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MOBI APPLICATION AND SUPPORT SYSTEM

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Of

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BONAFIDE CERTIFICATE


KUMARAGURU COLLEGE OF TECHNOLOGY**COIMBATORE - 641006****BONAFIDE CERTIFICATE**


Certified that this project report titled “**MOBI APPLICATION AND SUPPORT SYSTEM**” is the bonafide work of **Ms. J.Antonita Dhivya** (Register Number: **71206621002**) who carried out the research under my supervision. Certified further, that to the best of my knowledge the work reported herein does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.


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This is to certify that J. Antonita Dhivya 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 "Mobi Application and Support System"

We found the intern's conduct good.

Yours Sincerely

A handwritten signature in black ink, appearing to read "Shailendra K. Dasika", written over a horizontal line.

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India HR Services Centre
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ABSTRACT

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The target of the “Mobi Application and Support System(MASS)” Mobile Portal Platform (“Project”) is to develop a platform solution that provides the capabilities to host and manage all the client company’s current and future mobile portals and sites on a common global platform. The purpose of the solution approach is to offer a common global platform for all the client company’s business groups and business areas to develop and host their mobile sites and campaigns as well as the related applications. The client company has currently has several mobile portals and campaign sites implemented on different platforms.

The strategic objective of this project is to develop the fundamental platform capabilities. It is part of the program plan that the mobile portal platform capabilities will be further developed in following development projects once the fundamental capabilities have been developed. The main objective is to renew the mobile platform for offering new services to rejuvenate user experience and redefine the company’s global mobile portal offering to meet needs of the needs of the emerging mobile internet market. The renewed platform solution will need to be able to provide the defined platform capabilities for all countries and areas where the company operates. Once the fundamental capabilities have been developed the platform will be used for hosting emerging mobile portals.

The “Mobi Application and Support System(MASS)” portal is a dynamic internet portal integrating with many features and services. This system includes facilities like registering for receiving the some general tips, backing up data like calendar,contacts,notes, searching for a specific mobile as per the user’s choice, subscribing for newsletters, providing support to the user in the form of FAQ,product catalogues for existing and upcoming mobiles, sharing information with the other users of the mobile through discussion boards ,getting connected to external vendor site, order for a product online and finally getting feedback from the user.

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LIST OF ABBREVIATIONS

Acronyms	Full Form
MASS	Mobi Application and Support System
CMS	Content Management System
XML	Extended Meta Language
MVC	Model View Controller
GPS	Global Positioning System
SQL	Structured Query Language
FAQ	Frequently Asked Questions
UI	User Interface
CSS	Cascading Style sheet
J2EE	Java 2 Enterprise Edition
JSP	Java Server Page
HTML	Hyper Text Markup Language
RP	Reverse Proxy
CDN	Content Delivery Network

INTRODUCTION

CHAPTER 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 1,86,000 people in 49 countries, the company generated net revenues of US\$23.40 billion for the fiscal year ended Aug. 31, 2008.

1.1.1 Accenture Services Private Ltd

Accenture's "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 the 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.

The company has 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 its:

- 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.

1.1.2 Services

Accenture provides services by helping its 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
 - Help their 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 main objective of the system is to renew the mobile platform for offering new services to rejuvenate user experience and redefine the company's global mobile portal offering to meet needs of the needs of the emerging mobile internet market. The renewed platform solution will need to be able to provide the defined platform capabilities for all countries and areas where the company operates. .Once the fundamental capabilities have been developed the platform will be used for hosting emerging mobile portals.

The major functions of the system are Creating a profile for the User for utilizing the Services, User Data Backup, Products Details and Online Purchase Order, External Site Access, Services and Support Center

- **User Profile for Service Utilization** module is a personalized portal for the client company's mobile Phone owners. This provides a way of interaction for the customers directly with the Client company. User has to register his personal information including mobile phone number and gets access to the

mobile portal. Once the users register to this portal they can get valuable updated information on tips and tricks, support, offers, campaigns through the client company mobile

- **User Data Backup** module allows the users to store calendars, files, contacts and other vital information. The user can retrieve such stored information from the from the backup whenever required. To make use of these facilities the user has to register to Backup Portal. The data backup varies depending the model of that particular handset

- **Products Module** provides the catalogues for the existing and the upcoming phones including the key accessories available with that particular product, technical specifications, product support, legal notice and eco-declaration..**Online Purchase** allows the user to purchase the device directly by ordering for the product online by checking the availability for that model.

- **External Vendor Site Access** module is for the users to access the third party site of the client company where the user can find many applications like download, collect, seek, and upload the applications. This site provides the facility to the client company to report a violation of intellectual property rights directly to the client company.

- **Services and Support Center Module** displays information to the user the general FAQ's,software updates, company's care point, contact information, subscribe for newsletters. **Support Discussion Board** is the point where one can share advice and tips with thousands of other client and phone users. **User FeedBack** provides the users a way of providing feedback to the client company who in turn validate the feedback sent by the user and acknowledges the user regarding the feedback.

SYSTEM STUDY AND ANALYSIS

CHAPTER 2

SYSTEM STUDY AND ANALYSIS

2.1 PROBLEM STATEMENT

The telecommunication client of Accenture manufactures mobile instruments which consist of different models. Most of the the client's recent mobile phones model are GSM enabled.

The client company's website is a valuable information provider to the users having that company's mobile. This website provides an easier way of interaction with the user. The users is able to access the client company's mobile site only through the computer systems. Even though the GPS enabled handsets have a localized mobile portal they do not present to the user all the features and contents that are available in the client company's actual web site.

These web mobile portals focus only on a very few applications. Users of the mobile do not have a way to communicate with the client, to share discussions with the other users, registering to receive some services, get a product support or to get information about a mobile of their choice other than the company's website.

It becomes a useless for the user to have a GPS enabled mobile without some of the facilities that are mandatory. The Mobile Services Diagnostic System provides a one stop solution for the users who expect something more out of their GPS enabled systems

2.2 EXISTING SYSTEM

The client Company has currently has several mobile portals and campaign sites implemented on different platforms.

In the existing system, the GPS enabled mobiles had a web portal that has a very limited feature of a specific format and are common to all the mobile types. Also these items are specific only to the particular client's mobile phones.

The existing portals can be roughly categorized in the following way:

- General mobile portal (localized on more than 10 languages)
- Business Group specific portals and sites
- Marketing campaign sites (shorter life cycles)

In the existing system, there are no features for the user to interact with the client or get any information directly accessing their mobiles. It serves only as user friendly system but not as a support provider to the user.

2.2.1 Drawbacks of the Existing System

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

- The portal contents are static in nature
- Does not integrate with the any new services.
- No interactivity with the end-user
- No new features can be added to the existing system
- Available only for a limited number of countries and no diagnostic information is provided to the user
- Each terminal has to be tested separately to check the page accessibility

2.3 PROPOSED SYSTEM

This system is part of the scope of a business program that targets to continuously develop the client company's global mobile portal offering to meet the needs of the emerging mobile Internet market. This system is designed in such a way that the user can access the complete information of the mobile company's website from the user's GPS enabled mobiles because all the information are retrieved from the company's original website. The system is developed as a common platform solution that can act as a consolidated platform for all these different existing and future portal and site implementations.

This system includes facilities like registering for receiving the company's newsletter, backing up information, searching for a specific mobile as per the user's choice, subscribing for newsletters, providing support to the user in the form of FAQ, product catalogues for existing and upcoming mobiles, sharing information with the other users of the mobile through discussion boards, getting connected to external vendor site, order for a product online and finally getting feedback from the user.

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 Mobile Users, Client Administrator, and the top management as it will be of great use to them. The administrator of the project is also committed to have the system operational as it will save time and reduce their workload. Also since the administrator can have easy access to user's information, backup data, to keep track of feedback and the discussions from the users, 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 USER INTERFACE REQUIREMENTS

The User Interfaces are designed using CSS. 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 is divided into 4 parts namely header, left, right and footer. All the modules are available as tabs so that the user can easily navigate through the pages.

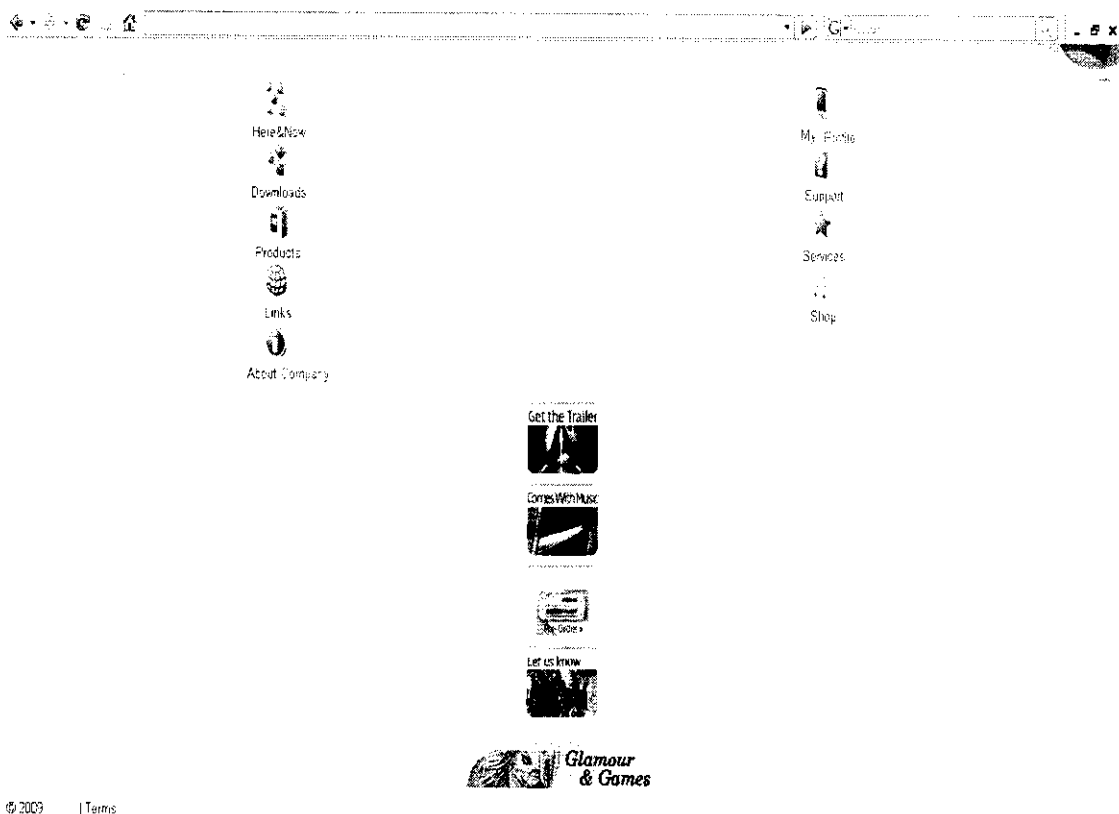


Figure 2.1

2.6 USERS OF THE SYSTEM

User Name	Description
Mobile User	A third person/Customer of the client Company who access the site and makes use of the services of the site
Client Manager	Manages and coordinates the operations and validates the actions that are performed by the user of the mobile users .He can validate the feedbacks and sends it to the respective team who in turn provides specific solution and sends it back to the manager who acknowledges it to the user.
External Vendor Administrator	Manages and coordinates the operations and validates the actions that are performed by the mobile users by accessing the external vendor site .He can validate the feedbacks and the other templates posted by the user while accessing the services of the external vendor site.

