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Project Tracking Tool

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ABSTRACT

The project entitled “PROJECT TRACKING TOOL” deals with the various levels of project development and will account for time used in analysis, design programming, testing and verification etc.

It is a known fact that the software solution institutes engage in many projects at the same time, and it is mandatory to monitor and manage ongoing tasks to meet deadlines for a smooth operation of business and a timely delivery of promised assignments with its clients to maintain its reputation and to have future business.

During the lifetime of a project, the organization has to commemorate all the activities of the project. This tool makes it easier for the organization to monitor the projects. It maintains records and tracks various parameters that influence software project development process and helps the management to take decisions at various stages of the project development.

The product will assist the organization in maintaining record of every project it undertakes. All the information relevant to the projects like size, time, effort and departments involved, etc. is maintained by this tool.
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PROJECT DESCRIPTION:

It is a known fact that the software solution institutes engage in many projects at the same time, and it is mandatory to monitor and manage ongoing tasks to meet deadlines for a smooth operation of business and a timely delivery of promised assignments with its clients to maintain its reputation and to have future business.

A structured tracking method enhances the smooth relationship between the organization and its clients; managers and the workers. A structured tracking tool on the project can be used internally to assess the efficiency of the developer by the manager and the client can use the same from his location to track the completion level of the project, without visiting the operational arena.

An organization should have a complete record and monitor every occurrence of any given task or achievement in the life time of a project. A project tracking tool makes this mission trouble-free. This enables a data sheet of the phases in a project, and become handy managing the project along with the schedule and achievements, making the monitoring and decision making smooth.

This project tracking tool will serve as an apparatus in maintaining records of projects handled by an organization; including information such as tasks, duration of the project and its tasks, size of the project, departments involved in completion, client information etc.

The project tracking tool is a handy instrument, which enables an efficient delivery on completion. With the tool an undertaken project can be delivered without any delays or errors and if there are any, such will be raised before delivery and can be re-evaluated and settled with minimum efforts. Additionally both managers of the project and the clients can get updated of the current progress of the project eliminating communication disputes in a contract.

Competitive Information:

The inspiration of this project is the fact that the software solution institutes engage in many projects at the same time, and it is mandatory to monitor and manage ongoing tasks to meet deadlines for a smooth operation of business and a timely delivery of promised assignments with its clients to maintain its reputation and to have future business.

In the process of a project, any said organization has to record and maintain the phases of a project individually and cumulatively. This system is trailing a manual process of maintaining the records and events of the projects.
Relationship to other applications:

The project manager will draft a detailed schedule of the project from the beginning to end with phases allotting time and actions of a said project. If the organization is managing several projects at the same time, each said project will be in a different stage at a said point of time. A manager in his capacity to manage a smooth deployment needs an overview of the ongoing while the clients will be interested in knowing the development of their project and insist to get updated on the status of the same. While handling many projects at the same time or if a project is vast and has many departments participating on the same project, internal assessor or manager will face difficulties in reading the status of the project with the manual excel sheets they maintain on the active projects.

This tool will focus on the interval of the project assigned to the developer or the manager while the client can track the progress of his project. There are many project tracking tools with many features, yet lacking in sub task recording. This tool focuses on updating, customizing, modifying the project, allocation of divided tasks and maintain the same with easy access (Picariello, 2015). The proposed model of tracking tool in this project has come up with such advantages with remote access or internal server access whereas conventional old tools fail to feature these facilities.

It is a known fact that the software solution institutes engage in many projects at the same time, and it is mandatory to monitor and manage ongoing tasks to meet deadlines for a smooth operation of business and a timely delivery of promised assignments with its clients to maintain its reputation and to have future business.

Drawbacks of Existing Systems:

- The prevailing system does not provide a secured registration and a complete profile management of its users
- The system is not enabled with on-line help assistance.
- The system does not feature a module to evaluate the efforts on a particular task by an employee
- The system doesn’t provide an online facility to maintain projects and its sub modules

Need of the System:

An organization should have a complete record and monitor every occurrence of any given task or achievement in the life time of a project. A project tracking tool makes this mission trouble-free. This enables a printer friendly summary of the phases in a project, and become handy in managing the project progress in competence to the schedules and achievements simultaneously, making the monitoring and decision making smooth.
This project tracking tool will serve as an apparatus in maintaining records of projects handled by an organization; including information such as tasks, duration of the project and its tasks, size of the project, departments involved in completion, client information etc.

