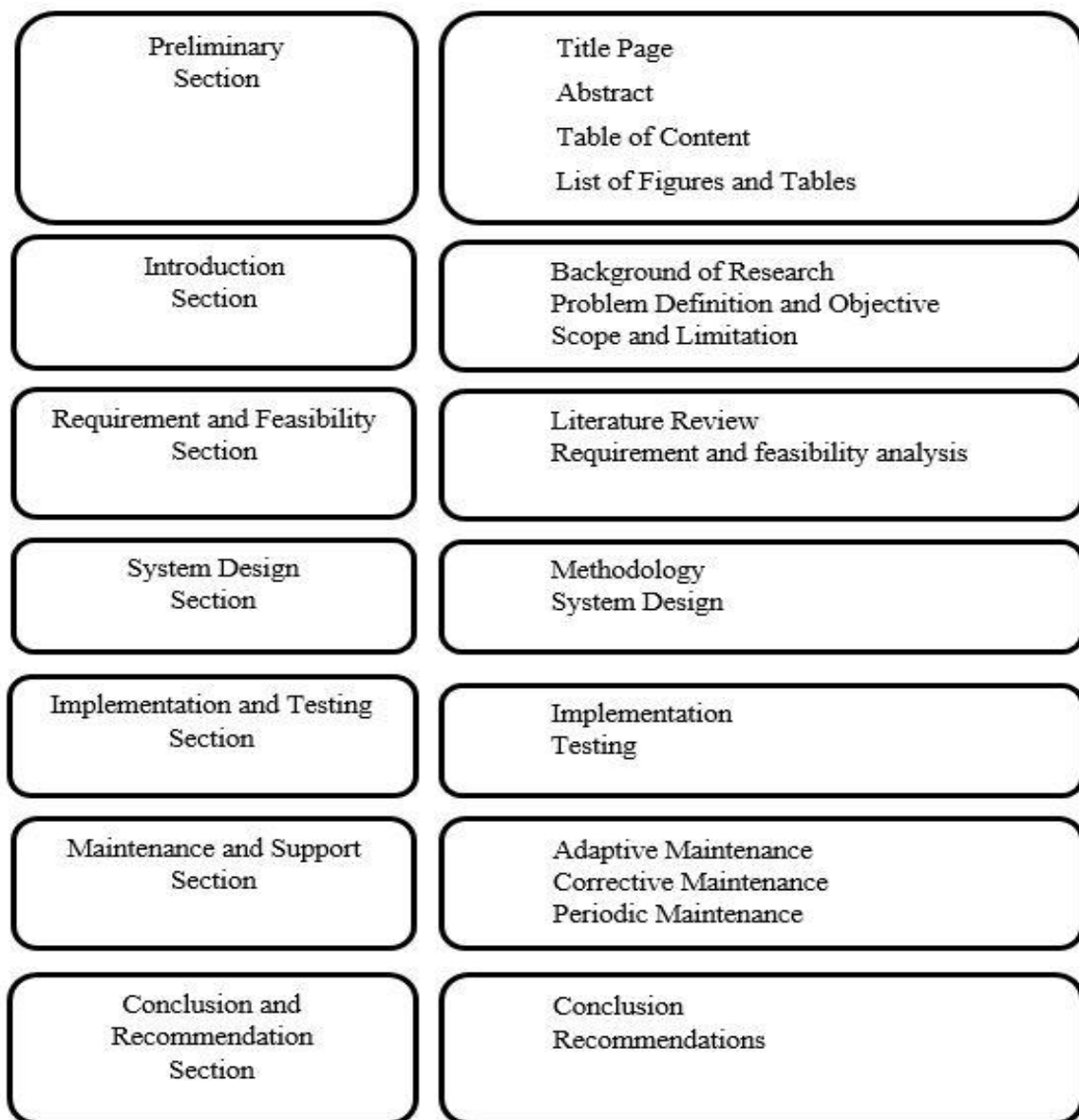| Preliminary Section	Title Page
	Abstract
	Table of Content
	List of Figures and Tables
Introduction Section	Background of Research
	Problem Definition and Objective
	Scope and Limitation
Requirement and Feasibility Section	Literature Review
	Requirement and feasibility analysis
System Design Section	Methodology
	System Design
Implementation and Testing Section	Implementation
	Testing
Maintenance and Support Section	Adaptive Maintenance
	Corrective Maintenance
	Periodic Maintenance
Conclusion and Recommendation Section	Conclusion
	Recommendations

