CHAPTER-6

Analytical study of features and functions

An analytical study about the various features and the functions, which are required by the company for managing the projects, is carried out which helps in identifying which feature and function is necessary for project management and resource management in the company. The feedback collected from various stakeholders of the company has helped in analyzing the key features and functions, which are commonly used by most of the companies using project management software for managing the resource and tasks in the company.

Resource allocation and information dissemination features and function have been studied in details and a feedback analysis is prepared which helps in identifying common and most used features and functions of project management software based on the common features and functions used by most of the companies I have designed an analysis chart and graph which justifies the number of stakeholders using these features and function in the company to manage the projects which are currently under execution by the company. This analysis is helpful to focus on those common features and functions, which are required in the project management software to manage various resources of the project under execution. When any company decides to buy project management software they should utilize this analysis to compare the features and function in the project management software which they would like to purchase this will help the company to cater down to the need and requirements of features and functions which they are expecting from a project management software which they would like to used in the company to execute various operations using the project management software in their company. Thus this analytical study helps in identifying the requirements of features and functions of the company and its utilization for resource management. This analysis collected most common functionality and features which are commonly used in most IT companies. Hence its required that when client is purchasing PM software for their company they should keep track of following feature and functions should be present in the project management software this analysis shows following features and functionality listed below.

a) Web based system
b) Hosted on company servers
c) Provides Software as a Service to the IT company
d) License of the software is proprietary or open source
e) Programming languages which needs to be installed for configuring the system on the server
f) The software provide collaboration for all the stakeholders involved in the project
g) Issue or bug tracking system is present for the testers of the system or no
h) Scheduling of project activity should be provided hence schedule management module is important and needs to be present in the PM system
i) Project portfolio management option should be available to keep track of different projects and their related documents and activities.
j) Resource management module should be present in the PM software so that the project manager can use his resources and assign tasks based on the availability of resource in the company
k) Document management is important feature of PM software as all related document to one project can be kept in one repository and can be referred by the stakeholders of the project as and when required
l) Workflow management feature will be used by project manager to manage project related workflow and also to track the activities of the project under execution.
m) Reporting and analysis feature should be present in the PM software as this feature helps in generating reports at different stages of the project and also analyze the report based on any issues which are likely to effect project execution.

6.1 Role Based Management System

If the above mentioned features and functions are present in the project management software, then the IT companies will be interested in selecting one of the project management tools which caters to the need of project execution in their company. Our analysis shows that there are some software which meet most of the features and function and can be best suited for IT companies to select these project management software to complete project related work in their company. Some time due to budget constraints most of the IT companies do not spend money in analyzing and selecting appropriate project management software my analysis will help such companies in selecting appropriate project management software which can cater to the requirements of project execution within allocated budget for project management and resource allocation. Never the less these features are most common ones which I have studied and found in my analysis but there may be many more features and functions which are available in many project management software which are not required frequently by the company to
manage project related activity. These features and functions can be sufficient for managing and executing any given project to IT industry at large. Thus after careful analysis I have list most important features and functions above. If some IT companies procuring project management software take this research analysis into consideration while buying a PM software it will help them is selecting the most appropriate PM for their organization at large. Web Role

6.1.1 Web Role

Explanation of these roles is as follow.

1]. Web Responsibility:
Web responsibility is one of the most crucial part of the PM software solution all stakeholders are connected to the web interface which needs security for access.

So Web responsibility is listed into different functions:

a. Interpretation:
PM solution provides an Interpretations of the functions which are present for the stakeholders each interpretations are well understood by the stakeholders and they have access to the help menu which is given to them if in any case they required any help about the interpretation then they can read the help menu to access the information from there and understand the functioning of the system.

b. Organizer:
As the PM solution is used for organizing the system files and features into various stacks each stack contains files which can be accessed by authentic stakeholder at any given time thus organizer will be responsible to organize files in the PM solution.

c. Model:
Model basically contains all class which are used to transfer data from controller to view.

6.1.2 Worker Responsibility
Project management solution provides the business logic which needs to be understood by the developer of the company as some time modifications to the system or addition of new modules to the PM system may require the programmer to connect to the database the path file of the database needs to be loaded to the business logic of the PM solution and needs to be configured
based on the requirement of the PM solution. It's been noticed that if the correct path of the database is not given to the business logic the system will not function and will generate errors thus configuration is the most important and critical part of the PM solution to function well.

Windows Azure is the operating system that manages not only servers but also services. Under the hood, Windows Azure runs on 64-bit Windows Server 2008 R2 operating systems with Hyper V support. You can think of Windows Azure as a virtual operating system composed of multiple virtualized servers running on massively scalable but abstracted hardware. The abstraction between the Windows Azure core services and the hardware is managed by Fabric Controller. Fabric Controller manages end-to-end automation of Windows Azure services, from hardware provisioning to maintaining service availability. Fabric Controller reads the configuration information of your services and adjusts the deployment profile accordingly.