It is a known fact that the software solution institutes engage in many projects at the same time, and it is mandatory to monitor and manage ongoing tasks to meet deadlines for a smooth operation of business and a timely delivery of promised assignments with its clients to maintain its reputation and to have future business.

A structured tracking method on a project undertaken enhances the smooth relationship between the organization and its clients; managers and the workers (Wikipedia.org). A structured project tracking tool on the development project can be used internally to assess the efficiency of the developer in the organization by the team lead or manager and the client can use the same project tracking tool from his location to track the completion level of the project, without visiting the operational arena.

**The purpose of a new system against the existing system:**

- The existing system lack capacity providing secured registration and profile management.
- The existing system does not provide online assistance / help.
- The system does not have features to measure efforts of an employee on a particular task.
- The system doesn’t provide any facility to maintain projects and its sub modules online.
- The manual system has very less to no security assurance in saving data and data can be lost due to mismanagement.
- The system doesn’t provide sufficient storage for users.
- The system is rigid and has no provision for help assistance, implementation and tuning.
- The system doesn’t generate requirement specific reports

**Assumptions and Dependencies:**

This tool enables monitoring and evaluation of a project simple. Also this generate records of a data sheet of the phases in a project, and become handy managing the project along with the schedule and achievements, making the monitoring and decision making smooth.

**Future Enhancements:**

The new proposed system can provide a full- fledged project tracking between the employee, manager and the client. This can also generate updated records and can save time when the project is at deployment stage. The update notification can be sent as emails to the client, manager and employee about the project. In
addition the team can add relevant event schedules to the system that will let the users know of any major achievement or deadline is nearing on the project (Wikipedia.org).

As future improvement, this project has provisions to add timeline of all communication, mail addresses, link etc. to the organization. Further, this can include grading of the employee performance which will enable the manager on appraisal and clients to pick skilled people in the organization. With implementation, there is a scope of including encrypted mobile application for easy access and portability with major mobile applications.

Definitions and Acronyms:

- SRS – Software Requirement Specifications.
- FR – Functional Requirement.
- NFR – Nonfunctional requirement.
- DBC – Java Database Connectivity.
- HTTP – Hypertext transfer Protocol.
- HTML – Hypertext Markup Language.

TECHNICAL DESCRIPTION

Project/Application Architecture:

![Project Architecture](image)

Figure 1: Project Architecture.
We have used Java, Servlets, JDBC and JSP pages for the front end and Oracle 10g SQL for the backend. Java uses sophisticated methods to create the application and SQL is used to have the secure system that will store the data automatically.

Project tracking tool, provides some advance techniques for the Clients, Managers and Employees (Brown, 2012). We have taken some specific input and output measures in the design of the document to provide a user friendly system (Brown, 2012).

To provide ease of use to the Clients, Employees and Managers, the interfaces have been developed that are accessible through internal system which can only be accessible to Clients, Employees, Managers and Administrator. The GUI’s at the top level have been categorized as

**Administrative user interface**: The administrative UI focuses on the consistent information that is practically, part of the organizational activities and which needs proper permissions for the data collection. These interfaces help the administrators with all the transactional states like Data insertion of the employee, client and manger. Project updating, employee project completion status.

*Project/Application Information flows*

![Figure 2: Data Flow Diagram](image)
Interaction with other Project (if Any)

The Project Tracking tool is an internal application which can only use by the organization or the company. The tool is developed according to the company requirements. So there is not interaction or comparison with any other project.

Interactions with other Applications
Project Tracking Tool is developed in many ways it depends on the organization, how there design the tool, some applications are very limited to the company policies, some are very advance then other applications, so very Project Tracking will basic as well as advance options to interact, the tools are very to each other.

**Capabilities**

**User Interfaces:** The application is to be provided with keyboard, mouse. The mouse triggers the required action. They act as shortcuts and provide an easy access within the software. Error detection is handled by using Exception handling.

**Hardware Interfaces:** The system requires an Internet connection or a dial up modem provided by the administrator with a decent band width. A printer is required to take printouts of reports. Appropriate networking and protocols should be used in order to access the internal portal.

**Software Interfaces:** The incoming data to the tool will be raw high level language data and outgoing data would be text itself. Both input and output are handled by dynamic HTML, JSP, JS Pages. An internal browser is required for access the tool. As it is an Internal Application, it has to support various Hardware systems, Software’s Applications and Network Communications.

It should support all types of Hardware versions, Operating Systems.