Figure 1: report organization

CHAPTER 2: REQUIREMENT AND FEASIBILITY ANALYSIS

2.1 Literature Review

2.1.1 Stages for electronic log

According to Tom Bray to manage electronic log we have to go through various stages. "While electronic logging devices (ELDs) are nothing more than "very accurate logs," the switch to an electronic logging system will impact all departments and all phases of your operation. It must be handled as a significant change, using a change management process approach"

- prepare for change
- selecting an ELD System
- system implementation considerations

The preparation phase includes several key steps. The first critical step is determining that your "future state" should look like. What do you need the device and system to do? In a perfect world, what would the system be capable of doing for you? How "driver-friendly" do you want/need the future state to be? How "staff-friendly" do you want/need the system to be? Do you want the system to do more than simply record hours-of service information? These are all issues you need to address up front. You should make the system as simple as possible so that very less technical knowledge is need in order to use the application and every one can use it very easily.

(Tom Bary, 2010)

2.1.2 Best practices for log management

Today, log management is an organizational requirement, demanding comprehensive functionality that extends beyond data collection to encompass normalization, analysis, reporting, and disaster-proof archival.

Best practices for log management:

- Making log data usable in a normalized, searchable format.
- Reviewing and analyzing log data regularly. Log data will not help you achieve your goals if it is not examined regularly; for compliance purposes, this is a requirement.
- Ensuring secure transmission and storage of log data. Log data is as sensitive and as any of your other enterprise data and the same care you exercise with other types of data should be exercised with your log data.
- Archiving data according to relevant data retention policies, including provisions for the appropriate level of data protection – for example, off-site storage.
- Challenges for the log management can be:
- Recent compliance mandates require not only that you collect all logs, but also that they be reviewed regularly, are searchable, and are stored in their original, unaltered, raw form for mandate-specific timeframes.

(Alert Logic Inc., 2011)

2.1.3 Searching for log management

Searching is the primary way to access information in all of the logs, including logs from custom applications. Search is indispensable for investigative use of logs, log forensics, and finding faults while using logs for application troubleshooting. A clean and responsive interactive search interface is thus essential for a log management system.

Log indexing or parsing is a key component of a log management system. Indexing can speed up searches literally by a factor of a hundred. Indexing technology creates a data structure called an index that allows very fast keyword type searches and Boolean type searches across the log storage. Sometimes indexing is used to enable other full text analysis techniques.

(Dr Antom Chuvakin, 2011)

2.1.4 General requirements

More and more organizations today are recognizing that log and event data can provide a wealth of intelligence information about the entire enterprise IT environment. Especially as regulations continue to get more complex and organizations face increasingly sophisticated

and targeted attacks, the need to know what is happening on your network, and within your systems and applications, is essential. To meet this challenge, organizations must build an enterprise competency in log (event) management, including developing best practices, establishing an infrastructure and deploying technology solutions. The volume of log data organizations must analyze and retain is constantly increasing and retention periods are becoming longer. Therefore, solutions for log management must incorporate an information lifecycle management (ILM) strategy; which ensures that the data will be managed efficiently and effectively from creation to deletion. RSA provides solutions for building centrally manage. To build an infrastructure for log management that will lay the foundation for comprehensive security information and event management, an organization should consider the following categories of requirements:

- General requirements
- Log generation and capture
- Log retention and storage
- Log analysis

The general requirements for log management can be:

- Provides high and consistent performance

  The RSA enVision platform wasdesigned to deliver high and consistent performance and match the demands of organizations from small businesses to large enterprises. It collects, manages and analyzesAll the Data™ from sources across the entire organization.

- Enables a distributed deployment

  With RSA enVision technology, multiple components including the collectors, database servers and application servers can be distributed across an organization's networks, even across the globe. Log and event data flows from the devices, systems and applications to the local data collectors, where the raw data (packaged and secured) reside.

- Ensure parallel analysis and storage

  The log management system should supports real-time alerts and at the same time, is reliably retaining all of the log data as it is collected so that the data will be available later for compliance reporting, audits or forensic analysis

(ComProSec AG, 2009)

2.1.5 Fields for work log sheet

Fields to be included in a work log sheet can be:

- **Department**: the department where the employee works

- **Date**: When the work was done

- **Employee Name:** The name of the employee who is recording his work activities on the log sheet.

