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In The Name Of Allah, The Most Beneficent The Most Merciful

WAP Task Scheduler



By

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Chapter 1

Introduction

1.1 Introduction to the organization

COMSATS has the ability to draw from an experienced base of personnel whilst maintaining a personalized form of business liaison. The ultimate in consultation, skills diversity and adaptability to meet client expectations are the very strengths of COMSATS.

COMSATS call on a combination of talents, including:

- Client.
- Web Page Designer.
- Internet Marketer.
- Internet user.
- Member of your target market.
- Lay person who does not have any experience with the Internet, to make your site appealing, functional and successful.

1.2 Existing System

Today, Mobile phones are so common that almost each person is equipped with it. But the organization was not supplied with a WAP site. It was necessary to build a WAP site so that the members of the organization can interact with each other through their GPRS enabled mobile device.

If any member of the organization is away from the organization, their was no way to check hi/her duly tasks, meetings etc until he/she will have to come to the organization. If there is any important message that is necessary to deliver to all the registered members of the organization then it is not possible in time. The Administrator feels burden to message to all the members. The members are not able to schedule the time table for their meetings, tasks etc as they are not well informed before.

1.3 Problem Definition

Following are the required problems. First of all building a WAP site and after that an Admin Panel to monitor, update and maintain this WAP site. The WAP

site contains Task Section, Meeting Section, Profile Section, Message Box Section and the Entertainment Section. The member of the organization can check his/her tasks, meetings, profile, message box etc. All these sections are managed by the Admin Panel. The Administrator will be responsible to upload, delete, assign tasks and meetings to the members, and manage their profiles, message box and the Entertainment section.

1.4 Scope of the Development Project

As mentioned above, this site will provide the facilities of checking the tasks, meetings, message box etc. relevant to a specific employee. An administrator will be responsible to maintain and update the site. The administrator can change the tasks, meetings related to a specific personal but the employee will be able only to view his/her task/meetings. The employees of the organization can communicate with each other through message box. The user can read and reply the messages of his/her Inbox by using the mobile device. The project includes

- Administrator panel is generally provided for the site monitoring, maintenance and updation.
- The employee of the organization can view his/her tasks on daily or weekly basis.
- Meetings with outside personals or organizations are handled by meeting scheduler. The information about any confirmation or canceling of meeting is also provided to the specific personality which can be easily accessible on site as well as on the mobile.
- If a person of any team is unavailable due to certain reason, he/she may inform the project team leader through WAP Device.
- The Team member can communicate with Administrator and other team members using message box facility. This facility would be available on WAP device using the WAP site.

1.5 Objectives

After examining the whole system and the problems faced by the organization, objectives are as followed:

- Monitoring and updating the WAP site
- Proper communication among the Members
- Task assignments to the members
- Meetings Assignment to the Members
- Proper management of Member's Profile
- Monitoring of Member's Message Box.
- Efficient
- User Friendly Interface
- Security

Chapter 2

System Analysis

Analysis

The concepts and principles that apply other software also apply to web applications. Following steps are followed:

2.1 Interaction Analysis

In this step, the manner in which the user interacts with the webApp is described in detail. This can be done using Use Case diagram:

Use Case Analysis:

Responsibilities for the system

- Member can register on the website.
- Member is validated before logging in.
- Members can check their new relevant tasks.
- Member can view the meetings either they are official or outdoor.
- Member can view the profile.
- Member can edit the profile.
- Member can read messages.
- Member can reply messages.
- Member can send message.
- Member can delete message.
- Member can view poetry.
- Member can submit poetry.
- Member can view jokes.
- Member can submit jokes.
- Administrator is validated.
- Administrator can upload new tasks.
- Administrator can upload new meetings.
- Administrator can delete any member and any facility.
- Administrator can view no. of members.
- Administrator can register new members.
- Administrator can delete members.
- Administrator can monitor the members.

Keeping in mind the above responsibilities following use cases and actors were derived.

Use Cases	Actors
Validate user	Member
Manage Tasks	Administrator
Manage Meetings	Database of Members
Manage Messaging	
Manage Chatting	
Manage Profile	

Use cases:

- **Validate User**

This section validates the login member as an Administrator or the registered member of the organization. After validation, the Administrator is redirected to the Admin Panel and the Member is redirected to the Member Panel with limited pages in case of Website and redirected to the Member Home Page in case of WAP site.

- **Manage Tasks**

This section manages the Tasks assigned to the registered members of the organization. Assigning the new tasks, examining the task status of the running task and deletion of the new task is included in it. It also manages the completed tasks known as Task Done.

- **Manage Meetings**

This section deals with the management of Meetings. There are two types of meetings: Indoor and the Outdoor Meetings. It includes assign the Meetings, Delete the Meetings and change the Member name that have to attend the meeting. One has to sign up to use this feature. The members can only view their relevant meetings. They are not allowed to edit the meeting schedule.

- **Manage Chatting**

This section provides the facility of chatting among the registered members of the organization and the Administrator of the Website. This facility is available only on the Website. The members must have to sign in to enjoy this facility through the Website.

- **Manage Profile**

This section deals with Member's Profile Management. When a member accesses the Wapsite, his/her profile is checked. If it is incomplete then the member is requested to complete the profile first of all. After completing the personal profile, member is

redirected to the Login Page to login again with the new password if it is changed in profile submission form. Otherwise, old password is used to login again. The Administrator is not able to edit the personal profile of the members. Administrator can view the profile detail of any member excluding the password but can change only the designation of the member.

- **Manage Messaging**

This portion deals with the Messaging among the registered Members of the organization. A member can only check his/her own Inbox, read message and reply, send message to any registered member. The member can not view the Inbox or the messages of the other Members. The Administrator can view only the unread messages of the members for security purpose. When the member is entered to the Message Box, he/she is informed with the unread messages in his/her message box.

Actors:

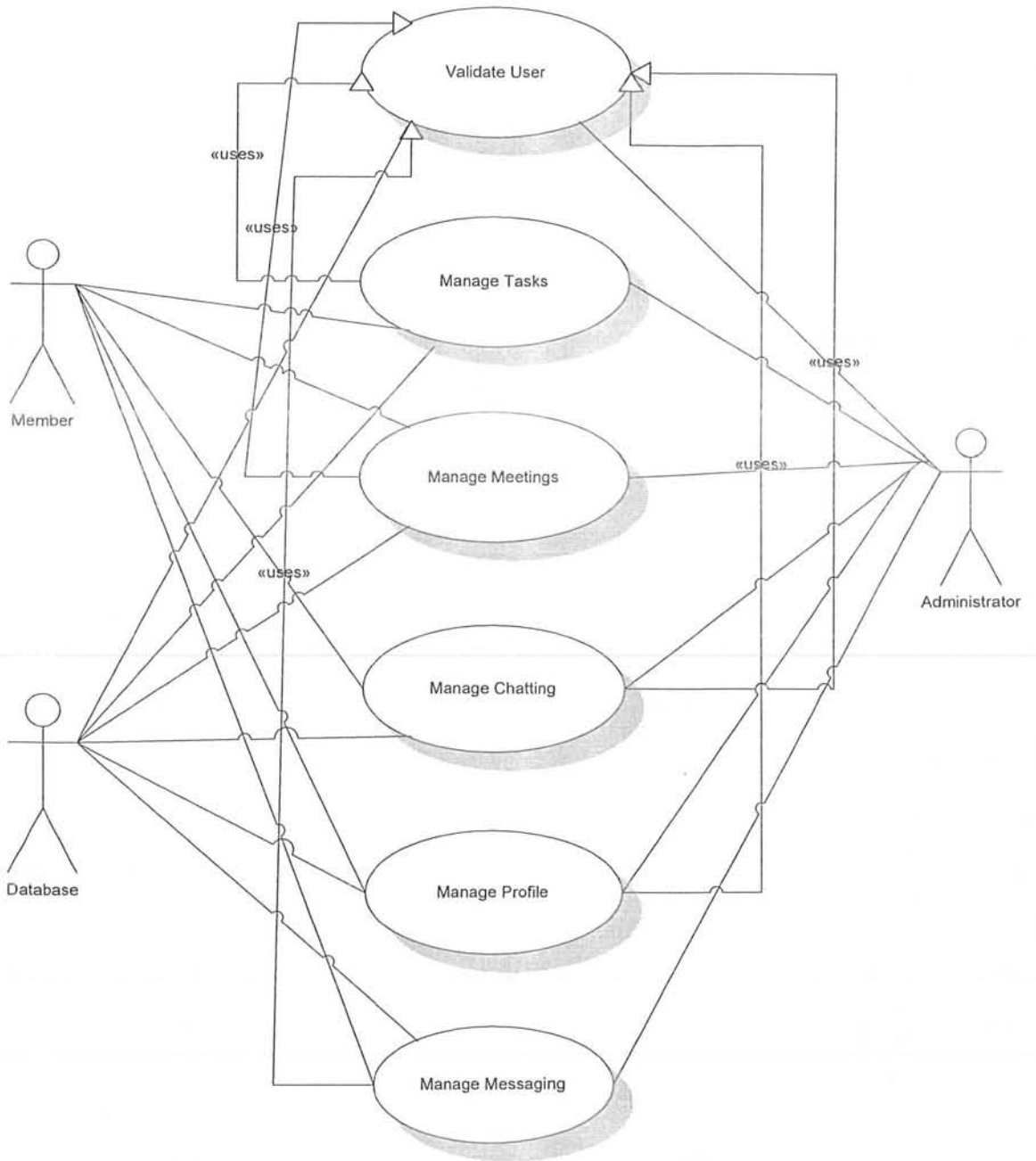
- **Administrator**

The Website is managed and monitored by the Administrator. WAP site is also managed through the Admin Panel. Administrator is responsible for the proper assignment of tasks, meetings to the members. The Administrator can upload new tasks, meetings, news etc. Administrator can register the users as the registered member of the organization by providing him/her a login name and the password which can also be changed at the time of profile submission. He/she can delete the account of the registered member of the organization.

- **Member**

The registered members of the organization have limited permissions in order to navigate through the Website. So, Wapsite is fully provided with all the member sections. Using the Wapsite, member can check his/her relevant tasks, meetings, profile, message box and the entertainment section. Each member is restricted to his/her own account. He/she cannot interfere with other member's account.

Use Case Diagram:



2.2 Functional Analysis

The description of the use cases of WTS System is as follows:

Use Case (Validate User)

Use Case name	Validate user		
Short Description	This use case is responsible for validating any user who is trying to login the system whether he is administrator or regular member.		
Trigger	At the start of the session		
Type	Primary		
Major Inputs		Major Output	
Description	Source	Description	Destination
User name	Member, Administrator	Invalid user message	On user output screen
Password	Member, Administrator	Member login	On his/her Home Page

Use Case (Manage Tasks)

Use Case name	Manage Tasks		
Short Description	This use case is responsible for managing all Member tasks. It will manage the new tasks, task status and the task done by the employees. New tasks can be deleted by the Administrator only.		
Trigger	At the start of the events		
Type	Primary		
Major Inputs		Major Output	
Description	Source	Description	Destination
Task Subject	Administrator	Error message	User output screen
Due Date	Administrator	View New Task	Database
Date Completed	Member	Upload Tasks	Database
Actual Work	Member	Tasks deleted	Scrap
Billing Information	Administrator		
Companies	Administrator		

Use Case (Manage Meetings)

Use Case name	Manage Meetings		
Short Description	This use case is responsible for managing the meetings of the Employees either they are official or outdoor meetings. The employees are provided the complete detail about the meeting.		
Trigger	At the start of the events.		
Type	Primary		
Major Inputs		Major Output	
Description	Source	Description	Destination
Date/Time Venue	Administrator	View Meeting	Screen
Agenda	Administrator	Upload Meeting	Database
Essentials	User	Delete Meeting	Scrap

Use Case (Manage Chatting)

Use Case name	Manage Chatting		
Short Description	This use case is responsible for managing the chatting among the employees of the organization as well as with the Administrator of the site. The registered member can chat only when the Administrator is also logon otherwise, it would not be allowed.		
Trigger	At the start of the events		
Type	Primary		
Major Inputs		Major Output	
Description	Source	Description	Destination
User Name	Member	Error message	User output screen
Password	Member	Start Chatting	Members PC



Use Case (Manage Profile)

Use Case name	Manage Profile		
Short Description	This use case manages the member's profile, which has complete information about the registered member of the organization.		
Trigger	Member clicks sign in		
Type	Primary		
Major Inputs		Major Output	
Description	Source	Description	Destination
Login Name	Administrator	Registered Member Info.	Database
Designation	Administrator	Error message	Screen
First Name	Member	Upload Profile	Database
Last Name	Member	Delete Profile	Scrap
Father Name	Member		
Date of Birth	Member		
Gender	Member		
NIC No.	Member		
Address	Member		
Contact	Member		
Email	Member		

Use Case (Manage Messaging)

Use Case name	Manage Messaging		
Short Description	This use case is responsible for managing the messages among the organization personals. It will manage the reading, replying and deleting the messages from the message box of the registered members.		
Trigger	Member starts his/her session.		
Type	Primary		
Major Inputs		Major Output	
Description	Source	Description	Destination
Sender Name	Database	Send Message	
Receiver Name	Member	Delete Message	Scrap
Date/Time	System	View Message	Database
Subject	Member		
Message	Member		

2.3 Content Analysis:

Entity Relationship Modeling:

The object/relationship pair is the corner stone of the data model. ERD is the basic way to represent the data objects and the relationship among them. My project includes different entities and the relationship among them as given below:

Entity:

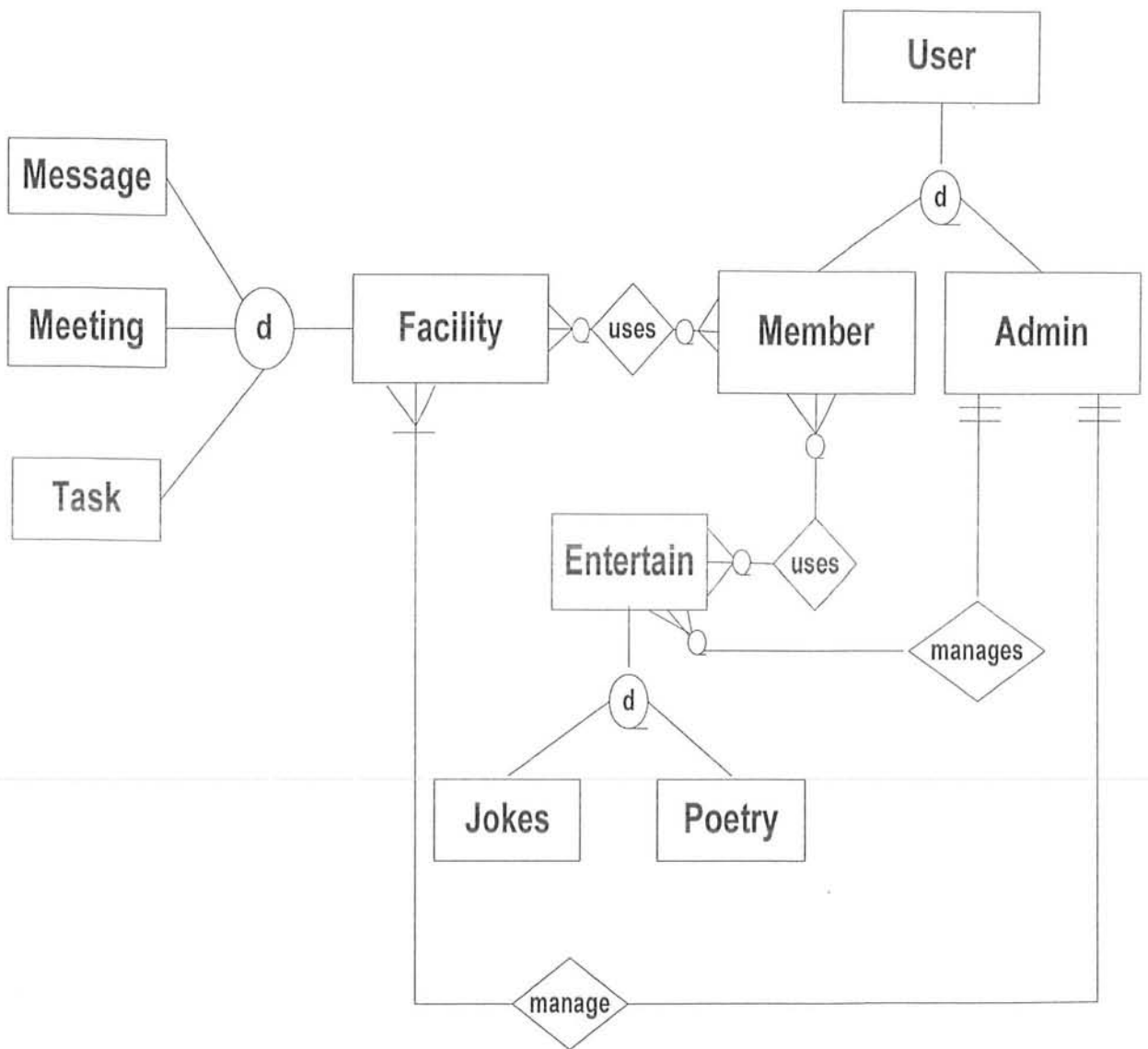
- User
 - Administrator
 - Member

- Facility
 - Message
 - Read Message
 - Send/Reply Message
 - Delete Message
 - Meeting
 - View Meeting By User/Administrator
 - Add Meetings By Administrator
 - Delete Meetings By Administrator
 - Edit Meetings By Administrator
 - Task
 - View New Tasks
 - View Task Status
 - View Task Done
 - Add New Task By Administrator
 - Edit Task By Administrator
 - Delete New Task By Administrator

- Entertain
 - Jokes

- View Jokes
- Upload Jokes
- Delete Joke By Administrator
- Poetry
 - View Poetry
 - Upload Poetry
 - Delete Poetry By Administrator
- News
 - Read News
 - Upload News By Administrator
 - Delete News By Administrator

E-R Diagram:



Requirement Definition for WTS:

Once requirement has been analyzed, the very next stage is to define the requirements. Requirement definition is an abstract description of the services that the system should provide and the constraints under which it must operate.

Requirements definition of WTS is that what services WTS is to provide and the constraints under which it must operate. Some of them are functional and some are non-functional which are defined separately in the subsequent sections.

Functional Requirements

These are the statement of the services that the system should provide, how the system should react to particular inputs and how the system should behave in particular situations. The services provided to the users of WTS are described in this section.

- WTS Admin Panel.
- Managing the Tasks Section.
- Managing the Meeting Section.
- Managing the Profile Section.
- Managing the Message Box Section.
- Managing the Entertainment Section.

Non-Functional Requirements

These are constraints on services and functions offered by the system. They include timing constraints, constraints on the development process, standards and so on.

- Flash Introduction of the Website. When the user enters the website, a small website introduction for the website will be given. User will be able to skip this introduction.
- Help. A general help will be provided with each of the above defined sections explaining how to use these facilities.

Requirement specification for WTS:

Requirement specification adds further information to the requirement definition.

The specification describes the system to be designed and implemented.

Requirement specifications for some requirements are described the form of templates as:

R.1 Admin Panel

R1. <i>Admin Panel creation</i>	
General Description	Admin panel is like a control panel for the management of the site by administrator.
Importance	Top level
Alternative functionality – acceptability	Memberships or registering of new users. Managing existing user accounts. It also controls the e-mail system and the whole content management system.
Need for	Administrative purposes.
Constraints	The panel should be highly secure so that no one can easily hack the system. There should not be a limit for registering the users.
Details	The complete admin panel for the administration of the site. The administration involves management of the Mobile Utilities, Member Utilities, and member administration.

R.2 Task Scheduling

R2. Tasks Assignment to the Employees	
General Description	Any employee can check his/her new, In progress and the Completed tasks. These tasks are assigned and maintained by the Administrator of the site.
Importance	Top level
Alternative functionality – acceptability	The user must be the registered member of the organization, and then he/she will be able to check the relevant new tasks, tasks status and the task done.
Need for	Members of the organization.

Constraints	The tasks can be assigned only to the registered employees of the organizations who have unique username and the password. A member can only view the tasks assigned to him/her.
Details	In order to check the tasks, The employees must be signed in by providing username and the password. After validation, they can easily go to any of the section as mentioned above.

R.3 Meeting Scheduling:

R2. Meetings Assignment and the monitoring	
General Description	Meetings are of two types: Official and the Outdoor meetings. The members are asked to attend the meetings either they are official or the outdoor meetings with the other organization personals. The members are given the detailed information about the meetings i.e. Date, Time, Venue, Agenda etc.
Importance	Top level
Alternative functionality – acceptability	The user must be the registered member of the organization and then he/she will be able to check the relevant meetings.
Need for	Members of the organization.
Constraints	The meetings can be assigned only to the registered employees of the organizations who have unique username and the password. A member can only view the meetings assigned to him/her.
Details	In order to check the meetings, the employees must be signed in by providing username and the password. After validation, they can easily go to the meeting section. Users can check that where and when they have to go for meeting and about the Agenda of the meeting.

R.4 Profile Handling:

R3. Member's Profile Submission	
General Description	This section is about the registered member's profile. When any member becomes registered, he/she will be given a username and the password. Then after login with this username and the password he/she can complete his/her personal information profile before entering to the site.
Importance	Top Level
Alternative functionality – acceptability	The members of the organizations can submit their profile using either the Website or the Wapsite. Both the sites facilitate this section.
Need for	Members of the organization.
Constraints	
Details	At the time of Login, it will be checked that this member is accessing the site for the first time or not. If it is the first access of the site, then the member is redirected to the profile completion page first. And after completion the profile he/she is allowed to navigate to the site. In other case, the member is redirected to his/her relevant home page.