**Risk Assessment and Management**

This document play an important role in the development of software life cycle (SDLC) as it describes the complete requirement of the system. Any changes made to the requirements in the future will have to go through formal change approval process. We have used Spiral Model to develop the software.

The steps for Spiral Model can be generalized as follows:

- The new system requirements are defined in as much details as possible.
- A preliminary design is created for the new system.
- A first prototype of the new system is constructed from the preliminary design (Gaurav et al., 2013).
- A second prototype is evolved by a fourfold procedure (Gaurav et al., 2013):
  - Evaluating the first prototype in terms of its strengths, weakness, and risks.
  - Defining the requirements of the second prototype.
  - Planning a designing the second prototype.
  - Constructing and testing the second prototype.
- If the risk of a project seems higher than the benefits, the client can terminate the entire project (Gaurav et al., 2013).
- Until the customer achieves satisfaction, project phases are repeated to achieve desired competence (Gaurav et al., 2013).
The final system is thoroughly evaluated and tested. Routine maintenance is carried on the tool.

The following diagram shows how a spiral model acts like

![Spiral Model Diagram]

**Figure 7: Spiral Model.**

**PROJECT REQUIREMENTS**

*Identification of Requirements:*

The first phase of the project is the requirement specification. The project deals with eight modules.

- Authentication and Security Module.
- Admin Module.
- Registration Module.
- User Management Module.
- Project (Task) Management Module.
- Project Manager Module.
- Project Management Module.
- Employee Module.
- Client Module.
- Query and feedback Module.
- Report Module
Modules Description:

Authentication and Security Module

The Login user details should be verified with the details in the user tables and if it is correct user, then they can access service. Once entered, based on the user type access to the different modules to be enabled / disabled and individual user can change their default password or old password.

Admin Module

This module consists of the following sub modules:

Registration Module: Here admin register new employees, managers and store their details in database. He also register new projects and store their details in database.

Users Management Module: Here admin manages different type of users. He can view/update their details, can delete them if requirement comes. He also manages teams of developers here and their assignment to team leads.

Project (Task) Management Module: Here admin can add a new project and can add, view, modify and delete them according to requirement. Here admin also can assign this projects to team leads.

Project Manager Module

This module has following sub modules:

Project-Module Management Module: Here team leads create sub modules of an assigned project. And manages this according to requirement.

Employee Module

Here Employee view the subtask assigned by the team lead and set the status means how much effort spent to the assigned the task. He can also able to send the queries to team lead or manager and view the reply.

Client Module

The Details of the project added by the client i.e. project name, allocate the project to the corresponding project manager

Query and Feedback Module

Using this module the system maintains a query and feedback sub system in between users. A user can make a query to his superiors regarding any matter and a user can reply the queries made to him.

Reports Module
In this Module the User and Administrator can generate the different types of Reports according to their access.

Operational, Administrational, Maintenance and Provisioning Requirements:

Requirement specification is an important role in the analysis of a system. When the requirement specifications are given, it is possible to design a system, which will fit into required environment. It rests largely with the users of the existing system to give the requirement specifications because they are the people who finally use the system. This is because the requirements have to be known during the initial stages so that the system can be designed according to those requirements. It is very difficult to change the system once it has been designed and on the other hand designing a system, which does not meet the requirements of the user, is no use.

This are the minimum requirements required to run the application and to maintain the application from the end user and by the administration.

SOFTWARE REQUIREMENTS

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Windows 8.1, 10 or Linux.</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Interface</td>
<td>HTML, CSS.</td>
</tr>
<tr>
<td>Client-side Scripting</td>
<td>JAVA.</td>
</tr>
<tr>
<td>Programming Language</td>
<td>JAVASCRIPT.</td>
</tr>
<tr>
<td>Web Applications</td>
<td>JDBS, Servlets, JSP.</td>
</tr>
<tr>
<td>IDE/Workbench</td>
<td>My Eclipse 8.6.</td>
</tr>
<tr>
<td>Database</td>
<td>Oracle 10g.</td>
</tr>
<tr>
<td>Server Deployment</td>
<td>Tomcat 6.x.</td>
</tr>
</tbody>
</table>

HARDWARE REQUIREMENTS

<table>
<thead>
<tr>
<th>System</th>
<th>Intel Core i5 or Higher.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAM</td>
<td>2 GB or more.</td>
</tr>
<tr>
<td>Hard Drive</td>
<td>128 GB or more</td>
</tr>
<tr>
<td>Monitor</td>
<td>18' LCD or 15.6' Laptop</td>
</tr>
<tr>
<td>Mouse</td>
<td>Any High end with wheel</td>
</tr>
<tr>
<td>Keyboard</td>
<td>Standard 110 keys or Laptop Keyboard.</td>
</tr>
</tbody>
</table>