- **Supervisor's Name:** The name of the supervisor or manager to whom the employee reports, as per work hierarchy

- **Start/Stop Time:** In the free work log sheet provided with this article, the time slabs are for half an hour each. The employee is required to fill in the work activities performed by him using these time slabs. However, since most tasks cannot be completed in half an hour, instead of writing the same work activity on each time slab, the employee can just cover the time slabs over which the task continued with a vertical line and put the task name just once against it.

- **Task Performed:** The names of the tasks that were performed during the course of the day, like client meetings, preparing reports, etc. There is no need to get too descriptive about the work performed – just a word or two that describes the task is sufficient.

- **Equipment or Resources Used:** The names of the main equipment or resources that were used to perform the task, if any, can be added in this field of the work log sheet.

- **Final Remarks**: This field is again optional. If the employee has some important remarks to leave about the task, they can be added here.

- **Signatures**: Every work log sheet must be signed by the employee as well as the supervisor.

   Employers should encourage employees to complete the daily work log sheets and entrust the supervisors with the task of collecting them from all their subordinates on a daily basis.

(http://www.brighthubpm.com/templates-forms/89299-keep-track-of-employees-work-with-these-free-printable-log-sheets/)

2.2 Requirement Analysis

2.2.1 Functional requirements

The application should be able to perform following functionalities.

Manage user profile

The application should manage users profile according to the user role. There will be two roles project manager and project member so these two roles should have individual profile and the actions they can perform and they cannot should be identified.
 Request for the project
The project members can send request for the project involvement. Once the request in accepted then only they can get access to the projects log sheet.

Accept/reject request

The project members sends the request to the project manager to join the project and the project manager has to accept or reject the project request. Accepting the request will include the person in the project and rejecting wont.

View projects according to user

One can view all projects where a specific user is involved in by clicking on their name.

Assign task

Project managers can assign task to the project members. This is an essential feature of the application. This allows the project manager to supervise a project member.

Status of task

When the task is assigned to a member. The status of the task is running by default and when the task is completed the member can change the status to complete.

Maintain Work Log

Member can maintain their work log according to the time spent working. Once the log is maintained it cannot be edited.