DEVELOPMENT ENVIRONMENT

CHAPTER 3

DEVELOPMENT ENVIRONMENT

3.1 HARDWARE REQUIREMENTS

Processor: Pentium 4 or Above

RAM: Minimum 4 GB

Hard Disk: 20 GB or more



3.2 SOFTWARE REQUIREMENTS

Operating System: Windows XP

Web Server: Bea WebLogic server version 10

Database: Oracle 10g

Software for Development: J2EE

Browser: Mozilla FireFox

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 servlet. The concept 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 checked 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.

- **Intercepting Files** -The presentation-tier request handling mechanism receives many different types of requests, which require varied types of processing. In this System the login page (header.jsp, authenticate.java) are used as intercepting filters.
- **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.

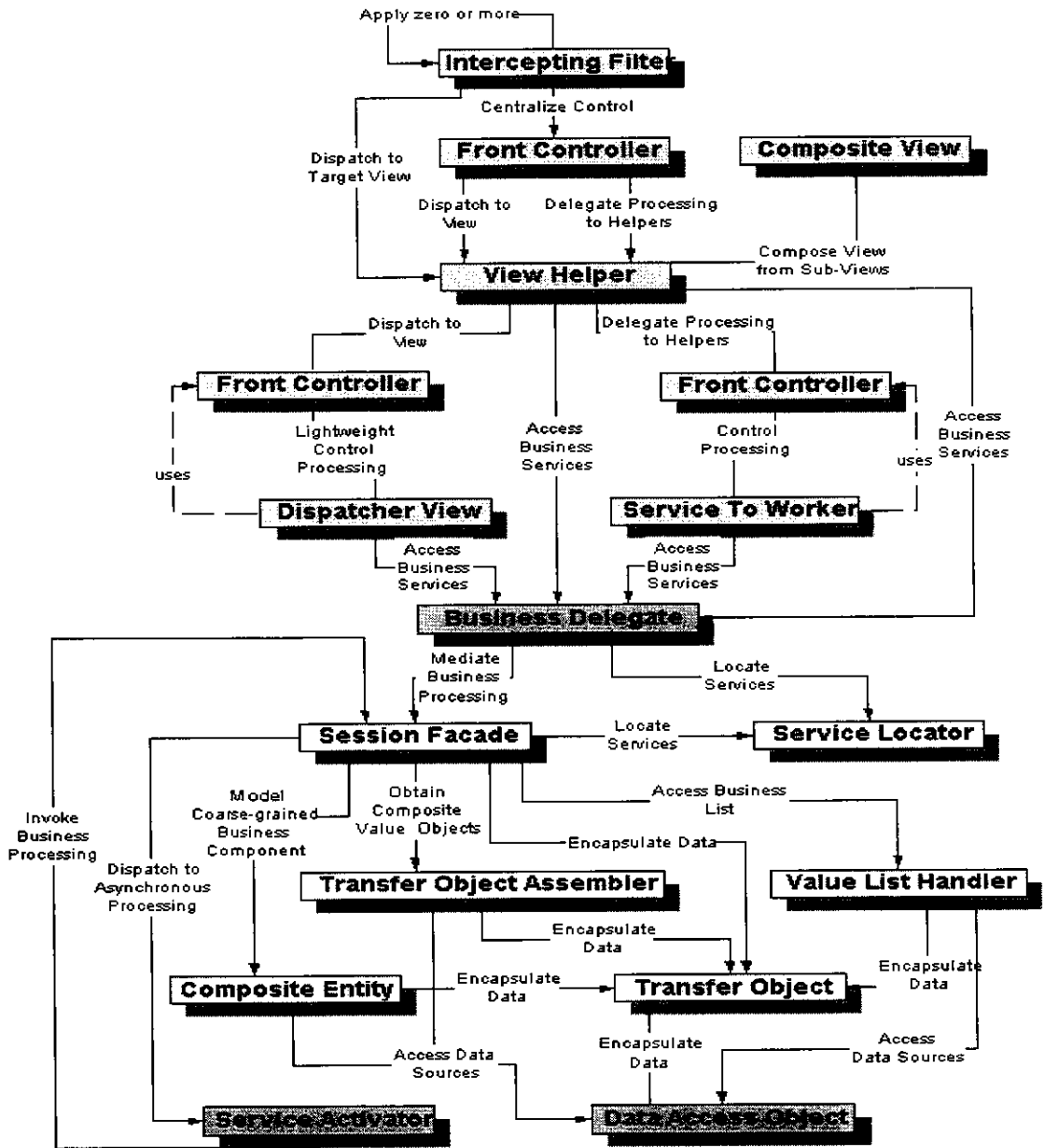


Figure 3.1

3.4.3 CMS Architecture

A **content management system (CMS)** is a computer application used to create, edit, manage, search and publish various kinds of digital media and electronic text.

CMS are frequently used for storing, controlling, versioning, and publishing industry-specific documentation such as news articles, operators' manuals, technical manuals, sales guides, and marketing brochures. The content managed may include computer files, image media, audio files, video files, electronic documents, and Web content. These concepts represent integrated and interdependent layers.

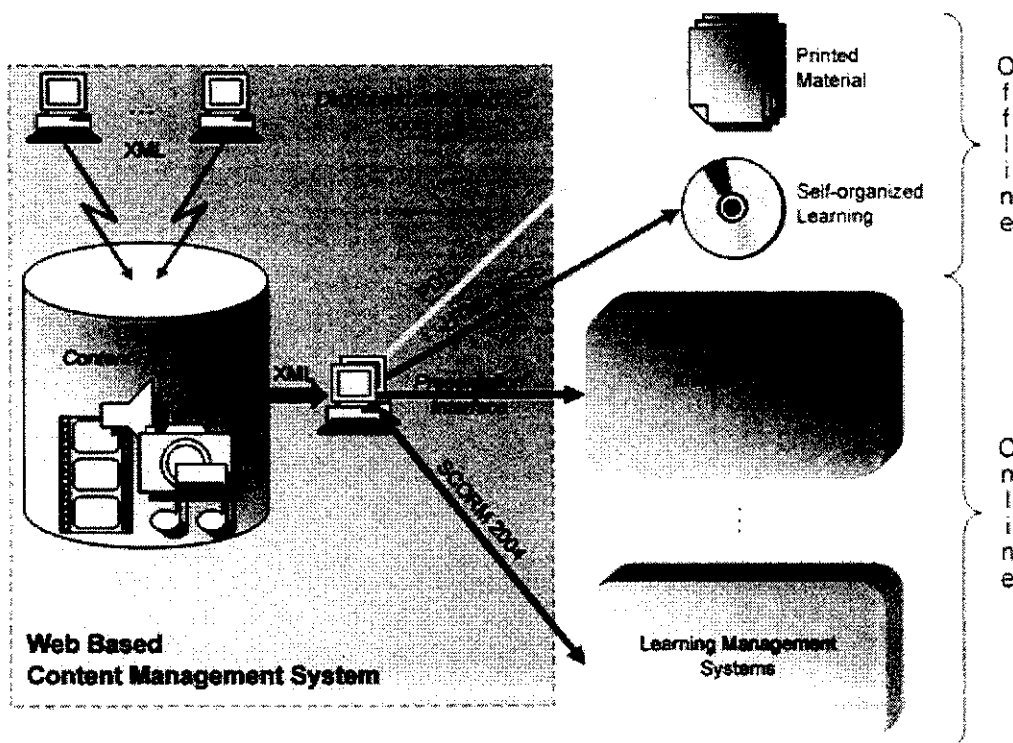


Figure 3.2

A CMS may support the following features:

- Identification of all key users and their content management roles;
- The ability to track and manage multiple versions of a single instance of content;
- The ability to capture content (e.g. scanning);
- The ability to publish the content to a repository to support access to the content Separation of content's semantic layer from its layout (For example, the CMS may automatically set the color, fonts, or emphasis of text.).

Web Content Management System (WCM) is a CMS designed to simplify the publication of Web content to Web sites, in particular allowing content creators to submit content without requiring technical knowledge of HTML or the uploading of files.

3.4.4 Overview of BEA 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,

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 resources. WebLogic Portal also provides a BEA content repository for creating and managing content.

Developing portals with WebLogic Portal is an iterative process characterized by four phases as architecture, staging (assemble/deploy), production (management of your portal)

3.4.5 Overview of Oracle10g

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

SYSTEM DESIGN AND DEVELOPEMENT

CHAPTER 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?

The steps carried out in the design phase are as follows:

- Modular Design
- Input Design
- Output Design
- Database Design

4.1.1 Modular design

It is always difficult for any System Development team to grasp a system without breaking it into several subsystems/modules. These subsystems/modules will be a part of the original system yet they will be independent in the sense that they will incorporate within them the major functionalities of the proposed system.