Security and Fraud Prevention:
The project tracking tool is an internal application which can only assess by the Clients, Employees, Managers and the Administrators. The Employees can only update their status, The Mangers can only add or delete the sub tasks or the project modules, The Client can only view and check the status of the project, so they is no security issues with the application. It doesn’t have any transaction type or gateway payment type links. The project tracking is very unique application which will only developed by those organization who they want them. So it’s entirely different from other application so no one can’t make duplicate or make a fraud application from it. The Administrator as full control over the application. One can’t change anything without the Authorization of Administrator.

**Release and Transaction:**

The Application is released by the administrator of the organization, the application has BASIC, JSP and JavaScript’s to access Portal.

**BASIC:** Basic authentication uses the portal to display a username/password dialog box in the internal browser. This username and password is allowed to access the information of the Employee, Client and Manager from Administrator side. This username, passwords are even used by the clients, employees, mangers, to access their own portal, profile and change passwords of their username.

**JSP:** JSP-based authentication requires that you return an HTML form containing the username and password. The fields returned from the JSP elements must be allowed to login page of the users.

```html
<%if(session.getAttribute("user")==null){%>
<jsp:forward page="/LoginAction"></jsp:forward>
<%} %>
```

The resource used to generate the HTML JSP may be an HTML page, a JSP, or a.servlet. You define this resource with the `<jsp-login-page>` element.

**Java Script:** JavaScript is a compact, object-based scripting language for developing client and server internet applications. Netscape Navigator 2.0 interprets JavaScript statements embedded directly in an HTML page. And Livewire enables you to create server-based applications similar to common gateway interface (cgi) programs.

In a client application for Navigator, JavaScript statements embedded in an HTML Page can recognize and respond to user events such as mouse clicks form Input, and page navigation. From this a user can access the portal seamlessly.

**HTML:** Hyper Text Markup Language (HTML), the languages of the World Wide Web (WWW), allows users to produces web pages that included text, graphics and pointer to other web pages.
Hyperlinks are underlined or emphasized works that load to other documents or some portions of the same document. HTML can be used to display any type of document on the host computer, which can be geographically at a different location. It is a versatile language and can be used on any platform or desktop.

HTML provides tags (special codes) to make the document look attractive.

HTML provides are not case-sensitive. Using graphics, fonts, different sizes, color, etc., can enhance the presentation of the document. Anything that is not a tag is part of the document itself.

**Basic Html Tags:**

<table>
<thead>
<tr>
<th>Tag</th>
<th>Specific Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;!------------&gt;</td>
<td>Specific Comments</td>
</tr>
<tr>
<td>&lt;A&gt;…………….&lt;/A&gt;</td>
<td>Creates Hypertext links</td>
</tr>
<tr>
<td>&lt;Big&gt;……….&lt;/Big&gt;</td>
<td>Formats text in large-font</td>
</tr>
<tr>
<td>&lt;Body&gt;……….&lt;/Body&gt;</td>
<td>Contains all tags and text in the Html-document</td>
</tr>
<tr>
<td>&lt;Center&gt;……&lt;/Center&gt;</td>
<td>Creates Text</td>
</tr>
<tr>
<td>&lt;DD&gt;………..&lt;/DD&gt;</td>
<td>Definition of a term.</td>
</tr>
<tr>
<td>&lt;TABLE&gt;…..&lt;TABLE&gt;</td>
<td>Creates table</td>
</tr>
<tr>
<td>&lt;Td&gt;………..&lt;/Td&gt;</td>
<td>Indicates table data in a table.</td>
</tr>
<tr>
<td>&lt;Tr&gt;………..&lt;/Tr&gt;</td>
<td>Designates a table row</td>
</tr>
<tr>
<td>&lt;Th&gt;………..&lt;/Th&gt;</td>
<td>Creates a heading in a table.</td>
</tr>
</tbody>
</table>

**Advantages:**

- A HTML document is small and hence easy to send over the net. It is small because it does not include formatted information.
- HTML is platform independent.
- HTML tags are not case-sensitive.

**PROJECT DESIGN DESCRIPTION**

The Following Screen’s and Diagrams description of Project Design
Figure 8: Login Screen

Figure 9: Profile Details.
Figure 10: Deleting the Project Details.