Use Cases
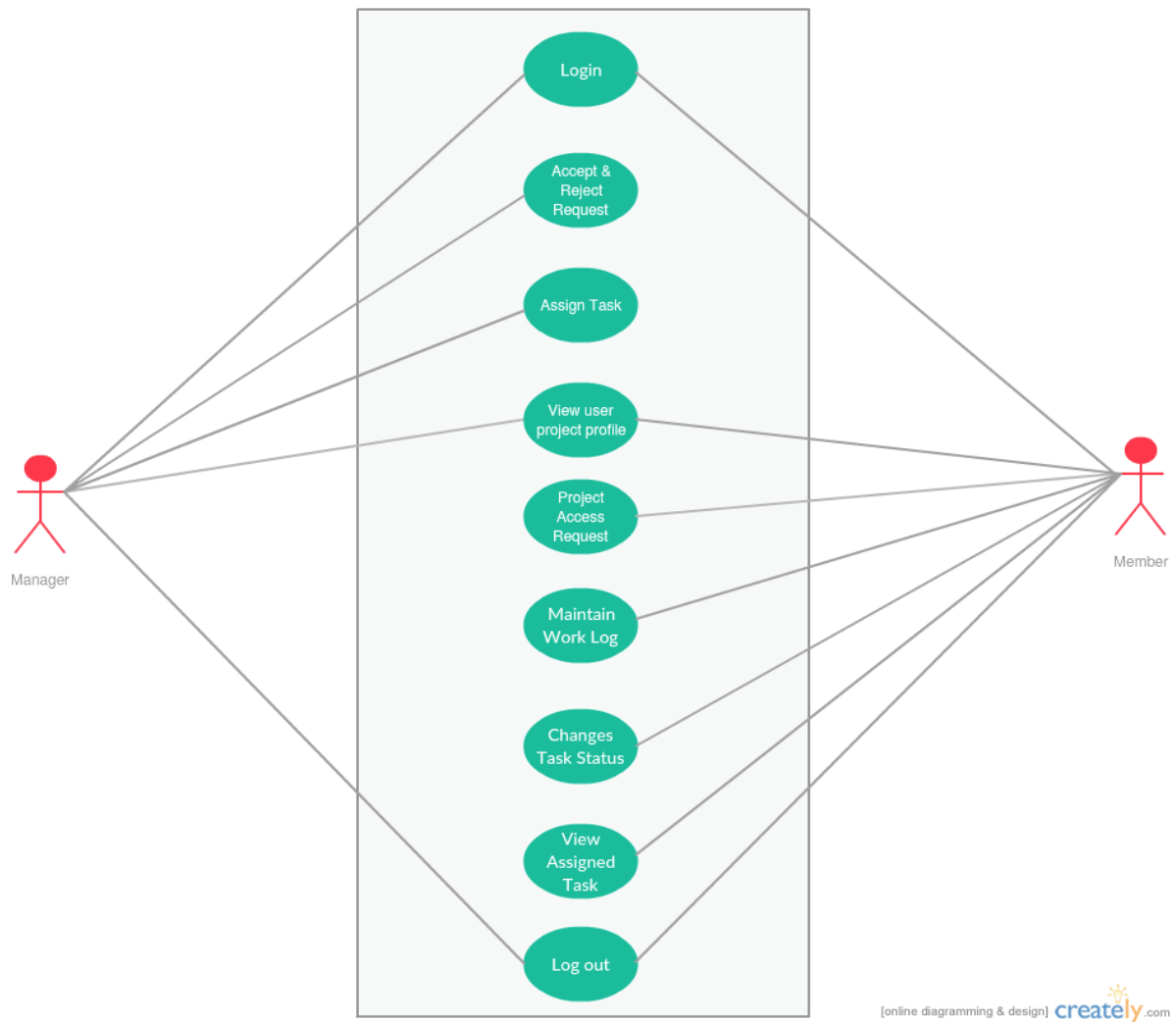
Figure 2: used case diagram of the log keeper application

The used case in Figure 1 describes the roles of manager and the member. It describes that the member can login/logout, view users project profile, send project access request, maintain work log, change task Status from on going to completed and view assigned task. On the other hand the manager also can login/logout view user project profile, accept and reject requests for the project and assign task to the members.

2.2.2 Non-Functional Requirements

Availability

The application is available only inside the organizations network where it is being used. This is restrict the public assess and a user should mandatorily be connected to the organizations network.

Security

This applications security is very essential if the log gets changed the wrong payment maybe done which may not be in the profit of the organization.

Maintainability

The development of the application is done in clean manner so the application is highly maintainable.

Portability

The application seems to be portable as long as the person is connected to the organizations network which is using it.

2.3 Feasibility Analysis

2.3.1 Schedule feasibility

The Figure 2 describes the CPM diagram for the log keeper application. This figure states the six major states of the application development and the time limits for the stages to be completed. In the very figure it is stated that the requirement collection will be the first stage. This is to be started on day 0 at early and day 5 at the latest. The task will need 10 days to complete. Followed by two parallel stages analysis and documentation. The analysis has to start on day 15 at early and day 20 at latest. This task will take 15 days to complete. On the

other hand the documentation will go parallel and will take 85 and will be started on day 15 at earliest and day 20 at latest. This stage will be followed by mock up design which will take 15 days to get completed and start early at 45 or latest at 50. Then the stage Design will start earliest at 65 and latest at 75 and will take 25 days to complete finally the testing will be started early at day 100 and latest at 110 and will take 25 days.
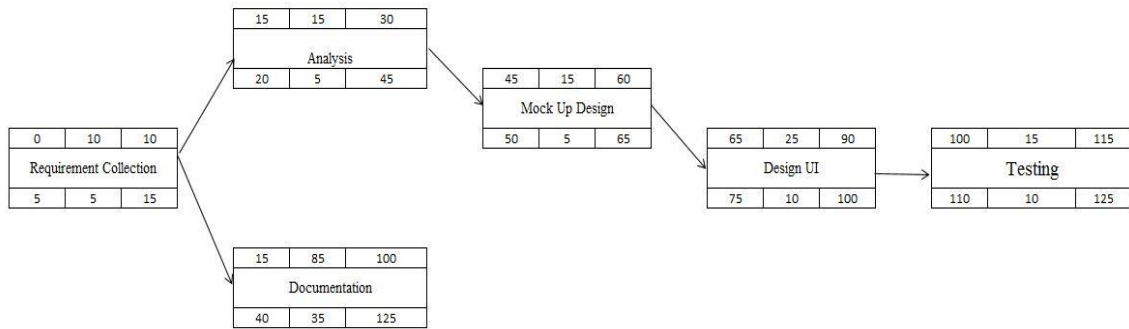