A software system is always divided into several subsystems/modules which make it easier to develop and perform tests on the whole system. The subsystems are also known as the modules and the process of dividing an entire system into subsystems/modules is known as Decomposition.

The modules identified for the proposed system are as below:

- User Profile Maintenance for Service Utilization
- Data Backup Module
- Services and Support Center Module
- Phone Information Module
- External Vendor Site Module

4.1.2 Input Design

Input design is a part of the system design and hence must be carefully designed which otherwise lead to serious errors in the later stages of development. Inaccurate will input data is the most common cause of errors in data processing. The main objective of designing input focus on

- Controlling the amount of input required.
- Avoiding delayed responses
- Controlling errors
- Keeping errors
- Keeping process simple
- Avoiding errors

The inputs include the personal information of the user, mobile and data information that are to be backed up

4.1.3 Output Design

The output must be provided in a format easily understandable even by a novice user. After analyzing the operations of the system, output information required for each jobs are determined .In addition to this, these outputs may be in format suitable as inputs for subsequent processing.

A major form of output is a hard copy from the printer. Printout should be designed around the output requirements of the user. An efficient output design should improve the system relationship with the end user. Output design refers to the result generated by the system. The output of a system can take many forms. The most common forms are reports, screen displays, printed form and graphical drawing forms.

The output of this project is in the form of screen display. It displays the homepage of the portal and its corresponding links

4.1.4 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.

4.1.4.1 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 4.1: user_profile

Name	Type(in bytes)	Key
mobile_no	VARCHAR2(256)	Primary Key
user_pwd	VARCHAR2(10)	
first_name	VARCHAR2(256)	
last_name	VARCHAR2(256)	
gender	CHAR(20)	
date_of_birth	DATE	
purchase_date	DATE	
communication	CHAR(20)	
mail_id	VARCHAR2(256)	

Table 4.2: databackup_prof

Name	Type(in bytes)	Key
mobile_no	VARCHAR2(256)	Primary Key
user_pwd	VARCHAR2(10)	
mail_id	VARCHAR2(256)	
phone_in	VARCHAR2(256)	Primary Key

Table 4.3: data_details

Name	Type(in bytes)	Key
mobile_no	VARCHAR2(256)	Foreign Key
user_pwd	VARCHAR2(10)	
phone_model	VARCHAR2(256)	
phone_in	VARCHAR2(256)	
user_contacts	VARCHAR2(1024)	
user_tasks	VARCHAR2(1024)	
user_appoint	VARCHAR2(1024)	
user_notes	VARCHAR2(1024)	

Table4.4:mobile_detail

Field Name	Data Type(in bytes)	Key
mobile_no	VARCHAR2(256)	Primary Key
user_pwd	VARCHAR2(20)	
phone_model	VARCHAR2(256)	
phone_in	NUMBER	

Table 4.5 : backup_status

Field Name	Data Type(in bytes)	Key
mobile_no	VARCHAR2(20)	Foreign Key
user_pwd	VARCHAR2(20)	
phone_model	VARCHAR2(256)	
status	CHAR(10)	

Table 4.6: country

Field Name	Data Type(in bytes)	Key
Country_id	NUMBER	Primary Key
Country_name	VARCHAR2(256)	

Table 4.7: security_question

Field Name	Data Type(in bytes)	Key
Sec_qid	VARCHAR2(256)	Primary Key
Sec_qu	VARCHAR2(256)	

Table 4.8: service_type

Name	Type	Key
type_id	VARCHAR2(20)	Primary Key
type_name	VARCHAR2(256)	

Table 4.9: portal_feedback

Name	Type	Key
user_name	VARCHAR2(256)	Foreign Key
password	VARCHAR2(256)	
service_type	VARCHAR2(256)	
phone_model	VARCHAR2(256)	
first_name	CHAR(20)	
last_name	CHAR(20)	
gender	CHAR(10)	
e_mail	VARCHAR2(256)	Foreign Key
imei_no	NUMBER	Primary Key
city	CHAR(20)	
postal_code	NUMBER	
user_feed	VARCHAR2(256)	

Table 4.10: discussion_topic

Name	Type	Key
dtopic_id	VARCHAR2(20)	Primary Key
discussion_type	VARCHAR2(256)	

Table 4.11: userprofile_support

Name	Type	Key
user_name	VARCHAR2(256)	Primary Key
password	VARCHAR2(256)	
first_name	VARCHAR2(256)	
last_name	VARCHAR2(256)	
e_mail	VARCHAR(256)	Primary Key
sec_ques	VARCHAR(1024)	
sec_ans	VARCHAR(256)	

Table 4.12: newsletter_sub

Name	Type	Key
user_name	VARCHAR2(256)	Foreign Key
password	VARCHAR2(256)	
news_choice	VARCHAR2(256)	
e_mail	VARCHAR2(256)	Foreign Key
country	CHAR(20)	
language	VARCHAR(20)	

Table 4.13: discussion_board

Name	Type	Key
user_name	VARCHAR2(20)	
dtopic_id	VARCHAR2(20)	Foreign Key
post_discussion	VARCHAR2(1024)	

Table 4.14: faq_questype

Name	Type	Key
topic_id	VARCHAR2(20)	Primary Key
fques_type	VARCHAR2(256)	

Table 4.15: faq_ques

Name	Type	Key
ques_id	VARCHAR2(20)	Primary Key
topic_id	VARCHAR2(256)	Foreign Key
question	VARCHAR2(1024)	

Table 4.16: faq_ans

Name	Type	Key
faq_ques	VARCHAR2(256)	
ans_id	NUMBER	Primary Key
Ans	VARCHAR2(1024)	

Table 4.17: accessories

Name	Type	Key
acc_id	VARCHAR2(20)	Primary Key
acc_Name	VARCHAR2(20)	
acc_Detail	VARCHAR2(1024)	

Table 4.18: product_detail

Name	Type	Key
prod_id	VARCHAR2(20)	Foreign Key
prod_name	VARCHAR2(20)	
key_feat	VARCHAR2(1024)	
accessories	VARCHAR2(1024)	
prod_support	VARCHAR2(1024)	
tech_spec	VARCHAR2(1024)	
prod_color	VARCHAR2(1024)	

Table 4.19: purchase_order

Name	Type	Key
prod_id	VARCHAR2(20)	Foreign Key
order_id	VARCHAR2(20)	Primary Key
prod_name	VARCHAR2(20)	
prod_type	VARCHAR2(1024)	
user_name	VARCHAR2(20)	
phone_no	VARCHAR2(20)	
e_mail	VARCHAR2(256)	
address	VARCHAR2(1024)	

Table 4.20: ext_userprofile

Name	Type	Key
user_name	VARCHAR2(256)	Primary Key
user_pwd	VARCHAR2(256)	
phone_no	VARCHAR(256)	
country	CHAR(20)	
date_of_birth	DATE	
mail_id	VARCHAR(256)	

Table 4.21: ext_feedback

Name	Type	Key
user_name	VARCHAR2(256)	Foreign Key
user_pwd	VARCHAR2(256)	
mail_id	VARCHAR2(256)	Primary Key
topic	VARCHAR2(1024)	
description	VARCHAR2(1024)	
question	VARCHAR2(1024)	

Table 4.22: ext_seek

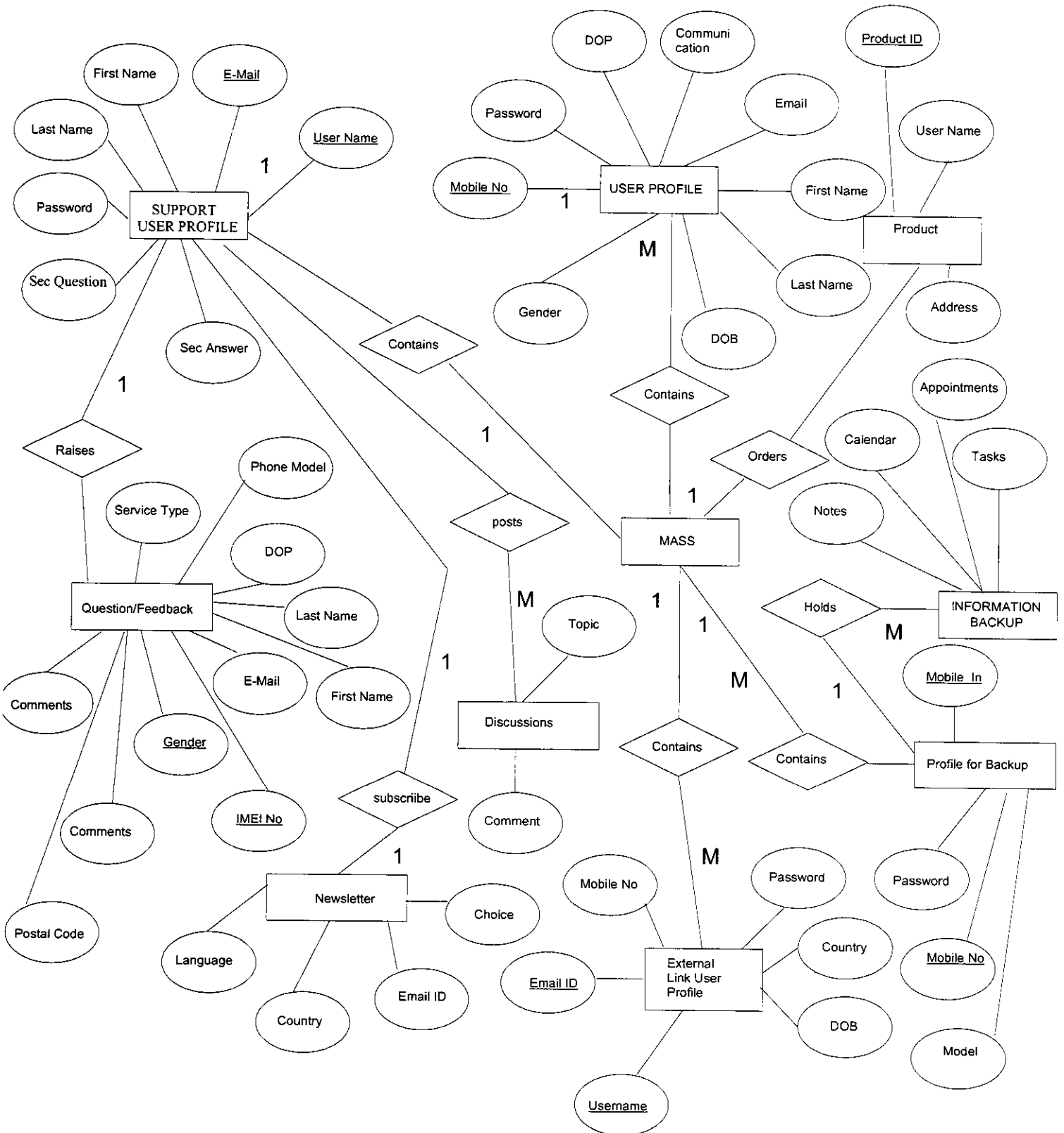
Name	Type	Key
user_name	VARCHAR(256)	Foreign Key
user_pwd	VARCHAR(20)	
content_name	VARCHAR2(256)	
content_type	VARCHAR2(256)	
content_tag	VARCHAR2(256)	
content_detail	VARCHAR2(1024)	