Figure 11: Details of all Employees.
Project Tracking Tool

Figure 12: Details of all Projects.

Figure 13: View Assigned Project Details.
Figure 14: Assigning task to Developer

Figure 15: Class Diagram of Application.
Figure 15: Use Case Diagram of Application.

Figure 16: Administration Use Case Diagram
Figure 17: TeamLead Use Case Diagram

Figure 18: Developer Use Case Diagram.
**Database Design:**

We have used Oracle 11g database to store the data. This database can be run on internet and can also be on our local host, we have used “xe” control panel which holds both SQL database and tomcat server.

Initially we have created database with names “PTT” for equipment request and withdrawal form respectively.

The data base includes several tables, records database includes tables named like Address, Employee, Project Details which holds the information about the employee, client and manager who has requested for projects and all about that request. It also contains user login table holds the username and password of the administrator, when administrator tries to log on the portal it checks with the database for authentication.
The following figures shows the Tables in the database

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Data Type</th>
<th>Nullable</th>
<th>Default</th>
<th>Primary Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>USERID</td>
<td>NUMBER</td>
<td>No</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>ADDRESSID</td>
<td>NUMBER</td>
<td>No</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>ADDRESSTYPE</td>
<td>VARCHAR2(10)</td>
<td>No</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>HOUSENO</td>
<td>VARCHAR2(30)</td>
<td>Yes</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>STREET</td>
<td>VARCHAR2(30)</td>
<td>Yes</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>CITY</td>
<td>VARCHAR2(30)</td>
<td>Yes</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>STATE</td>
<td>VARCHAR2(30)</td>
<td>Yes</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>COUNTRY</td>
<td>VARCHAR2(30)</td>
<td>Yes</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>PINCODE</td>
<td>VARCHAR2(10)</td>
<td>Yes</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

1 - 9

Figure 21: Address Table

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Data Type</th>
<th>Nullable</th>
<th>Default</th>
<th>Primary Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>TASKID</td>
<td>NUMBER</td>
<td>No</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>EDATE</td>
<td>VARCHAR2(20)</td>
<td>No</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>DEVID</td>
<td>NUMBER</td>
<td>No</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>EHRS</td>
<td>NUMBER</td>
<td>Yes</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>STATUS</td>
<td>VARCHAR2(20)</td>
<td>Yes</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

1 - 5

Figure 22: EffortDetails Table.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Data Type</th>
<th>Nullable</th>
<th>Default</th>
<th>Primary Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>USERID</td>
<td>NUMBER</td>
<td>No</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>LOGINDATE</td>
<td>DATE</td>
<td>No</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>LOGINHOUR</td>
<td>NUMBER</td>
<td>Yes</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>LOGINMINS</td>
<td>NUMBER</td>
<td>Yes</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>LOGOUTDATE</td>
<td>DATE</td>
<td>Yes</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>LOGOUTHOUR</td>
<td>NUMBER</td>
<td>Yes</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>LOGOUTMINS</td>
<td>NUMBER</td>
<td>Yes</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

1 - 7

Figure 23: LoginMaster Table.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Data Type</th>
<th>Nullable</th>
<th>Default</th>
<th>Primary Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODULEID</td>
<td>NUMBER</td>
<td>No</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>PROJID</td>
<td>NUMBER</td>
<td>Yes</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>MODULENAME</td>
<td>VARCHAR2(50)</td>
<td>Yes</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

1 - 3
### Figure 24: Module Table.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Data Type</th>
<th>Nullable</th>
<th>Default</th>
<th>Primary Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>USERID</td>
<td>NUMBER</td>
<td>No</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>PHONENO</td>
<td>VARCHAR2(13)</td>
<td>No</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>PHONETYPE</td>
<td>VARCHAR2(20)</td>
<td>No</td>
<td>-</td>
<td>3</td>
</tr>
</tbody>
</table>

1 - 3

### Figure 25: Phone Table.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Data Type</th>
<th>Nullable</th>
<th>Default</th>
<th>Primary Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROJID</td>
<td>NUMBER</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TLEADID</td>
<td>NUMBER</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>MAXMODULES</td>
<td>NUMBER</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>EXPSRTDATE</td>
<td>VARCHAR2(20)</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>EXPENDDATE</td>
<td>VARCHAR2(20)</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STATUS</td>
<td>VARCHAR2(20)</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