Figure 3: CMP Diagram for log keeper application

2.3.2 Operational feasibility

The applications is a web based application so any device which has a connection to the network and has the minimum hardware requirement is feasible to run this application. This application will need to have 24/7 running server in order to access the application any time in the organization network.

The only time when the application will not be operational is when the server down and the connection with the server is lost

2.3.3 Technical feasibility

The application is designed to work on the desktop class devices which meets the minimum hardware requirements of working in a network. A normal web server which runs 24/7 is enough for hosting the application and a device which supports the networking applications will be able to run the application. There is no specific platform for the application to run. It

can run on any iOS, windows or Linux operating system meeting the minimum hardware requirements.

CHAPTER 3: SYSTEM DESIGN

3.1 Methodology

3.1.1 Requirements finding

Before starting to develop the application the requirements for the application is identified. This provides us with the clear concept of the application and help us in the development phase. This is the most vital stage of development without the requirement gathering it is impossible to start developing the application. As the requirement gathering gives us the clear idea about what to develop this stage is mandatory for all the application development process.

3.3.2 Algorithm used

Create, retrieve, update and delete (CRUD) refers to the four major functions implemented in database applications. The CRUD functions are the user interfaces to databases, as they permit users to create, view, modify and alter data. CRUD works on entities in databases and manipulates these entities. Any simple database table enforces CRUD constraints. Create, Retrieve, Update and Delete are the four major procedures used in the development of the application. Tables were filled with data which were retrieved from table updated and deleted too. Whenever new data was created it was inserted into the table. For the process flow and working of the application the data were retrieved. To change the status of the task assigned and other processes where values were to be changed the update operation was implemented and finally when the request was rejected and other processes the data were deleted too.
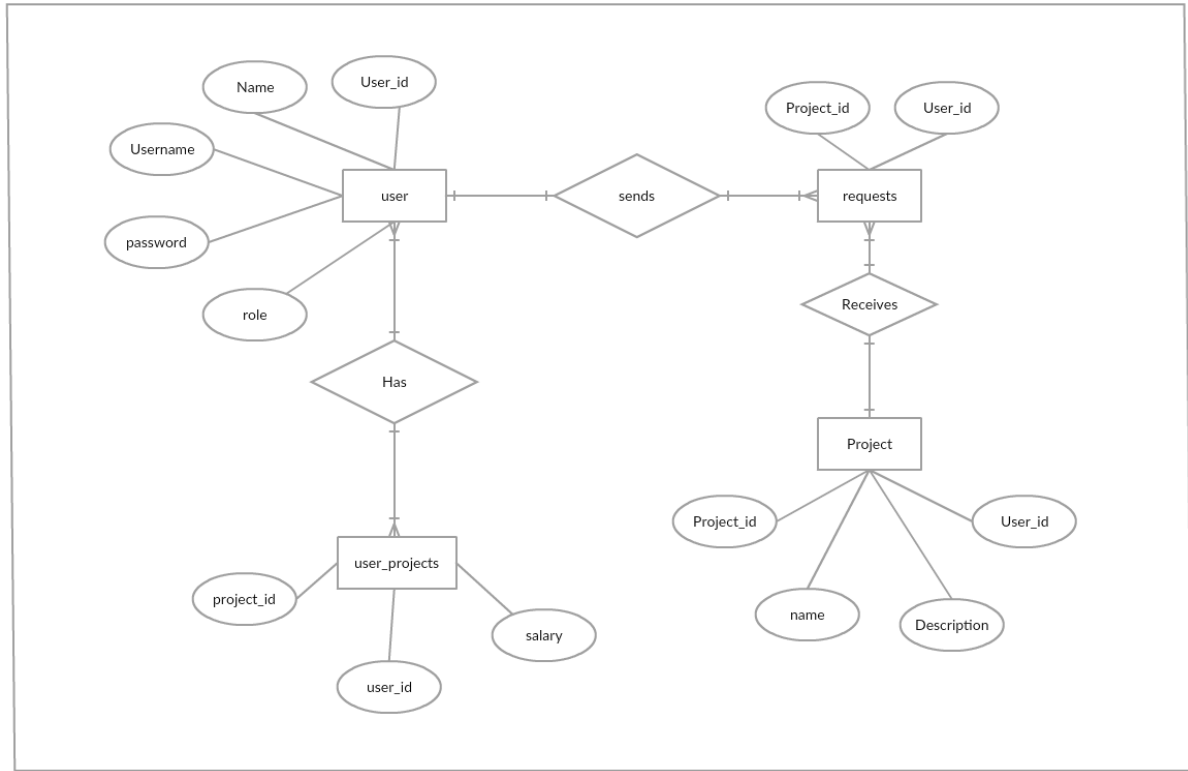
3.2 System Design