Table 4.23: ext_copyright

Name	Type	Key
user_name	VARCHAR2(256)	Foreign Key
user_pwd	VARCHAR2(256)	
copy_description	VARCHAR2(256)	
content_url	VARCHAR2(256)	
onwer_e-mail	VARCHAR2(256)	Primary Key
Contact_Info	VARCHAR2(1024)	

4.2 DATA MODEL

4.2.1 Database E-R Diagram



4.3 PROCESS MODEL

4.3.1 Use Case Diagram

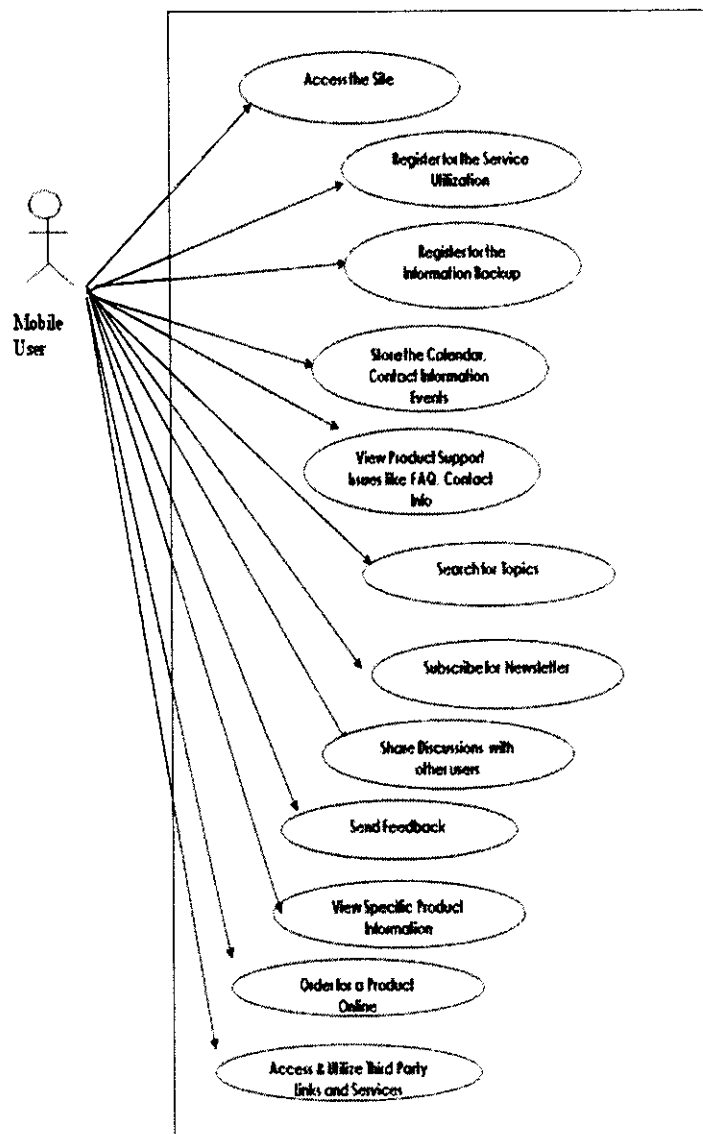


Figure4.2

Management Application

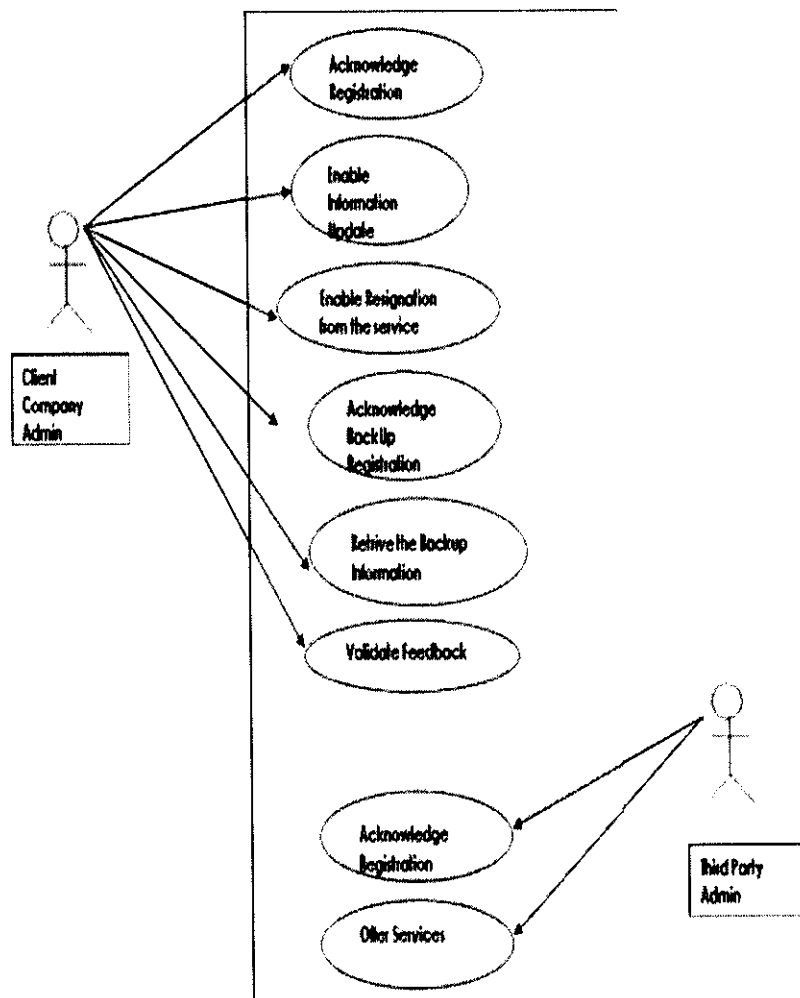


Figure4.3

4.3.2 DataFlow Diagram

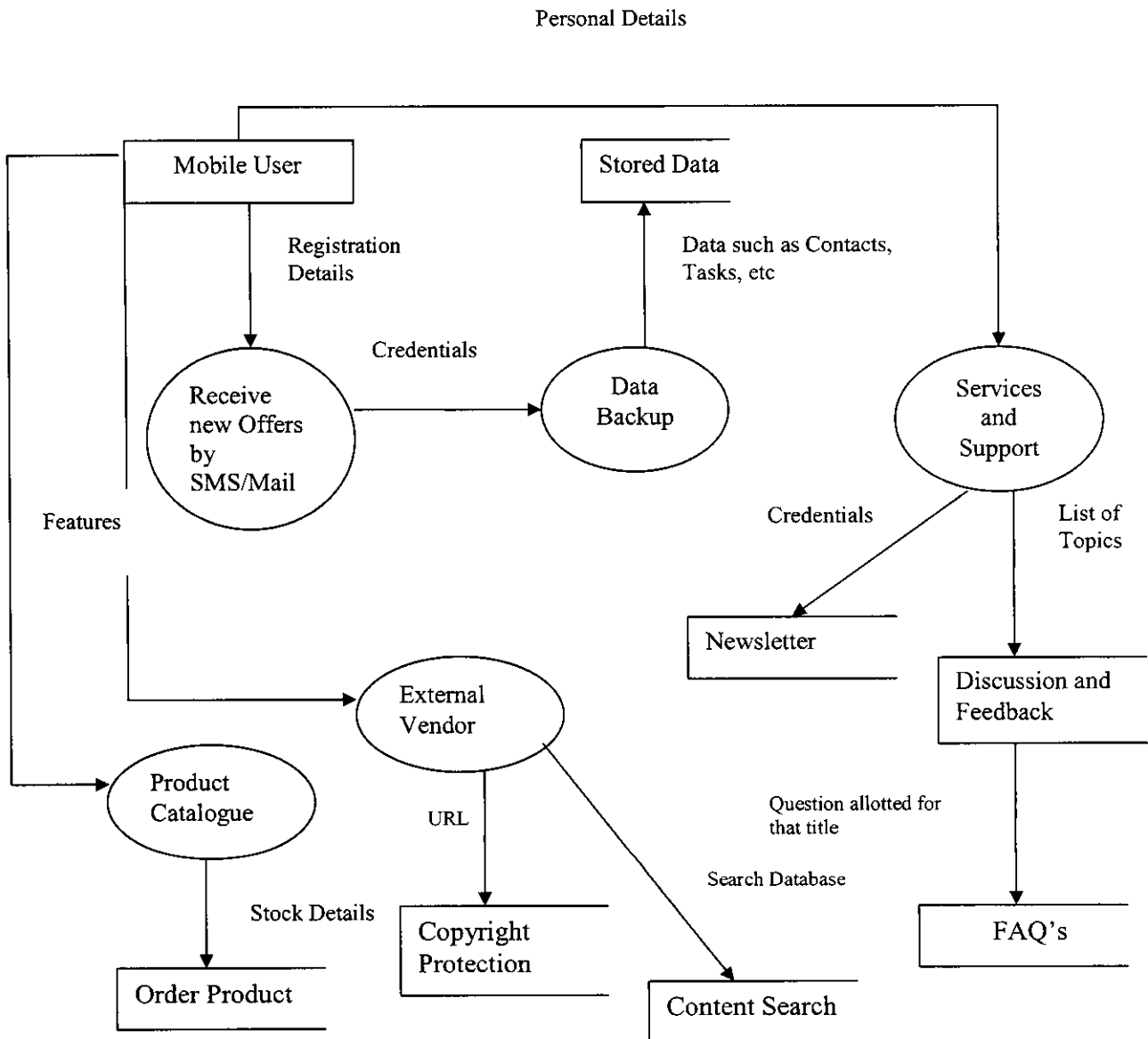


Figure 4.4

ARCHITECTURAL DETAILS

CHAPTER 5

ARCHITECTURAL DETAILS

5.1 OVERALL ARCHITECTURE

The need for the system was recognized when the users wanted some interactivity with client mobile company. Apart from browsing from the official website the system gives almost the same features of the website in the mobile. The system maintains some details regarding the products, support information, subscribing for newsletters, registering for services.

The portal is divided into two main parts as preview and presentation sites with databases for each. The production site will only be visible to the end user. The coding part is done for the preview site and then the contents are configured to the CMS(Content Management System) in the draft state after which the content will be visible in the preview site. When the content has been moved to the approved status in the CMS the content will be moved to the presentation site. After the user acceptance testing is done the final content is published in the production site. The workflow of the functioning of the entire system is done from the preview to the presentation site by retrieving the data from the database.

The pages are cached for a specified time before they are displayed in the portal. The caching framework is upon CDN and RP.

5.1 SYSTEM INTEGRATION MODEL

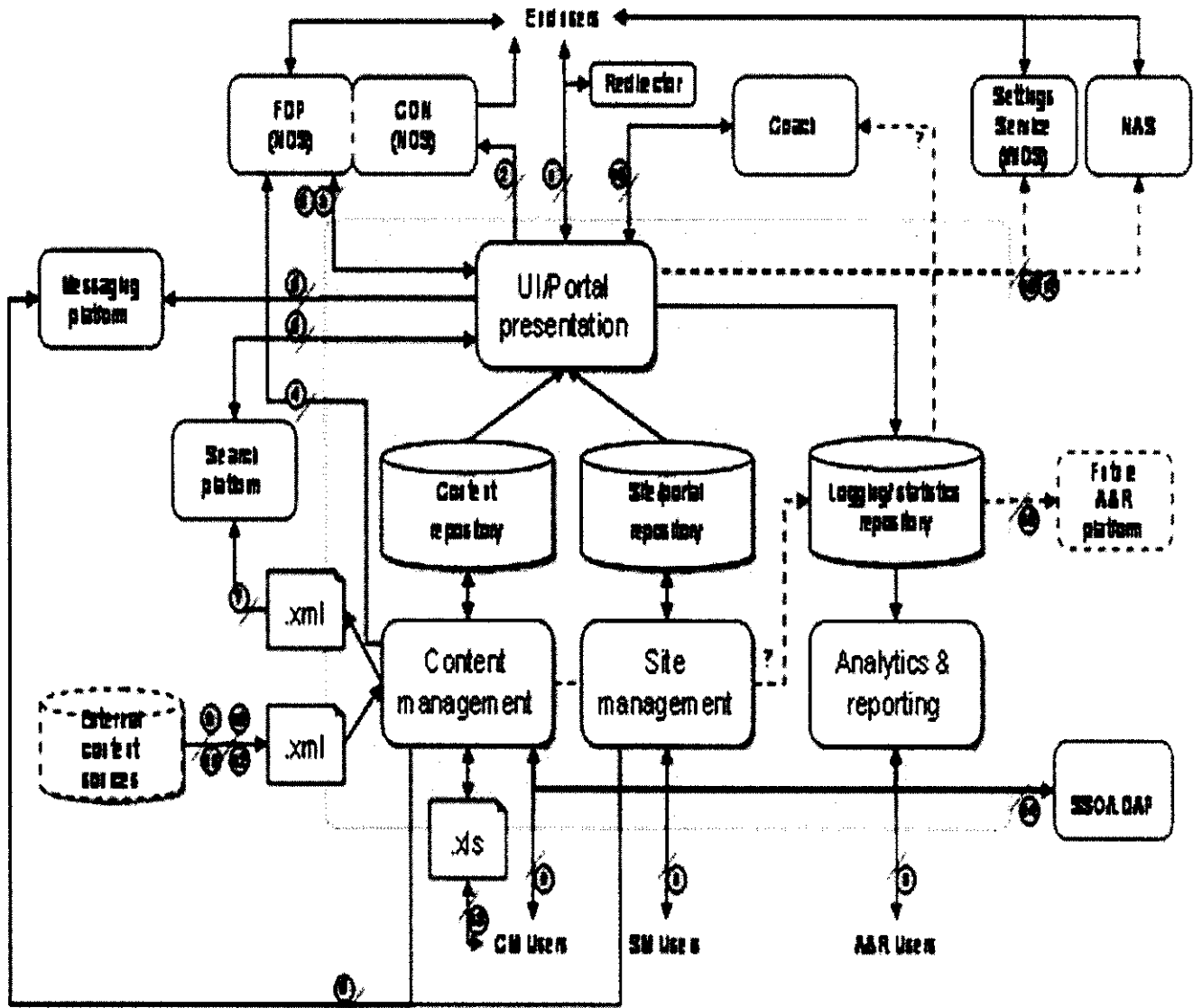


Figure 5.1

5.3 WORKFLOW DIAGRAM

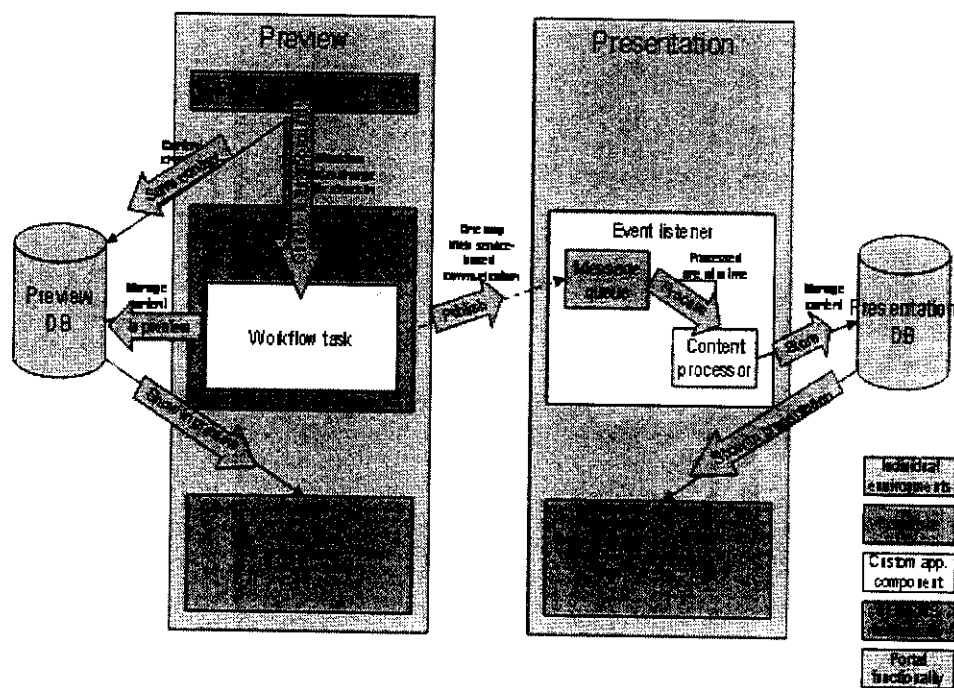


Figure 5.2

5.3 FRAMEWORK DIAGRAM

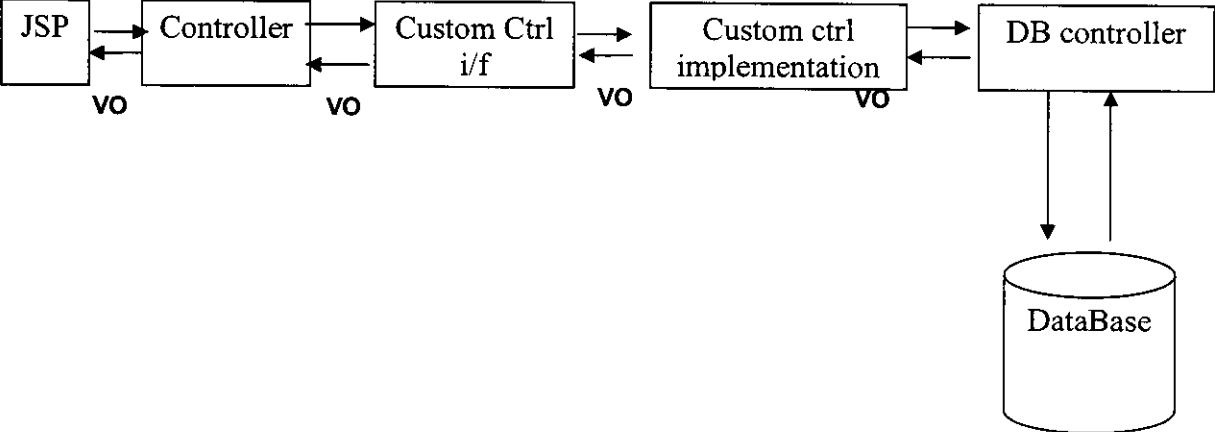


Figure 5.3

IMPLEMENTATION AND TESTING

CHAPTER 6

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.

6.1 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.

6.2 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.

6.3 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 processes in testing a module are:

- Defining Test Sets
- Adding Tests to a Test Set
- Scheduling Test Runs
- Running Tests Manually

6.3.1 Types of Testing

6.3.1.1 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 Mobi Application and Support 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.

6.3.1.2 Regression Testing

Regression testing is any type of software testing which seeks to uncover software regressions. Such regressions occur whenever software functionality that was previously working correctly, stops working as intended. Typically regressions occur as an unintended consequence of program changes. Common methods of regression testing include re-running previously run tests and checking whether previously fixed faults have re-emerged.

In the Mobi Application and Support System, regression testing is an integral part of the extreme programming software development method. In this method, design documents are replaced by extensive, repeatable, and automated testing of the entire software package at every stage in the software development cycle.

In the MASS System, regression testing has been performed by a software quality assurance person after the development person has completed work. However, defects found at this stage are the most costly to fix. This problem is being addressed by the rise of developer testing. Although developers have always written test cases as part of the development cycle, these test cases have generally been either functional tests or unit tests that verify only intended outcomes. Developer testing compels a developer to focus on unit testing and to include both positive and negative test cases.

6.3.1.3 System Testing

System testing is actually a series 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.

6.3.1.3.1 Smoke Testing

Smoke testing is done by developers before the build is released or by testers before accepting a build for further testing, Smoke testing is the most cost effective method for identifying and fixing defects in software. A smoke test generally consists of a collection of tests that can be applied to a newly created or repaired computer program. In this sense a smoke test is the process of validating code changes before the changes are checked into the larger product's official source code collection or the main branch of source code.

In MASS System smoke testing is carried out very frequently to check the consistency before a build. The smoke testing is carried out by just browsing through the pages of the portals as well as the mobiles to check the page flow and main functionalities of the system.

6.3.2 Test Case Report

6.3.2.1 User Profile for Service Utilization Module

No	Steps	Expected Result	Actual Result
1.	a)Environment should be up and running b)Contents must be configured in the CMS c)User must be in the Mobi Home Page	Preconditions are Met	Pass
2.	Click on the MyProfile Home Page	MyProfile Home Page is displayed	Pass
3	Click on the Register Link	Registration Page is displayed	Pass
4.	Fill in all details and click the 'Submit' button	Profile Update Page with message "Thank you for Registering" is displayed.	Pass
5.	Click on the 'Profile Update'Link in that page	My Details Page is Displayed	Pass
6	Make updations in the page and click on the 'Submit' Button	MyProfile Home Page is displayed	Pass
8	Click on the Account Information Link	Account Information Page is displayed	Pass
9	Change the password by providing the old and new password and click the the 'Submit' button	MyProfile Home Page is displayed	Pass
11	Click on the 'Resign' Link'	Resignation Page is displayed	Pass
12	Select the reason for resignation from the drop down combo box and click 'Submit' button.	The acknowledgement page with message 'You have resigned from the the service' is displayed	Pass

6.3.2.2 User Data Backup Module

No	Steps	Expected Result	Actual Result
1.	a)Environment should be up and running b)Contents must be configured in the CMS c)User must be in the Mobi Home Page	Preconditions are Met	Pass
2.	Click on the Services Grid	Services Home Page is displayed	Pass
3	Click on the Register Link	'MyDataBackup'Registration Page is displayed	Pass
4.	Fill in all details and click the 'Submit' button	Personalized Backup page is displayed	Pass
5.	Click in the 'Add New Phone' Link	The phone activation page is displayed	Pass
5.	Select the phone model and enter the phone number in international format and click the Activate button	Data Backup page for that particular mobile number is displayed	Pass
6	Click 'Edit/Delete Phone' Link	Corresponding Page is displayed	Pass
7.	Select the mobile number which must be edited/ deleted.	The data page for that particular mobile is displayed	Pass
8	Select the delete link	The backup contents of that mobile number are deleted with the message 'Your account has been deleted'.	Pass

6.3.2.3 External Vendor Site

No	Steps	Expected Result	Actual Result
1.	a)Environment should be up and running b)Contents must be configured in the CMS c)User must be in the Mobi Home Page	Preconditions are Met	Pass
2.	Click on the Services Grid	Services Home Page is displayed	Pass
3.	Click on the External Vendor Site Link	External Vendor Site Home Page is displayed.	Pass
4	Enter a search topic. Ex-Games	All the contents related to the topic 'games' are displayed.	Pass
5	Click on the Register Link	'Registration Page' is displayed	Pass
6.	Fill in all details and click the 'Submit' button	User is logged on to the page	Pass

6.3.2.4 Products Module

No	Steps	Expected Result	Actual Result
1.	a)Environment should be up and running b)Contents must be configured in the CMS c)User must be in the Mobi Home Page	Preconditions are Met	Pass
2. 2.	Click on the Products Home Page	Products Home Page is displayed	Pass
3	Click on one of the product links	Corresponding product article page is displayed.	Pass
4.	Click on one of the links Ex-Technical Specifications	Corresponding article list page is displayed	Pass
5.	Click on one of the links in the article page	Corresponding article leaf page is displayed	Pass
7	Navigate again to the Products page and click on the 'Find Phones'link	'Find product' Page with list of features is displayed	Pass
8	Select the features by which the product must be displayed.	All the products based on the choice made by the user are displayed	Pass
7	Navigate again to the Products page and click on the 'Order Online' Link	Product Registration Page is displayed	Pass
8	Fill the details and click the submit button	That particular page is redirected to the payment gateway page.	Pass
9	Fill in the payment details and click the submit button.	An acknowledgement message for ordered product	Pass

6.3.2.5 Services and Support Center Module

No	Steps	Expected Result	Actual Result
1.	a)Environment should be up and running b)Contents must be configured in the CMS c)User must be in the Mobi Home Page	Preconditions are Met	Pass
2.	Click on the Support Home Page	Support Home Page is displayed	Pass
3	Enter a search topic. Ex-BlueTooth	All the FAQ related to BlueTooth are displayed.	Pass
4.	Click on one of the question links	Corresponding article page is displayed	Pass
5.	Navigate again to the Services page and click on the general FAQ topics.	General FAQ list page is displayed	Pass
6	Click on one of the links in the general FAQ list page.	Corresponding article page is displayed	Pass
7	Navigate again to the Services page and click on the 'Discussion Boards' link	'Sign in' page is displayed.	Pass
8	Enter the valid credentials	Post Discussion page is displayed	Pass
9	Select on one of the topics and post the discussion	The discussion is posted and the number of messages in the topic is increased by the number of posts.	Pass

TESTING TOOL-MERCURY QUALITY CENTER

Sample Test Case

The screenshot displays the Mercury Quality Center 9.0 interface within a Microsoft Internet Explorer browser window. The browser address bar shows the URL: https://www.qc90.nokia.com/qcbin/start_a.htm. The page title is "MERCURY Quality Center". The user is identified as "Domain: BI, Project: Consumer_Url, User: e0333861".

The interface is divided into several sections:

- Left Navigation Panel:** Contains icons and labels for "Requirements", "Test Plan", "Test Lab", "Defects", and "Dashboard".
- Tree View:** A hierarchical tree structure showing test cases. The selected path is:
 - System test cases
 - Change requirements test cases
 - Defects Test Cases
 - Requirements test cases
 - 5259 # COS Multichannel Integration
 - 5872 # Online Store Integration
 - 5872 # Functional test cases
 - 5872 # Non-functional or UI test
 - 5872 # Call center triage (Selected)
 - 5872 # Localized disclaimer
 - 5872 # Only two links should
 - 5872 # Stock and price info

- Main Content Area:** Displays the details of the selected test case. It includes tabs for "Details", "Design Steps", "Test Script", "Attachments", "Req Coverage", and "Linked Defects". The "Design Steps" tab is active, showing a table with the following content:

Step Name	Description	Expected Result
Step 1 (Preconditions)	Preconditions - 1. Environments are up and running. 2. Online integration related contents are available in product page. (All the contents are enabled for the user site). 3. User is in any device page. <u>Proto-site Snap shot is attached for reference.</u> http://vector.sigma.org/DS/playground/combined/index.py?page	Preconditions are met
Step 2	Check for call center timing information.	Call center timing information if localised text is displayed under "Click to call" link. Refer the proto-site for more information.
- Footer:** Shows "Total Steps: 2" and "Server Time: 8:27 AM 4/25/2009".

Figure 6.1

PERFORMANCE AND LIMITATIONS

CHAPTER 7

PERFORMANCE AND LIMITATIONS

7.1 MERITS OF THE SYSTEM

The expected benefits of the Proposed System are as follows:

- Dynamic Internet mobile portal that can be accessible from GSM enabled phones.
- New modules can be added with ease without many modifications to the existing system.
- Available and accessible anywhere, anytime 24*7
- Direct Interactivity with the company through newsletters, registrations and feedback
- User will be able to find all the information like FAQ's, product information, and also order for a product online.
- Simple and Easy to use.

7.2 LIMITATIONS OF THE SYSTEM

The system is directly accessible from the GPS enabled mobiles. The pages are cached and then displayed to the portal. The same page will be accessed by any number of users. Since a number of users access the system that particular page will sometimes result in an error page due to caching problems.

CONCLUSION AND FUTURE ENHANCEMENTS

CHAPTER 8

CONCLUSION AND FUTURE ENHANCEMENTS

8.1 CONCLUSION

The Mobi Application and Support System enables a mobile user to make use of the facilities that are available in the website of the client mobile company directly from the mobiles that are GPS enables

When fully deployed, the Mobi Application and Support System will transform the entire working and functionalities of the website of the company to be made available through the mobile itself. The user can access the system anytime and it makes the entire simple, and efficient and more performance enhancing one.

The information in the system should be maintained upto date with periodic updates. The security feature of the system allows only developers to make updates to important and sensitive data. It prevents unauthorized access to important data. Only the authorized users who have registered to the portal can make use of the services offered by the portal

Thus the Mobi Application and Support System increases the efficiency, performance of the mobile by the GPS feature and thus enabling the client mobile company to spend more time and effort on improving the portal of the mobile website. The reports provided to the top management are error free and leads to improved decision making.

8.2. FUTURE ENHANCEMENTS

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

- The RSS press release feed about the company's stock status and quarterly profit results to work for the user's knowledge
- The Multichannel repository which is to be introduced will provide FAQ's to the user directly from the website
- More of External site links would be introduced for the users to gain more information and access more contents through mobiles.

APPENDICES

CHAPTER 9

APPENDICES

9.1 User Personalized Portal for Service Utilization

Home Page

The screenshot shows a user personalized portal home page. At the top, there is a navigation bar with a logo on the left and a search bar on the right. Below the navigation bar, the page is divided into three main sections:

- My Profile**: This section includes a sub-header and a list of links: "Update your profile", "Register", "Tips and tricks", and "More info".
- Product Support**: This section includes a sub-header and a list of links: "Support for your device", "Software Updates", "Product FAQ", and "How to get settings".
- Key Accessories**: This section includes a sub-header and a list of links: "Multimedia Car Kit C-K-20W", "Bluetooth headset BH-900", and "Bluetooth Headset BH-500".

At the bottom of the page, there are links for "home", "Terms", and "© 2009".

Add New User

Logo

Join My Profile

After you have signed up to the service you will start to receive regular free Tips, Tricks and Support for your mobile via SMS.

* mandatory information

Yes, I have read, understood and I agree with the legal policy of the company. [Read disclaimer](#)

Mobile phone number*

Please enter in your local format, e.g. 0771234567

Password*

Confirm password*

Purchase date of your mobile phone (MM/YY)

1

Please indicate below how you would like us to stay in touch. Select one of these options*

SMS and email

SMS

Email

Email*

Home

Terms

© 2009

Edit User Details

Logo

My details

* mandatory information

Phone number*

First name

Last name

Date of birth (DD/MM/YYYY)

Gender

Male Female

Opt in for communication*

PMS

Email

Email*

Home

Terms

© 2009

9.2 User Data Backup

Register New User

Registration

Items marked with * are mandatory.

Yes, I have read, understood and I agree with the usage terms of My Data Backup*

Mobile phone number*

Please enter in your local format, e.g. 0771234567

Password*

Confirm password*

Email

Enter your email address

Home

© 2007 | Help | Terms

Add New Phone

Logo

Add new phone

Select your phone model

Model No.

Enter your phone number (international format so we can send you required settings)

+358401234567

My Data Backup home


© 2007 | Terms

Edit/Delete Phone

Logo

Edit / delete phone

Selected phone

 **Model XXXX**
+358401234567
IMEI: 123456 12 1234567 1

Actions

Suspend
Phone is not in use, is lost or has been stolen.

Activate
You want to use this phone again.

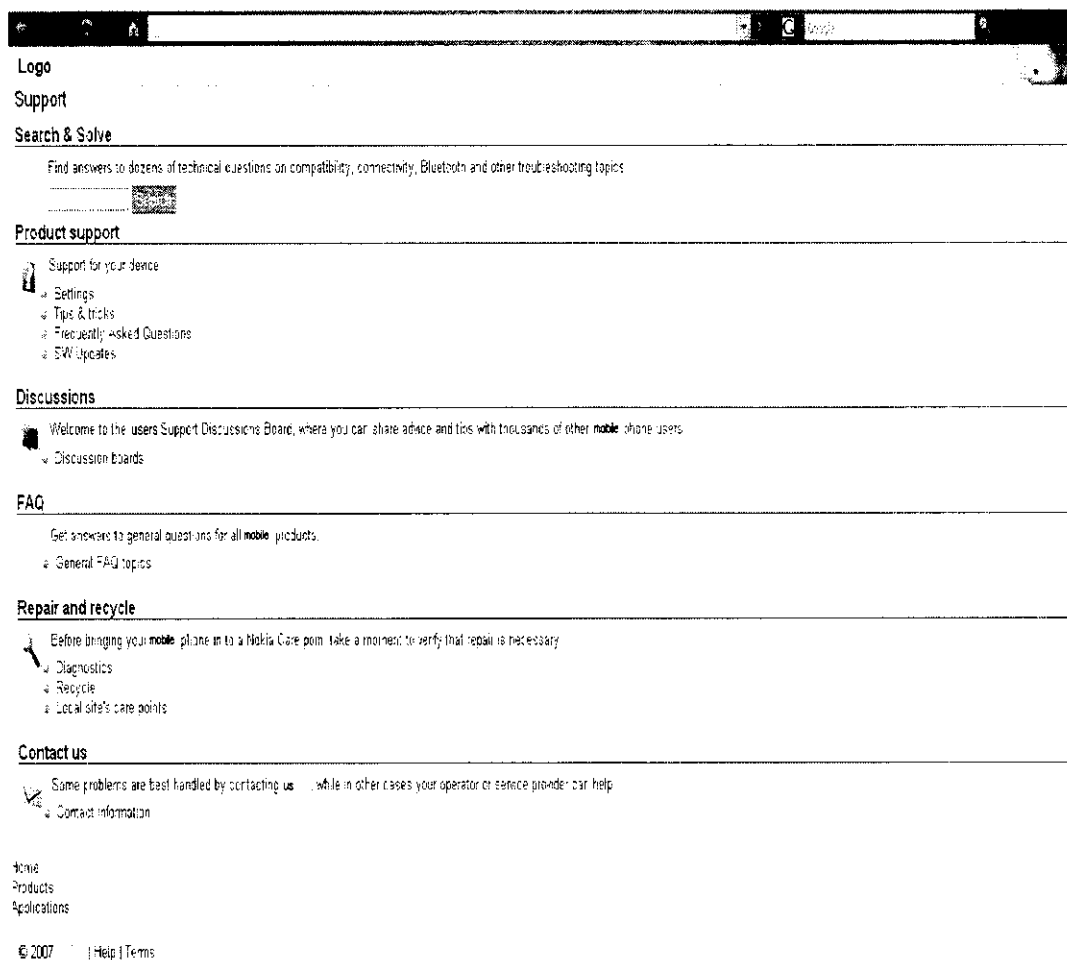
Delete
You have cleared the sync profile on the phone and do not use it anymore.

My Data Backup home

© 2007 Terms

9.3 Services and Support Center

Home Page

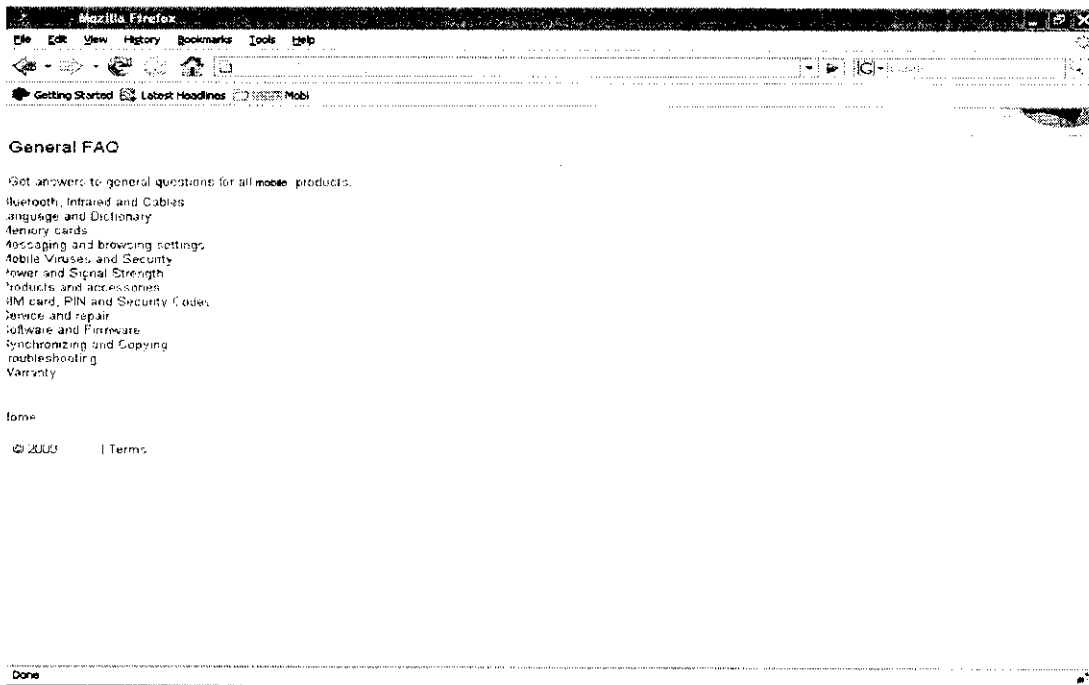


The screenshot shows the Nokia Support Center Home Page. At the top, there is a navigation bar with a search bar and a 'Support' button. Below the navigation bar, the page is divided into several sections:

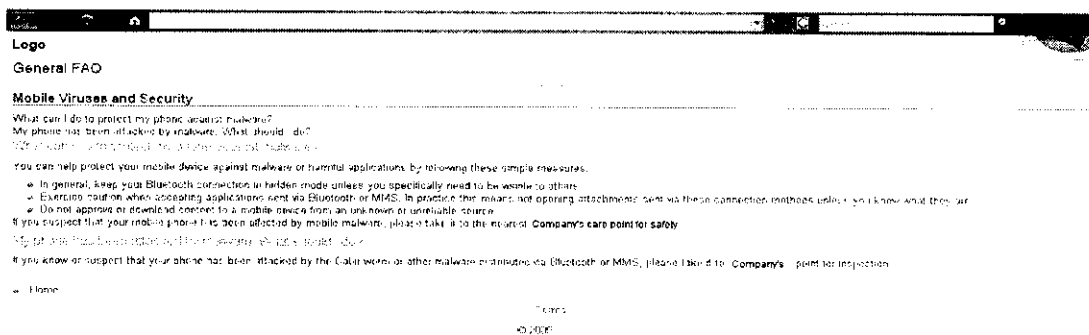
- Logo**: The Nokia logo is displayed.
- Support**: A heading for the support section.
- Search & Solve**: A section with a search bar and a description: "Find answers to dozens of technical questions on compatibility, connectivity, Bluetooth and other troubleshooting topics".
- Product support**: A section with a heading and a list of links: "Support for your device", "Settings", "Tips & tricks", "Frequently asked Questions", and "SW Updates".
- Discussions**: A section with a heading and a description: "Welcome to the users Support Discussions Board, where you can share advice and tips with thousands of other mobile phone users". It includes a link to "Discussion boards".
- FAQ**: A section with a heading and a description: "Get answers to general questions for all mobile products". It includes a link to "General FAQ topics".
- Repair and recycle**: A section with a heading and a description: "Before bringing your mobile phone in to a Nokia Care point, take a moment to verify that repair is necessary". It includes links to "Diagnostics", "Recycle", and "Local site's care points".
- Contact us**: A section with a heading and a description: "Some problems are best handled by contacting us, while in other cases your operator or service provider can help". It includes a link to "Contact information".

At the bottom of the page, there is a footer with the text "© 2007" and a link to "Help | Terms".

FaQ's



Article Page



Discussion Boards

Logo

Discussions

Welcome to the **User Support Discussions Board**, where you can share advice and tips with thousands of other **mobile** phone users. Browse the posts to find answers, fact or legit tip, or start your own topic.

Welcome to User Support Discussions
 Discussions Guidelines
 News and Announcements
Mobile Products
 XXXX Devices and SDD Smartphones
 YYYX Devices and Communicators
 Phones
 Accessories, Car Phones and Other Products
Software
 Software updates
 PC and Mac Software
 Phone Applications

Posts
 2
 209
Posts
 15271
 14271
 29615
 2744
Posts
 25901
 21900
 1557

Home

© 2007 Help | Terms

Post Discussion

Our customer service team is always happy to answer your questions on **mobile** devices, accessories, software or services. If you do not wish to email us directly, you can also call us at the **company's customer care**.

Before sending a query, please check whether you can find the information you need in the FAQ or Discussion sections.

To ensure that we resolve your issues and that we are able to contact you, fields marked with * must be completed.

* Topic

* Message

Title

* First Name

* Last Name

Gender

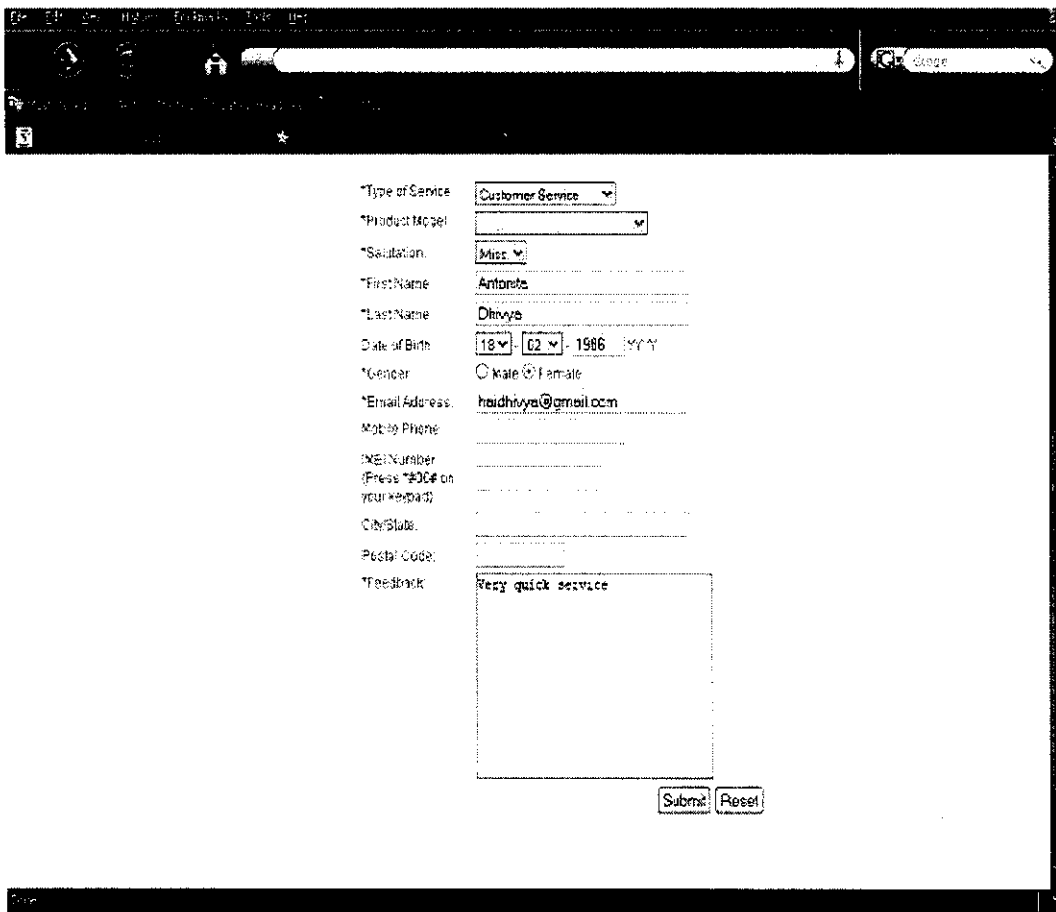
* Email Address

* Re-Enter Email Address

Mobile Phone Number



Feedback Template



The image shows a screenshot of a web browser displaying a feedback form. The browser's address bar shows a URL starting with "http://www.". The form contains the following fields and values:

- Type of Service: Customer Service
- Product Model: [Empty]
- Salutation: Miss
- First Name: Ananya
- Last Name: Dhanya
- Date of Birth: 18/02/1986
- Gender: Male Female
- Email Address: haithiya@gmail.com
- Mobile Phone: [Empty]
- IMEI Number (Press *#06# on your keypad): [Empty]
- City/State: [Empty]
- Postal Code: [Empty]
- Feedback: Very quick service

At the bottom of the form, there are two buttons: "Submit" and "Reset".

9.4 Products

Find Phones

NOKIA

Find product

View by

Design & Display

- Flip phone
- Slide phone
- High colour resolution
- Wide screen display

Functionality

- Camera
- High quality images
- Bluetooth
- Wireless connection
- MP3 player
- Radio
- Video recorder
- Gaming
- Email
- High speed internet
- Push to talk
- Speaker phone
- Video calling

Home
All accessories
All phones

Help | Terms

Filtering Result

Filtering result

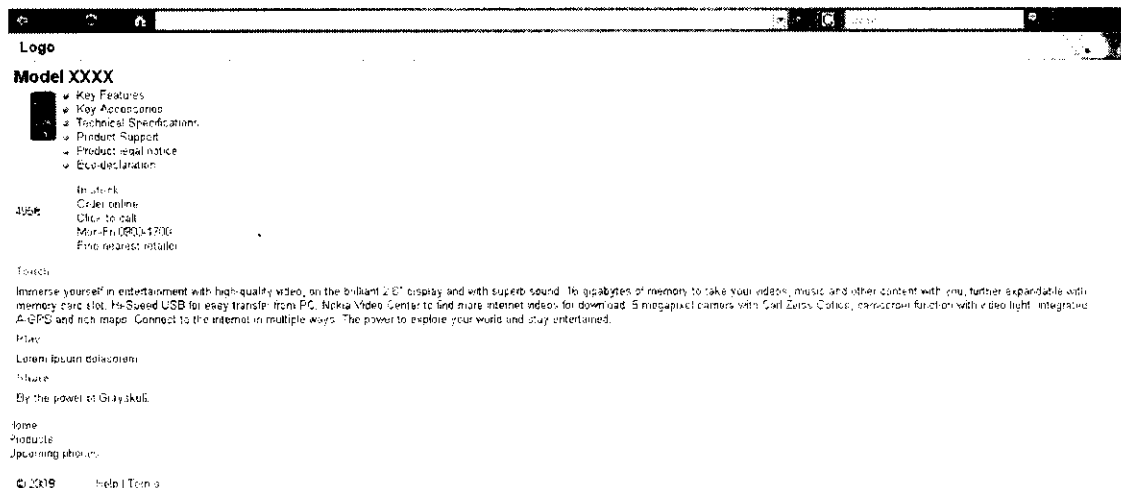
Showing 5 phones

- Model XXXX**
Teamwork driven, performance inspired
- Model YYYY**
Music gets you talking
- Model AAAA**
Teamwork driven, performance inspired
- Model BBBB**
Music gets you talking
- Model CCCC**
Teamwork driven, performance inspired

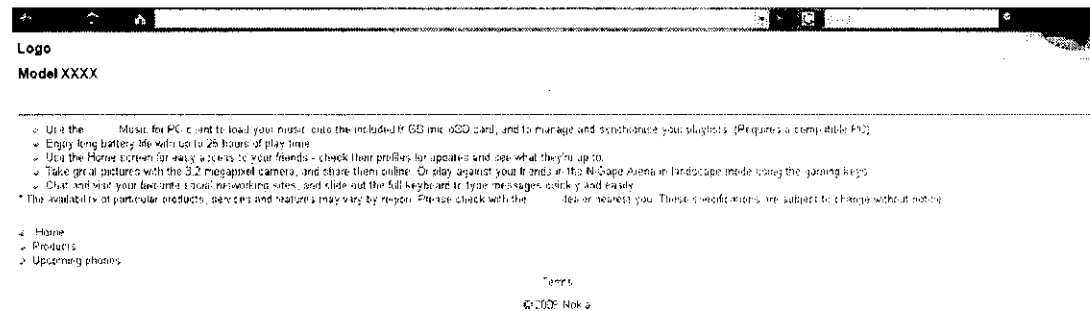
Home
All accessories
Upcoming phones

Help | Terms
English | Français | Italiano
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Product Information



Article Page



REFERENCES

REFERENCES

BOOKS

1. BEA WebLogic Workshop: Kick Start - by Joe Weber, Mark Wutka, BEA Systems Inc
2. Expert One on One J2EE Design and Development ...- by Rod Johnson, Wrox Publications
3. Oracle Database10g by Jason Price, Oracle Press

REFERENCE SITES

1. http://docs.bea.com/wlp/docs81/overview/overview_wlp.html
2. <http://www.toodoc.com/BEA-WebLogic-ebook.html>
3. <http://www.corej2eepatterns.com>