CHAPTER-8

Mapping requirements with features

Most of the industries today have lots of requirements which they would like to achieve also the project management software companies are designing and adding various features and functions into the software catering to the requirements of the industries who use the project management software. There is always a no-win situation where the industrial requirements meet the desired need of the industry and the software requirements. As the industries are growing the needs and their requirements are also growing. Hence the IT industry also needs to understand the needs of the customer and his requirements from the software, which they would like to use for managing the resources in the company, lot of project management software have various features like reporting tools, requirement management tools and various algorithms used to manage the tasks in the schedule some of the software’s are having collaborative features and scheduling functionality of the tasks also project portfolio management is done by some of the project management software’s document management is also one of the features required by the industries today to keep things intact and use them as an when required in the project resource management is also a task in the project management were all the resources can be easily accessed and managed with the web interface provided by the software mobile interfaces are also required by some of the companies for reporting tools.

Some of the above mentioned features have been studied analysis has been carried out on the features which are most common and are required by most of the industries and also their implementation in some project management software’s. features in PM software play an important role in achieving the objective of the project. Some project management software are cluttered with features but only some of the features are really in use by the clients using the system rest all features are just available and are not utilized but the IT company has done huge payment to procure PM software. Companies designing PM software should give brief introduction about various features and functions which are present in the project management software so that the client who is looking to purchase an project management software should have clear idea about which functions and features are required in the IT company to complete project management in their company. Collaboration between stakeholder of the company are important while purchasing the project management software all stakeholders who will be
utilizing this software need to be involved in the purchase of this software so that exact functionality required at different phases of the project can be easily understood and all members involved in the project can use of the PM software to its fullest.

Requirements of the IT company purchasing project management software should be very clear and should be laydown on paper while selecting a PM software all stakeholders at different levels should be involved and given chance to express his requirement and features expected from the project management software as he will be responsible after the PM software is procured and deployed to use the system and to generate reports from the system and to report data to the PM software. It has been found that most of the IT companies purchase a PM software at the end phase of the project and try to manage all the project related activity at last stage. Thus resulting in failure of the usage of project management software and its features and functions some time no training is given to the stakeholder on how to utilize this project management software. Thus companies are utilizing cluttered project management software which have many features and functions but they are not utilized to its fullest and some time they are not understood by the members. Software project requirements keep changing and also the client’s requirements for project keep differing time to time its important to fulfill the needs of project under development. Designing a project management tool which fits to the requirement of all projects under execution in an IT company is a difficult task and may clutter the project management tool with lots of functions which not useful to the companies some time alos the company purchasing this project management tool may require to pay more for the unwanted features which are present in the project management tool. Thus its important to have modularized project management tool which can help companies to purchase only those tools which are really needed by the company and if additional tool are required the company can always request for more tools and their integration with the existing tools is also important and information in the new module may be required from previous modules which hold records of the projects which have been completed and those under development. Modularization of PM will keep budgets of the company intact as the companies will not have to invest lots of money in procuring project management software for managing various activities and scheduling project activities and assigning developers and other stakeholder to the modules also resource allocation is done at each phase of the project and this activity can be managed by any project management software which possess these capabilities. Thus any IT company who would like to use project
management software would have to take many items of the project into consideration and would also have to first design their own requirement document such that the most required activities should be listed first and the module which is concerning these activities should be procured by the IT firm. This will not put load on the company if the requirements are laydown properly and the module of the project management is selected exactly. The module which is used for performing the activities which have been laydown as requirements from the IT company for this project management software will help in completing the tasks in a much better and smooth way also this will improve the efficiency of project completion and management of resources in the company. Project management teams in medium and large scale industries are distributed across the globe and them members are working on a common project and need to be focused to complete their project work without leaving the project management platform. Most of the project management software’s are providing integration of team collaboration modules where teams can mutually exchange information from team members who will and exchange project related documents without leaving the project management software which the company has procured for the company these collaboration modules help the team members to be working on the same screen without switching between applications of the computer system. Project management systems provide greater visibility into the project which is under development and also the customer can participate in various activities of project development which giving customer greater satisfaction that his project is being executed by the IT company for the payments which he has released to the company. The customer can also give his feedback on the modules which have been completed by the company and at the other end the IT company can incorporate changes requested by the client at real-time this will build trust between the company and the customer and the customer will be happy to check that his feedbacks are implemented as actions by the project development company. Thus this tool will provide a high level of visibility into the product under development and will also give customer one sense of satisfaction about the product and its capabilities. Collaboration is just one module there are many modules which together build one big project management software. many more features are available in project management software which can be incorporated at later stages and an when required by the IT companies for project management and scheduling activities of resources in the company.

➢ **Overall Description**

The section contains the general factors the product and its requirements.
Perspective:

This System creates a institutional memory that would be useful and accessible to all the persons in the organization so that a review and the reusability can be made when ever and wherever possible. Information from different levels of software development lifecycle are collected into the database and a report is generated which is finally released to the top level management of the company. Many modules which are developed by different developers need reports which summarize the functioning and effectiveness of the module this will help the end user to understand the flow of information from one module to the other thus configuration of the module should be done in such a way that there is no latency when information flows from one module to the other.

Constraints

System Interface:

a) Server Side:

This system uses the server that is the IIS6.0 where exactly the web pages are stored the computer that is the server/ where all the data is collected should contain the IIS6.0 and the service pack 1 for the internet explorer and service pack 2 for the windows Xp system if Windows 2003 server is installed as the Os the IIS6.0 will be installed on the computer system at the time of the Os installation. The computer that is acting as server machine should be connected to the LAN, Internet where ever the user wants to see the reports he can login into any remote system and run the internet explorer and update or view the report as per his privileges that have been allotted to him while creating his account.

Client Side:

The client side that is the client computer system or the computer system that are connected in the LAN, internet should support the internet explorer when the user types the sites name the user get all details by entering his password.

User Interface:

The user interface on the client side will be basically the details of the client and about this company where the client will have to fill in all the details of his company so that a the company can come to know about the client very well. On the company side there will be a lot of
interfaces as all the project planning, PCB, PDB has to be implemented also the process planning will have an interactive user interface. The scheduling of the various activities will also have a user interface where in the user can enter the scheduling as per his privileges this user interface will be available. Quality Planning will also have a user interface, which will describe the Quality aspects, and the testing will be one of the approaches to the quality management. The risk management will also have a user interface where in the various peoples of the company and the client can also suggest the various risks to the company basically it will be user to have an interaction between the client and the company and this discussion will help in solving the risks of the project. The measurement and tracking planning will have a interface which will be used by the project manager and the project lead so as to keep track of the project and the personals in this the different concepts of measurement such as metrics and measurement and process monitoring through statistical process control will be used the measurements will be like collecting effort data, logging and tracking defects, measuring schedule, measuring size. The project tracking will be useful to the project manager as the manager will get insight view of what processes have been completed and which modules are still under development this will enhance the productivity of the project manager as he will get information at a glance and he will be able to make decisions based on how much man-power or other resources should be employed to complete the task. Because meeting the established goals is the basic motive. The various activities that will be entered or trapped are the Activities tracking, Defect tracking, Issue tracking. The project manager and senior management should also periodically review not only the data presented as a consequence of project tracking but also the activities of the PMS Process.

✓ **Hardware Interface:**
The hardware interface that will be required will be the computer system with LAN and the internet connection so that the user of the system can access the system from any where in the organization sitting at his place.

✓ **Software Interface:**
The different software products required are as listed below.

- **Name**: Internet Information Server
- **Mnemonics**: IIS
- **Version number**: 6.0
- **Source**: www.microsoft.com

This interface is required to launch the web pages created by the Microsoft .NET software. The ASPX pages will be loaded at this server.

- **Name**: Visual Studio.NET
- **Version number**: 2005
- **Source**: www.microsoft.com

This will be used for the development of the project and the coding of the project.

- **Name**: Internet Explorer
- **Version**: 6.0
- **Source**: www.Microsoft.com

This interface is used to run the ASPX pages

- **Name**: Service pack 1 for internet explorer
- **Source**: www.Microsoft.com

This is used for the security and the also is useful while running the ASPX web pages

- **Name**: Service pack 2 for windows Xp
- **Source**: www.Microsoft.com

- **Name**: Asynchronous JavaScript and XML
- **Mnemonics**: AJAX
- **Version number**: 1.0
- **Source**: www.microsoft.com

This is required at the time of installation of the Microsoft .NET 2005 on to your system.

- **Memory Constraints:**
a) Client side
Primary Memory: 256MB
Secondary Memory: 1GB
b) Server Side:
Primary Memory: 1GB
Secondary Memory: 80GB

The server side will contain the .NET framework and the IIS6.0 so the memory requirements are large.

✓ Communications Interfaces:
The system requires the LAN, Internet for the communication as the client and the different users in the company will be located remotely from the server machine so the data that will be feed into the system will be feed from the clients or the remote employees computer system and will be updated on the server computer system the system will also have a communication with the GSM modem which will be used to send the daily details to the client on his mobile phone.

✓ Operations:
The operations that will be done by the client who is giving the project is to keep track of the daily report, the operations of the project manager, team lead will be to keep track of the various details of the employees and to solve any issues if they arise. The operation of the director will be to keep track of all the activities of the entire project and the performance of the project according to the daily updates.

✓ Site adaptation requirements:
a) The client will be required to login first into the system
b) The client computer system should support the Internet explorer6.0 with service pack 1 installed on the system for the Internet explorer to run the (.aspx) pages.

➢ Assumption and Dependencies

✓ Hardware Assumptions:
Compatible network installations must be done between the communicating machines and IIS server properly configured.

✓ Software Assumptions:
The software that is Visual Studio 2005 properly installed with MSSQL 2005 server integrated for the database storage.

✅ **Operating System**

WINDOWS operating system is available.

➢ **Specific Requirements**

✅ **External Interfaces:**

The system will require the IIS6.0 for loading the site on the server site the the system will require the service pack 2 for windows Xp and the service pack 1 for the internet explorer when you are installing the Microsoft Visual Studio.NET then at that time the service packs are required.

✅ **Performance requirement:**

a) Static numerical requirements:

• The number of terminal to be supported:

The system can support as many number of terminals as required by the client or the company basically it will depend on the network capability and the speed of the network also it depends on the server capacity. But it can be installed on N number of terminals so out of 100% of the terminals 95% of the terminals will be supported by the system.

• The number of simultaneous users to be supported:

The system can support the entire user in the company and also the client that are attached to the company for their work so simultaneously multiple users can login into the system so out of 100% of simultaneous users that will login all 95% of the users will have simultaneous access to system.

• Users to be handled by the system handled:

The system will handle a huge amount of information, which also depends on the capacity of the server machine where the system is installed 100% information will be handled properly by the system.

8.1 **Dynamic numerical requirements:**

The system will process huge amount of the data simultaneously so 95% of the data will be processed within 1 second rather the operator shall not have to wait for the transaction at all
the system will provide high speed of access to the data and the searching of the data will be done faster.

8.1.1 Logical database requirements:

a) Type of information used by various functions:
The system will basically be using the text-based information the information that will be given in will be either in the text or in the numerical form.

b) Frequency of use:
The data will be used frequently as many reports will be generated according to the inputs given by the various persons involved in the project.

c) Accessing capabilities:
The system will provide a greater flexibility to the user to access the data from anywhere and at any time with proper authentication hence there will be a high degree of accessibility.

d) Data entities and their relationship:
The data entries that will be made by the developer of the project manager will have relationship with the client database and the data will be periodically evaluated by the time also there will be a relationship with the testers data and the developers data.

e) Integrity constraints:
The data integrity will be provided by the system.

f) Data retention requirements:
The system will also provide the data retention and handling of the data carefully wherever required and the data will be protected from the unauthorized access.

8.1.2 Design Specification

This document covers the following design aspects of PMS

- Architectural Design
- Interface Design
- Logical View
- Process View
- Deployment view.

This section is intended for system developers of PMS but it can be referred by anyone intending to know the design of PMS including the application developers.
The project Management Software is designed to serve several audiences:

- PMS addresses the needs of the company projects and the company peoples who are working in multiple / distributed units & services.
- PMS provides a platform for the developers managers and the client of the company to view all the details of the project going on.

✓ Assumptions and dependencies

It's assumed that the person using the project management software has a fair idea of the project and the project development life cycle also he is having a detailed view of the project life cycle. PMS is a multi user system so installation of the PMS can be done on the IIS so that all the persons of the company can use it so it is assumed that the system is installed on IIS server.

✓ General Considerations

It's is considered that the machine that is being used for the PMS is having preinstalled windows operating system and also the visual studio 2005 with .NET frame work 2.0 and IIS server installed on the machine.

✓ Development Method

The system is developed using ASP.NET and C#.NET the system uses the three tire model that is the user interface front-end, coding that is back-end and the database design hence it’s a three tire architecture model.

8.1.3 Code Specification

The code specification includes the detailed code design and the also the software and hardware details used in the design of the project, the coding style followed and the file names and file structures used by the system, comments in the code.

Sample Code :

```
using System;
using System.Data;
using System.Data.SqlClient;
using System.Configuration;
using System.Collections;
using System.Web;
```
using System.Web.UI;
using System.Web.UI.WebControls;
using System.Web.UI.WebControls.WebParts;
using System.Web.UI.HtmlControls;

public partial class Login : System.Web.UI.Page
{
    /// <summary>
    /// ........................................Declaration of the Variables......................................
    /// </summary>
    SqlConnection con;
    SqlDataAdapter adp;
    string str;
    DataSet ds = new DataSet();
    /// <summary>
    /// ........................................Page Load Event....................................
    /// </summary>
    {
        Connection con_object = new Connection();
        con = con_object.call_connection();
    }
    /// <summary>
    /// ........................................Link Button ....................................
    /// </summary>
    {
        //Creating Cookies so userId can be displayed on the Home Page
        HttpCookie ck = new HttpCookie("Login");
        ck.Values.Add("LoginId", txtUserID.Text);
        ck.Values.Add("Password", txtPassword.Text);
        Response.Cookies.Add(ck);
        //To Check the login User (Validation Done)
        adp = new SqlDataAdapter("select loginid,password from Registration1",con);
        adp.Fill(ds, "Registration1");
    }
}
for (int i = 0; i < ds.Tables[0].Rows.Count; i++)
{
    if (txtUserID.Text == ds.Tables[0].Rows[i][0].ToString() && txtPassword.Text ==
        ds.Tables[0].Rows[i][1].ToString())
    {
        Response.Redirect("Home.aspx");
    }
    else
    {
        lbMessage.Text = " LoginID or Password is incorrect!";
    }
}

✔ Softwares used:

Visual Studio 2005
ASP.NET
C#.NET
MSSQL 2005 for database design
IIS server to run the web pages that is .aspx pages.
AJAX

Coding Style Followed:

I have adhered strictly to the coding conventions of the Visual Studio 2005, ASP.NET and C#.NET; the conventions followed are described below.

✔ File Names:

The files should have a file name that describes the content of the file e.g. if the file contains a code for the Inquiry Screen then the code file that is attached to the asp file should have the same file name Inquiry’s that is Inquiry C# file.

✔ File Structures:

The files should have the following structure. Items can be omitted but items that are present should try to follow the following order:
a. Declaration of the variables that are used.
b. Global data.
c. Functions that are used should be declared.

✓  **Indentation:**
Avoid lines longer than 100 characters. Otherwise break them up suitably.

✓  **Comments:**
The code has comments for each class, declarations, functions, procedures used. The comments describe the function of every class, Function, declarations, procedure.

✓  **Naming Conventions:**
a. Class: The class are named according to their purpose e.g. Inquiry
b. Functions: The functions are named according to their function e.g. Retrive_Name()
c. Variables: Named according to their content.
d. Constants: Named according to their content.

✓  **Test Plan**

✓  **Introduction**
Project management software allow the management of the project and also gives the timely reports to the clients regarding what work is going on in the project. The test plan is prepared to check and validate the features of the PMS. It check that the functionality of the project management software are done properly or not and all the operations are working properly.

✓  **Functional Scope**
Software technical scope describes the functions and features that are to be delivered to end-users, the data that are input and output, the content that is presented to the users as consequence of using the software. The deliverables to the client to use the software

<table>
<thead>
<tr>
<th>Sr no</th>
<th>Features To be tested</th>
<th>Features Not tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Flow of each screen</td>
<td>Scroll bar on the screen</td>
</tr>
<tr>
<td>2</td>
<td>Flow of Data</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Input data in the screen</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Output data from the screens</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Layout of the screen and its contents</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Validation of Data</td>
<td></td>
</tr>
</tbody>
</table>
### Test Criteria

#### Test Criteria Login Screen

| Entry Criteria | 1. User Name  
<table>
<thead>
<tr>
<th></th>
<th>2. Password</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exit Criteria</td>
<td>The user name and password are correct display the Home Screen.</td>
</tr>
</tbody>
</table>

Table 18: Test Criteria

#### Test Criteria Registration Screen

| Entry Criteria | click on the new registration link 
<table>
<thead>
<tr>
<th></th>
<th>enter the details in the registration screen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exit Criteria</td>
<td>All the details entered are correct then store the details in the database redirect to the login screen.</td>
</tr>
</tbody>
</table>

#### Test Criteria Change Password Screen

<table>
<thead>
<tr>
<th>Entry Criteria</th>
<th>1. click on the change password link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exit Criteria</td>
<td>Fill in the details if the old password and user name is correct then assign the new password.</td>
</tr>
</tbody>
</table>

#### Test Criteria Add Client Information Screen

| Entry Criteria | 1. click on add client information link 
<table>
<thead>
<tr>
<th></th>
<th>2. Click on Add New Client Button</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exit Criteria</td>
<td>Fill in the details if the details are correct then click on the save button record saved successfully.</td>
</tr>
</tbody>
</table>

#### Test Criteria Add Branches to Existing Client Screen

| Entry Criteria | 1. Click on the Add branches link 
<table>
<thead>
<tr>
<th></th>
<th>2. Fill in the details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exit Criteria</td>
<td>Click on the Go button.</td>
</tr>
</tbody>
</table>

#### Test Criteria Project Inquiry Screen

| Entry Criteria | 1. Click on the Inquiry link 
<table>
<thead>
<tr>
<th></th>
<th>2. Fill in the details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exit Criteria</td>
<td>Fill information of the form which is provided and then save</td>
</tr>
<tr>
<td><strong>Test Criteria Project Proposal Screen</strong></td>
<td></td>
</tr>
<tr>
<td>------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Entry Criteria</strong></td>
<td></td>
</tr>
<tr>
<td>1. Click on the Proposal link</td>
<td></td>
</tr>
<tr>
<td>2. Fill in the details</td>
<td></td>
</tr>
<tr>
<td><strong>Exit Criteria</strong></td>
<td></td>
</tr>
<tr>
<td>Fill information of the form which is provided and then save</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Test Criteria AddProject Details Screen</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Entry Criteria</strong></td>
</tr>
<tr>
<td>1. Click on the Add Project Details link</td>
</tr>
<tr>
<td>2. Fill in the details</td>
</tr>
<tr>
<td><strong>Exit Criteria</strong></td>
</tr>
<tr>
<td>Fill information of the form which is provided and then save</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Test Criteria AddProject Schedule Screen</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Entry Criteria</strong></td>
</tr>
<tr>
<td>1. Click on the Add Project Schedule link</td>
</tr>
<tr>
<td>2. Fill in the details</td>
</tr>
<tr>
<td><strong>Exit Criteria</strong></td>
</tr>
<tr>
<td>Fill information of the form which is provided and then save</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Test Criteria Add Module Details Screen</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Entry Criteria</strong></td>
</tr>
<tr>
<td>1. Click on the Add Module Details link</td>
</tr>
<tr>
<td>2. Fill in the details</td>
</tr>
<tr>
<td><strong>Exit Criteria</strong></td>
</tr>
<tr>
<td>Enter The project ID click on the go button Fill in the details and click on the save button</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Test Criteria Add Issues Screen</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Entry Criteria</strong></td>
</tr>
<tr>
<td>1. Click on the Add Issues link</td>
</tr>
<tr>
<td>2. Fill in the details</td>
</tr>
<tr>
<td><strong>Exit Criteria</strong></td>
</tr>
<tr>
<td>Select the project ID Fill in the details and click on the saveissue button</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Test Criteria List Issue Screen</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Entry Criteria</strong></td>
</tr>
<tr>
<td>1. Click on the List issue link</td>
</tr>
<tr>
<td>2. Fill in the details</td>
</tr>
<tr>
<td><strong>Exit Criteria</strong></td>
</tr>
<tr>
<td>Click on all button to view all issues , click on the inwork button to see the inwork issues, click on the completed button to see the completed issues, click on the close to see the closed issues, enter the project id select the status and click on the apply filter to see particular type of issue.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Test Criteria Search Issue Screen</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Entry Criteria</strong></td>
</tr>
<tr>
<td>1. Click on the Search Issue link</td>
</tr>
<tr>
<td>2. Fill in the details</td>
</tr>
</tbody>
</table>
### Test Criteria Project Release Screen

<table>
<thead>
<tr>
<th>Entry Criteria</th>
<th>Exit Criteria</th>
</tr>
</thead>
</table>
| 1. Click on the Project Release link  
2. Fill in the details | Click on all to view all the project released, Enter the project id click on the go button fill in the details click onn the save button. |

### Test Criteria Pending Issues Screen

<table>
<thead>
<tr>
<th>Entry Criteria</th>
<th>Exit Criteria</th>
</tr>
</thead>
</table>
| 1. Click on the Pending issues link  
2. Fill in the details | Enter the project id and click on the Go button |

### Test Criteria User Access Screen

<table>
<thead>
<tr>
<th>Entry Criteria</th>
<th>Exit Criteria</th>
</tr>
</thead>
</table>
| 1. Click on the User Access link  
2. check on the screens you want the user to access | Select the screens you want the user to access click on the Update button. |

### Test Criteria Add New Employee Screen

<table>
<thead>
<tr>
<th>Entry Criteria</th>
<th>Exit Criteria</th>
</tr>
</thead>
</table>
| 1. Click on the Add New Employee link  
2. Fill in the details | Fill information of the form which is provided and then save |

**Resources requirement:**

In planning the software the estimation of resources is required to accomplish the software development effort. Figure shows the three major categories of software engineering resources.

**Human resources:**

Human resource is one of the most important constraints in the project and is required to accomplish the common goal of the project within required time, consult with specialists as required.

<table>
<thead>
<tr>
<th>Sr no</th>
<th>Location</th>
<th>Skills</th>
<th>Number</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>At company</td>
<td>ASP.NET and C#.NET</td>
<td>1</td>
<td>Done</td>
</tr>
<tr>
<td>Sr no</td>
<td>Requirement type</td>
<td>Requirement</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>------------------</td>
<td>-------------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Hardware Req</td>
<td>Computer System</td>
<td>A computer system with IIS installed and Visual Studio 2005 installed</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Environmental Req</td>
<td>Operating system</td>
<td>Windows Xp, IIS server.</td>
<td></td>
</tr>
</tbody>
</table>

**Functional Testing**

Functional testing is performed on the project management software. The functional testing allows us to test the various functionality of the software. Testing is of different types black box testing and white box testing in which the code is available to the developer to test is called white box testing and in the black box testing the user interface which is the functionality of the project is available to the tester, and he is responsible for testing only the functionality of the project under execution. The project management software is tested manually.

<table>
<thead>
<tr>
<th>Logged By</th>
<th>Bugs</th>
<th>Work Item</th>
<th>Priority</th>
<th>Assigned To</th>
<th>Current Status</th>
<th>Test 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athar</td>
<td>1</td>
<td>Validation in the login screen not working</td>
<td>High</td>
<td>Ahmed</td>
<td>Completed</td>
<td>Pass</td>
</tr>
<tr>
<td>Mohsin</td>
<td>2</td>
<td>Check the tab index for the login screen</td>
<td>Low</td>
<td>Ahmed</td>
<td>Completed</td>
<td>Pass</td>
</tr>
<tr>
<td>Mohsin</td>
<td>3</td>
<td>Database</td>
<td>High</td>
<td>Ahmed</td>
<td>Completed</td>
<td>Pass</td>
</tr>
<tr>
<td>Name</td>
<td>Priority</td>
<td>Description</td>
<td>Severity</td>
<td>Assignee</td>
<td>Status</td>
<td>Grade</td>
</tr>
<tr>
<td>--------</td>
<td>----------</td>
<td>-------------</td>
<td>----------</td>
<td>----------</td>
<td>---------</td>
<td>-------</td>
</tr>
<tr>
<td>Mohsin</td>
<td>4</td>
<td>Show all details in client information screen not working</td>
<td>Medium</td>
<td>Ahmed</td>
<td>Completed</td>
<td>Pass</td>
</tr>
<tr>
<td>Athar</td>
<td>5</td>
<td>In the project details screen check the proposal reference number and to go button click which is not displaying any data</td>
<td>High</td>
<td>Ahmed</td>
<td>Completed</td>
<td>Pass</td>
</tr>
<tr>
<td>Mohsin</td>
<td>6</td>
<td>Check the calendar control it is delayed when displaying it</td>
<td>Medium</td>
<td>Ahmed</td>
<td>Completed</td>
<td>Pass</td>
</tr>
<tr>
<td>Athar</td>
<td>7</td>
<td>When I am entering the</td>
<td>High</td>
<td>Ahmed</td>
<td>Completed</td>
<td>Pass</td>
</tr>
<tr>
<td>Client ID and pressing go button no data is visible</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Athar 8</td>
<td>Check the project id in the project module screen its accepting the character values and error message id displayed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mohsin 9</td>
<td>Check the Add Issues details screen bug id is not auto generated</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Athar 10</td>
<td>No data in the list of project id in add issues screen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Athar 11</td>
<td>Check the upload file button on</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<p>| | | | | |
| | | | | |
| Athar 8  | Check the project id in the project module screen its accepting the character values and error message id displayed |
| Mohsin 9 | Check the Add Issues details screen bug id is not auto generated |
| Athar 10 | No data in the list of project id in add issues screen |
| Athar 11 | Check the upload file button on |</p>
<table>
<thead>
<tr>
<th>ID</th>
<th>Issue Description</th>
<th>Priority</th>
<th>Assigned To</th>
<th>Status</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>The back button of the add issues screen not working</td>
<td>Medium</td>
<td>Ahmed</td>
<td>Completed</td>
<td>Pass</td>
</tr>
<tr>
<td>13</td>
<td>Select login id in the user access screen is not displaying any data</td>
<td>Medium</td>
<td>Ahmed</td>
<td>Completed</td>
<td>Pass</td>
</tr>
<tr>
<td>14</td>
<td>Update button is not working in the user access screen</td>
<td>High</td>
<td>Ahmed</td>
<td>Completed</td>
<td>Pass</td>
</tr>
<tr>
<td>15</td>
<td>Add new employee button not working Employee Id</td>
<td>Medium</td>
<td>Ahmed</td>
<td>Completed</td>
<td>Pass</td>
</tr>
<tr>
<td>16</td>
<td>When Save button clicked the error</td>
<td>High</td>
<td>Ahmed</td>
<td>Completed</td>
<td>Pass</td>
</tr>
<tr>
<td>Name</td>
<td>ID</td>
<td>Description</td>
<td>Severity</td>
<td>Tester</td>
<td>Status</td>
</tr>
<tr>
<td>--------</td>
<td>----</td>
<td>------------------------------------------------------------------------------</td>
<td>----------</td>
<td>--------</td>
<td>----------</td>
</tr>
<tr>
<td>Mohsin</td>
<td>17</td>
<td>Update button is not enabled check</td>
<td>Low</td>
<td>Ahmed</td>
<td>Completed</td>
</tr>
<tr>
<td>Mohsin</td>
<td>18</td>
<td>When clicked add new employee employee id is not automatically generated</td>
<td>High</td>
<td>Ahmed</td>
<td>Completed</td>
</tr>
<tr>
<td>Athar</td>
<td>19</td>
<td>When data not filled in the fields and the save button</td>
<td>High</td>
<td>Ahmed</td>
<td>Completed</td>
</tr>
<tr>
<td>Athar</td>
<td>20</td>
<td>Back button not working in the employee information screen</td>
<td>Low</td>
<td>Ahmed</td>
<td>Completed</td>
</tr>
</tbody>
</table>

8.2 Function Point Analysis
Function point analysis for project management software which provide a mechanism that both software developers and users could utilize to define functional requirements. It determines a best way to gain an understanding of the users needs.

The Five components of Function Points are as follows:

8.2.1 Data Functions

Internal Logical files

The internal logical files allow the user to maintain the data in the database that is provided by the user from a user interface of from the external by system.(ILF)

External Interface files

The External Interface files are one in the data will be stored in the other system and the user is not responsible for maintaining the data in the database. (EIF)

8.2.2 Transactional Functions

i. External data Inputs
The data which is taken as input from the external sources which will be processed by the system and stored in the system is treated as the external input source to the project management software.(EI)

ii. External data Outputs
The data which is processed and compiled using the project management software and then given as output to other processing units is called as external data output from the PM software.(EO)

iii. External Inquiries
External Inquiries are information which is collected from both the input and output sources of the project management files and also the files which are accessed internally and externally to retrieve information from various other sources.(EQ)
### Complexity Adjustment Table

<table>
<thead>
<tr>
<th>ITEM</th>
<th>COMPLEXITY ADJUSTMENT QUESTIONS</th>
<th>SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Does the system require reliable backup and recovery?</td>
<td><img src="image" alt="Scale" /></td>
</tr>
<tr>
<td>2</td>
<td>Are data communications required?</td>
<td><img src="image" alt="Scale" /></td>
</tr>
<tr>
<td>3</td>
<td>Are there distributed processing functions?</td>
<td><img src="image" alt="Scale" /></td>
</tr>
<tr>
<td>4</td>
<td>Is performance critical?</td>
<td><img src="image" alt="Scale" /></td>
</tr>
<tr>
<td></td>
<td>Question</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>-------------------------------------------------------------------------</td>
<td>---</td>
</tr>
<tr>
<td>5</td>
<td>Will the system run in an existing, heavily utilized operational environment?</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Does the system require on-line data entry?</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Does the on-line data entry require the input transaction to be built over multiple screens or operations?</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Are the master files updated on-line?</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Are the inputs, outputs, files or inquiries complex?</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Is the internal processing complex?</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Is the code to be designed reusable?</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Are conversion and installation included in the design?</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Is the system designed for multiple installations in different organizations?</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Is the application designed to facilitate change and ease of use by the user?</td>
<td></td>
</tr>
</tbody>
</table>

### FP Calculation

<table>
<thead>
<tr>
<th></th>
<th>RESULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROJECT FUNCTION POINTS</td>
<td>327.35</td>
</tr>
</tbody>
</table>
Advancements
The Project Management Software advancements are as follows

1. project portfolio management
2. virtual project management
3. people side of project management
4. apply a financially focused method that ensures company profits are always in the forefront of business decision making
5. Gives an overview to the management team about the issues which can be addressed using the project management software solution and also support stakeholder to become more productive in their work to achieve a common goal
6. collecting information from the stakeholders by providing them with needed feedback forms and related information about the project execution time.
7. Collaborative project management.
8. faster and easy mean of access to the software
9. automatic understanding the clients requirements and decision making tool.
10. Video conferencing system for client and company interaction.
11. Providing user to access the data from any where and any place on the mobile phone.
12. Providing user the access of the project data on the mobile phone through the wap browser
13. Providing on line chat system for the user for communication with the project managers and the development team
14. Software limitations are that the system on which the PMS Installed should contain the IIS server and the visual studio 2005 installed.
Sequence Diagram

Stakeholder Login, Stakeholder New Registration.
✓ Stakeholders Change Password, Client Information
**Sequence Diagram for Change Password**

User

Enter Details

Click Update

UpdateDatabase

Password Changed Successfully

**Sequence Diagram for Client Information**

User

Click Add New Client Information

Click Add Client

Fill in Details

Check for Entered Details

Add New Contact

Save New Contact

Record Saved
✓ Adding Branches to existing clients, Search Branch Details

Sequence Diagram for Adding branches to Existing Client

Sequence Diagram for Search Branch Details
Project Proposal

Sequence Diagram for Proposal

Enter Proposal Reference Number for existing client to add comments and Upload Doc

Click on Add Comments and Upload Doc

Click On save to Save the Changes

Record Saved

Check Details

Click Save Button

Save in DataBase

Fill Details

Click on Go button

User

Enquiry Reference No.
✓ Project Planning and Execution, Add Schedule information
Adding Module Details, Add Issues

**Sequence Diagram for Adding Module Details of Project**

User

- Click on Add Module Details
- Enter Project ID
- Click Go Button
- Fill Details
- Click on Save Button
- Save in Database
- Record Save

**Sequence Diagram for Add Issues**

User

- Click on Add Issues
- Select Project ID
- Fill Details
- Click on Save Issue
- Save Data in Database
- Check Details
- Record Saved
✓ Issue list, Search Issue

Sequence Diagram for List Issues

Sequence Diagram for Search Issues
☑ Project Release, pending Issues
**Sequence Diagram for Project Release**

User - Project Release

Click on Project Release

Enter Project ID

Click on Go button

Fill Details

Click Save

Record Saved in database

Record Saved

All Records Displayed

**Sequence Diagram for Pending Issues**

User - Pending Issues

Click on Pending Issues

Enter Project ID

Click on Go Button

Record Displayed
✓ User Access, Add New Employee

**Sequence Diagram for User Access**

**Sequence Diagram for Add New Employee**
UML Diagrams.

- Use case Diagrams
- Project Manager
✓ Client Stakeholder
✓ Developer Stakeholder
Tester Stakeholder
☑ Administrator Stakeholder
Class Diagram
Login, Client Information, Project Planning and execution
✓ Project Proposal, Project Inquiry, Project Testing
✓ Project Release, Pending Issues, User Access, Add New Employee