Project and Team Handler (PTH)

Mohammad Abed Alhameed Alhabashneh

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Sammanfattning

Ingen svensk sammanfattning finns då denna uppsats skrivits av en engelskspråkig student. Se "Abstract" for mer detaljer (på engelska).

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Summary

There is always a need for easy-to-follow processes that enable accurate and non-time consuming solutions. Nowadays we see a lot of different approaches to development processes in software engineering. This project is concerned with how to manage a software development process in a reliable, secure and efficient way. Software is available which provides some help for project managers / administrators to work more productively, with effective communication. Using such systems, it is possible to keep track of all the phases of development, including task distribution, making maximum use of previous hands-on experience and increasing productivity, to deliver a finished product in minimum time. No existing solution, however, fulfills all the desirable criteria.

This paper describes the motivation, design and implementation of an improved development management system using Active Server Pages and Microsoft Internet Information Services with a backend Microsoft Access Database developed using a waterfall software development process. The resulting system is described and evaluated. This system will be beneficial for software houses, because they can communicate on the web, allowing efficiency gains by avoiding the need to call meetings for distribution of tasks among employees, with the additional advantage of location-transparent team management through the Internet.

Innehållsförteckning

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Abstract

There is always a need for easy-to-follow processes that enable accurate and non-time consuming solutions. Nowadays we see a lot of different approaches to development processes in software engineering. This project is concerned with how to manage a software development process in a reliable, secure and efficient way. Software is available which provides some help for project managers/administrators to work more productively, with effective communication. Using such systems, it is possible to keep track of all the phases of development, including task distribution, making maximum use of previous hands-on experience and increasing productivity, to deliver a finished product in minimum time. No existing solution, however, fulfills all the desirable criteria.

This paper describes the motivation, design and implementation of an improved development management system using Active Server Pages and Microsoft Internet Information Services with a backend Microsoft Access Database developed using a waterfall software development process. The resulting system is described and evaluated. This system will be beneficial for software houses, because they can communicate on the web, allowing efficiency gains by avoiding the need to call meetings for distribution of tasks among employees, with the additional advantage of location-transparent team management through the Internet.

1. Introduction

The project management is a big issue nowadays like the software technology support centre reports that "An analysis of approximately 250 large software projects between 1995 and 2004 shows an interesting pattern. When comparing large projects that successfully achieved their cost and schedule estimates against those that ran late, were over budget, or were cancelled without completion, six common problems were observed", which are following below in the table 1:

Table 1, Opposing major factors in study analysis, shows six major factors noted at opposite ends of the spectrum in terms of failure versus success as they were revealed in the study analysis [1].

Successful Projects	Failing Projects
Effective Project Planning	Inadequate Project Planning
Effective Project Cost Estimating	Inadequate Cost Estimating
Effective Project Measurements	Inadequate Measurements
Effective Project Milestone Tracking	Inadequate Milestone Tracking
Effective Project Change Management	Ineffective Changes Control
Effective Project Quality Control	Inadequate Quality Control

Its very important field and issue for the big companies for handling especially their big projects which are running at the same time. The "Effective project tracking is hard. Capers Jones reports that "software progress monitoring is so poor that several well-known software disasters were not anticipated until the very day of expected deployment" ("Patterns of Large Software Systems: Failure and Success," *IEEE Software*, March 1995)[2]. After assessing 59 sites between 1987 and 1993, the Software Engineering Institute found that 75 percent of the sites needed to improve their project tracking and oversight (David H. Kitson and Stephen Masters. "An Analysis of SEI Software Process Assessment Results, 1987-1991," *Proceedings of the Fifteenth International Conference on Software Engineering*, IEEE Computer Society Press, 1993)" [2]. Mostly the upper management cannot check the progress of their employees/team members that what they are doing and how much they did their work it means the overall progress of the employees/team members. Also they will not call the meeting again and again for explanation because they can manage their self on internet or LAN/WAN or through by sending emails. And they will not waste their important time because some times it not possible to arrange a meeting in short period and the messages are not too important for example; project manager is sending the message to the testing department for checking the flow of project, is that ok or not. So due to less time and more task/work its hard to manage the team members/ employee in the form of documentation so here we need such a system which will provide the automated reports and record keeping.

Nowadays companies or project managers are facing the different kind of problems for managing

the project especially in big companies and projects. We researched on different kind of solutions which are available in the market but the problem which we got that they are not facilitating all of our given facilities to the end users.

The cause of the development of this software is just to facilitate the company employees in an effective way. In the effective way we can communicate with our employee/team members through internet because it's a web based application which we made. We searched several soft wares but they were costing the money from the user or some of them are not web based like the Microsoft project manager. So we designed this software for web users who can access their employee from any where. This project team handler is providing the different facilities in which project manager can communicate with his team member and assign them their tasks. The major idea behind this that if for example you project manager is out of country and he will get some project he will not waste time and will communicate with his team and assign task before coming. Here in this project team handler we can also assign multiple tasks and see their progress of our employee/ team members in graphical shape. Also the main focus is on assigned work by the team leader and this software will be helpful for the team leader because every time he can keep the documents of his employee and team leader should have some software on the web or in the shape of desktop application where he/ she can see the previous record of different developers. So that we can get more work very efficiently because every employee knows that his team leader/project manager/ company is checking his progress. This web software is providing the security through login.