**Top Reasons for choosing PMS**

**What will the project management software do?**

You can operate more efficiently and increase your profitability with PMS. Don’t let you and your organization get left behind.

✓ **Adequate time scheduling:**

Project management software needs to have scheduling module which can provide accuracy in managing time for different module under execution.

✓ **Improved productivity:**

Projects run more efficiently when all information is stored in one place and all persons have access to that information.

✓ **Increased profitability:**

When teams communicate more effectively, projects are completed on-time, on-budget and on-target. Result? You make more money.

✓ **Is it affordable?**

PMS will save you money by increasing efficiency and improving communications and accountability. Can you afford not to use it?

✓ **Budget for the future:**
The long-term success of your organization depends on your ability to manage each and every project with maximum productivity. PMS provides you the tool you need to communicate efficiently and manage effectively.

- **Will it increase my workload?**
  PMS reduces data entry and administrative tasks by automating your processes

- **Automate processes:**
  Administrative tasks such as sending faxes, following up on phone calls and Tracking down missing Information is decreased with centralized information and automated workflows.

- **How can I get my consultants to use this program?**
  Consultants, contractors, and subcontractors are learning the benefits of project management solutions. They soon appreciate the benefits of a standard communications hub

- **Centralize information:**
  Project team members soon appreciate the benefit of all team members using one system. With all project data in a centralized location, the entire team experiences fewer errors and discrepancies.

- **Will there be too much training required?**
  PMS intuitive system requires minimal training, even for power users, so you’re productive almost immediately.

- **Intuitive Windows-based application:**
  PMS follows standard Windows conventions, so it is easy to pick up and learn. Users can choose one day on-site or web based training to get familiarized with PMS.

- **Train your team:**
  Mini training sessions can be arranged for pre-project and pre-construction meetings.

- **Will I need to change the way we run our business?**
  PMS works the way you do, only more productively

- **Change for the better:**
  The way you do business will be changed! You will work less with increased productivity.
✓ Remote access to information:
With project information accessible anywhere, anytime, your flexibility increases

✓ PMS may not be a complete solution?
PMS is the most complete online building and construction project management solution available, providing immediate return on your investment

✓ Out-of-the-box productivity:
PMS avoids the time and expense of developing an in-house

✓ Enhance data collaboration between team members:
Most project management software provide team management and development module one needs to enhance collaboration between various stakeholders working in one team to accomplish a common goal the objective is to help them use the same platform without switching from it for any project related work.

✓ My data may not be secure?
PMS supports username and password for login.

✓ The price may be too high?
PMS is the most cost effective project management solution in market.

✓ Quick return-on-investment:
A short learning curve cuts the time and cost of training. You reap the benefits of the software right away

✓ Increased profitability:
Organizing information and managing tasks increases your productivity and Profitability

6.2 Key Features of Project Management Software

➢ Client Information
Client Information screen provides the Client to Add New Client Information, Add Branches to an Existing Client, Search Branch Details, Show All Branch Details for the Existing Clients.

✓ Add New Client Information
This Screen provides the new client to add this contact information his branch information and all the other information concerning to the client.

✓ Add Branches to the Existing Clients
This Screen provides the Existing Client to add a new branch.

- Search Branch Details

This Screen provides the user to search the Branch details of the Existing clients.

- Show All Branch Information

This Screen will display all the clients and their related information on the screen.

- Project Proposal and Job

Project Proposal and Job contains sub parts

1. Inquiry Screen.
2. Project Proposal Screen.

- Inquiry

For a registered Client the Inquiry for the Project by the client can be stored in the Inquiry screen. The Inquiry from the client will contain the entire information of the client and will be assigned to some person in the company.

- Project Proposal Screen

Once the Inquiry for the project has been sent by the client then the person from the company will send a proposal for the respected inquiry from the client by looking at the inquiry reference number.

6.2.1 Project Planning and Execution

The Project Planning and Execution screen provides the authorized person to Add Project Details, Add Schedule Information for Each Phase of the Project, Add Module Details of the Project.

- Add Project Details

Once the Proposal is finalized the Add project Details screen will provide the company person to execute the project this screen will convert the proposal to project Information.

- Add Schedule Information for Each Phase of the Project

This Screen provides the company person to schedule the entire process for a given project; Scheduling includes Requirement Analysis, Architecture & Design, Prototype, Development, Application Testing, Bug Fixing & Stabilization and Documentation. For all the scheduling the dates are fixed by the person in company who is assigned this project or task.

- Add Module Details of the Project.
The Add Module Details allows adding the Project modules and sub modules to the project also the modules that are created can be assigned to a particular person for execution in the company that is Project Manager, Developer, QA person.

6.2.2 Project Testing

Project Testing Screen allows the testers to fill in the details of the different tests that are performed on the project or module which they are testing. There are three different modules in this Project Testing Add Issues, Issues List and Search Issue

✓ Add Issues

This Screen allows the Testers to add the issues to the particular project, corresponding module and its sub module. Thus the tester can log the bug from this screen.

✓ Issues List

This Screen will display Issues/Bugs that are there in the project the Tester and the developer can see all the Issues the different status for the issues are (Inwork, Completed, Deferred and Closed) the user can also apply the filter in this screen that is he can give the project ID and select the type of status that he wants. A grid will be displayed showing all the Issues of that particular type of issues corresponding to that project ID.

✓ Search Issues

This Screen provides the user to search the issues in the project he can select ALL to see all the issues in the various projects of if he wants to view a particular bug he can provide the bug ID and the record for that particular bug will be displayed. He can also Update the status of the issue depending upon the change in the status if the bug handling.

6.2.3 Project Release

The Project Release allows the company to keep track of the different releases that they have made also if some project is to be release after the completion of the project the company. The company can Sign Off the project Checking all the details of the project that is if the Payment of the project is made totally or not are there any Pending Issues in the Project if there are any pending issues in the project then the company can keep track of the pending issues even after delivering the project and also remove the Issues as soon as possible.

✓ See all Releases
In this screen when you click on all you can see all the released projects or else if you want to release a particular client project then you can select the project ID of that client and then select the status as release to release that project.

- **Release Pending Issues**
  In this screen you can see all the pending issues corresponding to a particular project by providing the project id of the client.

### 6.2.4 Project Administration

The administration section contains the administrator rights that are specifying the newly registered client the access rights to the software, the administrator can assign rights to the clients to access the part of the project that is which screens the client can view and which he can not view.

- **User Access**
  This screen contains list of all the screens that are there in the project the administrator who logs in will provide the clients access rights to the screens which the client can view by clicking on the read and write access check boxes.

- **Add New Employee**
  This screen provides the new employee of the company to register here when the new employee registers then he can select his Designation while he is registering.

#### Background

In the last 10 years, project management has developed into a well understood and well respected management discipline. Project work has increased across all sectors of industry, including the public sector as funding for work is tied specifically to the delivery of new products and services. Therefore, the need for trained and skilled project managers continues to grow. Project management Software offers a framework to help organizations transform their day-to-day operations and service performance. It is viewed as a way of organizing for the future. Moreover, in an increasingly busy, stressful, and uncertain world it has become necessary to manage several projects successfully at the same time. There has been rapid development in the role of the project manager, away from simply planning and reporting of progress using spreadsheets and complicated project management software, into someone whose style and approach is focused on the management, processes and the overall business value of a project. The role of Project Manager is a sophisticated management role,
requiring a mix of many skills. These skills include negotiation, communication, presentation, planning and scheduling, risk management and the ability to perform under stress. PMS is an easy-to-use project management Software for Large, Small to medium-sized projects. The software focuses on both planning a project and creating a project schedule for easier management also keeping record of the client Interactions it manages the entire software development life cycle starting from the Inquiry from the client for the project till the completion or signoff of the project. Project Management software is a seamless and extremely useful combination of planning and management of software. Project managements software enhance productivity of completing the project related tasks easily and within less time so if the boss asks for a project plan or your staff demand a marketing strategy. It's Fast and Easy also scheduling of the software development life cycle for the project can be done, testing of the software can be done also the test cases can be viewed by the team members of the company.

- **Requirement Persistence**

  The Persistence of this document is to provide
  
  1. Scope and resources to software management, staff
  2. Define risks and suggest risk aversion(mitigation) techniques
  3. Provide an overall approach to software development
  4. brief overview of how the quality of the project will be achieved

This document is not the static document that is project team revisits the plan repeatedly updating risks, estimates; related information- as the project process and more is learned.

- **Project Scope**

  This process, procedures, and guidelines can be applied to any software project. The PM can be user for many other small-scale and large-scale Software industries that follow these types of processes.

  a. Project management software monitors the various activities of the organization, which will help your organization, improve its productivity and also the standard processes will be followed to get a better output from the peoples who are working in the organization.

  b. It will provide various services to the different levels of the of the software project and will provide services to the peoples involved the different levels of the project development lifecycle.
c. It will generate different kinds of reports which can be sent to the client, and the client can give his feedback on which reports of different modules need modification and corrections.

d. The client can view the milestone and the progress of his project he can also view what are the defects that have arrived in his project so that the necessary actions can be taken.

e. The director of the company can also see the various reports of the project also he can know the status of the project and the details of the various project that are going on in his project.

