



IMPLEMENTATION OF BETA TRUE TESTING SYSTEM AT ACCENTURE SERVICES PVT.LTD, CHENNAI

By

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BONAFIDE CERTIFICATE

Certified that this project report titled "BETA TRUE TESTING SYSTEM AT ACCENTURE SERVICES PVT.LTD, CHENNAI" is the bonafide work of "Mr. P. Arun" (Register Number: 71206621003) who carried out the research under my supervision. Certified further, that to the best of my knowledge the work reported herein dose not form part of any other project report or dissertation on the basis of which a degree or award was conferred on a earlier occasion on this or any other candidate.

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Head of the Department

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This is to certify that Arun P. has completed an internship with Accenture Services Pvt. Ltd., The period of internship was from January 5, 2009 to May 8, 2009.

During this period, the intern has been working on a project entitled as "Beta True Testing System".

We found the intern's conduct good.

Yours Sincerely

Shailendra K Dasika India HR Services Centre Accenture Services Pvt. Ltd

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ABSTRACT

Beta True Testing System is a web portal that manages the overall testing activity and the users of the portal. It enables the client's true testers to be notified to test the mobile instruments and get the results of testing from testers through reports, questionnaires etc. The testers are notified through email or sms from the management system whenever a test unit/sim card/accessory is sent or the management needs to send a questionnaire or the testers are invited to participate in a project.

A systematic validation and verification is done for mobile products at the user level. The better visibility to the value chain and cost structure is achieved. This special focus testing enhances the manageability of the overall flow of feedback.

The testers are located in various geographical locations and they access a different portal that displays the information regarding the testing activity. The portal to be developed thus communicates to this portal (on the tester side) through the common database shared between them.

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LIST OF ABBREVIATIONS

SL.NO.	ABBREVIATIONS	DESCRIPTION
1	BEA	Bill Coleman, Ed Scott, and Alfred Chuang (founders of BEA Systems)
2	J2EE	Java To Enterprise Edition
3	DLL	Dynamic Link Library
4	IDE	Integrated Development Environment
5	ODBC	Open Database Connectivity
6	OLE DB	Object Linking and Embedding Database
7	GTM	Global Test Manager
8	TTL	True Test Leader
9	SC	Site Coordinator
10	WP	Web Portal

CHAPTER 1

1.INTRODUCTION

1.1 ORGANIZATION PROFILE

Accenture is a global management consulting, technology services and outsourcing company. Combining unparalleled experience, comprehensive capabilities across all industries and business functions, and extensive research on the world's most successful companies, Accenture collaborates with clients to help them become high performance businesses and governments. With 178,000 people in 49 countries, the company generated net revenues of US\$19.70 billion for the fiscal year ended Aug. 31, 2007.

1.1.1 Accenture Service Private Ltd

Our "high performance business" strategy builds on our expertise in consulting, technology and outsourcing to help clients perform at the highest levels so they can create sustainable value for their customers and shareholders. Using our industry knowledge, service-offering expertise and technology capabilities, we identify new business and technology trends and develop solutions to help clients around the world:

- Enter new markets.
- Increase revenues in existing markets.
- Improve operational performance.
- Deliver their products and services more effectively and efficiently.

We have extensive relationships with the world's leading companies and governments and work with organizations of all sizes—including 94 of the Fortune Global 100 and more than two-thirds of the Fortune Global 500.

Among the many strengths that distinguish Accenture in the marketplace are our:

- Extensive industry expertise.
- Broad and evolving service offerings.
- Expertise in business transformation outsourcing.
- History of technology innovation and implementation, including our research and development capabilities, on which we spend approximately \$300 million annually.

Our Core Values have shaped the culture and defined the character of our company, guiding how we behave and make decisions:

- *Stewardship*: Building a heritage for future generations, acting with an owner mentality, developing people everywhere we are, and meeting our commitments to all internal and external stakeholders.
- *Best People*: Attracting and developing the best talent for our business, stretching our people and developing a "can do" attitude.
- Client Value Creation: Improving our clients' business performance, creating long-term, win-win relationships and focusing on execution excellence.
- One Global Network: Mobilizing the power of teaming to deliver consistently exceptional service to our clients anywhere in the world.
- Respect for the Individual: Valuing diversity, ensuring an interesting
 and inclusive environment, and treating people as we would like to be
 treated ourselves.
- *Integrity*: Inspiring trust by taking responsibility, acting ethically, and encouraging honest and open debate.

1.1.2 Services

Accenture provides services by helping our Clients around the world to achieve high performance.

The services are

- By Industry
- By subject

1.1.2.1 Industry

- Aerospace and Defense
- Airline
- Automotive
- Chemicals
- Communications
- Consumer Goods and Services
- Energy
- Financial Services
- Industrial Equipment
- Media and Entertainment
- Public Service (Government)

1.1.2.2 Subject

Consulting

We help our clients create value and architect change through our unique spectrum of management consulting services

Technology

Discover the services Accenture delivers to help companies use technology to move to a higher level of performance.

1.2 SYSTEM OVERVIEW

The major functions of the system are Project List, User List, Questionnaires, Reports, FAQ's, Attachments.

- Project List module contains all the information related to a particular project
 to be tested such as creating or editing a project, assigning testers, accessories,
 test units and questionnaires to the project. It also involves assigning sites to the
 project.
- User List module contains information related to the users of the system. One can view /create/edit users, contact testers and the communication log.
- Questionnaires module is used for getting the feedback from the testers. It
 includes add/edit/view questions, organizing categories and questions and to
 preview the questions.
- Reports module is used for generating new reports and to view or edit existing reports.
- FAQ module involves the creation of an interactive forum to publish and answer for the queries.
- Attachments include the listing of the supportive files to be published at the client application.

CHAPTER 2

2.SYSTEM STUDY AND ANALYSIS

2.1 PROBLEM STATEMENT

The telecommunication client of Accenture manufactures mobile instruments which consist of different models. The mobile instruments are given to true testers who will test the instruments and send the results to the management.

It becomes a tedious job to maintain the information of all the testers and Site Coordinators who manage all the testers because they are situated across various geographic locations across the globe. Also in order for testers to report the test results the management has to prepare and maintain different types of questionnaires. So that the testers can fill them and the reminders to fill the questionnaires must also be given. The Global Team Member and True Test Leader, who are the main users, need to prepare different type of reports regarding project, site, approved questionnaire, questionnaire pending for approval and type of questions.

The preparation of questionnaires and tracking of issues that are raised in the project are difficult to address and track. These issues can be corrected by the development of an effective system called Beta True Testing System.

2.2 EXISTING SYSTEM

In the existing system, the mobile instruments manufactured by he client are tested by in-house people which lead to few defects unrevealed and also the maintenance of the entire testing activity was manual which was time consuming and all the reports were also prepared manually. It caused a work overload to Global Team Member or True Test Leader to maintain the reports apart from their regular routine.

The individual databases on the management and the external system, creates a synchronization issue, upon the simultaneous access of both. A congestion in the data flow happens at times, due to the usage of JMS for communication between the two database.

The questionnaires prepared were also not effective and was not properly categorized. Also projects added newly were difficult to maintain and issues raised were difficult to track and resolve.

2.2.1 Drawbacks of the Existing System

The drawbacks of the existing systems can be summarized as below:

- Time Consuming.
- Errors go unreported due to inhouse testing.
- Wastage of Human resources.
- Data redundancy error in the individual databases.
- Over head due to repeated testing.
- Generation of reports is difficult, since various excel sheets are to be verified.

2.3 PROPOSED SYSTEM

The proposed system would automate all of the manual processes described which would help reduce the overhead incurred by the team leads and managers and make the whole process simple and efficient. The proposed system will have computerized data entry screens and processes can be carried out based on inputs from those screens. A set of reports would be provided to ease out the end users task of having to consolidate data to be sent across to the top management.

Individual databases at the Management application and the External System is integrated into a common single database. JMS is removed due to congestion in the data transfer. Addition modules has been included for effective communication between the client and the management part. Security features had been in the tester registration form by including the CAPTCHA technique. Pages to be displayed at the External System side has been enhanced by including the graphical HTML templates.

2.3.1 Advantages of the Proposed System

The expected benefits of the Proposed System are as follows:

- > Easy to use and simple.
- > Integrated system, that avoids congestion.
- New modules can be added with ease without many modifications to the existing system.
- > Flexible and Scalable.
- > Data available on demand.
- > Retrieval of data and reports will be much simpler.

2.4 FEASIBILITY ANALYSIS

Feasibility analysis is the measure of how beneficial or practical the development of the System will be to the project. Once the problem is explained information is gathered about the system to test whether the system is viable Technically, Financially and Operationally. Thus, feasibility study is carried out in three phases as follows:

2.4.1 Technical Feasibility

Technical Feasibility is the measure of practicality of a specific technical solution and the availability of technical resources and expertise. It centers on the existing computer system (hardware, software, etc.) and to what extent it can support the new addition.

The proposed system is to be developed using BEA's WebLogic Portal 10.0 and Oracle 10g which are some of the leading technologies in the market. These technological resources are easily available and the company/project does not need to acquire any development licenses.

2.4.2 Operational Feasibility

Operational Feasibility asks if the system will work when it is developed and installed. It checks for the support of the management, the current business methods, user's involvement and their attitude towards the proposed system, etc.

The proposed system has found encouraging support from the Global Team Members, True Test Leaders, Site Coordinators and the top management as it will be of great use to them. The GTM and SC of the project are also committed to have the system operational as it will save time and reduce their workload. Also since the GTM and SC can have easy access to tester's information, sim cards and other accessories, to keep track of questionnaires and the responses from the testers, they are very much in favor of implementing the system. The current processes followed in the project would be depicted in the system as it is.

2.4.3 Economic Feasibility

Economic Feasibility is the measure of the cost-effectiveness of the proposed system. The investment to be made in the proposed system must prove a good investment to the project by returning benefits equal to or exceeding the costs incurred in developing the system.

The proposed benefits of the system will outweigh the costs to be incurred during system developed since the system does not require procurement of additional hardware facilities it is economically feasible. In addition capability of the system to incorporate future enhancement will improve the performance to suit the future need of the company/project.

2.5 USERS OF THE SYSTEM

User Name	Description
Global Team Member(GTM)	An internal user who coordinates the entire true testing activity. Has full control and access to the system.
True Test Leader(TTL)	Manages and coordinates the site coordinators. He can create projects and can edit only his own projects.
Site Coordinator(SC)	Coordinates the testing activity, testers, and test units at a particular site.
True Tester	Client's external person who performs the testing and reports the result by filling questionnaires.

2.6 USER INTERFACE REQUIREMENTS

The User Interfaces are designed using JSP. The interfaces would be designed in a user friendly manner with less complexity so that it proves to be easy for the users to navigate through the system. The UI screen in divided into 4 parts namely header, left, right and middle pane. All the modules are available as tabs so that the user can easily navigate through the pages.

CHAPTER 3

3. DEVELOPMENT ENVIRONMENT

3.1 HARDWARE REQUIREMENTS

The hardware support required for deploying the application:

Processor: Pentium 4 or Above

RAM: Minimum 4 GB

Hard Disk: 20 GB or more

3.2 SOFTWARE REQUIREMENTS

The software support required for deployment is:

Operating System: Windows XP

Web Server: Bea WebLogic server version 10

Database: Oracle 10g

Software for Development: J2EE

Browser: Any Web browser

3.3 TOOLS USED

Development :BEA Weblogic portal 10.0

Data storage :Oracle SQL developer

Testing : Mercury Quality Center

3.4 PROGRAMMING ENVIRONMENT

3.4.1 J2EE

Java 2 Enterprise Edition covers the overall development framework under Java. Most web-based applications and portals are developed using J2EE as it provides dynamic web-applications in an efficient manner. This application is developed using the apache beehive framework of J2EE. The front end (J2EE) is developed using Weblogic portal 10.0

3.4.1.1 JSP

A Java Server Page (JSP) file is nothing more than another way to view a reference of a JSP file is to allow us to see a Java servlet as an HTML page. This view eliminates all of the ugly print () statements that normally show up in Java code. The JSP file is pre-processed into a .java file, and then compiled into a .class.

3.4.2 MVC ARCHITECTURE

Model-View-Controller architecture is all about dividing application components into three different categories Model, View and the Controller. Components of the MVC architecture have unique responsibility and each component is independent of the other component. Changes in one component will have no or less impact on other component.

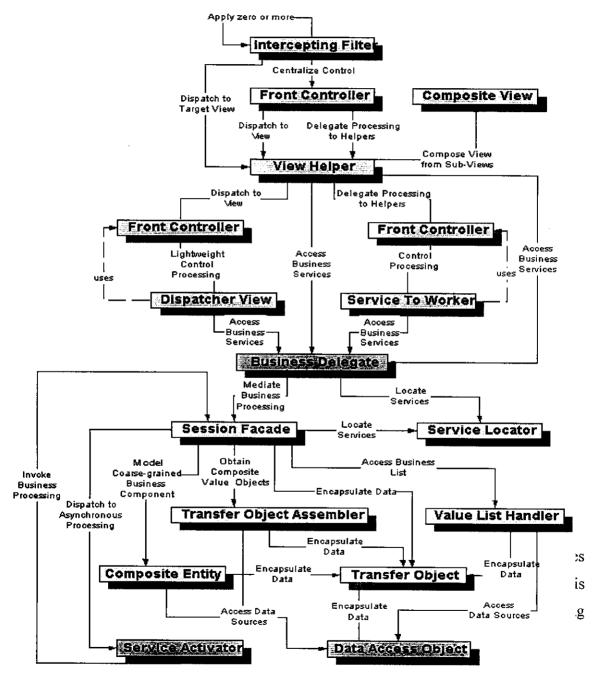
Responsibilities of the components are:

Model: Model is responsible for providing the data from the database and saving the data into the data store. All the business logic are implemented in the Model. Data entered by the user through View are check in the model before saving into the database. Data access, Data validation and the data saving logic are part of Model.

View: View represents the user view of the application and is responsible for taking the input from the user, dispatching the request to the controller and then receiving response from the controller and displaying the result to the user. HTML, JSPs, Custom Tag Libraries and Resources files are the part of view component.

Controller: Controller is intermediary between Model and View. Controller is

responsible for receiving the request from client. Once request is received from client it executes the appropriate business logic from the Model and then produces the output to the user using the View component. Pageflow and XML are the part of Controller.



Front Controller-The presentation-tier request handling mechanism must control
and coordinate processing of each user across multiple requests. Such control
mechanisms may be managed in either a centralized or decentralized manner. The

structure of the front controller is as follows. PageFlow is the front controller used in our system.

- View Helper -The system creates presentation content, which requires processing
 of dynamic business data. The Value Object (VO) is the view helper in ETS.
- Business Delegate -A multi-tiered, distributed system requires remote method invocations to send and receive data across tiers. Here the customControl Implementation contains the business logic.
- Data Access Object -Access to data varies depending on the source of the data.
 Access to persistent storage, such as to a database, varies greatly depending on the type of storage (relational databases, object-oriented databases, flat files, and so forth) and the vendor implementation. The DBController acts as the DAO.

3.4.3 OVERVIEW OF WEBLOGIC PORTAL 10.0

BEA WebLogic Portal 10.0 provides enterprise portal infrastructure for streamlined portal development. This framework includes a rich, graphical environment for developing portals as well as browser-based assembly tools for business experts. WebLogic Portal simplifies the production and management of custom-fit portals, allowing you to leverage a shared services environment to roll out changes with minimal complexity and effort.

WebLogic Portal is the outward-facing component of BEA WebLogic Platform that lets you provide a user interface to integrate your applications. WebLogic Portal lets you surface application data and functionality from heterogeneous environments into an integrated, dynamic, and customizable Web-based portal user interface that can simultaneously support your customers, partners, and employees on multiple devices. WebLogic Portal handles the infrastructure so that you can focus your development efforts on what is most important — your applications.

In addition to a powerful portal framework and its J2EE security foundation, WebLogic Portal provides many business services, such as content management, communities, personalization, search, and user management.

WebLogic Portal provides a virtual content repository that lets you federate external content management systems into a single management interface. You can then build portals using content in those external resource. WebLogic Portal also provides a BEA content repository for creating and managing content.

WebLogic Portal includes

- Portal Concepts
- WebLogic Portal Framework
- WebLogic Portal Business Services
- The Portal Life Cycle

The WebLogic Portal documentation provides you with in-depth information about specific feature areas and guides you through the portal development and management life cycle.

Developing portals with WebLogic Portal is an iterative process characterized by four phases:

- Architecture,
- Development,
- Staging (assemble/deploy),
- Production (management of your portal).

Each phase in the portal life cycle involves specific tasks and tools. The WebLogic Portal documentation maps to the portal life cycle and provides a context-rich environment for learning about building portal applications.

By reviewing the WebLogic Portal documentation according to the portal life cycle, you can understand the big-picture context, and at the same time learn about the deeper, more detailed areas you need to dive into, so that you always know where you are and how your efforts relate to other phases. To accomplish this contextual mapping, the documentation provides connection points to other phases and other related feature areas, letting you enter the documentation anywhere.

For example, in the development phase, you create your application files and functionality using the WebLogic Workshop IDE, your source control system, and other tools of choice for creating portal application resources (Java source code, JSPs, XML, JavaScript, graphics, and so on). In the staging phase, you use the WebLogic Portal Administration Console to create and define access to your portals, fine tune portal functionality, create content, and move your application from one environment to another (such as from staging to production).

3.4.4 OVERVIEW OF ORACLE 10g

Oracle10G is an RDBMS (Relational Database Management System). The Oracle database architecture can be described in terms of logical and physical structures. The advantage of separating the logical and physical structure is that the physical storage structure can be changed without affecting the logical structure.

CHAPTER 4

4. SYSTEM DESIGN AND DEVELOPMENT

4.1 ELEMENTS OF DESIGN

System Design is the most creative and challenging phase in the development of a software system. Design implies to a description of the final system and the process by which it is developed. The first step is to determine what input data is needed for the system and then to design a database that will meet the requirements of the proposed system. The next step is to determine what outputs are needed from the system and the format of the output to be produced.

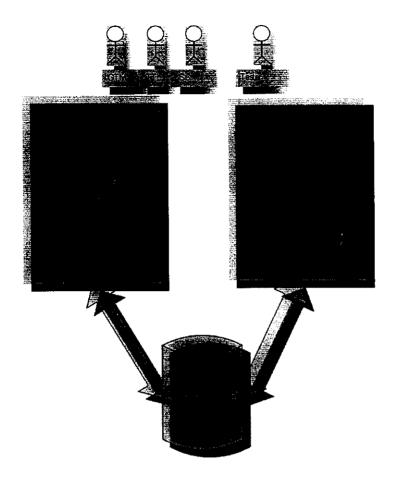
During the design of the proposed system some areas where attention is required are:

- What are the inputs required and the outputs produced?
- How should the data be organized?
- What will be the processes involved in the system?
- How should the screen look?

4.2 OVERALL ARCHITECTURE

The need for the system was identified when the client wanted their mobile instruments to be tested by testers distributed across different sites. The Beta True Testing Systemis used by the client's internal users to notify the true testers residing in various sites whenever a new product is released regarding the parts to be tested through email or sms or both.

The results of testing are captured by providing the testers with questionnaires to fill in. The system also maintains data related to projects, tester, sites, users and devices.



Overall view of Beta True Testing System

4.3 DATA FLOW DIAGRAM

The Data Flow Diagram (DFD) is a tool used for structured design. DFD shows the flow of data from external entities into the system, how the data move from one process to another as well as its logical storage.

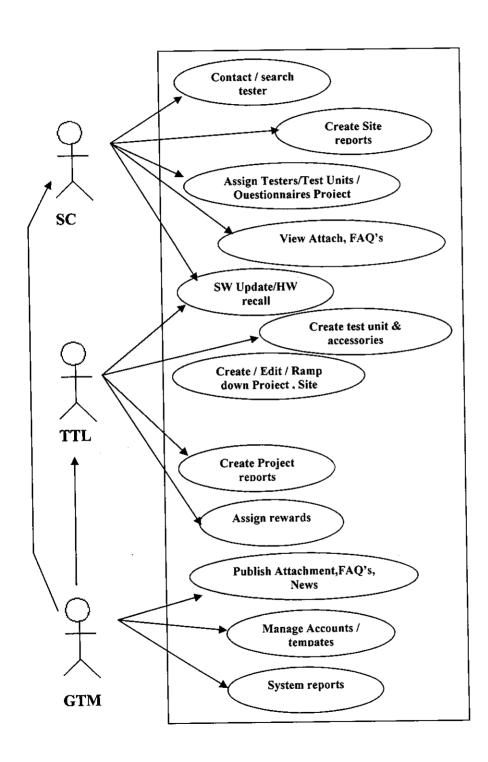
A Data Flow Diagram is a process-oriented graphical representation of an application system. It is a picture of the movement of the data between external entities and the processes and data stores within a system. The Data Flow Diagram is used to specify the path through which the data flows.

4.3.1 BENEFITS OF DATA FLOW DIAGRAM

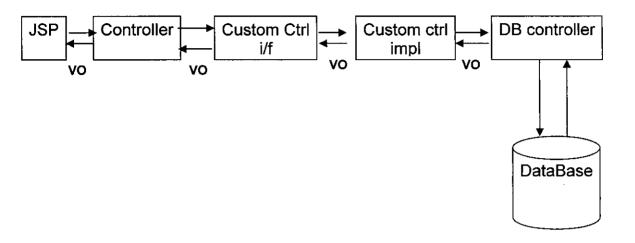
- Provides a pictorial, non-technical representation
- ♦ Easy to understand
- Quick to produce and easy to amend
- Uses limited number of symbols with specific meanings
 - Uses a simple top down expansion **Project** User Attachments 1.0 **ETT** Users FAQ's Questionnaires Reports

Level 0 DFD – Beta True Testing System

4.4 USECASE DIAGRAM



4.5 FRAMEWORK DIAGRAM



4.6 DATABASE DESIGN

A database is a collection of inter-related data stored with minimum redundancy to serve many users quickly and efficiently. The general objective of database design is to make the data access easy, inexpensive and flexible to the user. An elegantly designed database can play a strong foundation for the whole system.

The details about the relevant data for the system are first identified. According to their relationship, tables are designed through the following method.

- > The data type for each data item in the table is decided.
- > The tables are then normalized.

The tables are normalized so that they can provide better response time, have data integrity, avoid redundancy and be secure.

4.6.1 TABLE STRUCTURE

Design Conventions Used

- 1. Appropriate words that describe the table should be used.
- 2. Words used to describe the table should be separated with an Underscore '.'.
- 3. No special character other than an underscore is used in formulating a table name.
- 4. No number should be used anywhere in the table name string.

Table Name: PROJECT

Description: It holds all the information regarding the project.

Column Name	Data Type	Nullable
PROJECT_ID	NUMBER(38,0)	No
PROJECT_NAME	VARCHAR2(256 Bytes)	Yes
NICKNAME	VARCHAR2(256 Bytes)	Yes
GENERAL_INFO	VARCHAR2(1024 Bytes)	Yes
DETAIL_INFO	CLOB	Yes
PROTO_IDENTIFICATION_ID	NUMBER(12,0)	Yes
STATUS	CHAR(50 Bytes)	Yes
STATUS_DATE	DATE	Yes
REQUIRED_NEW_TESTERS	NUMBER(12,0)	Yes
REQUIRED_AVG_TESTERS	NUMBER(12,0)	Yes
REQUIRED_EXP_TESTERS	NUMBER(12,0)	Yes
CUSTOMER_ID	NUMBER(12,0)	Yes
CREATEDBY	CHAR(20 Bytes)	Yes
TIMESTMP	DATE	Yes
BUSINESS_GROUP_ID	NUMBER	Yes
REJECTION_REASON	CLOB	Yes
SALES_NAME	CHAR(50 Bytes)	Yes
VERSION_ID	NUMBER	Yes
CREATEDBY_ID	NUMBER	Yes
CHANGEDBY_ID	NUMBER	Yes
CHANGEDBY	CHAR(20 Bytes)	Yes
APPROVEDBY_ID	NUMBER	Yes
TIMESTAMP_APPROVED	DATE	Yes

Column Name	Data Type	Nullable
PROJECT_PICTURE_ID	VARCHAR2(256 Bytes)	Yes
PROJECT_PICTURE_PATH	VARCHAR2(256 Bytes)	Yes
PRODUCT_PICTURE_ID	VARCHAR2(256 Bytes)	Yes
PRODUCT_PICTURE_PATH	VARCHAR2(256 Bytes)	Yes
PROJECT_TYPE	VARCHAR2(50 Bytes)	Yes
WEB_SERVICE_URL	VARCHAR2(250 Bytes)	Yes
PC_CLIENT_INSTALLATION_FILE_ID	VARCHAR2(50 Bytes)	Yes
MOB_DEV_CLI_FILE_ID	VARCHAR2(50 Bytes)	Yes
PC_CLIENT_INSTAL_FILE_NAME	VARCHAR2(250 Bytes)	Yes
MOB_DEV_CLI_FILE_NAME	VARCHAR2(250 Bytes)	Yes
SHOWING_TOP_TEN_TESTERS	NUMBER	Yes
CATEGORY_ID	NUMBER	Yes

Table Name: PROJECT_ACTIVITY_REL Description: It holds the details of the activity to be performed by the true tester.

Column Name	Data Type	Nullable
PROJECT_ACTIVITY_REL_ID	NUMBER	No
ACTIVITY_ID	NUMBER	No
PROJECT_ID	NUMBER(38,0)	No
PROJECT_POINTS	NUMBER	Yes
PROJECT_MAX_ENTRIES	NUMBER	Yes

Table Name: PROJECT_SITE_REL

Description: It holds all the information regarding the site and project relation.

Column Name	Data Type	Nullable
PROJECT_SITE_REL_ID	NUMBER	No
PROJECT_ID	NUMBER	Yes
GIFT_BUDGET	VARCHAR2(1024 Bytes)	Yes
NUMBER_OF_TESTERS	NUMBER(12,0)	Yes
SITE_ID	NUMBER(12,0)	No
STATUS	CHAR(20 Bytes)	No
REJECTION_REASON	CLOB	Yes
VERSION_ID	NUMBER	Yes
APPROVEDBY_ID	NUMBER	Yes
TIMESTAMP_APPROVED	DATE	Yes
REWARD_STATUS	VARCHAR2(256 Bytes)	Yes
NUMBER_OF_TESTERS_TTL	NUMBER	Yes
IS_SITE_REQ	CHAR(1 Bytes)	Yes

Table Name: PROJECT_QUESTIONNAIRE
Description: It holds all the information regarding the questionnaire for the project.

Column Name	Data Type	Nullable
PROJECT_QUESTIONNAIRE ID	NUMBER	No
PROJECT_ID	NUMBER	Yes
PROGRAM_ID	NUMBER	Yes
BUSINESS_GROUP_ID	NUMBER	Yes
LANGUAGE_ID	NUMBER	Yes
SFT_AREA_ID	NUMBER	Yes
STATUS	CHAR(25 Bytes)	Yes
CREATOR_ID	NUMBER	Yes
PLATFORM_ID	NUMBER	Yes
START_FROM_UNIT_RECEIVAL	NUMBER	Yes
END_FROM_UNIT_RECEIVAL	NUMBER	Yes
REMIND_BEFORE_CLOSING_1	NUMBER	Yes
REMIND_BEFORE_CLOSING_2	NUMBER	Yes
TYPE	CHAR(20 Bytes)	Yes
START_DATE	DATE	Yes
END_DATE	DATE	Yes
TIMESTAMP	DATE	Yes
QUESTIONNAIRE_ID	NUMBER	Yes
NAME	VARCHAR2(256 Bytes)	Yes
VERSION_ID	NUMBER	Yes
CREATEDBY_ID	NUMBER	Yes
CHANGEDBY_ID	NUMBER	Yes
CREATEDBY	CHAR(20 Bytes)	Yes
CHANGEDBY	CHAR(20 Bytes)	Yes
APPROVEDBY_ID	NUMBER	Yes
TIMESTAMP_APPROVED	DATE	Yes
PROPOSED_IMPROVEMENTS	VARCHAR2(4000 Bytes)	Yes
NOTIFY_TESTERS	NUMBER	Yes

Table Name: PROJECT_SFT_AREA Description: It holds all the information regarding the project and SFT relation.

Column Name	Data Type	Nullable
PROJECT_ID	NUMBER	No
SFT_AREA_ID	NUMBER	No
PERCENTAGE	NUMBER	No

Table Name: PROJECT_TESTER_REL Description: It holds all the information regarding the project and the tester relation.

Column Name	Data Type	Nullable
PROJECT_ID	NUMBER	No
PERSON_ID	NUMBER	No
SFT_AREA_ID	NUMBER	Yes
STATUS	CHAR(20 Bytes)	Yes
STATUS_DATE	DATE	Yes
TRAINING_DATE	DATE	Yes
NDA_STATUS	CHAR(1 Bytes)	Yes
TIMESTMP	DATE	Yes
VERSION_ID	NUMBER	Yes
CREATEDBY_ID	NUMBER	Yes
CHANGEDBY_ID	NUMBER	Yes
CHANGER_ROLE	CHAR(10 Bytes)	Yes
CREATEDBY	CHAR(20 Bytes)	Yes
CHANGEDBY	CHAR(20 Bytes)	Yes
TOTAL_PROJECT_POINTS	NUMBER	Yes
REWARD_RATING	VARCHAR2(256 Bytes)	Yes

Table Name: PERSON

Description: It holds all the information regarding the different users roles in the application.

Column Name	Data Type	Nullable
PERSON_ID	NUMBER	No
FIRSTNAME	VARCHAR2(256 Bytes)	Yes
LASTNAME	VARCHAR2(256 Bytes)	Yes
NOE_ACCOUNT	VARCHAR2(20 Bytes)	Yes
TESTER_USERNAME	CHAR(50 Bytes)	Yes
TESTER_PASSWORD	VARCHAR2(10 Bytes)	Yes
IS_TTL	CHAR(1 Bytes)	Yes
IS_SC	CHAR(1 Bytes)	Yes
IS_GTM	CHAR(1 Bytes)	Yes
IS_TESTER	CHAR(1 Bytes)	Yes
PHONE	VARCHAR2(256 Bytes)	Yes
ADDRESS	VARCHAR2(1024 Bytes)	Yes
EMAIL	VARCHAR2(256 Bytes)	Yes
PROFESSION	VARCHAR2(1024 Bytes)	Yes
COMPANY	VARCHAR2(256 Bytes)	Yes
PREFERRED_CONTACT_METHOD	CHAR(10 Bytes)	Yes
GENDER	CHAR(1 Bytes)	Yes
HANDEDNESS	CHAR(1 Bytes)	Yes
COMPLETED_PROJECTS	NUMBER	Yes
OPERATOR_ID	NUMBER	Yes
IPR_STATUS	CHAR(1 Bytes)	Yes
EXTRA_USER_INFO	VARCHAR2(1024 Bytes)	Yes
PREVIOUS_NDA_DATE	DATE	Yes
STATUS	CHAR(60 Bytes)	Yes
STATUS_DATE	DATE	Yes
TIMESTAMP	DATE	Yes

Column Name	Data Type	Nullable
VERSION_ID	NUMBER	Yes
CREATEDBY_ID	NUMBER	Yes
CHANGEDBY_ID	NUMBER	Yes
CHANGER_ROLE	VARCHAR2(10 Bytes)	Yes
CREATEDBY	CHAR(20 Bytes)	Yes
CHANGEDBY	CHAR(20 Bytes)	Yes
DATEOFBIRTH	DATE	Yes
PHONESERIALNUMBER	VARCHAR2(4000 Bytes)	Yes
COUNTRY	VARCHAR2(4000 Bytes)	Yes
STATE	VARCHAR2(50 Bytes)	Yes
ZIPCODE	VARCHAR2(50 Bytes)	Yes
CITY	VARCHAR2(4000 Bytes)	Yes
CONTEXTID	VARCHAR2(15 Bytes)	Yes
NICKNAME	VARCHAR2(256 Bytes)	Yes
TOTAL_POINTS	NUMBER	Yes
EXPERIENCE_LEVEL_ID	NUMBER	Yes
IS_ANONYMOUS	CHAR(2 Bytes)	Yes
PH_MODEL_NAME	VARCHAR2(50 Bytes)	Yes
COUNTY	VARCHAR2(1000 Bytes)	Yes
PROVINCE	VARCHAR2(1000 Bytes)	Yes
POLL_SURVEY_INTEREST	NUMBER	Yes
MBL_DEVICE_SW_VERSION	VARCHAR2(1000 Bytes)	Yes
PC_SUITE_OVI_IN_USE	NUMBER	Yes
COMP_MANUFACTURER_OTHER	VARCHAR2(1000 Bytes)	Yes
COMPUTER_MODEL	VARCHAR2(1000 Bytes)	Yes
OPERATING_SYSTEM_OTHER	VARCHAR2(1000 Bytes)	Yes
WLAN_AT_HOME	NUMBER	Yes
COMM_TOOL_OTHER	VARCHAR2(1000 Bytes)	Yes
NO_OF_ADULTS	NUMBER	Yes
NO_OF_CHILDREN	NUMBER	Yes
PETS	NUMBER	Yes

Table Name: PERSON_PHONE_REL

Description: It holds all the information regarding the user and his phone relation.

Column Name	Data Type	Nullable
PHONE_MODEL_ID	NUMBER	No
PERSON_ID	NUMBER	No
IS_CURRENT	CHAR(3 Bytes)	No
VERSION_ID	NUMBER	Yes

Table Name: ATTACHMENT

Description: It holds all the information regarding the attachment for the application.

Column Name	Data Type	Nullable
ATTACHMENT_ID	NUMBER(12,0)	No
DISPLAY_NAME	VARCHAR2(100 Bytes)	Yes
PATH	VARCHAR2(1024 Bytes)	Yes
PROJECT_SITE_REL_ID	NUMBER(12,0)	Yes
ATTACHMENT_TYPE_ID	NUMBER(10,0)	Yes
VERSION_ID	NUMBER	Yes
ATTACHMENT_DOC_ID	VARCHAR2(256 Bytes)	Yes
TITLE	VARCHAR2(256 Bytes)	Yes
VISIBILITY	VARCHAR2(256 Bytes)	Yes
PUBLISHED_DATE	DATE	Yes
MGMT_UPLOAD_PATH	VARCHAR2(256 Bytes)	Yes
MGMT_DOWNLOAD_PATH	VARCHAR2(256 Bytes)	Yes
CONTENT_TYPE	VARCHAR2(256 Bytes)	Yes
DESCRIPTION	CLOB	Yes

 $Table\ Name:\ ATTACHMENT_TYPES$

Description: It holds all the information regarding the different attachment types for the

application.

Column Name	Data Type	Nullable
ATTACHMENT_TYPE_ID	NUMBER(12,0)	No
ATTACHMENT_TYPE	VARCHAR2(30 Bytes)	Yes
DESCRIPTION	VARCHAR2(30 Bytes)	Yes

Table Name: FAQ

Description: It holds all the information regarding the FAQ's for the application.

Column Name	Data Type	Nullable
FAQ_ID	NUMBER	No
PUBLISHED_DATE	DATE	Yes
PROJECT_ID	NUMBER(38,0)	Yes
SITE_ID	NUMBER	Yes
STATUS	VARCHAR2(256 Bytes)	No
CREATEDBY_ID	NUMBER	Yes
VISIBILITY	VARCHAR2(256 Bytes)	Yes
QUESTION	VARCHAR2(1000 Bytes)	Yes
ANSWER	VARCHAR2(1000 Bytes)	Yes

Table Name: QUESTION

Description: It holds all the information regarding the questions(feedback) for the

application.

Column Name	Data Type	Nullable
QUESTION_ID	NUMBER	No
QUESTION TEXT	VARCHAR2(1024	V
	Bytes)	Yes
TYPE	CHAR(2 Bytes)	Yes
ANSWER_TYPE	CHAR(256 Bytes)	Yes
ANSWER_MIN_VALUE	NUMBER	Yes
ANSWER_MAX_VALUE	NUMBER	Yes
CREATEDBY	CHAR(20 Bytes)	Yes
CHANGEDBY	CHAR(20 Bytes)	Yes
TIMESTAMP	DATE	Yes
LAYOUT	CHAR(2 Bytes)	Yes
VERSION_ID	NUMBER	Yes
CHANGEDBY_ID	NUMBER	Yes
CREATEDBY_ID	NUMBER	Yes
IS_MANDATORY	CHAR(1 Bytes)	Yes
DEFAULT_TEXT	VARCHAR2(256 Bytes)	Yes
IS_FREE_TEXT_COMMENT	CHAR(1 Bytes)	Yes
DEFAULT_RANGE	NUMBER	Yes
IS_NA_INCLUDED	CHAR(1 Bytes)	Yes
PORTFOLIO_ID	NUMBER	Yes
EXPERIENCE_ID	NUMBER	Yes
PRODUCT_ID	NUMBER	Yes
USECASE_ID	NUMBER	Yes
SINGLE_SELECT_LAYOUT	VARCHAR2(1 Bytes)	Yes

Table Name: QUESTION_REL

Description: It holds all the information regarding the project and the question and questionnaire relation.

Column Name	Data Type	Nullable
QUESTION_ID	NUMBER	No
SORT_ORDER_NUMBER	NUMBER	Yes
VERSION_ID	NUMBER	Yes
GROUP_ID	NUMBER	Yes
IS_MANDATORY	CHAR(2 Bytes)	Yes
LAYOUT	CHAR(2 Bytes)	Yes
ROLL_NUMBER	NUMBER	Yes

Table Name : QUESTIONNAIRE

Description: It holds all the information regarding the questionnaire for the application.

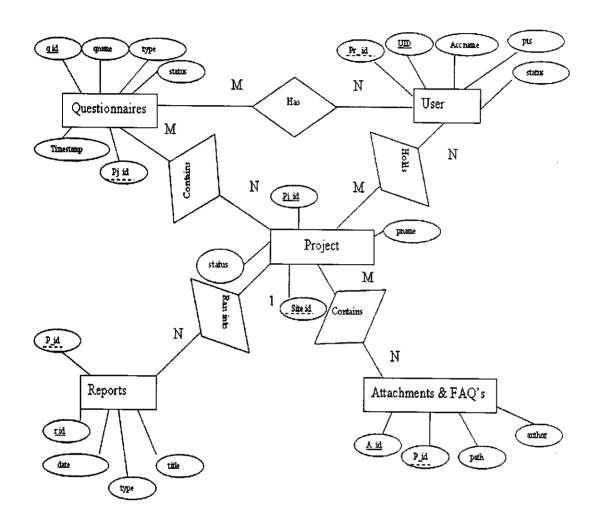
Column Name	Data Type	Nullable
QUESTIONNAIRE_ID	NUMBER	No
NAME	VARCHAR2(256 Bytes)	Yes
BUSINESS_GROUP_ID	NUMBER	Yes
PROGRAM_ID	NUMBER	Yes
CREATOR_ID	NUMBER	Yes
LANGUAGE_ID	NUMBER	Yes
START_FROM_UNIT_RECEIVAL	NUMBER	Yes
END_FROM_UNIT_RECEIVAL	NUMBER	Yes
STATUS	CHAR(10 Bytes)	Yes
SFT_AREA_ID	NUMBER	Yes
PLATFORM_ID	NUMBER	Yes
TYPE	CHAR(10 Bytes)	Yes
REMINDER_BEFORE_CLOSING_1	NUMBER	Yes
REMINDER_BEFORE_CLOSING_2	NUMBER	Yes
TIMESTAMP	DATE	Yes
VERSION_ID	NUMBER	Yes
CREATEDBY_ID	NUMBER	Yes
CHANGEDBY_ID	NUMBER	Yes
CREATEDBY	CHAR(20 Bytes)	Yes
CHANGEDBY	CHAR(20 Bytes)	Yes

Table Name: QUESTIONNAIRE_GROUP_REL Description: It holds all the information regarding the questionnaire and its group

relation.

Column Name	Data Type	Nullable
GROUP_ID	NUMBER	No
GROUP_TITLE	VARCHAR2(256 Bytes)	No
SORT_ORDER_NUMBER	NUMBER	Yes
QUESTIONNAIRE_ID	NUMBER	No
PARENT_GROUP_ID	NUMBER	Yes
GROUP_DESCRIPTION	VARCHAR2(2048 Bytes)	Yes

4.6.2 DATABASE ER DIAGRAM



CHAPTER 5

5. IMPLEMENTATION

System Implementation is the part of the software engineering life cycle, where, the design artifacts are converted to a working application. Coding is done in this stage using an apt framework and programming language, which would solve the specific problem the best way. Once the design is coded into a working application, it has to be verified, validated and tested in detail. The tested product if successful is deployed in the user environment.

5.1 SYSTEM VERIFICATION

System Verification answers the question "Am I building the product right?" It includes the review of interim work steps and interim deliverables during a project to ensure they are acceptable. Verification also determines if the system is consistent, adheres to standards, uses reliable techniques and prudent practices, and performs the selected functions in the correct manner. In data access, it verifies whether the right data is being accessed, in terms of the right place and in the right way.

5.2 SYSTEM VALIDATION

Validation answers the question "Am I building the right product?" This checks whether the developer is moving towards the right product, whether the development is moving towards the actual intended product that was agreed upon in the beginning. Validation also determines if the system complies with the requirements and performs functions for which it is intended and meets the organization's goals and user needs. It is traditional and is performed at the end of the project. In data access, it checks whether we are accessing the right data, in terms of data required to satisfy the requirement.

5.3 TESTING

Testing is a critical element of software quality and assurance and represents the ultimate review of specification design and coding. It is a vital activity that has to be enforced in the development of any system. This could be done in parallel during all the phases of system development. The feedback received from these tests can be used for further enhancement of the system under consideration. The testing phase conducts test using the Software Requirement Specification as a reference and with the goal to see whether the system satisfies the specified requirements.

The main types of tests carried out on Beta True Testing System are:

- ➤ Unit Test
- > Integration Test
- System Test

5.3.1 Unit Testing

Module or Unit Testing is the process of testing all the program units that make up a system. Unit testing focuses on an individual module thus allowing one to uncover all the errors made logically and while coding in the module.

In Beta True Testing System each page is tested separately as a unit. Initially the flow of control and data through that page is checked. When considering a module as a unit, the flow of data and control through the whole module is tested. The result is stored in the test plan. In a page, each control is further tested in unit testing. The process is done in all the pages of the system. Once the errors are rectified, the testing procedure is repeated with same test cases to ensure this hasn't produced new errors. Hence this is a continuous process.

5.3.2 Integration Testing

Integration testing tests the process of integrating the various modules to form the completed system. Integration starts with a set of units each individually tested in isolation and ends when the entire application has been built. Integration testing verifies that the combined units function together correctly. It facilitates in finding problem that occur at interface or communication between the individual parts.

External System followed top-down integration testing. Modules were linked to the main menu in a sequence as required in the real time operating mode of the system. Menu items were created as and when required for the integration. This process is continued from the page level to module level, finally to the system level. In the final stage, the whole system is taken together and tested for integration. A change in one place should be reflected through out the system. Regression testing is done after each change made into the software. This tests if the change has affected any part of Beta True Testing System negatively after the change was made. The whole set of test cases need to be run again to do the regression testing.

Also in Beta True Testing System the integration testing is carried out by simultaneously logging on to the testers portal to verify whether all the changes related to tester's information are properly reflected and the status change of test units and testers are done perfectly.

5.3.3 System Testing

System testing is actually a serious of different tests, whose primary purpose is to fully exercise the computer-based system. This helps in verifying that all the system elements have been properly integrated and perform the allocated functions. It verifies the entire product after having integrated all software and hardware components, and validates it according to the original project requirement. The system testing takes into consideration the hardware, and the software.

5.3.3.1 Security Testing

Security testing is important in system testing. The system in no way shall be accessible to unauthorized users. Testing is done to ensure that a user with respective rights can only view the various modules and reports presented by External True System. If users try to perform something beyond his assigned rights corresponding messages should be displayed. The Beta True Testing System in such cases displays a error message.

Another security issue involves the sensitive data in the system. The system is highly secure with authentication fixed at various levels of the hierarchy.

One more level of security is concerned with user rights. Each user is applied rights module wise, page wise and individual control wise. The menus can be configured to roles. Users can also be configured to roles. Menu items are assigned to users dynamically based on the roles assigned to menu items as well as users. A match is done before displaying the menu to the user.

5.3.3.2 Stress Testing

Stress Testing executes a system in a manner that demands resources in abnormal quantity, frequency or volume. Beta True Testing System was stress tested by all employees in the project and accessing simultaneously to various modules in the system.

5.3.4 VALIDATION CHECKS

Alphabetic Check

The text boxes which require the user to enter only alphabetic characters are checked and ensured that the user has entered only alphabet characters. If the user enters illegal characters, then the user in prompted to correct the entry.

Numeric Check

The fields that require only numeric data be entered are checked and ensured that the users enter only the numeric data.

Not Null Check

The fields that cannot be kept empty is checked and ensured for not null. Hence a message is prompted to fill the required field.

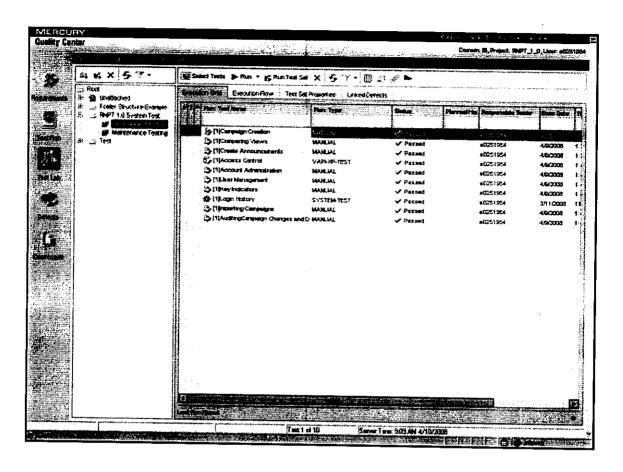
Alphanumeric Check

Certain fields such as the address field may have both alphabets and numbers and characters such as "-,/" etc. The validation is done here to check the data entered is a valid one.

Phone and Date Check

The phone number text field and the date field such as date of birth, date of joining are checked for validation that the user to enter a valid phone number and date. The date fields are validated for range as well.

5.4 TESTING TOOL-MERCURY QUALITY CENTER



CHAPTER 6

6. CONCLUSION AND FUTURE ENHANCEMENT

6.1 CONCLUSION

The Business Resource & Workflow Management System enables the project team to get rid of a very tedious and time consuming process which has been followed so far. By automating the entire Vacation planner, cab request, Issues Tracker, Time Tracking, Resource requirement and chargeability 1 and report generation process the team lead and managers are spared of a cumbersome and repetitive task. It also eliminates the possibility of any error in manual calculation of the Time Tracking or Chargeability calculation.

When fully deployed, the Business Resource & Workflow Management System will transform the entire working of the team leads and managers that deals with calculation and other things that have to remind are converted into computerized professionally operated process. It makes the entire procedure faster, error free, simple, and efficient and more performance enhancing one. Business Resource & Workflow Management System provides a uniform interface for conducting queries and generating reports on demand.

The information in the system should be maintained upto date with periodic updates. The security feature of the system allows only team leads and managers to make updates to important and sensitive data. It prevents unauthorized access to important data.

Thus the Business Resource & Workflow Management System increases the efficiency, performance of the team leads and managers by enabling them to spend more time on concentrating on employees who work under them. The reports provided to the top management are error free and leads to improved decision making.

6.2 FUTURE ENHANCEMENT

The following features listed below if introduced could benefit the users of the system.

- > The Open projects can be implemented in the future, where the invitation is visible to all the true testers irrespective of the invitation to be sent to them.
- ➤ Global sites can be created which accommodates all the sites which are to be needed for the project which in turn accommodate all the true testers to be included in them globally..
- ➤ Quick Votes can be brought at the Client application, which makes the interaction of the true tester in the polling of the better product more easily.

7. APPENDICES

7.1 Screen Shots

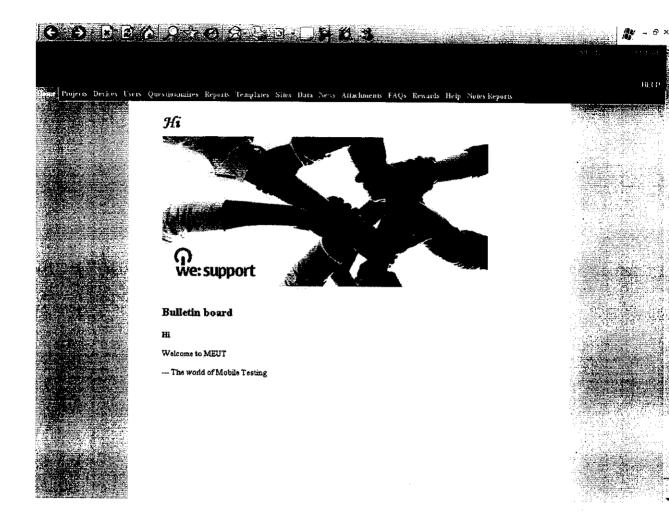
LOGIN FORM

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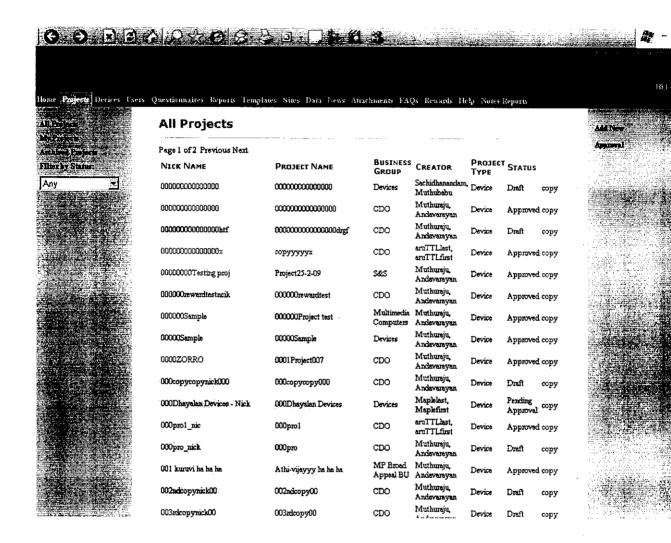
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HOME PAGE

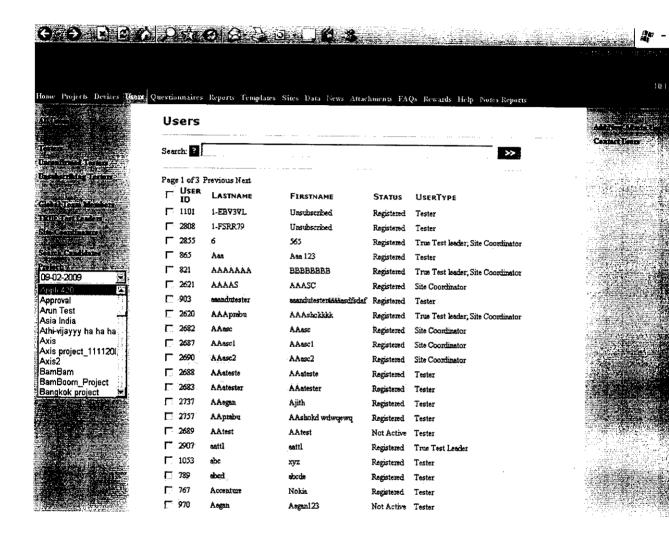


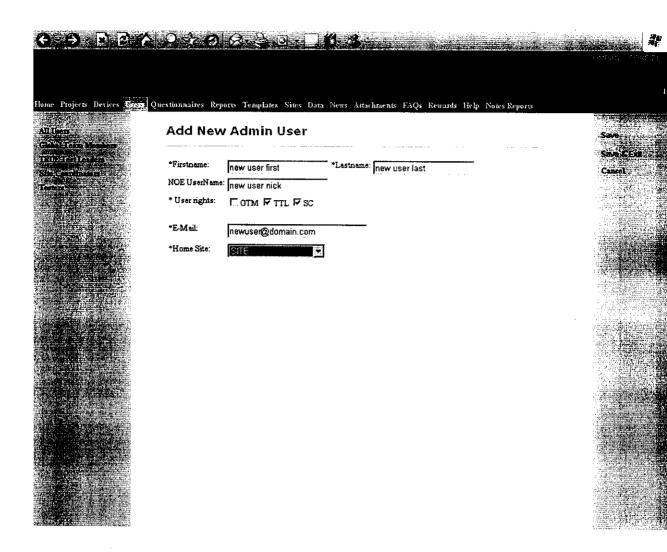
PROJECT MODULE



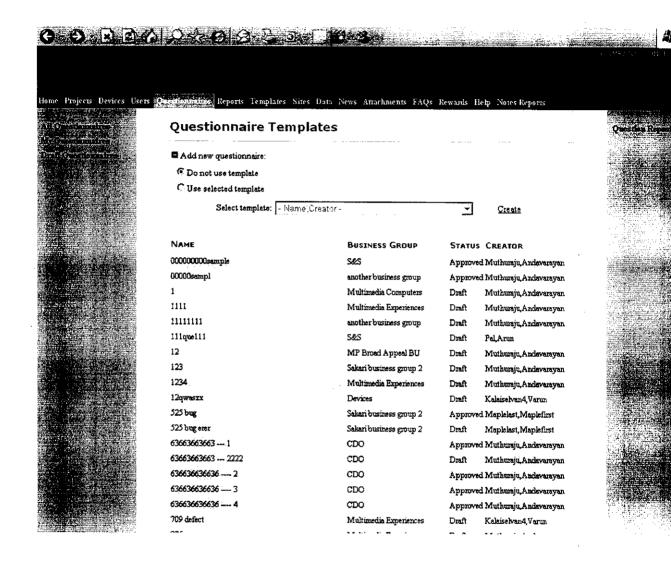
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	*Sales Name:	IPL mobile			Shee
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	Creation date:	27.03.2009			Test Units
	Modifier: Modified date:	-			Accessories
	Status:	Draft			Questionna
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USER MODULE



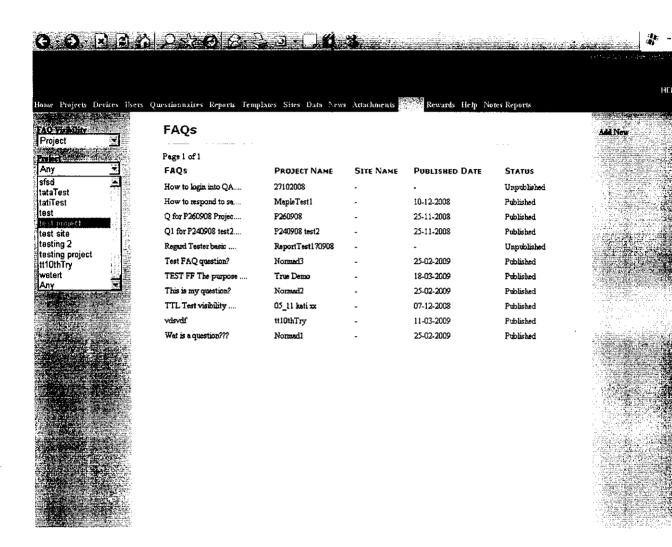


QUESTIONNAIRE MODULE

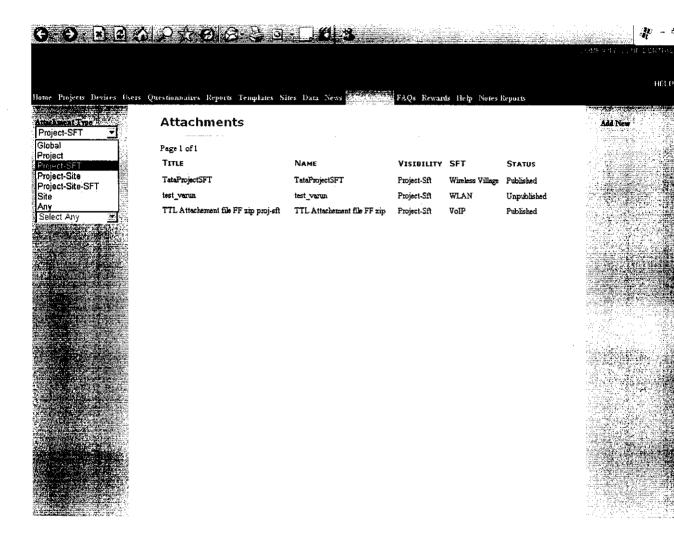


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FAQ MODULE



ATTACHMENT MODULE



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- 6. www.apex.vtc.com
- 7. www.ittipsonline.com