This application Project and Team Handler would be beneficial solution for most of the software companies to keep track of software development stages to till end testing phase.

In the above we shortly discussed them that what are their working and which kind of software or systems they are providing to the market. This all above is about the basic theory but here is a question that how we can communicate efficiently between the team members. So they normally waste their timing on the meetings or calling to each other. So, the need of this software is to facilitate the different personals within the Team and also the project manager.

A lot of existing solutions are providing different kind of software and ideas in which we want to discuss some of them. For example HI-TEK Ltd. which is providing the facilities for managing the projects in the schools and clubs etc [3]. This company is providing software for the team manager. This software is facilitating to the team managers for managing their team and checks their performance. The company, Scorebook.com is providing the facility for keeping your records on team level and administrator is handling this [4], Process Impact is focusing of practical software process improvement and their mission is to collaborate with clients to have an impact on the process of their software organization for helping their business [5], Wikipedia foundation Inc., having the research paper about the project management activities in which they have planning the work, estimating resources, assigning task, report progress, analyze the results, organizing the work. The United states of America now working on the Military Project Process after the cold war [6], Hyper Office Company, by using hyper office software we can assign our tasks and project status and create tasks and also create project and their management [7]. The Hyper office can also do the import and export of the different tasks, management of tasks and arranging the different task in task list and this company is having the maximum same idea of our implemented project. Web systems Inc., is proud to introduce Ace project – the next generation of high level project management software solutions for today's corporate improve you organization productivity [8]. But they are giving the facilities in their software like manage the tasks, charts of tasks, manage multiple users in one time, evaluate of performance of team work but on the other hand they are not providing some features which we have i.e. our system is providing the testing system which will check all the task before deployment of the project. And also our system will inform the developer about these bugs and will generate the ID of that bug like in the form of Alerts.

In the above we shortly discussed them that what are their working and which kind of software or systems they are providing to the market. This all above is about the basic theory but here is a question that how we can communicate efficiently between the team members. So they normally waste their timing on the meetings or calling to each other. So, the need of this software is to facilitate the different personals within the Team and also the project manager.

Here in this paper we are giving the overall idea and then we are discussing all about this implemented project and functionality. After that we are categorizing into two categories. In the first is methodology where all talk about three tier model and way of implementing like tools etc and second part is overall system example named how system works. After this on the basis of our discussion we got some results which are presenting in the form of screen shots of project with some of their description and also the features of the implemented system. And then we got some conclusion which is satisfying the abstract and telling the truth about the implemented system that what the bad and good things we did are. In the

future section we are planning that what we will do in future for enhancement of this.

2. Design and Implementation

This project implementation is based on web for connecting people of an organization. The reason for the web-based approach is that it will be easy to access from anywhere like inside the office or outside the office rather than installing desktop based client application. By implementing on we based there would be no issue of operating system compatibility etc. It would run on and standard browser. There would be a single web site with different areas for each category described above in dummy web links. There would be nothing to install any desktop based application. Just web pages will run under virtual directory will create in IIS (Internet Information Server) or application can be hosting online such ASP hosting for example www.mohammadproject.com etc. But our focus is to run this application in house coz here is nothing to share with public or visitors of web site. It's all concerned with organizational activity. But after this paper sees the proper documentation of the software as a help of developed software which will also available on internet free of cost.
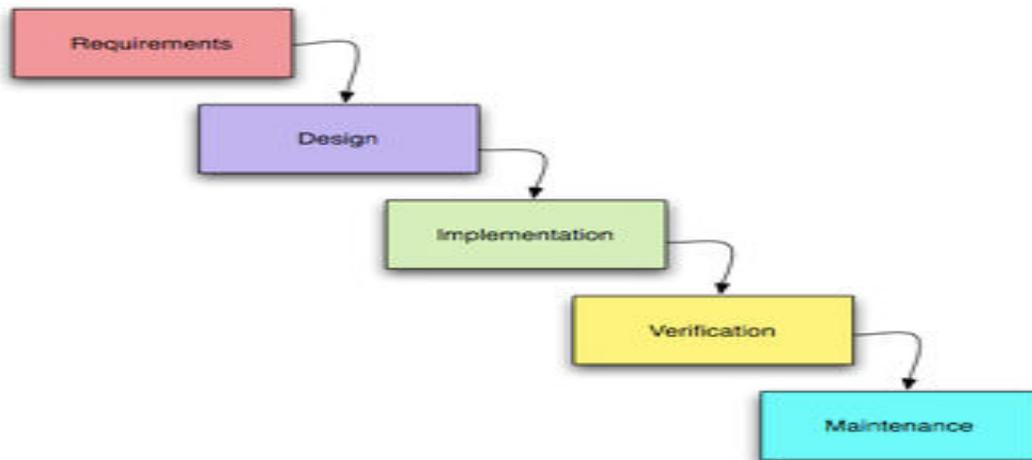

Figure 1, shows the flow of waterfall model on different phase levels [1]

We used Waterfall approach for the development of this system because by using this approach we did our wok step by step means in the phases. The waterfall model is a software development model (a process for the creation) in which development is seen as flowing steadily downwards just like a waterfall, through the different phases which are given above in the figure1.

This above waterfall model is also having a major benefit that we can fix our program design on the early stages because otherwise its hard to change after few weeks. Time spent early on the software production can lead to greater economy later on in the software life cycle [9,10.,11]. Because if the bug found in the early stages of production which is the beneficial thing.

We also used the Unified Modeling Language (UML) for our system drawings because the UML is a very important part of developing object oriented software and the software development process[12]. UML uses normally the graphical notations to express the design of software projects [13]. So by using the UML we can easily communicate with each other and also explore potential designs, and validate the architectural design of the software [13]. For designing our system we used the tool of Rational Rose 2001and after that data modeler was used for the database designs. Before going in the detail we want to explain here the short brief of the system sequence on system level in figure 2 (overview of the system):

Overview of System
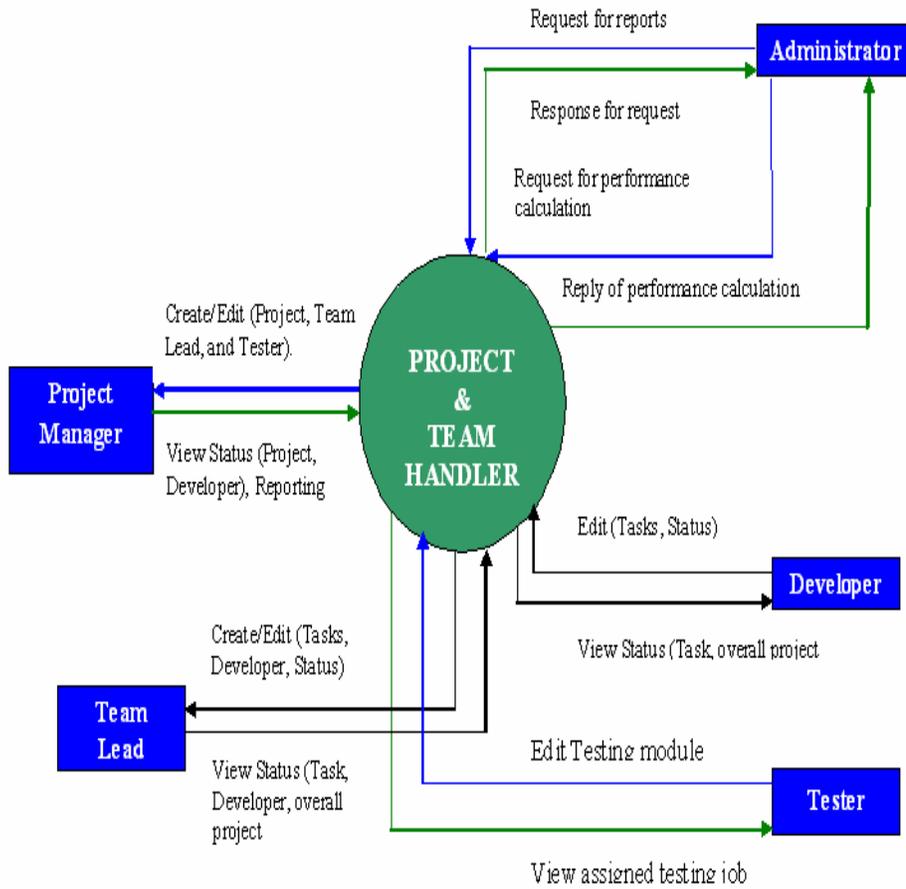
**Figure 2, shows the flow of our overall
implemented project**

2.1 Detail of the existing system

The details are following below of the existing system:

2.1.1 Actors of Research / Project

1) HR/Admin Manager
2) Project Manager
3) Team Lead
4) Developer
5) Tester

2.1.2 Roles of Actors

Of course every actor has no of roles to perform. Technically referee to use cases. List of uses you can find below.

2.1.3 Roles of HR / Admin Manager

The HR/ Admin Manager can perform different kind of roles in which Register Project Manager, to get report from project manager about current project status, to keep monitoring the daily/ weekly,
monthly, even yearly performance of developer, team lead and project manager Others.

2.1.4 Roles of Project Manager

The Project can perform different kind of roles like to register team lead, to create project, to select team lead to assign project, to decide start and expected end date of project and also can send alert through alert module to any one about announcing or an important issue to whole team including team leads, to get report from team lead about current project status, to keep monitoring the daily/ weekly, monthly even yearly performance of developer/ team lead, to keep track of all assigned task by team lead to developer, to create Tester from testing department, to assign the done task by developer for test to tester and to keep track of all tasks which are done/pending by tester.