As now system is a perfect system there are some limitation of this product too some of the limitation of the product are listed below.

a. Environmental Hazards
b. Technical Hazards
c. Human Hazards

➢ Context

Project Management Software has the following functionality:

- Client Information: A system that will keep track of the existing client and their details such as branch, contact information, company name, and more. In this system, the company can add, view details of the clients that are there. The project proposal and job functions provide the user that is the client to give an inquiry about the project to the company and also the project proposal that allows the company person to send the proposal to the client that has inquired about the project. The project planning and execution that allows the planning of the projects whose proposal is finalized and whose status is job those projects plan can be prepared from the project planning and execution module. In this a detailed plan of the project is prepared and the entire software development lifecycle for the project is planned. We can also add the module information and also assign the employees in the company their responsibilities for the particular module and sub-module of the project under execution. The project testing module helps the tester to report the bugs in the project also allows the developer to view the bugs that the tester has reported and cure the bugs in the development. The project release module allows the client project to be released that is signoff of the project it checks for the payment made and the pending issues that are remaining in the project all the data of pending issues can be maintained in the pending module. The administrative section allows the administrator to set the rights for the client to access the part of the website according to the access rights provided to the client the client can access only those sections of the Webpages.
Resources

Human Resources

The total human resources required for the development of the project management software is one. The testing resources required to test project management software are ten.

Feasibility Study

The feasibility study of project management software involves the following constraints:

Technical Feasibility

The technology and the resources used to develop the system involve the following components.

1. Hardware Components
   Computer system with LAN connection

2. Software Components
   Visual Studio 2005, IIS server installed

The technical specifications of the system imply that the system is very well adaptable to the available technology and does not demand any more technically advanced, unavailable or infeasible equipment.

Economical Feasibility

The resources required by the system are available easily in the market at reasonable cost. The various costs incurred in the system are as given below

<table>
<thead>
<tr>
<th>Component</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Computer (Intel P VI 2.5 GHz, 512MB RAM)</td>
<td>30,000 Rs</td>
</tr>
<tr>
<td>Windows Operating System</td>
<td>$350</td>
</tr>
<tr>
<td>Visual Studio 2005</td>
<td>$349.00</td>
</tr>
</tbody>
</table>

Table 1: Cost of Components

Viewing above specifications, the system was found to be economically feasible for the concerned client. The above specified are one time costs. The recurring costs may include internet-connectivity charges and additional Pcs.

Operational Feasibility
Modern PCs are becoming easier to handle also PMS is a web based system. Also the system is providing both types of input i.e. keyboard and mouse. The users who are comfortable with using PCs find this application operationally much more feasible.

- **Scheduling**

There were several studies carried out during the project development. This task was done successfully. Updates were kept, the weekly report of advancement during project time. Various issues and ideas are discussed in the meeting with the project manager and the team members of the company and project strive to get better solutions.

- **Risk Analysis and Management**

  Project management risk is important to rectify before the project is delivered to the client the project management teams members such as developers and testers are required to track and rectify any risk in the project if identified as uncertainty. Many problems can plague a software project. A risk is a potential problem as risk increases the uncertainty of project and the loss of information can harm company’s turnover and also the company can go in losses if there are software risks in the project. Access its probability of occurrences, estimate its impact, and establish a contingency plan should the problem actually occur. For any project developed, it is empirical for the team to monitor and manage risks. Risk are the unexpected delays and hindrances that are faced by the software and need to be actively managed for rapid development. In the words of Tom Glib, “if you don’t actively attack risks, they will actively attack you.” The key functions of software risk management are to identify, address and rectify the sources of the risk before it can become the threat to the company servers. An effective strategy must address three issues:

  ✓ Risk escape
  ✓ Risk checking
  ✓ RMM and eventuality preparation

  The risk management team should provide ways in which the risk of the software loss will be avoided. This is achieved by developing a plan for risk mitigation. As the project proceeds, risk monitoring activities commence and the project manager monitors factors that
may provide indication if whether the risk is becoming more or less likely. Risk management and contingency planning assumes that mitigation efforts have failed and the risk has become a reality. The RMMM plan tackles risks through risk assessment and risk control. Risk assessment involves risk identification, risk analysis and risk prioritization; while risk control involves risk management planning, risk resolution and risk monitoring.

- **Project Risks**

- **Project Size risk:**
  This risk is associated with the size of the project. Since the size estimates is in total lines of code of the project. To avoid his risk the source code is managed in class structure and functions have been written.

- **Debugging:**
  The software debugging phase may take more time than expected due to the relative inexperience of the team members. Project members may get sick and this would result in a delay in completion of their respective modules. The schedule might slip as the team members are relatively inexperienced.

- **RMMM (Risk Mitigation, Monitoring and Management) Plan**

- **Risk 1.**
  *Size estimate may be high*
  *Mitigation:* keep on modularizing the software and estimate size of individual modules.
  *Monitor:* module to be written.
  *Management:* increase members in the more time consuming modules.

- **Risk 2.**
  *Strict completion schedule*
  *Mitigation:* schedule the project in such a fashion that major modules are completed first so that they get enough time for testing and debugging.
  *Monitor:* keep track of the schedule slips.
  *Management:* put in extra hours to make up for the lost hours.

- **Risk 3.**
Less reuse than planned

*Mitigation:* use OOPS concepts such as classes, objects, functions etc.

*Monitor:* modules should not be written containing similar functionality

*Management:* revise all the modules and take necessary steps to make it reusable.

- **Risk 4**

  **Sophistication of the end users application program**

  *Mitigation:* complex queries and function are to be implemented.

  *Monitor:* every minor issue relating the query is concerned

  *Management:* customer should be clearly notified about the limitations of the functionalities.

- **Risk 5**

  **Debugging phase may take more time than expected**

  *Mitigation:* use debugging tools if available.

  *Monitor:* Ensure that debugging tools are properly used or not.

  *Management:* increase the no of hours to be worked for each member

- **Risk 6**

  **Poor comments in the code:**

  *Mitigation:* commenting standards are better studied and expressed

  *Monitor:* review of the code with special attention given to comments will determine if they are up to standard.

The PMS Prerequisite Phase requires that the organization has established and documented a software engineering policy and a software project manager has been designated also the company should follow all the rules of the software engineering. Achieving the prerequisites to PMS is integral to the key practices of the Software Project Planning (SPP) KPA with a focus on the development of an overall plan (i.e., Organizational Program Management Plan (OPMP) or Software Development Plan (SDP) and a Risk Management Plan as defined in. It is critical that during the development of the OPMP or SDP adequate resources are allocated and identified to perform the software project tracking and oversight activities. PM solution is used to execute the tasks at a greater speed and the reporting the tasks is also done on the PM solution if the task is completed then the task completion icon will highlight that the developer can completed the task in tie enhanced control and overview of all the activities in the project thus improving the efficiency by allowing the various stakeholder to use the system and centrally manage project
related data. Project tracking is a critical activity to ensure the success of a software project. A manager must make decisions on project direction based on quantifiable data. This document presents processes and suggested forms that can give the software manager the data needed to both monitor and make those key decisions necessary to the success of the software project. Hospitals management system should also maintain records of the patients who are admitted and discharged from the hospital so that track of the patients in the hospital can be maintained also in case of emergency hospital should contact emergency services such as police and ambulance if required at the place of emergency. If online software’s are used to keep all the information of the patients online the patient can also check his health-related history online. This Product will handle all the activities starting from the Proposal from the client to the context of software engineering, define knowledge management as a set of activities, techniques, and tools supporting the creation and transfer of SE knowledge throughout the organization. One use of KM is to support software process improvement (SPI) activities. This support is important because both software engineering and quality management techniques fail if they are not based on a thorough knowledge of what is needed and what has been done in a software development organization.

6.3 System Plan and Execution Details

6.3.1 Limits of the hardware

As this research project is mainly catering towards the networking of the various phases of the software engineering project also the Data Warehousing and Data Mining of the software engineering phases of the software project [73]. Its important to have a good networking been done within the organization so that the intended stake holders can access the relevant data sitting at there desk without moving out from there places. Incase email sending mail clients should be properly set too so that email sending can be done right away from the application itself without moving away from the application to compose a email to be sent to the co-worker in the same project. Appropriate bandwidth should be allocated to the research person working on the project.

6.3.2 Input and outputs collaborations

This research project has various modules starting from authentication of the users to the deployment and data warehousing and mining of the previously executed projects to keep all this in synchronization its important to keep all the data integrated and collaborative
so that mining can be easily performed on the project and the codes of the previous projects can be reutilized [74].

6.3.3 Consistency Requirements

The system should be well equipped with various infrastructural system design and development tools and techniques. Various modules communicate information with each other and send the data to the central data warehouse which collects the data and stores its in a central repository. The repository should be really consistent and should work in synchronization with the central data mining tools [75]. The various inputs and outputs should be synchronized and maintained is a tabular manner in the central repository. Information extraction will done using the K-means algorithm used for mining the data from the central data repositories and relevant data about the project is displayed to the end users of the project.

6.3.4 Security and precautionary measures

It’s important to maintain the security of the software projects as all the projects are stored on a central repository its important to secure the central repository. Information bifurcation is also important to maintain consistency in the software project which his under development. The system should be protected by the antivirus and malware software also it should be protected against the spyware all software projects will be checked for the spyware data. The conflicts which occur in the software projects should also be taken care of [76]. The software configuration and management tools should be maintained to manage various versions of the software code developed by various software developers of the software engineering projects.

The minimum considerations which are necessary to be checked while implementing the software engineering project and data mining algorithms for these projects are as follows

- The software should be properly configured so that it can function appropriately.
- The software is designed using the C#, MS SQL database server 2005.
- The research project needs global server space for deployment of the software project

Expectations and Needs

The software developed has some important expectations which can be meet using the design criteria of the databases also the there is a need of resources which will meet the system requirements to store the data about the projects
This research project operated using the various web browsers and functions properly on the web browsers, which support the java scripts and css [77]. This research project for execution required a good bandwidth internet connection the deployment is done on the Azure cloud platform which is a cloud paas ( platform as a service ) provided by Microsoft software’s.

- **System Characters**

  - **Graphical Interface**

  The graphical interface is modest and easy to use it has various functionalities most of the systems designed need more information about the interfaces to understand the functionalities this system is designed with utmost importance so that the UI remains simple and its very easy to user and configure the entire system [78]. Maintaining this feasibility was not so easy keeping in mind the security flaws and issues hence at every level there are security blockages, which are designed to confirm the user identity that is using the system, and there is no fake user or any intruder attacking the system and collecting the data for misuse. There are various stakeholders who will be using this software system designed. These stakeholders have various requirements and would like to extract different information from same central data warehouse for this purpose functions have been designed such that all the users can simultaneously ping into the system and collect the data from different sources. Information gathering from various sources is also critical in todays growing environment of the software industry.

  The data mining algorithms are used by the various stakeholders to collect and represent the data in the format intended by the users of the system. The user interface is the most important part of the software if the user interface is not simple the users of the system will find it difficult to use the system hence the system will become less productive and it will be very difficult to manage and maintain the system. Hence the reporting to the system will also decrease so its necessary to design and develop and easy to use user interface with less predictive system design and development. Data mining with collaboration is also of major concerned as most of the data is collected from various phases of the project its necessary to keep the data in the data warehouse all the data stored in the warehouse should be up-to-date and should be synchronized with all the other systems requesting the data from the warehouse [79]. The intended stake holder who requires the data will ping into the data warehouse and fire the queries and extract the relevant data from the warehouse this ware house will collect the most recent data with all the updates and will display it to the intended stake holder of the software engineering project. This
information will be displayed on the user interface designed for the relevant stake holder who is requesting for the data from the data warehouse [80].

**Code Complexity Calculation**

The code complexity module helps in determining the number of lines of code that was used while designing the software project and also the man hours and the resource persons required and the time duration taken by the developers to completed this research or any software engineering project or the module in the project [16]. The Data Mining and Warehousing - PMS Prerequisite Phase organization established and documented policies and software engineering, software engineering, software project manager, the company must follow all the rules that are required to have been appointed. Data Mining and Warehousing - PMS prerequisites to achieving the overall project development (ie, the organization's Program Management Plan (OPMP) or Software Development Plan (SDP) and focus on the software project planning ( spp ) kPa are an integral part of the main methods of defining it in. the Risk Management plan or SDP OPMP adequate resources allocated to development and software project tracking and monitoring activities referred to in the complex.

Manageability and scale of the project and the scope of the problems plaguing the two is bad. These problems can only be costly, they can be fatal to your ultimate business objectives. , Definition, purpose, and scope to improve the technologies you need to take the uncertainty out of the competition. The Data Mining and Warehousing - PMS solution for you and your team more real-time understanding of the project requirements, and the scope of the inevitable changes that will transcend the boundaries of distributed teams. The visibility of each member of the team managed to control high productivity and development process that leads to the idea to create an alignment, from the beginning of the project allows for the sharing of expectations. The Data Mining and Warehousing - PMS that it is standard for application lifecycle to provide interoperability in the future without abandoning the past allows you to move. Many companies today Globalization, around the clock, nonstop design and development is very good to be true. Diverse groups, different agendas, missed opportunities, communications, and so far does not sound that projects fail: the reality is that because it is a specific point. So how you around campus or around the world to work in concert, the team focused on the distribution and the end goal is not to multiply? First, you change and configuration needs and help you maintain control.
of the application lifecycle in the development of a management system that is designed to give you visibility from the integrated environment is needed [17].

Data Mining and Warehousing - with PMS, you and your dramatic acting and communication between distributed and remote teams can improve. You can exaggerate your application development lifecycle visibility and control through the development of management on stage, you better control over the entire development process.

The product of the project / product development at different levels and different people involved in the software development will be used to collect information from. The project / product provides multi-level monitoring, the entire software development life cycle, the client and the client are working on a software development team working on both the client and developer documentation by the interaction will monitor the project / product. Company for the development of the project / product who is the client can view the documentation. Client project / product is strictly controlled different parts of the client throughout the day is to get a clear picture as their project-related per week, they can view the details of manpower and how many people are working on their project, the project / product has been allocated to the person's condition can be monitored. This product is a software development project as an opportunity to provide assistance to industry and other small-scale and large-scale industries can be extended.

Project tracking software to ensure the success of the project is an important activity. Based on quantifiable data manager must make decisions on the direction of the project. This document is both a software manager to monitor and provide the necessary information needed for the success of software projects can be an important decision that represents the processes and forms of instruction. In addition, any project is to be developed in the project to go to the client in the client's specific Briefing will work on their projects, which can monitor the progress of the day. The product proposal from the client to the client's completion and delivery of the product by the company will handle all activities. will be able to communicate with the evidence, viewed by the client on the client side. The client will know the exact time and duration of manpower employed in its product development spend by each job. It is developing a product that will not be there to hide any information from the company so that project will be completed and be more secured.

**Information processing**
the data to uncover patterns actually present, the target data set to be created within an acceptable time limit, while remaining compact enough to be included in the pattern must be sufficiently large. Before the pre-processing of data mining to analyze multivariate data sets are required. The target set is then cleaned [14]. Data cleaning noise and the accompanying observations with missing data are removed. The duplication of the information needs to be removed from the data so that a single and updated copy of the project is maintained. Most of the software engineering project today need to be analyzed and developed in system utility type [17].

The final step in the data mining and knowledge discovery from data produced by the algorithm is to determine the pattern of a large data set. All patterns found by the data mining algorithms are not necessarily valid. Data mining algorithms, a common data set is not available, it is common to find patterns in the training set. This is called over fitting. To avoid this, evaluation of the data mining algorithm was not trained on the use of a test data set. For example, "legitimate" emails from the "spam" data-mining algorithm trying to distinguish a simple e-mail will be trained on the training set [18]. Once trained, the learned patterns that had not been trained to set up e-mail on which the test will be applied to. The accuracy of the pattern of e-mails and how they can be measured correctly classified. A number of statistical methods such as curve algorithm, can be used to assessed by the users of the system.

**Result Validation**

The information, which is stored on the data warehouse, should be validated with the exact data otherwise there can be duplication of the information and records in the system can be over written by the new data published the central repository of the system its important to cater to the needs of the information validation before uploading any information on the system repository of over writing the previous data the backup copy of the information should be maintained with all the records synchronized and a true copy of the information should also be maintained on the data warehouse this is important for comparison of data with various stages of the project management system [19]. Data mining to reveal hidden patterns and trends in data warehouse database as a collection of static data analysis of historical business activities, are. Data mining software to detect previously unknown strategic business information to help you sift through large amounts of data to use advanced pattern recognition algorithms. Businesses prevent customer attrition and new customers with more accuracy, cross-sell to existing
customers and to profile customers, to find the root cause of problems, identify new production space Analyzing the market, including what are examples of the use of data mining. Today, companies are collecting an explosion at the raw data. For example, Walmart every 20 million points-of-sale transactions and processes [10]. This information is stored in a central database, but to analyze the data mining software would be useless without some kind. Walmart data mining techniques to analyze their point-of-sale data to determine trends in the sales and marketing campaign development and will be able to more accurately predict customer loyalty [11]. We credit card, a store loyalty card, or fill out a warranty card information every time you use our purchasing power is being collected about behavior. Many people, such as Google, Facebook, and Amazon, as disturbing companies, find the amount of information collected about us and are concerned about privacy. Harmful, or unwanted can be used for our personal information is possible, although it is also used to make our lives better. They recommend ways to safe and dangerous road conditions can warn drivers about so, for example, Ford and Audi hopes to collect information about a customer driving patterns of the system that will collect the data from the data warehouse [12].

Most of the companies today have sophisticated application tools, which extract data from the central repositories and dump this in the information exchanges of the system development tools. The key components is to validate the users inputs and the system design and development problems Today most of the tools user for data mining do not validate the data after extraction hence its difficult to understand the information flow how it works and how the users can collect data from the sources of the information. Today we have most of the companies collecting data from various view points hence its important to get the information in a central place [14]. Customer relationship management applications, data mining can contribute significantly to the bottom line. In addition, modern applications that can be used to automate. Data mining, The results have been determined, this "sophisticated application" either automatically send an e-mail or regular mail. Finally, many people without offering to take action in cases where the "uplift modeling" is offering a great increase in the response of the people to determine what can be used [15]. Modeling the Advancement of persuadable people, mailings and offers enables marketers to focus, and will buy a product without offering to send offers to people who do not. Automatic clustering of data segments or groups within a customer data set can be used to find. Rather than using a model to predict how many customers will churn, a business model unique to
each region and customer type can be built. Instead of sending an offer to all the people who are likely to churn, then, it may only want to send offers to loyal customers [16]. Finally, business customers are going to be profitable over time certain window to determine what you can, and only those that are likely to be profitable to send offers. In order to maintain this quantity of models, they manage model versions and move to automated data mining is needed. The System Designed Models. An integrated circuit product line with the relevant data mining for example, "Very Large Scale Integrated Test Mining Test Data to Optimize." [17] This paper is described in the paper, die-level functional test, data mining and decision analysis to the problem of application are described. A probabilistic model to fit experimental failure patterns mining historical die test data to demonstrate the ability to apply the system is mentioned [18]. This pattern is used to determine the Real-time, the next and when to stop testing to verify die. This system has the potential to improve profits on mature IC products, based on experiments with historical test data is shown. Other implications of the semiconductor manufacturing process, on-line monitoring using data mining can be extremely effective [19].

**Result Authentication**

The system generated result after mining of the information should be checked for testing the most of the system software require the system design and development modules which collaborate with the functionalities of the software project most of the data warehouses collect RAW data from various sources this RAW data needs to be analyzed and accessed from various system repositories [10]. Mining of information is also crucial step and the most important is Authentication of the information, which is stored in the central data base repository.

The authenticated information should be stored in different table and sections in a data warehouse so that the stakeholders will have access to the authenticated information only and no duplication of the information should be maintained [112]. The key factor concerning the information integration and exchange is important its important to concentrate on the global data challenges which are faced while mining the information. Most of the stack holders connect to the central repository and they get the data but there should be tools which every the data is original and no one tampered with the data when it was being transmitted from one end to the other [102]. The information exchange from one end to the other should be secured and also encrypted so that legality of the data can be maintained and results, which are obtained from this
data, are also original. Hence no flaw in the system is detected. Security of the data while extracting the RAW data from the data warehouse is also important [113].

**Function Point Analysis**

This system calculated the function point of the software engineering project Identified and classified in a type of work that is done, then the complexity of the assessment and action points are assigned number. Such as a query to check for user input or data entry as the end user business function maps each of the functional user requirements [114]. The task of measuring points in user-friendly requirements easily map, but also the tools that are needed to implement the built-in functions, to hide the trend, because this is an important difference, however, Changing the size of the result is an International Standard Organization recognized FSM method consists of algorithmic complexity. Recently implemented in several commercial software products to deal with the perceived weaknesses of different approaches are proposed [105]. These (and other vulnerabilities), designed to make the functional side measurement method based Albrecht differences included for calculating the system function points. Most of the software engineering project today require the function point analysis all the function point analysis is done by the project management software [106].

The function point analysis helps in calculating the system lines of codes and the man hours required for executing such kind of project with the help of function point calculation its easily understood now to manage and maintain the system design and development its also helps in determining the system requirement that are necessary for the project to get completed with number of man hours required and the resources required by the software engineering project. it helps in keeping track of the resource pools of the software project and manage the system design and development with all the functions and system integrated modules this system design helps to collect the data from various sources in the data warehouse [107].

The overall design structure of the system consists of the following components, which are incorporated, in the overall design of the research software.

1. Data Warehouse
2. Data Mining Algorithm
3. User Interface
4. Extraction of the data from the warehouse
5. Display of the relevant information
These Modules are individual Modules, which communicate with each other as and when required by the users it’s important to keep track of the functionalities of the system designed. The Data warehouse will collect data from all the phases of software engineering project most of the data will be stored as RAW data in the data warehouse. The information about the projects will be needed by the various stake holders of the software engineering project to extract that data from the data warehouse the K-Means Algorithm will be used the data mining algorithm to extract the data from the various phases of the project management [108]. Most of the data stored in the data warehouse is modularized its important to extract the exact modules data and generate the reports. The user interface designed is more intuitive and most of the stakeholders need less training time to understand the user interface of the software keeping that in mind help is also provided at each stage of the software engineering project. Extract and compilation of the data takes place in the central repository most of the software projects module where the information extraction takes place its important to target the data modules. Information about the relevant module is stored in the data warehouse.

Development of Project

- System Design pattern

This research project will have a design pattern to cater to the needs of the software engineering projects. Most of the system design and development is taken care by the users. Information about all the tasks is and modules are stored in this system. Data mining and warehousing of the project management system will provide as platform for all the stakeholders to collaborate and to store and work on the data synchronously without waiting for the other stakeholders to pass on the data [81]. When information needs to be extracted and displayed the data mining algorithms will provide a crucial role in the information extraction from the central repository, which is a data warehouse of the existing and ongoing projects.

- Project Tracing

The software industry has maximum amount of project failures and also delays in designing the client’s software. This is because of the miscommunication and unmanaged project schedules [82]. As the software used to manage the schedule is not in sync with the project development systems its necessary to keep the tasks and the project schedule synced without any delay in the software project. Information management and system designs are complicated the schedules of the project and the information about the projects should be synced and
collaboration of the information should be maintained [83]. System should have the alert system which check the dates of all the modules and how they sync up with the design of the system schedule. The alert system will send push notification on the hand held devices also it will send emails to the end users about the delay in the on going projects if any this system will help the stakeholder to keep track of any delay in the designing of the client projects.

- **Track / Untrack the projects.**
  It’s important for the stakeholders to keep track of the software projects under development. Most of the software engineering projects today require this button, which says Track / Untrack the system design [84]. The project managers of the software project can keep track of the on going projects they can monitor the status of the software projects under execution and also maintain a list of on going projects. When the project manager will click on the track project he will be able to monitor all the activities of the software project and will be able to collect data about the project [85]. The system will provide more information and data about the project the project manager will be involved in the project once he clicks on the track button of the project all the schedule related information will be displayed to the users of the system and it will become easy for the end user or the project manager to track all the module status and the progress report of the software under development.