1 - 6

### Figure 26: Project Assigned to TeamLead Table.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Data Type</th>
<th>Nullable</th>
<th>Default</th>
<th>Primary Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROJID</td>
<td>NUMBER</td>
<td>No</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>PROJNAME</td>
<td>VARCHAR2(100)</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PROJCODE</td>
<td>VARCHAR2(30)</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PROJPERIOD</td>
<td>VARCHAR2(20)</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ASSIGNSTATUS</td>
<td>VARCHAR2(20)</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

1 - 5

### Figure 27: Project Details Table.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Data Type</th>
<th>Nullable</th>
<th>Default</th>
<th>Primary Key</th>
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</thead>
<tbody>
<tr>
<td>QUERYID</td>
<td>NUMBER</td>
<td>No</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>LOGINNAME</td>
<td>VARCHAR2(20)</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>QUERYDATE</td>
<td>VARCHAR2(20)</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>VARCHAR2(100)</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STATUS</td>
<td>VARCHAR2(20)</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TOID</td>
<td>NUMBER</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

1 - 5

### Figure 29: Query Table.
Figure 30: Solution Table.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Data Type</th>
<th>Nullable</th>
<th>Default</th>
<th>Primary Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>QUERYID</td>
<td>NUMBER</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SOLVEDDATE</td>
<td>VARCHAR2(20)</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SOLUTION</td>
<td>VARCHAR2(100)</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

1 - 3

Figure 31: Team Assign to TeamLead Table.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Data Type</th>
<th>Nullable</th>
<th>Default</th>
<th>Primary Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLEADID</td>
<td>NUMBER</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>DEVELOPERID</td>
<td>NUMBER</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

1 - 2

Figure 32: Task Assign to Developer Table.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Data Type</th>
<th>Nullable</th>
<th>Default</th>
<th>Primary Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROJID</td>
<td>NUMBER</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>MODULEID</td>
<td>NUMBER</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TASKID</td>
<td>NUMBER</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TLID</td>
<td>NUMBER</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>DEVID</td>
<td>NUMBER</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
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<tr>
<td>EHRS</td>
<td>VARCHAR2(20)</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

1 - 6

Figure 33: User Details Table.

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Data Type</th>
<th>Nullable</th>
<th>Default</th>
<th>Primary Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>USERID</td>
<td>NUMBER</td>
<td>No</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>FIRSTNAME</td>
<td>VARCHAR2(20)</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>LASTNAME</td>
<td>VARCHAR2(20)</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>DOB</td>
<td>DATE</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>DOR</td>
<td>DATE</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>LOGINID</td>
<td>VARCHAR2(50)</td>
<td>No</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PASSWORD</td>
<td>VARCHAR2(30)</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>LOGINTYPE</td>
<td>VARCHAR2(20)</td>
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<td>-</td>
<td>-</td>
</tr>
<tr>
<td>FORGOTTPRUE</td>
<td>VARCHAR2(70)</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>FORGOTTPWANSVER</td>
<td>VARCHAR2(70)</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PHOTOGRAPH</td>
<td>BLOB</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>EMAILID</td>
<td>VARCHAR2(50)</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>FAXNO</td>
<td>NUMBER</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STATUS</td>
<td>VARCHAR2(20)</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

1 - 14
Data manipulation: Data manipulation is the data within those schema objects. A schema (PPT) is a collection of database objects that can include: tables, views.

List of SQL statements that can be issued against an Oracle database schema are:

- **ALTER** - Change an existing table, view or index definition (DDL)
- **AUDIT** - Track the changes made to a table (DDL)
- **COMMENT** - Add a comment to a table or column in a table (DDL)
- **COMMlIT** - Make all recent changes permanent (DML - transactional)
- **CREATE** - Create new database objects such as tables or views (DDL)
- **DELETE** - Delete rows from a database table (DML)
- **DROP** - Drop a database object such as a table, view or index (DDL)
- **GRANT** - Allow another user to access database objects such as tables or views (DDL)
- **INSERT** - Insert new data into a database table (DML)
- **No AUDIT** - Turn off the auditing function (DDL)
- **REVOKE** - Disallow a user access to database objects such as tables and views (DDL)
- **ROLLBACK** - Undo any recent changes to the database (DML - Transactional)
- **SELECT** - Retrieve data from a database table (DML)
- **TRUNCATE** - Delete all rows from a database table (can not be rolled back) (DML)
- **UPDATE** - Change the values of some data items in a database table (DML)
PROJECT DESIGN UNITS IMPACTS

System design In General, unified modeling Language (UML) diagram describes the complete description of application architecture. These kind method where used in complicated systems. This how many of the project have been succeed. UML is used for developing object oriented software and helps in communicate within the team members.