3.2.1 Data modeling

Figure 4: ER Diagram of the log keeper application

As the Figure 3 states we have four entities project, request, user and user_projects. The project entity has four attributes project_id, description, name and user_id. The request entity has two attribute project_id and user_id. Similarly user attribute has four attributes password, user_id, role and name and user_project has three entities project_id, user_id and salary. A single project can receive multiple requests and a single user can send multiple requests, and as single user can have multiple user_projects since a single member can be involved in multiple projects.
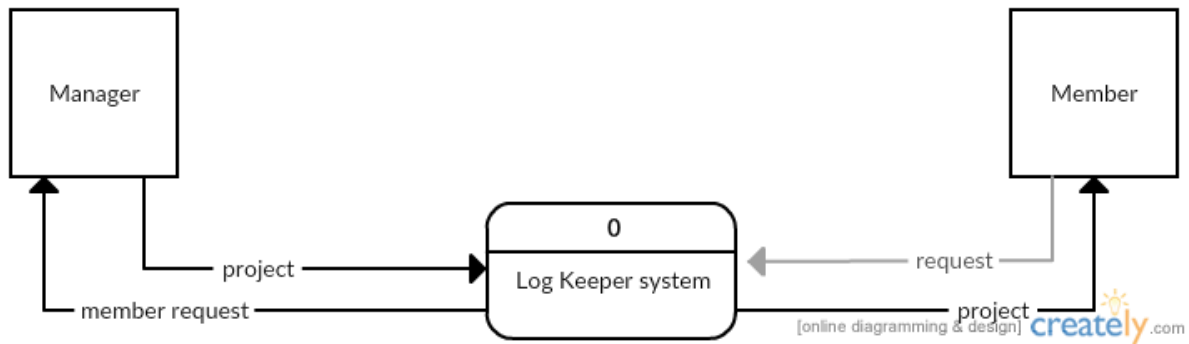
3.2.2 Process modeling

Level 0 DFD

Figure 5: Level 0 DFD of log keeper application

The Figure 4 describes the level 0 DFD of the application. The manager can add project to the application, the added project can then be viewed by the members. The members can send request for the project to the system. This request is now presented to the respective manager by the system.