R.5 Messages Section:

R5. Messages Sending, Reading and deletion	
General Description	The registered member of the organization can communicate with the colleagues using this section. Members can read, reply and delete the messages from their message boxes using either the Website or the Wapsite.
Importance	Top Level
Alternative functionality – acceptability	WAP enabled device can also be used to check, read, reply and delete the messages from the message box.
Need for	Members of the organization.
Constraints	A single Message would have a maximum size of 160 characters as the standard size for messaging on Mobile devices. This message must be delivered to the

	registered member of the organization.
Details	In order to use this section, the employees must be signed in by providing their username and the password. After validation, they can easily go to the message box. They can check the time, date and subject of the received messages.

R.6 Registration

R6. Registration of Organization Personals	
General Description	The registration will allow Administrator only to register the users as registered member of the organization by providing them a username and the password. In other words, it will allow the users to become a part of the website and also allow the website owner to become aware of how many registered members are there in the organization.
Importance	Top level
Alternative functionality – acceptability	The members can change their Passwords at the time of profile submission, given to the members after registration in order to save their account.
Need for	Members of the organization.
Constraints	Only clients of the company will have maximum rights to use the system.
Details	When the user becomes a registered member of the organization, the Administrator of the site will provide a username and the password to him/her which means user is now a registered member of the website. This username will be a unique name among the organization registered members. It would not be changed but the password of the member can be changed by editing in the password field of the profile form. All the information about the registered members will be saved in the database.

R.7 Help

R7. Help	
General Description	This section helps the user learn how to use website. It is needed to help users when they first use the product. It is also needed to assist users who are not experienced with computers.
Importance	low level
Alternative functionality – acceptability	
Need for	Members of site.
Constraints	
Details	It will be mostly text based. A button allowing the user to return to the main and directions to use the back button on the user's browser may be added. Thus, a left click on that button will be the sole input.

R.8 Main Page

R8. Main Page	
General Description	This will give user options to navigate the whole website and to make intended purpose for using the product.
Importance	Top level
Alternative functionality – acceptability	The Sign out option.
Need for	Members of the site.
Constraints	There should be a sign out link on each page.
Details	Left mouse click on either links or pictures accompanying each link. If the user left clicks on link or picture, the desired page will open.

R.9 Flash introduction for the website

R9. Flash introduction for the website	
General Description	This section will introduce the site using flash player as a tool.
Importance	Optional
Alternative functionality – acceptability	This introduction will have the skip button to skip the intro.
Need for	For everyone visiting the site.
Constraints	Empty and mandatory fields should be checked at client side.
Details	There are no inputs and outputs for this section. User can only skip the introduction if he wants to by pressing the skip button.

Chapter 3

System Design

3.1 Database Design:

In database design of my system, the tables used are as follows:

- Member
- NewTask
- TaskDone
- Meeting
- Messages
- Poetry
- Jokes
- News

Member:

Attributes	Types	Description
ID	NVARCHAR	P.K
User Name	NVARCHAR	
Designation	NVARCHAR	
First Name	NVARCHAR	
Last Name	NVARCHAR	
Father Name	NVARCHAR	
Date of Birth	NVARCHAR	
Gender	NVARCHAR	
Place of Birth	NVARCHAR	
Province	NVARCHAR	
NIC No.	NVARCHAR	
Temporary Address	NVARCHAR	
Permanent Address	NVARCHAR	
Contact	NVARCHAR	
E-mail	NVARCHAR	
Qualification	NVARCHAR	
Expertise	NVARCHAR	

New Task:

Attributes	Types	Description
Task ID	NVARCHAR	P.K
Subject	NVARCHAR	
Due Date	NVARCHAR	
Start Date	NVARCHAR	
Status	NVARCHAR	
Priority	NVARCHAR	
Completed	NVARCHAR	

Task Done:

Attributes	Types	Description
Task ID	NVARCHAR	P.K
Date Completed	NVARCHAR	
Total Work	NVARCHAR	
Actual Work	NVARCHAR	
Billing Information	NVARCHAR	
Companies	NVARCHAR	

Meeting:

Attributes	Types	Description
Meeting ID	INT	P.K
Time	NVARCHAR	
Date	NVARCHAR	
Venue	NVARCHAR	
Agenda	NVARCHAR	
Essentials	NVARCHAR	
Meeting Type	NVARCHAR	
Conducted By	NVARCHAR	
Employee ID	NVARCHAR	

Messages:

Attributes	Types	Description
Message ID	INT	P.K Auto Increment
Sender Name	NVARCHAR	
Receiver Name	NVARCHAR	
Date Time	NVARCHAR	
Subject	NVARCHAR	
Message	NVARCHAR	

Poetry:

Attributes	Types	Description
ID	INT	Auto Increment
Title	VARCHAR	
Submitted By	VARCHAR	
Date Submitted	VARCHAR	
Poetry	VARCHAR	

Jokes:

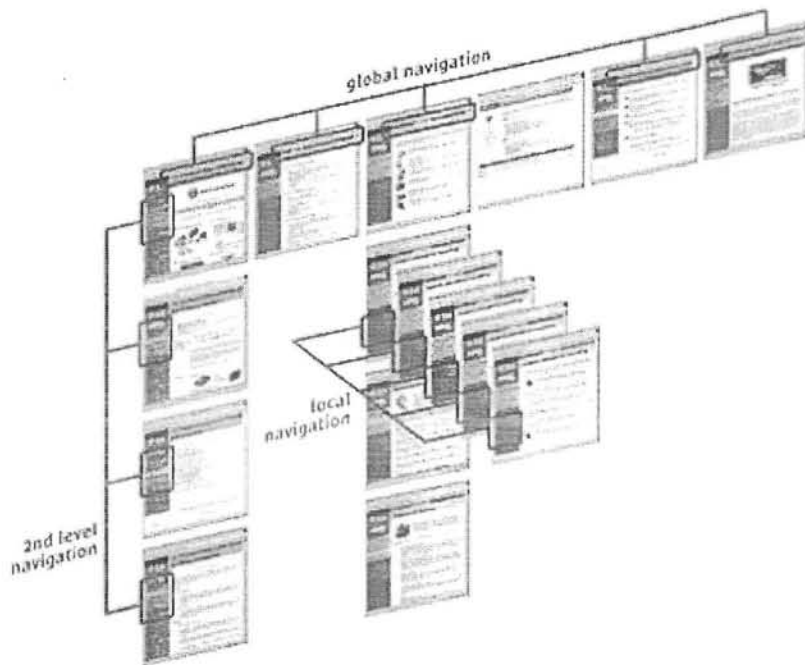
Attributes	Types	Description
ID	INT	Auto Increment
Title	VARCHAR	
Submitted By	VARCHAR	
Date Submitted	VARCHAR	
Joke	VARCHAR	

News:

Attributes	Types	Description
ID	INT	Auto Increment
Title	VARCHAR	
News	NVARCHAR	

3.2 Navigation design:

To unify the appearance of our highly heterogeneous content, I decided to use a visually striking page template that could surround a wide range of page content with a uniform set of navigation options. Universal options appear across the top of the page where they will be prominent when the page loads; special options for the current part of the site appear down the side in a colored stripe that remains visible no matter how far down the user scrolls.



My Web site follows hierarchical **information architecture**, and hence provides two kinds of navigational information to users:

Navigational Breadth:

Show users which **other options** are available at a given level of the hierarchy. My templates provide breadth at two levels: global and local. The very top level of the site structure is visualized across the top of the horizontal navigation bar, giving users a global indication of the total scope of content that's available to them. Local alternatives are listed down the side of the vertical navigation stripe. The user's current location is highlighted to provide a sense of place.

Navigational Depth:

Shows users where their **current location fits within the structure** of the site. Ideally, depth is visualized as a complete path from the home page down through all levels of the information architecture, revealing all the higher-level structures inside of which the current page is nested. On a large site, a full list of all the levels can become overwhelming, so, as a compromise, the template provide an abbreviated view of navigational depth, with three levels shown at the top of the page. If the current page is more than three levels deep, then intermediate levels are elided to simplify the display.

Semantic navigation units:

Three roles for website use are identified:

- Administrator
- Member

Navigation path of administrator is whole site. Administrator is a full privileged user of the website. He can navigate through the whole site including the admin section.

Member will be able to visit whole site if and only if he is logged in. He can visit the following pages:

- Login.aspx
- UserMainPage.aspx
- UserTasks.aspx
- UserMeetingMain.aspx
- UserMyProfileMain.aspx
- UserMessageMain.aspx
- UserViewNewTasks.aspx
- UserTasksDone.aspx
- OfficialMeeting.aspx
- OutdoorMeeting.aspx
- UserMyProfile.aspx

- [EditProfile.aspx](#)
- [Entertain.aspx](#)
- [Poetry.aspx](#)
- [Jokes.aspx](#)
- [SendPoetry.aspx](#)
- [SendJokes.aspx](#)
- [ViewPoetry.aspx](#)
- [ViewJokes.aspx](#)

3.3 User interface design

User and Task Analysis

Analyzing and organizing content for a Web site is quite different from identifying user tasks and chunking and organizing them into usable pages of forms.

Visited links:

Most Web sites use a different color for “unvisited links” than for “visited links”; this enables users to quickly identify pages they’ve seen. But when using an application, users don’t really “visit” pages; they perform tasks such as entering data into forms. A user might fill out the same form many times (for example, to add several user-IDs to the database), so it’s not important to distinguish which pages have been visited. In cases like this, it’s preferable to specify the same color for the unvisited links as for the visited links so all links look the same. This issue was kept in mind while building the site.

Searching:

The Web site is designed with searching in mind. The skills and strategies used to craft search-friendly Web pages aren’t needed when designing an application. Instead, the focus is on ease of navigation and form design.

Page titles:

In Web site design, it’s considered good practice to use a unique page title (the text that appears in the browser title bar) for each page—for several reasons. First, it enables users who bookmark the page to quickly identify it in their Favorites. Second, it provides context for users who land on the page from outside the Web site, such as from a Search engine or hypertext link.

Cross-browser considerations:

The Web site is designed to work properly with all—or at least the most widely used—Web browsers. This web site will work fine with Internet explorer, Netscape navigator.

Browser buttons:

Web users have come to understand and expect specific behaviors for common browser buttons. The Back button displays the previously visited page. The refresh button reloads the page from the server. But using these buttons with a Web-based application could yield unexpected results. For example, although the Back button may return to the previous page, it might not execute the associated application code, which could mean some of the displayed data is no longer current. For this reason, my application provides instructions warning users to avoid these buttons—and even to hide the standard toolbar on their browser. And I have provided alternate navigation methods so users can move among pages without relying on these browser buttons.

Home page:

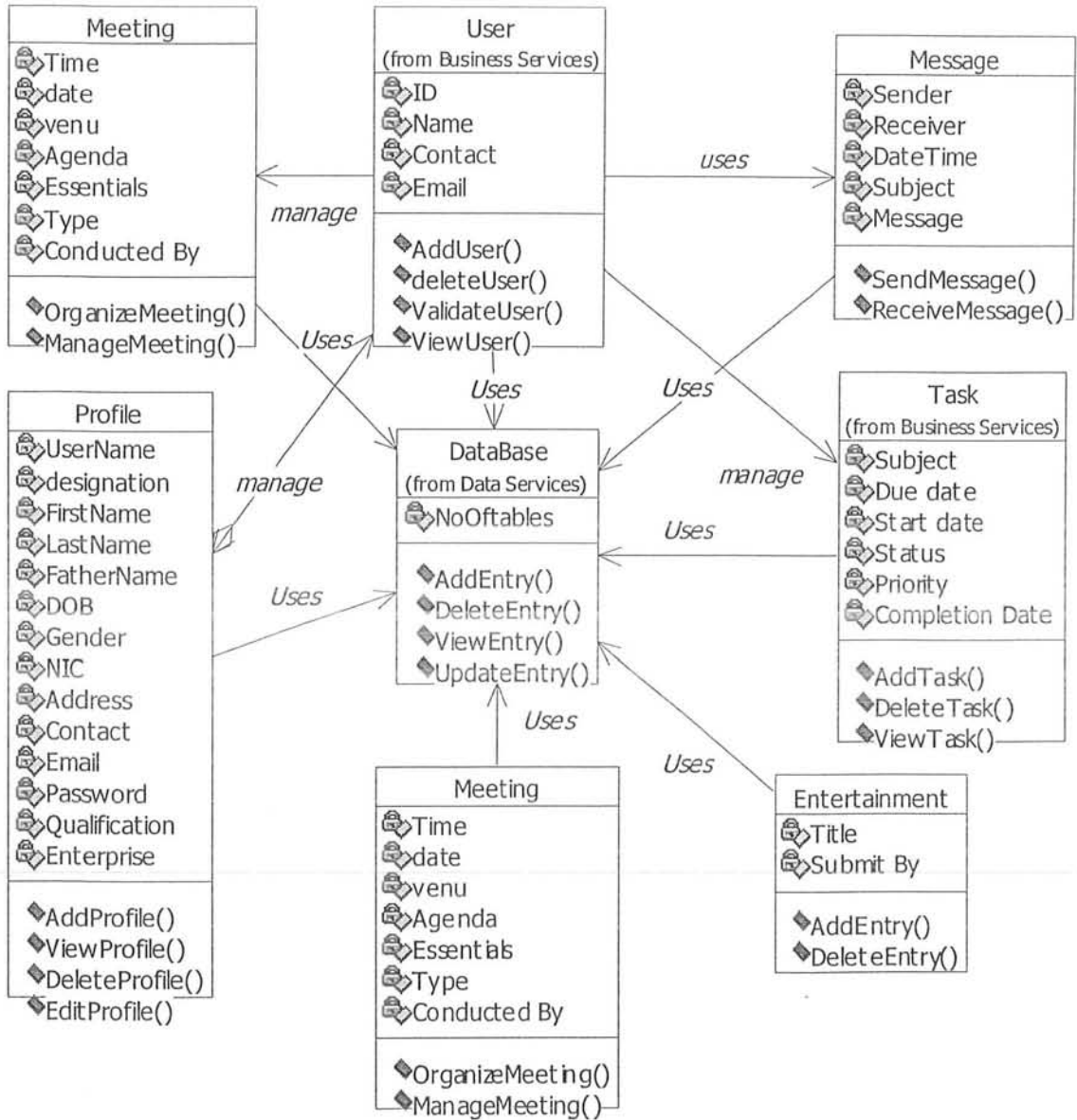
It often describes the content areas of the site, contains news stories, describes what's new on the site, and promotes a product or service, and so on. My homepage contains following things:

- A “main menu” like that of many traditional applications
- Typical “splash screen” content containing a product graphic, version level, and copyright information.

These are typically available from the “Help” or “About” page, and possibly a splash screen that disappears after a few seconds, so including it on the Home page would serve no additional purpose.

- A top menu bar with links to the entire site.
- Company logo and slogan.

3.4 Class Diagram



Description of classes

Following are the description of classes:

User:

This class is created for managing the information about the users who are using the system. It has all private attributes namely user id, name, contact, and email. All the attributes are self explanatory. Following are some functions of User class:

Add user: This is a public function and called when a user is registered to the system.

Delete user: This is also a public function and called when a user is deleted from the system by the administrator.

Validate user: This is a public function which is called when user is trying to use the system. User must give user name and password which will be validated by this function.

View User: This is also a public function and is called when the administrator wishes to view the members of the system.

Meeting:

This class is created for managing the meetings of the employees of the organization. These meetings should be of two types either official or the outdoor. It has all private attributes namely Meeting Time, Date, Venue, Agenda and essentials provided by the Administrator of the site. Following are some functions of Meeting class:

Organize Meeting: It is a private function and is called when the Administrator wishes to organize any official or the outdoor meeting.

Manage Meeting: It is also a public function and is called when any member wishes to view the Meeting relevant to him/her. Also manage the meeting Time, Date, Agenda etc.

Entertainment:

This class is created for managing the Entertainment section. This entertainment may be a joke or a poem. It has attributes namely ID, Title, Submit By, Jokes/Poetry. Following are some functions of Entertainment class:

Add Entry: It is a public function and is called when a Member or the Administrator wishes to add a new joke or poem.

Delete Entry: It is a private function and is called when an Administrator wishes to delete the entry from Entertainment section.

Task:

This class is created for managing the tasks of the Employees of the organization. It has attributes namely Task ID, Subject, Due Date, Start Date, Priority, Completion Date etc. Following are some functions of Task class:

Add Task: It is a private function and is called when the Administrator wishes to add the new tasks. These tasks are assigned to some specific personal of the organization. Any member would be able only to view his/her relevant tasks.

Delete Task: It is also a private function and is called when the Administrator wishes to delete the new tasks which are not yet started.

View Task: This function is a public function and is called when a Member or the Administrator wishes to view the new tasks, tasks done or the task status of the running tasks.

Message:

This class is created for managing the Messaging among the registered Members of the organization. It has some attributes namely Receiver's Name, Subject, Date Time Message, Sender Name etc. Following are some functions of Message class:

Send Message: This is a public function and is called when any registered member wishes to send a message to other Members.

Receive Message: This is a public function and is called when the Member wishes to check his/her messages in the message box.

Profile:

This class is created for managing the personal profile of the registered Members of the organization. It has some attributes namely Username, First Name, Last Name, Contact, Address, Email etc. Following are some functions of Profile class:

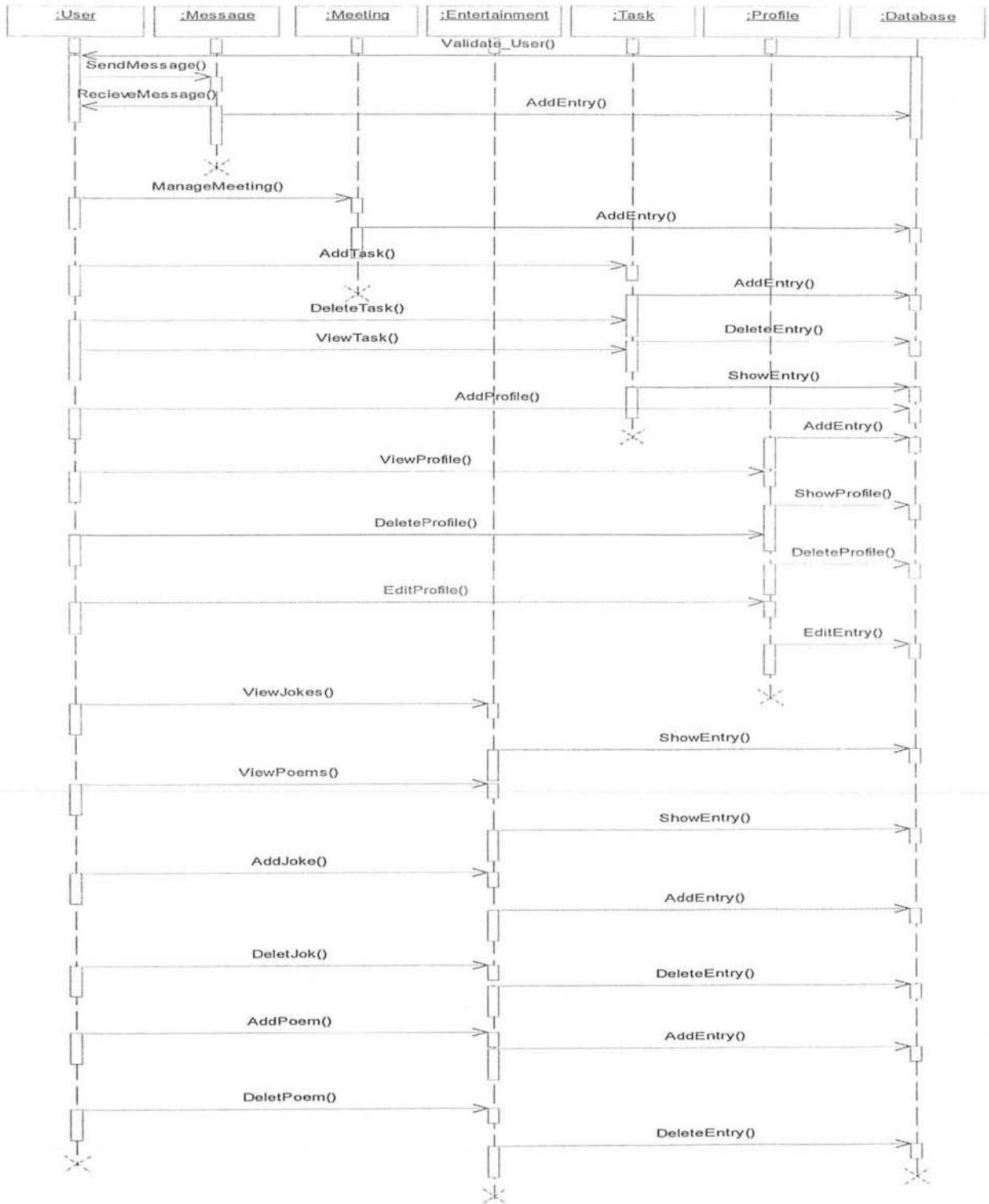
Add Profile: This is a public function and is called when a Member enters the site for the first time. The Member is provided a form and after completion of the form, Member profile is added to the database.

Delete Profile: It is a private function and is called when an Administrator wishes to delete the profile of the registered member of the organization.

View Profile: It is a public function and is called when the Member wishes to view his/her specific profile not others.

Edit Profile: it is a public function and is called when the Member wishes to edit the profile.

3.5 Sequence Diagram:



Conclusion:

In this chapter, I have discussed about various design principles I had followed in designing my application. This included user interface design and navigational design.

Chapter 4

Implementation

4.1 Overview:

In this chapter different technologies that are used during the development of this project are discussed. It also throws light on the server configuration that has been done to get this product working and briefly explain the starting procedure of the software. At the end of chapter WAP is discussed in some detail.

4.2 Technology Used

Following technologies has been used in this software.

- 1) Java runtime environment.(JRE1.4.2)
- 2) ASP.NET (Active Server Pages)
- 3) MS SQL Server DBMS.
- 4) Nokia mobile Internet toolkit 4.0.
- 5) IIS 5.1 (Internet Information Services)
- 6) WAP (wireless application protocol)
- 7) WML (wireless markup language)

4.2.1 Active Sever Pages .NET (ASP.NET)

ASP.NET is mainly focused on server-side scripting, so you can do anything any other CGI program can do, such as collect form data, generate dynamic page content, or send and receive cookies. But ASP.NET can do much more.

There are three main fields where ASP.NET scripts are used.

- **Server-side scripting.**

This is the most traditional and main target field for ASP.NET. You need three things to make this work. The .NET framework, a web server and a web browser. You need to run the web server, with a connected ASP.NET installation. You can access the ASP.NET program output with a web browser, viewing the ASP.NET page through the server

- **Server Controls.**

A major component of the Web Forms Programming model, controls map approximately to HTML elements and provide programmability. Server controls are run on the server and are tailored for up level browsers, such as Internet Explorer 5.x or later.

- **Caching.**

ASP.NET includes a powerful new caching engine that will allow developers to improve the performance of their applications by reducing the Web server and database server processing loads.

- **Configuration Improvements.**

ASP.NET uses a new method of storing configuration information for web applications. Instead of having IIS store this information in a hard-to-access database; it's stored in XML-based human and machine-readable configuration files.

- **Security.**

This is an extremely important function in today's Web Applications. The security model in ASP.NET has been substantially improved, including new and improved authentication methods, code access security and role base authorization.

- **Improved Reliability.**

ASP.NET contains new features aimed at improving the reliability of web applications, including proactive restarting of applications and automatic process recycling to resolve deadlock conditions and memory leaks.

4.2.2 Java Runtime Environment (JRE):

Although much can be done in Java but more reliability means less flexibility. The JRE is required to run Nokia mobile Internet toolkit as all the Nokia products are written in Java and hence platform independent.

4.2.3 MS SQL DBMS:

A little background on the evolution of databases and database theory will help you understand the workings of SQL. Database systems store information in every conceivable business environment. From large tracking databases such as airline reservation systems to a child's baseball card collection, database systems store and distribute the data that we depend on. Until the last few years, large database systems could be run only on large mainframe computers. These machines have traditionally been expensive to design, purchase, and maintain. However, today's generation of powerful, inexpensive workstation computers enables programmers to design software that maintains and distributes data quickly and inexpensively.

- It supports large storage space to store the data.
- An easier way of creating indices, alter the table and creation of foreign keys etc is provided in it.
- MS SQL Server DBMS is a globally used DBMS in the database development field and supports standard SQL.
- There is complete data integrity protection and advance security to objects.
- Easily available in market.
- It provides an easier atmosphere for creating database relations in the database designing phase.
- It provides Built-in support for multi-user Server transactions.
- Integration with Windows 2000, allowing complete multitasking.

4.2.4 Nokia mobile Internet toolkit:

Nokia Mobile Internet Toolkit 4.0, includes following packages:

Nokia Mobile Browser Simulator 4.0,

Nokia WAP Gateway Simulator 4.0,

Nokia Update Manager 1.1, and

Nokia Content Publishing Toolkit 2.0.1.

About the Package Components

Here is a brief description of the components contained in the packages listed above:

- **Nokia Mobile Internet Toolkit (NMIT)** is a set of editors for creating various types of mobile Internet content and previewing this content on various supported phone SDKs.
- **Nokia Mobile Browser Simulator (NMB)** is a mobile Internet browser SDK for browsing mobile Internet content (through a WAP connection) and local file content. It supports the content authoring features of Nokia Mobile Internet Toolkit 4.0 and can be used to display xHTML and WML content, as well as Push messages.
- **Nokia WAP Gateway Simulator (NWGS)**
(NWGS) is a single-user WAP Gateway based on the multiuser Nokia Active Server. When installed on a computer, NWGS enables the user of that computer to access the mobile Internet through applications that communicate using the WAP protocol such as Nokia Mobile Internet Toolkit and many Nokia phone SDKs.
- **Nokia Update Manager (NUM)**
(NUM) displays a list of supported Forum Nokia products currently installed on your computer and provides links to other downloadable Forum Nokia products.
- **Nokia Content Publishing Toolkit (NCPT)**
(NCPT) lets you generate OMA DRM content.

4.3 WAP and WML

The Wireless Application Protocol (WAP) is a result of continuous work to define an industry wide specification for developing applications that operate over wireless communication networks. The scope for the WAP Forum is to define a set of specifications to be used by service applications. The wireless market is growing very quickly, reaching new customers and providing new services. To enable operators and manufacturers to meet the challenges in advanced services, differentiation, and fast/flexible service creation, WAP selects and defines a set of open, extensible protocols and content formats as a basis for interoperable implementations.

WAP model architecture

The WAP programming model is the WWW programming model with a few enhancements. Adopting the WWW programming model provides several benefits to the application developer community, including a familiar programming model, a proven architecture, and the ability to leverage existing tools (e.g., Web servers, XML tools, etc.). Optimizations and extensions have been made in order to match the characteristics of the wireless environment.

Wherever possible, existing standards have been adopted or have been used as the starting point for the WAP technology. The generic approach WAP uses is described in the following diagram:

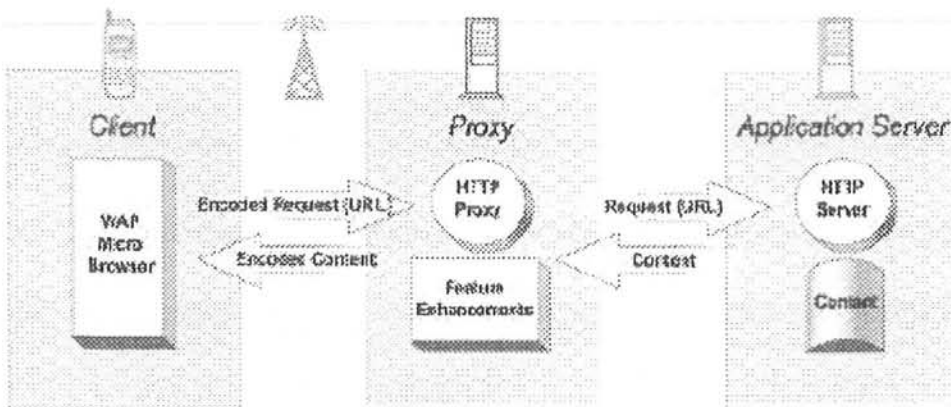


Figure 3. Feature/Performance-Enhancing Proxy

WAP utilizes proxy technology to optimize and enhance the connection between the wireless domain and the WWW.

The WAP proxy may provide a variety of functions, including:

Protocol Gateway –

The protocol gateway translates requests from a wireless protocol stack to the WWW protocols (HTTP and TCP/IP). The gateway also performs DNS lookups of the servers named by the client in the request URLs.

Content Encoders and Decoders –

The content encoders can be used to translate WAP content into a compact format that allows for better utilization of the underlying link due to its reduced size.

User Agent Profile Management –

User agent profiles describing client capabilities and personal preferences [UAProf] are composed and presented to the applications.

Caching Proxy –

A caching proxy can improve perceived performance and network utilization by maintaining a cache of frequently accessed resources.

WML

Stands for Wireless Markup Language. WAP phone or similar devices are used to view pages written in WML. WML is similar to XML based on its syntax and strictness. Anybody who has used html will have no problem learning WML. Many tags and attributes are the same, but there are fewer tags. WML allows the programmer to use variables that allow you to create dynamic content, although for this article I am going to use ASP.NET as the dynamic language.

4.4 Server Configuration for running WML applications:

The most important part of a WAP application is where and how it is going to be hosted. This is very easy to do on a standard web server. As we will see, after the gateway, browser requests travel in the Internet domain, and the output is XML compliant. As such a standard web server

is able to provide that output. All that we will need to do is add the following MIME types to those that the web server knows about:

Content	MIME	Extensions
WML	text/vnd.wap.wml	Wml
Compiled WML	application/vnd.wap.wmlc	Wmlc
WMLScript	text/vnd.wap.wmlscript	Wmls
Compiled WMLScript	application/vnd.wap.wmlscript	Wmlsc
Wireless Bitmap (WBMP)	image/vnd.wap.wbmp	Wbmp

MIME (Multipurpose Internet Mail Extensions) is a specification for the format of data that can be sent over the Internet.

When the server sends data in response to a request it receives, it sends a MIME type with it. The MIME type can also be explicitly set by the application. Normally, the file extension of the requested file is associated with a MIME type and so the server automatically issues the correct MIME type. Then, when a browser receives information from the server, it checks its MIME type to see what to do with it. If, for example, it sees that the data has a MIME type of “image/vnd.wap.wbmp” then it knows to display it as a picture.

Configuring MIME types with IIS:

IIS 5.0 is provided as standard with Windows 2000 and IIS 4.0 is an optional service with Windows NT 4.0.

In order to configure the MIME types for IIS, we need to use the Internet Information Services for the MMC (Microsoft Management Console).

The next step is to open the Internet Information Services folder on the left-hand side. The name of the machine will appear as a sub-tree to that folder. Right clicking on the machine name brings up a menu from which the properties option should be selected. A properties window should be appear, from which we should select Edit under Computer MIME Map to bring up a window with a list of the recognized MIME types. Use this window to add each of the MIME types, given in the table above. Remember to save setting back to the console when we have finished. The MIME types have been successfully configured.

Chapter 5

System Testing

5.1 Introduction:

Testing a Website is a long and tedious task, but it's perhaps the most important of all. In this chapter, I will discuss the various stages I have followed for testing the web site

[Wil00].

5.2 Stages of Website Testing

There are numerous stages to testing, all of which are very important. Ranging from browser testing, to content testing, none should be excluded.

5.2.1 Visual Acceptance Testing

Visual Acceptance Testing is the first port-of-call for all Webmasters. This type of testing generally ensures that the site looks as it is intended to. This includes checking the graphic integration, and simply confirming that the site looks good.

The WTS site is created using Dream Weaver and the templates are created using photoshop and are tested to be visually acceptable and very simple graphical display features

5.2.2 Functional Testing

Functionality testing is perhaps the most vital area of testing, and one which should never be missed. Functionality testing does tend to be a bit boring, but the benefits certainly outweigh the time and energy it takes to do this properly. Functionality testing involves an assessment of every aspect of the site where scripting or code is involved, from searching for dead links, to testing forms and scripts.

Following are some test cases in order to test the scripts written for WTS.

- Login
- Submit data
- Delete Data
- Modify Data
- Search Data

The template used for the test cases is

Req	File	Description	Expected Input	Actual Input	Expected Output	Actual Output	Date	Tested By
-----	------	-------------	----------------	--------------	-----------------	---------------	------	-----------

Test Cases

Login

Input Data: char, integer and floating point numbers.

Output Data: Error Messages and successful Login.

Req	File	Description	Expected Input	Actual Input	Expected Output	Actual Output	Date	Tested By
R.1	Log in.aspx	This page executes when login button clicks in index.aspx page	1	Administrator	Error message	Login successful	25 July 2004	A. Basit
R.2			Administrator	1	Login successful	Error message	25 July 2004	A. Basit
R.3			Administrator	Administrator	Login successful	Login success	25 July 2004	A. Basit
R.4			1	1	Error message	Error message	25 July 2004	A. Basit

Delete Data

For the deletion of data, the id of the record is searched. So the test cases for the deletion is

Req	Description	Expected Input	Actual Input	Expected Output	Actual Output	Date	Tested By
R.1	The id is to be tested.	1	1	Success message	Success message	25 July 2004	A. Basit
R.2		a	1	Error Message	Success message	25 July 2004	A. Basit
R.3		a	a	Error Message	Error Message	25 July 2004	A. Basit
R.3		1	a	Success message	Error Message	25 July 2004	A. Basit

Modify Data

In case of modify, the data can be tested is only the date, which is tested above in the submit data test case.

Search Data

To modify the data, the particular data must be searched first. The data is searched on the basis of id. So the test cases are same as in case of delete.

5.2.3 Content Proofing

This stage of testing removes any errors in your content, and should ensure that your site has a professional appearance. In this phase, you should reread each page on your site, and check for spelling and grammatical errors. As I have also used Dream weaver, it provides the tool for automatic spell checking and

grammar checking and hence all pages are tested and verified using Dream weaver.

5.2.4 Database Access:

In my application, I have constructed the database in MS SQL Server. You'll often construct a database of your customers using an online form that's filled in by users. You may also incorporate functionality that retrieves data from a database. So it is ensured that all scripting variables are defined properly, and that the database is in a directory which supports Read and Write access as a minimum, with Execute access often required as well. It is checked that the correct results are shown from the database for each request that's entered.



Glossary

Words	Meaning
DNS	Domain name services used for Load balancing services.
Extends	One use case extends the functionality of other use case
Evident	Those requirements, which can be observed by the users.
Frill	Secondary Requirements
Hidden	Those requirements, which are not seen by the normal user, implemented in background.
JRE	Java runtime environment used for must with Nokia mobile Internet toolkit.
Protocol	Protocol is set of a rule which governs the communication between the two parties.
Subscriber	A user that is subscribed to the system.
SNU	Semantic navigation unit used to specify the privileges associated with each role.
Uses	One use case uses the functionality of other use case
User Agent	User agents are the agents which must be present in a mobile device making it WAP compliant.
WAP	Wireless application protocol used to access Internet resources using mobile devices.
WML	Wireless markup language is used to make WAP applications.