**Functional Area / Design Unit A**

*Functional Overview:*

Basically the project follows the spiral model, we need to fix the requirements as others phases like construction and deployment. It can be described by UML diagram and Activity diagrams.

**Definition:**

UML standard the modeling language it help in directs the work of individual developers and complete team. It used for specification, constructing and visualization. It can represented by 5 different views

User model view - This view represents the system from the client’s point of view.

Structural model view – This view show the static structures.

Behavioral model view - This interacts between various structural element which told in the user and structural model.

Implementation model view – This completes implementation part where built by the structural and behavior model.

Environmental model view – This environmental view in that implementation were represented.
Activity Diagram:

Activity Diagram explains detail flow of process then it gives complete control of flow of the process. The client, employee can login with the permission of admin.
Impacts

As the activity diagram shows the complete flow of the process once developer have seen can able to complete the process in the given time

Functional Area / Design Unit B

Functional Overview:

Feasibility Report

Preliminary examination looks at venture Project feasibility; the probability the system will be helpful to the company. The primary target of the feasibility study is to test the Technical, Operational and Economical feasibility for including new modules and troubleshooting old running system. All system are feasibility on the off chance that they are given boundless recourses and unending time. There are viewpoints in the feasibility study bit of the preliminary examination they have three different kind feasibility:

- Technical Feasibility
- Operation Feasibility
- Economic Feasibility

Technical Feasibility:

Assessing the Technical feasibility is the trickiest part of a feasibility. This is on the grounds that, as of right now, not very numerous point by point configuration of the framework, making it hard to get to issues in execution, expenses on (because of the sort of innovation to be sent) and so on. Various issues must be considered while doing a technical analysis.

Roles of Technical Feasibility

i) **Understand the Various technologies in proposed system:**
   Before startup the Project, we have to pick up learning about the technology that builds up the new system.

ii) **Whether the company required that technology:**
    - Is that company is using the related technology before?
    - Can the system be updated?
    - Does the proposed system can satisfy the equipment’s in the company which cam handles new system?

Operational Feasibility

Proposed project must be user friendly should satisfy various requirements like adding the new routes, viewing the route details.

- Is there adequate support for the undertaking from administration from clients? On the off chance that the present system is all around preferred and used to the degree that persons won't have the capacity to see purposes behind change, there might be resistance.
• Are the present business strategies worthy to the client? On the off chance that they are not, Users may welcome a change that will realize a more operational and helpful systems.
• Have the client been included in the Planning and development of the task?
• General and improves the probability of effective undertaking the project.

Since the system was reduce the hardness of the users makes simpler and operational feasible.

**Economic Feasibility**

Economic feasibility is ensures the cost of development of the project where make company get the accrue system configuration.

**Sample Code**

![Sample Code](image)

**Figure 36: Assigning TeamLead Java Program.**
Figure 37: Exporting the details in Excel File Java Program.

```java
package com.track.core.export;

import java.io.*;

public class ExportXLS extends HttpServlet {
  public void doGet(HttpServletRequest req, HttpServletResponse res) throws ServletException, IOException {
    res.setContentType("application/vnd.ms-excel");
    PrintWriter pw = res.getWriter();
    HttpSession session = req.getSession();
    String report = (String) session.getAttribute("Report");
    pw.print(report);
    pw.close();
  }
}
```

Figure 38: Java Program on IntiServlet

```java
public void init(ServletConfig sc) {
    ServletContext ctx = sc.getServletContext();
    InputStream fis = ctx.getResourceAsStream(sc.getInitParameter("config"));
    Properties props = new Properties();
    try {
        props.load(fis);
    } catch (IOException ioe) {
        ioe.printStackTrace();
    }
    dobject = new AbstractDataAccessObject();
    dobject.setProperties(props);
    LoggerManager.logger = new LoggerManager().getLogger(props.getProperty("logfile"));
    LoggerManager.writeLogInfo("Logger Instantiated");
    try {
        new DBFactory();
    }
}
```
System Testing and Implementation

Testing Methodologies:

**Black box Testing:** is the testing process in which tester can perform testing on an application without having any internal structural knowledge of application.
Usually Test Engineers are involved in the black box testing.

**White box Testing:** is the testing process in which tester can perform testing on an application with having internal structural knowledge.
Usually The Developers are involved in white box testing.