2.1.5 Roles of Team Lead

The Project can perform different kind of roles like to register Developer, to create multiple task/jobs of assigned project by project manager (purpose to split the project in phases), to select

developer to assign defined task/job (example: Registration Module of job recruitment agency), to decide start and expected end date/time of task/job and can send alert through alert module to any one about announcing or an important issue to whole developers under team name, to get report of current project status and developer's performance, to keep monitoring the daily, weekly, monthly even yearly performance of developer and to keep track of all assigned task to developer.

2.1.6 Role of Tester

The Project can perform different kind of roles like to GUI testing etc of assigned modules done by developer and to give assurance of module done by developer.

2.1.7 List of Use Cases under HR/Admin Manager

The Project can perform different kind of roles like to login, to edit profile, to change password, to create/Edit Project manager, to view all registered project managers and their working status, to view all registered team leads and their working status, to view all registered developers and their working status, to view all registered testers and their working status, to view open/close projects, to view all tasks under each project title, to view all testing jobs/task under each project title, to view overall performance/efficiency of developer graphically and mathematically, to view overall performance/efficiency of team lead graphically and mathematically, to view overall performance/efficiency of project manager graphically and mathematically, to view overall performance/efficiency of tester graphically and mathematically, to set increment to all members, to reporting module, to searching module to search specific project, task, member, testing job etc and sign out.

2.1.8 List of Use Cases under Project Manager

The Project can perform different kind of roles like to login, to edit profile, to change password, to create team lead, to create/Edit project, to view open/close projects, to view all project's status, to search specific project, to create/edit

team lead, to view team leads, to send alert to team lead for announcement or important issue, to view developers history and their current status, to send alert to developers for announcement or important issue, to create/edit tester, to assign module to test to specific tester, to view tester and their assigned testing modules, to send alert to tester for announcement or important issue, to reporting module, to check team lead performance graphically, to check developer performance graphically, to check project performance graphically and to sign out.

2.1.9   List of Use Cases under Team Lead

The Project can perform different kind of roles like to login, to edit profile, to change password, to create developer, to create/edit tasks under assigned project by project manager, to delete task, to assign task to each developer, to view open/close tasks under assigned project by project manager, to view all project's status, to search specific task, to view developers under his/her team, to send alert to developer for announcement or important issue, to view developer's history and their current status, to generate overall project report including each task status and completion time by developer, to lock project if all tasks completed and tested, to check reporting module, to check developer performance graphically, to check project performance graphically and to sign out.

2.1.10   List of Use Cases under Developer

The Project can perform different kind of roles like to login, to edit profile, to change password, to full fill tasks under assigned project by team lead, to update daily status of assigned modules/task by team lead, to view own task history and status, to view all project's status, to search specific assigned task, to lock task if complete, to check reporting module, to check personal performance graphically, to check assigned task performance graphically and to sign out.

2.1.11   List of Use Cases under Tester

The Project can perform different kind of roles like to login, to edit profile, to change password, to full fill testing job over assigned module by project manager, to update status of testing module (Done/Not done, Pending), to view own testing modules history, to view all assigned

testing jobs of all modules done by developer, to search specific assigned testing job, to lock testing job if complete, to reporting module, to check personal performance graphically, to check assigned testing task performance graphically and to sign out.

2.2 Methodology

This Project & Team Handler Software is using the three tier model. The detail is given below about the way and technologies[9]:

2.2.1 Application Layer

This layer is depending on Active Server Pages (ASP) and Hyper Text Markup Language (HTML). The front end is designed in ASP and html all the inputs forms and reports are shown by a graphical user interface designed in Microsoft FrontPage.
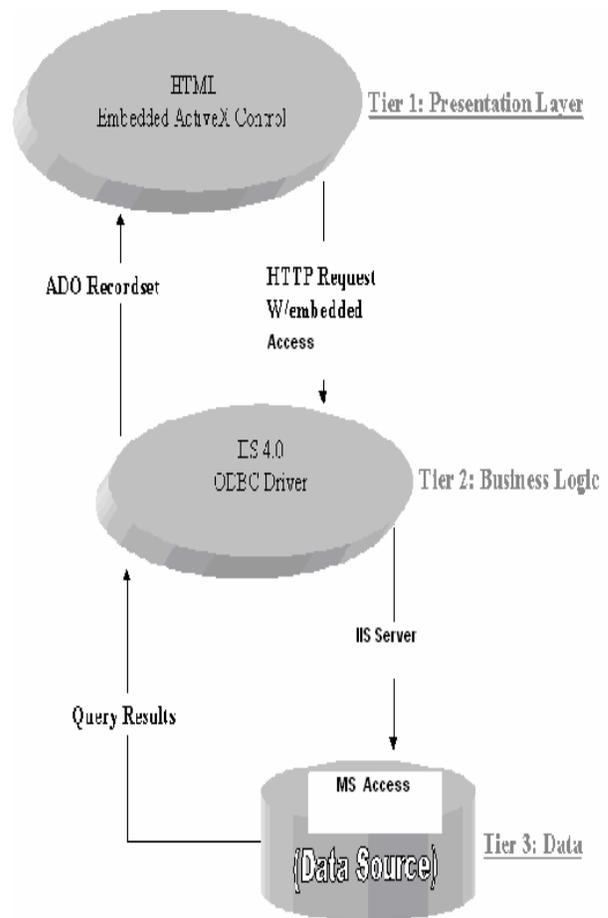

Figure 3, three tier architecture model for tabular database query interface [3].

The ASP is the critical technology for server-side scripting in Microsoft's web strategy]. This technology is used to create and run dynamic, interactive Web server applications. ASP page scripts can be written using VBScript (the default), JavaScript, or other scripting languages [15]. ASP pages are especially useful in creating dynamic interactive Web content that will run on any browser, as all the processing occurs on the server before the resulting Web page is served up to the browser[14,15].

We are using ASP because it is giving some facilities like to run IIS we must have Windows NT 4.0 or later & if to run PWS we must have Windows 95 [23]. But on the other hand we have ChiliASP technology that runs ASP Windows OS and also InstantASP [14].

We choose the ASP due to its features and above said compatibility. The features of the ASP are the like the Dynamically edit, change or add any content of a Web page , to respond the user queries or data submitted from HTML forms, to access any data/databases and return the results on the front end means browser, to customize a web page to make it more useful for individual users. The major advantages to use the ASP instead of CGI & Perl are those of speedy & simplicity [14,15].
It's also providing the security because you cannot see the code. Since ASP files are returned as plain HTML, they can be viewed in any browser and also clever ASP programming can minimize the network traffic [15,23].

2.2.2 Business Logic Layer

This layer is using MS Visual Basic 6.0, MTS (Microsoft Transaction Server), IIS (Internet Information Server) because it "enables the development of Web-based business applications that can be extended over the Internet or deployed over corporate intranets. Internet Information Server integrates with MTS and ASP, and this integration has introduced a new concept to the Internet-transactional applications". [21].

2.2.3 Data Layer

The data layer is using MS Access 2000 for handling the data base. All the record of the items, the sales transactions, the purchase record, the suppliers profile, the stock ups and downs and other miscellaneous records will be kept here. This amount of data is using to analyze the current status of the business and to meet the other requirement of the management [20]. All the procedures, constraints, functions and quarries are implemented [22].

2.2.4 Modeling

The complete documentation of Unified Modeling Language (UML) is implemented by using this tool named Rational Rose2001 [13].

2.2.5 Connectivity

The connectivity will be established through ADODB or by system DSN through ODBC, which is more reliable according to database security point of view [23]. In visual basic script ActiveX data objects are used for this purpose. These objects establish a connect string to the access database server and hence the connectivity takes place.

2.2.6 Back End

For back end we will use Microsoft access for Windows 9x, Windows NT, Windows 2000 server etc. The database is designed in it and the data is updated and stores here physically. The waterfall model approach was followed for the system development [9,18,16]. Requirements gathering process was done to form knowledge about the system. The unified modeling language (UML) was used for system drawings [17,19].

The project would be a web based environment with having centralized database MS-Access with some VB class modules/functions in dynamic page coding. Dynamic pages would be in ASP (Active Server Pages). Visual Basic module or class can be use in ASP. Using ASP, VB Class modules/functions with above mentioned DB are the good solution for implementing my project. Further few javascripts used for front end validation checks. It is user friendly, Microsoft based easy to understand, commonly used for development.

3. Results

The ultimate out came in the form of software for the help of Team Leader as well as for Human Resource Manager. Below are technical details of my research/implementation. Further screen shots as a prototype can define project / research it. Here we are discussing some

important sequence diagrams and screen shots of our developed software.

3.1 Unique Features of our System

Some of the features came resultantly after the implementation of this project which are given below:

1) Project Tracking/Monitoring
2) Calculate performance if task delivered by developer before due date
3) Daily status of work monitored by Team Lead and Project Manager
4) Weekly status of assigned project Monthly status as well Previous completed/done project's history and performance Reporting module by different criteria's HR Manager evolvement focusing on employees performance if he/she finish work before due date
5) Facilitates HR Manager to make such policy or increments/bonus as per feedback of Team Lead and Project Manager
6) Testing Department interaction with project manager and team lead to inform them about assurance of completed module by developer Review of task request by Testing department Overall it would be a communication bridge for solving software development problems

Overall we got the result of our implemented system for example suppose we have software development team consist of six members including team leader. All team members are experienced and have different skills for example system analyst, data base designer, programmer etc. The Team leader will assign different task to each member. Team leader will write a job form and enter such particulars like person name whom to assign a task, get estimated time to complete the task, also specify description of task and get signature of developer so that this job form come under record.

Suppose if these is a need to Developer Registration Module for such Desktop Based Application. Team leader will choose person from team who will over task.

Every task which is assigned by leader should go in the email of developer. And also inform to the developer that what is the time of next meeting and what is his future task by the getting help from task description. And he should know about the task before coming for the meeting.

After filling the form and after conversation, it has come to know that developer will take 6 hours (for example) to complete.

The Registration Module Task – developer has to write code and establish connectivity with back end database. Now at end developer complete the task in 4 hours (for example) not in 6 hours. So, it comes on record that this developer has ability to work on such registration module in 4-hours. It seems to be that he is two hours efficient (6-4 = 2 hours efficient).

Now we come to other side that how this efficiency can be utilize in future coming tasks / project. If some different project come to team and there is also requirement to create a registration module. Now team leader has all record as he saved in job form before in previous project. Now team leader already know that task is same developer for same task (registration module) on this different new project.

Team leaders knows that this task can complete in 4 hours outer than 6 hours because the person is experienced and how's already efficient in this task before. He will write new job form for new project and will mention 4 hours or less to complete the job.

Now what is happening overall cost reducing, man power reducing, time securing, more accurate data and quality on behalf of experience and at result better and efficient solution is less time. One more thing that which is for employee / team member performance which can leads towards senior level.

All these form submitted to the Project Manager at the end, so that he can aware of persons performance. This software will have the access by the Human Resource Department also because they will observe the progress of each developer. And then they will give them the increments pr bonuses.

For better understanding we need to move towards further details. For better understanding project split in few categories like HR/Admin Manager, Project Manager, Team Lead, Developer and the Tester.

The above said material is showing the whole theme of the implemented project. As we came to know that this project is all about software development stages, developer performance over assigned task, team lead performance over assigned project by project manager, admin manager keep track of all designations working over software project. There would be a history module/part project manager can view each and

every employee/team member work done history. Particulars are including like:

1) Previous Project /Task done of specific team member
2) Previous Project/Task done by whole Team
3) To get skill set of specific team member
4) To get skill set of specific whole member
5) To get duration of each task done by member out of estimated time or deadline (Leads towards performance)
6) To get duration of each project done by team ABC out of defined deadline (Leads towards performance)
7) To get No of tasks done by specific member

Testing department is an important role player where developer assures the developed modules by developers. Those tasks done by developer set that status "Work done but waiting for approval by Testing Department". Once during testing get problem in task completed by developer for example "registration module". Testing department will indicate the bug and bug id will generate so that status of task will be change. That will set to "Bug" and "Detailed of Bug". The developer will get notification as well as team lead that task done before got problem so that they can review.

3.2 Illustrated example of system usage

After the system screen shots we are showing some of important screen shots for better understanding of this software, in below:
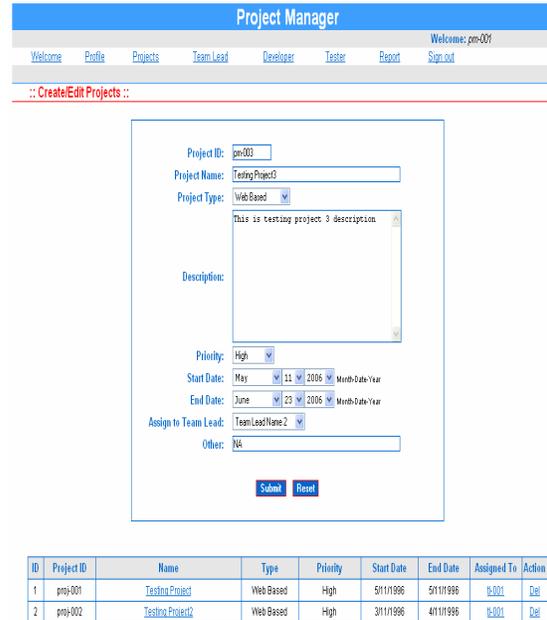
3.2.1 Welcome

The following Figure 4 of welcome is showing the home page and it will come after logging the system.
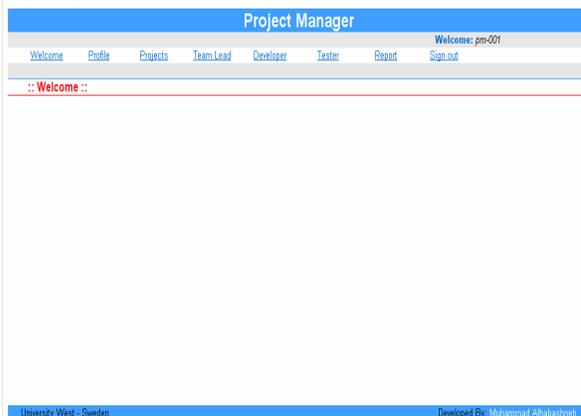
Figure 4, welcome coming from our implemented project.
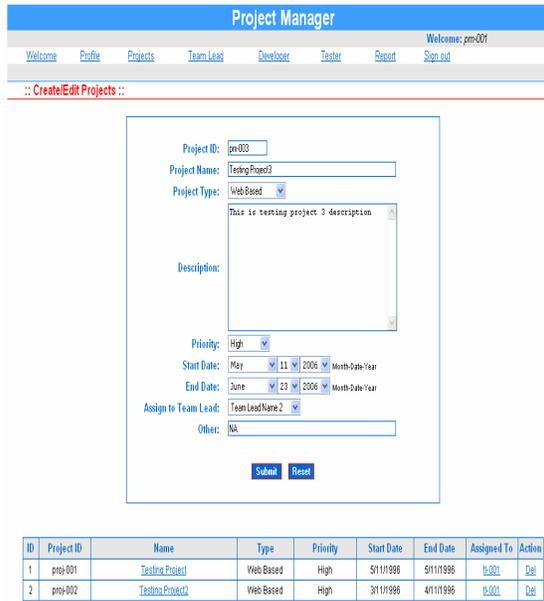
3.2.2 Create Project

This following figure 5 is showing about the projection creation module. From here project manager can create new project and assign to team lead by choosing from combo box.

Figure 5, create/edit coming from our implemented project.

3.2.3 Edit Project

The following figure 6 is showing that we edited here on the above screen shot.

Figure 6, after editing create/edit projects screen shot coming from our implemented project.

3.2.4 Assign Module to Test

The following Figure 7 is showing about the assign test for specific requirement module. For example Project Manager will select the project and associated information will fetch from DB and will display. Now project manager want a person from testing department who will test the software module for example "Registration". He will choose the tester from combo box and will select the module/task name from list which created by team lead after analysis of project. Now he can assign person who will test the requirement specification "Registration"
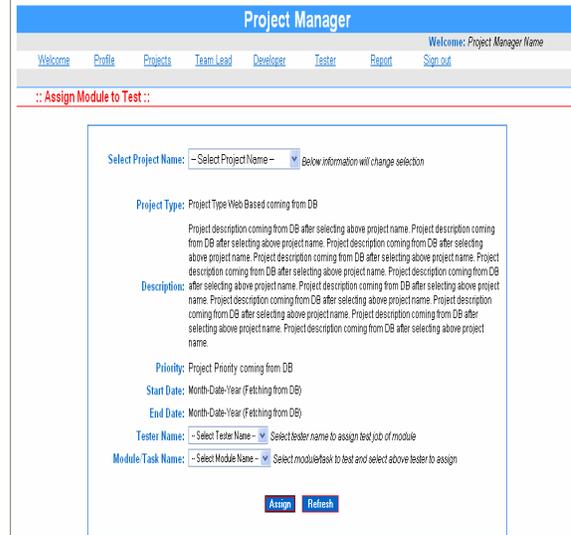
Figure 7, assign module to test coming from our implemented project.

3.2.5 Project Performance

The following figure 8 is showing list of those projects which are under development or completed. From here project manager can view project performance with some calculations and graphically representation
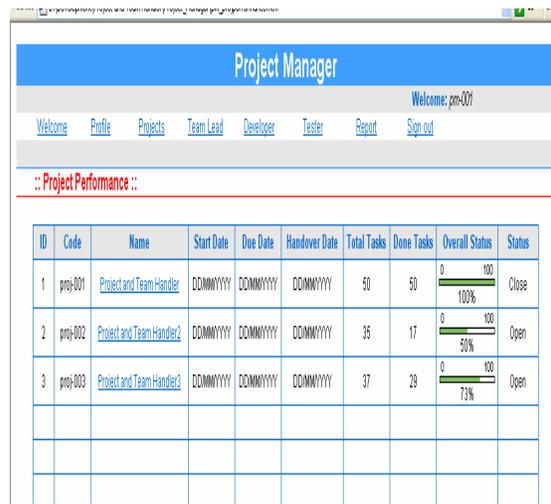
Figure 8, project performance coming from our implemented project.

3.2.6 View All Projects

The following figure 9 is showing the list of all projects which are completed or under

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development with open/close sate. From here project manager can view more detail of project by clicking on project name, can delete project as well. Further would be more features
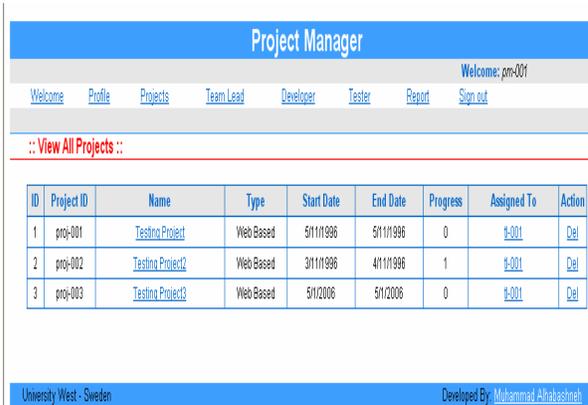

Figure 9, view all projects coming from our implemented project.

3.2.7 Developer Performance

The following figure 10 is showing the list of those developers who are working on one or more than one tasks of a projects. Project manager can view overall and detailed performance of a specific developer on such assigned job/task. Some calculations will show how much efficient a specific developer on assigned task. This will help out in future coming projects. Team Lead or Project Manager easily can get idea which person is more efficient in which job. This will also help to HR department to increase salary/bonuses upon performance
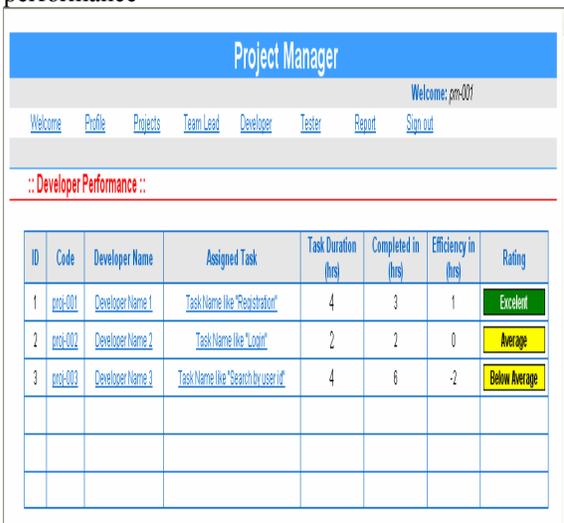

Figure 10, developer performance coming from our implemented project.

3.2.8 Search Projects

The following figure 11 is showing the list of projects by implementing different search criteria's. From here project manager can view more detail of project by clicking on project name, can delete project as well. Further would be more features

Figure 11, search projects coming from our implemented project.

5. Discussion

In this work we achieved the basic requirements of the Project Team Handler (PTH) which we already introduce in the introduction section. We achieved our goals which we were decided. The major theme to implement this project that to reduce the time of meetings with the team leader/ project manager. The companies or the team leader/ project manager can check their team members quality work on the daily basis as well as this progress is showing in our PTH in graphical chart. Even they can see the history of their team member/ employee as well as their list of their tasks. They can also make changes in this software like editing. The time is saving by the using of the software because it is web based. And team leader/ project manager can access their employee/ team members from any where by using the internet. This software is providing the security because if some one wants to use this system he/she should enter the login

and password, which will not be available to everyone to access this software on the web.

Overall this system is compatible to every Windows platform but as we discussed some existing solutions in the market, in introduction. Those solution were not providing the facility of login and even they are charging the money but this software will be provided on the internet at free of cost. Also they are not providing the task description before the meeting. This software is having another uniqueness that before deploying your project you can send given tasks to the available testing module and that will generate the ID against upcoming Bug. But it also having a problem that in lack of time, situation if you want to contact with your employee/ team member and you don't have any internet connection then you will be in trouble even you cannot check the progress of your work. It can also be happen due to the server down/ server is not working well.

6. Conclusion

The original goal of designing a better software development management system has been achieved. Once fully implemented, it will be helpful for software houses, project managers and students by improving their working practices. This work also provides a solid foundation for those who continue developing this system, and they will be able to easily understand and extend the system. In addition, it is a customized package that provides the capability of software development tracking step by step. It enables a powerful team handling approach, as well as efficient tracking of assigned jobs. The research carried out in this project has yielded an implementation that is very effective for reducing the communication gap between team members during development of any software.

A lot of existing solutions handle software development in an improper way. Some use paper based instructions, or assign tasks by emails/paper or verbal communication. By applying these regular old methods, an organization can develop the project but without knowing step by step project status, employee performance, handling of resource problems, task priority, history of previous projects or individuals skills evaluation. The result is late project delivery, clashes with the testing department, a decline in individual as well as team performance, extra manpower needs etc.

Our implemented project overcomes these problems, as a solution provider for all small and big companies who are developing software. We also successfully integrated a lot of necessary features in our work like project requirements, work division into modules, selective assignment of tasks to people with special skills for fast output, status monitoring, and history to lend testing assurance. The system does not, however, solve all possible problems with software development management - sometimes the server may not be working, and if the project manager then wants to contact his team members, this can be a problem, although email etc. can still be used as a backup communication method. Some times team members/employees may not fully understand an allocated task, so for this purpose they still need a meeting. Overall, however, the benefits which our system providing is the online capability, as well as keeping records about employees/team members, checking of the status of the work daily, and maintenance of records. Remaining features have already been mentioned earlier in this thesis.

7. Future Work

With the passage of time we will add more features in our implemented project. This project will be available on the internet for those software houses or project managers who want to use, free of cost. And also we will explore the more fields regarding to this topic and then add more things in my implemented project or on the requirements of the software houses / market need. This site, in future, will be linked to other renowned software engineering solution sites; this will be giving more and more user from the other sites. This will be adding more traffic to our software site.

8. Acknowledgements

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