Level 1 DFD
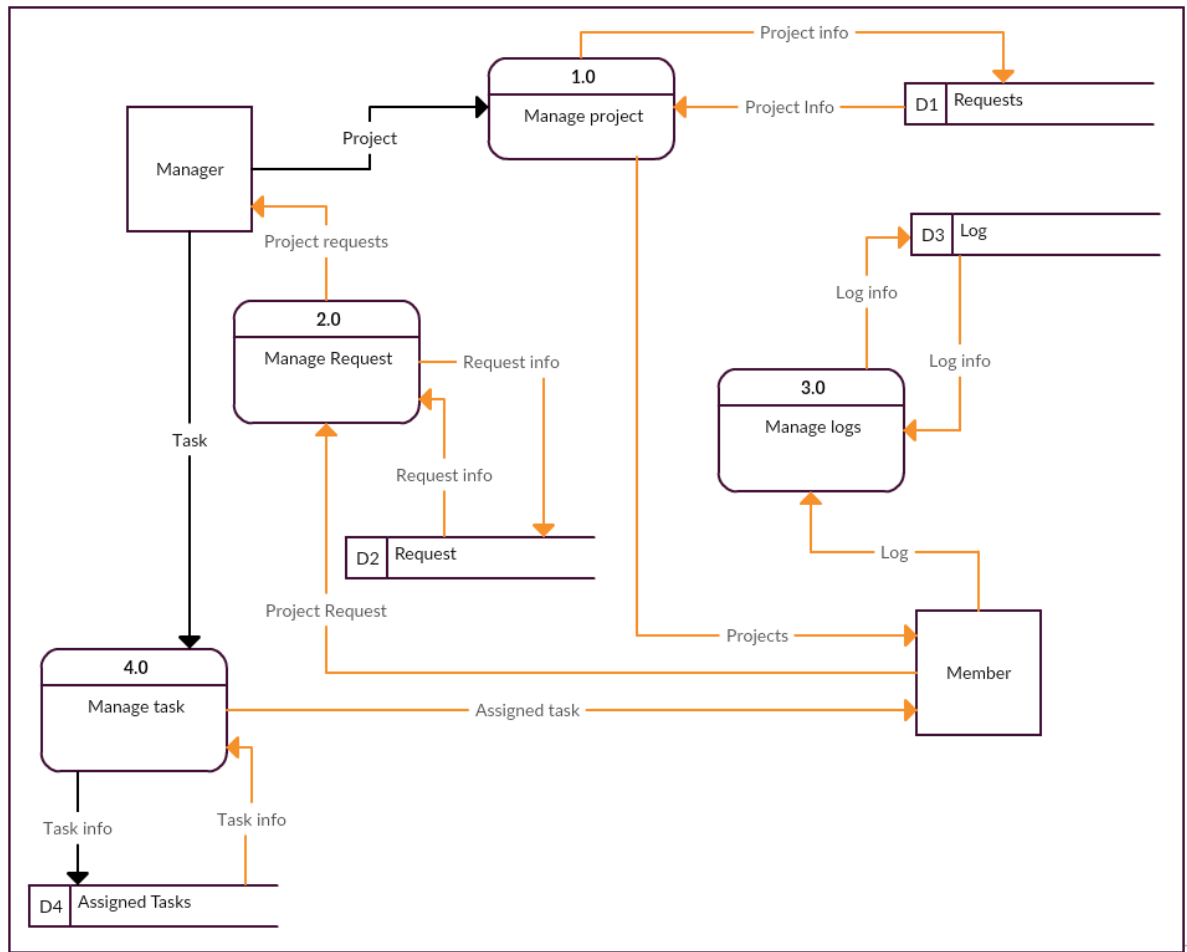
Figure 6: Level 1 DFD of log keeper application

The Figure 5 describes Leve 1 DFD diagram of the log keeper application. The figure describes that the manager can add project in the system. The project is then viewed by the member. Member can now send request for the project. The manager can accept or reject the project request. Another is log manager, the members can manage their work log. Each projects, requests, logs and tasks have their own database.

CHAPTER 4: IMPLEMENTATION AND TESTING

4.1 Implementation

The log keeper is a web based application so to implement this a web server is used. The application is setup in the server. Now to access the application a user must be connected to the network connected to the server. After getting connected to the server the user can access the application by hitting the url in the web browser. This way the application is implemented and can be accessed.

4.1.1 Tools used

Php language

 For the development of the application PHP language is used. It is used for the development of logics and the backend development.

Html/css

Html/css is used in the project for the development purpose. All the pages of the application is designed using this language. The contents are included ad add using the html language and are designed using css.

PHP Strom

 PHP strom is a software development too. It is used for the development of log keeper application. All the backend and frontend work are done using this application.

Creately

Creately is online diagram maker. Using this application the logical diagrams of the log keeper application are made.

MySQL

MySQL is a database management system this is used for storing and retrieving data. In log keeper application it is hugely used. It is a vital part of the application. All the applications data are stored using this database management system

4.1.2   Description

The following functions are the php functions used for getting the name and username of the user. getName function is for the getting the name and getUserName for getting the username of the user.

```php
function getName($user_id, $conn){
//   $conn = null;
    $UserName = $conn->query("select name from user where user_id = $user_id");
while($name = $UserName->fetch_assoc()){       return $name["name"];
    }
}


function getUserName($user_id, $conn){
//   $conn = null;
    $UserName = $conn->query("select username from user where user_id = $user_id");
while($username = $UserName->fetch_assoc()){       return $username["username"];
    }
}
```

4.2 Testing

Table 1: Test case of log keeper application

Test case id	Test cases	Preconditions	Input test data	Steps to be executed	Expected results	Actual results	Pass/ fail
1	Test if user is able to login successfully.	The user is registered	correct username, correct password	1)Enter correct username and password on the respective fields 2)click login	User must successfully login to respective page	The user was successfully logged in to respective page	Pass
2	Test if unregistered users is not able to login to the site	The user is not registered	incorrect username, incorrect password	1)Enter incorrect username and password on the respective fields 2)click login	User not found was displayed	User not found displayed on top right corner	Pass
3	Test if the project can be added	User must be on managers landing page	Project name and description	1)Click on add project 2)Enter project info 3)Click add	The project name should be displayed on the landing page	The project name was displayed on the landing page	Pass

4	Test if project request can be send	User is viewing list of projects		1)Hover on a project name 2)Click add button	The request pending must be shown on managers page	Request pending message was shown on managers page	Pass
5	Test if the requests can be accepted	The user is viewing request table	-	1)Click on the accept button	The accepted user should be able to view project on users landing page	The accepted user was able to view project on users landing page	Pass
6	Test if the user can assign task	The user is viewing the project members table	Message describing the task	1) Click on assign task button 2) Enter the task. 3)Click Assign	The assigned user should be able to view the task above the log sheet	The assigned user was able to view the task above the log sheet	Pass
7	Test if the user can change status of the task	User is on the log sheet page	-	1)Click on status button	The status should be changed from ongoing to completed	The status was changed from ongoing to completed	Pass

CHAPTER 5: MAINTENANCE AND SUPPORT

5.1 Adaptive Maintenance

This kind of maintenance is done to catch up with the existing systems and technologies. This will be performed this to be competitive in the market. If any competing application similar to my application is coming in the market then my application may lag behind. So to maintain the status of my application and most impotently to be update adaptive maintenance will be performed. This maintenance is also important for the survival of the application.

5.2 Corrective Maintenance

Corrective maintenance is done to correct any problem occurs. This states how and when the application will be maintained. So, if any error occurs in the hosted application then a copy of application from the server will be kept and maintain the error and then replace the server's application with the corrected once. This maintenance will be performed as soon as the informed about the error is received.

5.3 Periodic Maintenance

Periodic maintenance is a time based maintenance. This consists of periodically inspecting, servicing and cleaning equipment and replacing parts to prevent sudden failure and process problems. So to perform this maintenance in my application. The status of the server will be regularly checked, its power backup and the condition of the server in regular time interval which generally will be 2 weeks.

CHAPTER 6: CONCLUSION AND RECOMMENDATION

6.1 Conclusion

So, by using simple CRUD operation we now have a system which can maintain, the projects, log of project members, assign task to the members and supervise them. The application is now also able to calculate the monthly salary of the project members on hourly basis.

Now this application ready and meets the requirement of the current situations. It can be used by any organization which pays its employee on hourly basis and has to closely supervise them.

6.2 Recommendations

This application is able to calculate the salary on the basis hours that the member has worked for the project but the application cannot price the entire project according to the nature of done. If this feature is included in the project then it would be better. The application allows the project manager to assign task to the project members but it does not state the complexity of the work. If the complexity of the work is also included then the evaluation of the project member can be done even precisely. The application can even be improved if the project managers also has the work log to maintain. It can always be a bonus feature of the application.

REFERENCES

(2016, 7 1). Retrieved from

       http://users.csc.calpoly.edu/~jdalbey/206/Assign/HowToTestCase.html

AG, C. (2010). *End-to-End Solution to Enable Log Management Best Practices*, 2 - 7.

Bray, T. (2011). How to transition sucessfully from paper to electronic logs. *Eld Change Management*, 2 - 6.

Bright Hub pm. (2011). Retrieved from Bright Hub pm: http://www.brighthubpm.com/templates-forms/89299-keep-track-of-employees-work-with-these-free-printable-log-sheets/

Chuvakin, D. A. (2009). *The complete guide to log and event Management*, 3 - 4.

Inc, A. L. (2009). The benefits of automated log management. *log management best practices*, 3 - 7.