**Gray Box Testing:** is the process in which the combination of black box and white box tonics’ are used.
Login Page Test Case:

<table>
<thead>
<tr>
<th>Test Case Name</th>
<th>Test Case Description</th>
<th>Test Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Login</td>
<td>Validate Login</td>
<td>To verify that Login name on login page must be greater than 1 characters</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pwd</td>
<td>Validate Password</td>
<td>To verify that Password on login page must be greater than 1 characters</td>
</tr>
<tr>
<td>Pwd02</td>
<td>Validate Password</td>
<td>To verify that Password on login page must be allow special characters</td>
</tr>
<tr>
<td>Link</td>
<td>Verify Hyperlinks</td>
<td>To Verify the Hyper Links available at left side on login page working or not</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Registration Page Test Case

<table>
<thead>
<tr>
<th>Test Case Name</th>
<th>Test Case Description</th>
<th>Test Steps</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration</td>
<td>Validate User Name To verify that User name on Registration page must be Declared</td>
<td>enter User name click Submit button</td>
<td>an error message User Name Must be Declared</td>
</tr>
<tr>
<td></td>
<td>Validate Password To verify that Password on Registration page must be Declared</td>
<td>enter Password click Submit button</td>
<td>an error message Password Must be Declared</td>
</tr>
<tr>
<td></td>
<td>Validate First Name To verify that First Name on Registration page must be Declared</td>
<td>enter First Name click Submit button</td>
<td>an error message First Name Must be Declared</td>
</tr>
<tr>
<td></td>
<td>Validate Last Name To verify that Last Name on Registration page must be Declared</td>
<td>enter Last Name click Submit button</td>
<td>an error message Last Name Must be Declared</td>
</tr>
<tr>
<td></td>
<td>Validate Address To verify that Address on Registration page must be Declared</td>
<td>enter Address click Submit button</td>
<td>an error message Address Must be Declared</td>
</tr>
<tr>
<td></td>
<td>Validate Phone number To verify that Phone number on Registration page must be Declared</td>
<td>enter Phone number click Submit button</td>
<td>an error message Phone number Must be Declared</td>
</tr>
<tr>
<td></td>
<td>Validate Phone number is To verify that Phone number (say abc) on Registration</td>
<td>enter Phone number is only numeric values</td>
<td>an error message Phone number Must be Declared</td>
</tr>
<tr>
<td><strong>Test Case Name</strong></td>
<td><strong>Test Case Description</strong></td>
<td><strong>Test Steps</strong></td>
<td><strong>Expected</strong></td>
</tr>
<tr>
<td>-------------------</td>
<td>--------------------------</td>
<td>----------------</td>
<td>--------------</td>
</tr>
<tr>
<td><strong>Dispatch code</strong></td>
<td>Validate dispatch code</td>
<td>To verify that dispatch code on login page must be greater than 1 characters</td>
<td>enter valid dispatch code and dispatch goods and click Submit button</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>enter dispatch code and dispatch goods and click Submit button</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dispatch goods</td>
</tr>
<tr>
<td><strong>Dispatch goods1</strong></td>
<td>Validate Dispatch goods</td>
<td>To verify that Dispatch goods page must be declared</td>
<td>enter Dispatch goods and Dispatch code and click Submit button</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dispatch goods</td>
</tr>
<tr>
<td><strong>Dispatch goods2</strong></td>
<td>Validate Dispatch goods</td>
<td>To verify that Dispatch goods page must be declared</td>
<td>enter Dispatch goods and Dispatch code and click Submit button</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dispatch goods</td>
</tr>
</tbody>
</table>
OPEN ISSUES

- Technical - The issues which deals with a technology problem in the project.
- Business process - The issues which deal with the design of the application
- Change Management - The issues relating to business, administrator, or environmental changes.
- Recourse - The issues which are relating to device, hardware, or employees problems.
- Third Party - The issues relating to with clients or another outside party.

ACKNOWLEDGEMENTS

We are very thankful to our advisor Dr. Young Park who helped us, gave valuable suggestion while developing the project, giving time to communicate with him and in doing the project and helped us in completing the project work successfully.

REFERENCES:

- https://www.google.co.in/search?q=software+development+company+hierarchy.
- https://www.google.co.in/?gws_rd=cr,ssl&ei=RZ1pVI0cFM2fugSmvYHQDg#q=project+management
- http://www.w3schools.com/.
- https://docs.oracle.com/javase/tutorial/.

APPENDIES: