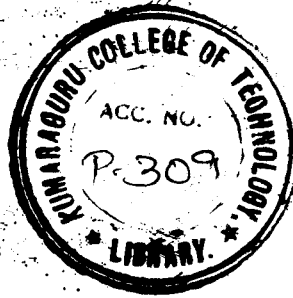


# Management Education Through Internet

P-309

## PROJECT REPORT



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

# Kumaraguru College of Technology

COIMBATORE - 641 006.

*Dedicated to Our  
Beloved Parents*

A.N. KUTTY  
Manager (Personnel)



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TO WHOMSOEVER IT MAY CONCERN

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We are honoured by the fact that we were given the opportunity of providing Technical assistance as well as useful tips regarding their project titled 'Management Education through Internet'.

We acknowledge the successful completion of the Customised Software 'Management Education through Internet' which has innumerable opportunities globally.

We wish them all success in their future endeavours.

for N.T.C. (Tn & P) Ltd.,

  
(A.N. KUTTY)

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*Synopsis*

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# Synopsis

In this Information age Globalization has become a paramount factor. Technological change is underpinning much of market globalization. National boundaries are increasingly irrelevant in defining the bounds of competition. The information age comes through multiple interfaces, 'boundaryless' information networking and achieving superior performance underpinned by shared values, operating at the cutting edge.

The context in which management education occurs in the next decade will depend on significant factors like globalization, deregulation, open competition, and privatization which brings a technological change. Recent technological change means that information – its speed of acquisition and analysis, and the generation of knowledge from that analysis – is the competitive key. As the skills of management needs to go hand in hand in every aspect of day to day life the time has come to acquire the skills if they aren't in-built. The practical aspects of life doesn't afford everyone a management degree on campus hence the Internet. A boon of computing has managed to offer help. The technological revolution, the Internet, which is now able to embrace the technologies of communication, audio, video and group ware, will significantly change the bounds of what is feasible in education access and delivery.

The current mindset of management education is largely one that focuses on the clustering of staff and students in one geographic location for classroom tuition.

The changing context identifies a conceptual shift to a new style of access and delivery. That is what Management Training through Internet is all about.





## *System Study*

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# Existing System

The current system of distant education scheme varies according to rules and norms of the organization. But there are sets of general guidelines that are followed and are given below.

Management education provides as correspondence course can be of two types

- \* Residential course
- \* Non-residential or Postal course

## Residential Course

The residential course essentially means that the students have to come to the training organization and attend the course. The course duration usually ranges between one day to a week. And the organization may include boarding/lodging facilities. For providing such a course the organization must have the necessary infrastructure, classrooms, laboratory, boarding and lodging facility (if required) etc.

The following are the major activities in conducting such a course

- \* **Course promotion** - Promoted through a print media either through news paper ads, by direct mail or by intimating individual companies if they have a tie-up with the organization
- \* **Candidate Registration & Fee Remittance** - extensive registration forms demanding manual date entry, logging previous academic records, photographs etc.

Issue and collection of demand drafts/cheques, cash payments do fee Remittance, which leads to many hassles in the reconciliation of payments and audit trails.

- \* **Course Programs** - Requires utilization of classroom & laboratories and the organization must make provisions for stay and food for candidates. The Coordinators have to prepare course lectures, slides, videotapes, small questioners, tests etc.
- \* **Performance Report** - The organization may or may not send any performance report to the concerning company or individuals

### **Non-Residential or Postal Courses**

The postal courses are not as interactive as the residential courses. But at the present situation it seems to be one of the ways to cope up in the growing number of management aspirants. The course duration can range from two months to one year according to the type of course.

The major activities of such a course are:

1. Course Promotion
2. Student Registration & Fee Remittance
3. Course Pack Delivery
4. Assignments
5. Conduct of personal contact program/academic seminars
6. Examination
7. Convocation

Course Promotion, Student Registration and Fee remittance are similar to the residential course.

### **Course Pack Delivery**

Material delivery is a cumbersome process these days. Every term course pack, weighing 10-15 Kilograms, has and is sent to students.

### **Assignments**

The process of handling assignments is another tedious job. Assignments should be sent through post to the student, which in turn should be returned to the institute after completion. This process gets delayed due to the postal department.

### **Conduct of personal contact programs/seminars**

Based on the geographical distribution of the students the institute fixes some program center. The students will be asked to assemble at a particular center for their contact programs. The professor has to travel from the institute to the centers for conducting the seminars and contact programs.

### **Examinations**

Students have to take the examination at a particular center, which may be in the same city or a different place. This sort of examination requires additional expenses for arranging examination halls and supervisors for examinations. Also there is a lot of overhead involved in correction of the examination papers and publishing of the results.

### **Convocation**

Convocation is mostly associated with correspondence study at a University. This needs students to come to a particular place to get the certificate.

# Proposed System

Mass Education in a country like India is a gigantic task as the resource-starved traditional university system can do very little. The answer lies only in distant education systems using top-of-the-line communication devices.

The magnitude of the problem of educating the masses is enormous. The telecom revolution and media have raised the hopes and aspirations of the people, but unfortunately, the basic problem of supply and demand remains. There are not enough buildings and classrooms, laboratories or teachers for the growing number of aspirants to learning. The answer lies in the Distant Education System through communication technology.

With the resource crunch facing traditional universities, or institutions of higher learning, it is becoming more and more evident that the need of the hour for the country, indeed, the globe, is to provide quality education through a distant learning mode. With a vast geographical spread and substantial population, our environment is eminently suited to the distant education learning paradigm.

In recent times, we have seen tremendous growth on the technological growth on the technological front. We have also made rapid strides in the area of telecom technologies incorporating cellular services, paging services and voicemail, E-mail, Internet and World Wide Web (WWW) are now easily available at affordable prices.

The major set of activities that constitute the operative cycle for a distant learning organization are listed below:

1. Course Promotion
2. Student Registration & Fee Remittance

3. Course Pack Delivery
4. Assignments
5. Conduct of personal contact program/academic seminars
6. Tests

### **Course Promotion**

Courses can be promoted through satellite communications, e-mail and facsimile services.

#### ***Use of fax machines***

Directly mailing will slowly transform to direct faxing to the target audience. Initially, to optimize costs, this will be done on a local basis, with fax directories serving as an important direct marketing medium. Alternatively, fax machines may be programmed and set in polling mode so that prospective students can 'call' on the fax number of the management institute to obtain the requisite program details immediately.

#### ***Use of e-mail/WWW***

The promotional information can be also sent by e-mail to intended audiences as well as by creating promotional pages on the World Wide Web. The Web address of the institute could be highlighted so that net surfer could easily access it.

### **Student Registration**

Forms can be reduced to optically readable data by using scanning devices, this data can be captured and later stored on optical discs or CD-ROMs. Alternatively they can also be done through Internet using HTML Forms in a secured way.

## **Fee Remittance**

Fee Remittance and transactions can be quickened if the students can instruct their banks to electronically transfer fees to the account of the distant education provider. Alternatively an advanced payment for a particular period of time can be made by the students and course fee for each course can be had from the deposit.

## **Course Pack Delivery**

A strategy is to load courseware onto a Web site in World Wide Web. Using Smart Cards, students can then secure authorization to access Internet and use them as and when they require. This will eliminate the need for sending a CD-ROM to students in the first place, and for them to have a multimedia PC installed in their homes or workplace.

## **Conduction Personal Contact Programs / Seminars**

Creating and utilizing an interactive satellite channel by hiring satellite transponders, which facilitates students across the country to have access to the same quality of instructors, and thereby, the same quality of instructions. Online communication through a secure Internet Relay Chat (IRC) can also aid more interactions between the staff and the students.

## **Assignments**

The practice of handling out assignments and their continuous assessments can also be handled technologically. The easiest way for a student is to e-mail the assignments he/she receives. Then the evaluated assignments are to be e-mail back to the students with the grade cards.

Another interesting way could be to carry interactive assignments on CD-ROMs through internet, wherein the student's grade is logged at a master server site.

## **Tests**

For the term-end examination, two strategies are possible. First one is having "On-Demand-Testing" whereby computer generated tests are created and administrated.

Another strategy is to use Fax cast technology, which enables sender to transfer a document to several receiver sites.



# *Software Requirement Specification*

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# Internet Information Server

## Introduction

Microsoft's Internet Information Server is bundled in Windows NT server and does not run with in NT workstation. IIS is closely related with the security system of NT server and provides separate web, Gopher and FTP Services.

IIS is controlled and configured by the graphical Internet Service Manager Application and IIS services can be tailored using the property sheets. The properties can also be configured using Internet Explorer as long as the user is logged into NT Server as an administrator.

## Web Service:

Web server is a program, which responds to the client request. When one uses a browser to view a Website, he actually connects to a server. The browser requests the web document it desires and the server provides it if the request is valid and is not conflicting any of the preset security options.

The web server in IIS allows three kinds of permissions to files and directories:

1. Read: Allows users to read the file in a directory.  
E.g. HTML and Image Files.
2. Execute: Allows users to change directories and to start application or scripts stored in directories. E.g. ISAPI and CGI script.
3. Secure SSL channel:

Allows users to send information to the web server in encrypted form using secure sockets layer (SSL) encryption.

All anonymous access request the IUSR\_computername account of the NT User account. User name authentication is most useful if one wants to control access to the server by a particular user or a group.

## **FTP Service:**

FTP is an abbreviation for File Transfer Protocol, one of the protocols that make up the TCP/IP family of protocols. It is also the name of the client program used to invoke the FTP Service.

FTP is very much useful if a remote user wants to transfer files to and from the server. FTP can be used to transfer files in either 'ASCII' or 'Binary' modes.

Anonymous FTP is a method used to access a remote computer running on FTP server, and it does not require the user to have an existing account on that remote computer.

Most browsers support the usage of FTP protocol to access files stored at FTP sites. By this way one can download FTP files through the browser itself.

## **Gopher service:**

Gopher is a protocol designed to search, retrieve, and display documents from remote sites on the Internet. Information accessible via Gopher is stored on many computers all over the Internet. These computers are called Gopher servers.

Users interact with Gopher via a hierarchy of menus and can use full-text searching capabilities of Gopher to identify desired documents. It was designed to work with a variety of different Internets stand-alone services. The integration of many services into Gopher has made the Internet an easier medium to navigate.

## Publishing Dynamic Application

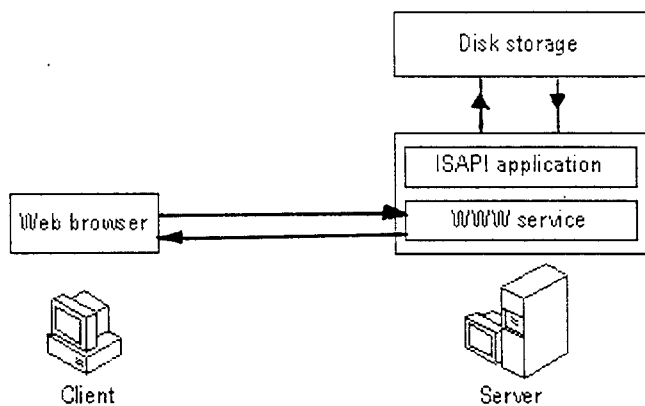
One of the exciting features of IIS is the ability to develop applications or scripts that remote users can start by clicking HTML links or by filling in and sending a HTML form. Interactive applications or scripts can be written in almost any 32 bit programming language such as C or Perl or Windows NT batch files.

To write the applications or scripts one of the two supported interfaces can be used.

- Common Gateway Interface(CGI)
- Internet Server Application Programmer Interface(ISAPI)

Applications that use ISAPI are compiled as dynamic link Libraries(DLL) that are loaded by WWW service at startup. Because the programs are resident in memory, ISAPI programs are significantly than applications written to CGI specifications.

### Internet Server API



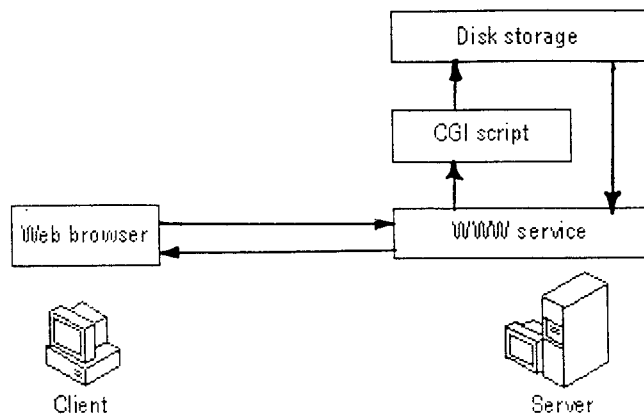
ISAPI for Windows NT can be used to write applications that Web users can activate by filling out an HTML form or clicking a link in an HTML page on your Web site. The remote application can then take the user-supplied information and do almost anything with it that can be programmed, and then return the results in an HTML page or post the information in a database. ISAPI can be used to create applications that run as DLLs on your Web server.

Another feature of ISAPI allows pre-processing of requests and post-processing of responses, permitting site-specific handling of Hypertext Transfer Protocol (HTTP) requests and responses. ISAPI filters can be used for applications such as customized authentication, access, or logging.

## **Common Gateway Interface**

Common Gateway Interface (CGI) is a set of specifications for passing information between a client Web browser, a Web server, and a CGI application. A client Web browser can start a CGI application by filling out an HTML form or clicking a link in an HTML page on your Web server. As with ISAPI, the CGI application can take the information the client Web browser supplies and do almost anything that can be programmed, then return the results of the application in an HTML page, or post the information to a database. Microsoft Internet Information Server can use most 32-bit applications that run on Windows NT and conform to the CGI specifications.

The following figure illustrates how a browser, a server, and a CGI application exchange information by using CGI.



The rest of this section discusses this five-part process.

### Client Sends Request

A client browser can make a CGI request to a server by either of two methods:

#### GET

The client appends data to the URL it passes to the server.

#### POST

The client sends data to the server by way of the HTTP message data field, thereby overcoming size limitations inherent to the GET method.

### Server Receives Request

The URL that the client browser sends to the server contains the name of the CGI script or application to be run.

### Server Passes Request to Application

The server passes information to the CGI application by means of environment variables then launches the application..

### **CGI Application Returns Data to Server**

The application performs its processing. If it is appropriate, the application then writes data in a format the client can receive to the standard output stream (STDOUT).

### **Server Returns Data to Client**

The server takes the data it receives from STDOUT and adds standard HTTP headers. It then passes the HTTP message back to the client.

### **CGI and Internet Information Server**

The WWW service supports the standard Common Gateway Interface (CGI) specification.



## Using a Database

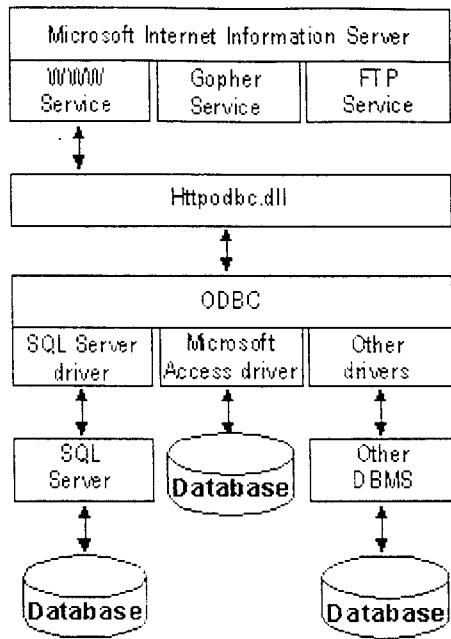
With the WWW service and the Open Database Connectivity (ODBC) drivers provided with Internet Information Server, you can:

- Create Web pages with information contained in a database.
- Insert, update, and delete information in the database based on user input from a Web page.
- Perform other Structured Query Language (SQL) commands.

### How the Internet Database Connector Works

Conceptually, Web browsers submit requests to the Internet server by using HTTP. The Internet server responds with a document formatted in HTML. Access to databases is accomplished through a component of Internet Information Server called the Internet Database Connector (IDC). The Internet Database Connector, Httpodbc.dll, is an ISAPI DLL that uses ODBC to gain access to databases.

The following illustration shows the components for connecting to databases from Internet Information Server.



The IDC uses two types of files to control how the database is accessed and how the output Web page is constructed. These files are Internet Database Connector (.idc) files and HTML extension (.htx) files.

The Internet Database Connector files contain the necessary information to connect to the appropriate ODBC data source and execute the SQL statement.

An Internet Database Connector file also contains the name and location of the HTML extension file. The HTML extension file is the template for the actual HTML document that will be returned to the Web browser after the database information has been merged into it by the IDC.

## IIS Security

Since Internet Information server is bundled with Windows NT Server, it is closely integrated with the security systems in NT Server (OS) and those built in NT File System (NTFS).

IIS also adds additional security and directory access settings. The following steps are undertaken before processing a user request through the Client Web Browser.

1. IIS receives a request.
2. Checks if the IP address is permitted?
3. If the IP address is permitted, it checks if the User is permitted?
4. If the user is permitted, does the IIS permission allow the access in the request?
5. If the IIS permission is allowed, do the NTFS permission allow access?
6. If the NTFS permission allows access, access to the particular resource is granted.

If one of the above processes fail, the access is denied. Also there is a security threat when we allow remote user to run an application on the server. The Internet Information Server is configured by default to reduce the risk of malicious intrusion by applications in the following ways

- Virtual directory scripts contain the applications, and only an administrator of the NT Server can add programs to a directory marked as an execute-only directory.
- The IUSR\_computename account which is used for anonymous access is given read and execute permission only and not the write permission so that Anonymous user cannot install an unsafe file on the server.

# Access 97

In other database-management programs, the term database is sometimes used to refer to tables that hold data. Access uses the term more broadly. An Access database consists of the tables that hold the data and all the related objects, such as queries, forms, and reports that are used to manage the data. When you open a database, Access displays the Database window, which is sometimes, called the database container, because it contains all the objects that make up the database.

We can create tables in the design view or the typical wizard. We also have the capability to create Forms. Forms let us control how data is displayed on the screen. We also have an option for printing data using the Reports option.

The power features of Access are:

- \* Macros that let you automate and speed up your work; they are also used when you develop applications. A macro is a list of actions. Access performs all the actions in the list when you run the macro. Macros save time for Access users
- \* Modules that let you write programs in Visual Basic to develop advanced applications.

We have a lot of utilities and special techniques present in Access. They are listed below:

- \* Creating Windows shortcuts
- \* Using Access utilities to manage databases and their objects
- \* Using hyperlink data type
- \* Creating web pages
- \* Creating indexes based on single or multiple fields
- \* Working with both embedded and linked OLE objects in Access tables and queries
- \* Working with bound and unbound OLE objects in forms and reports

- ✳ Attaching a table from another database application so it can be used by Access and the other application simultaneously
- ✳ Customizing the Access working environment using the Options dialog box

To sum up Access begins with database utilities that let you compact, convert, encrypt, and repair databases, and object utilities that let you rename, delete, cut, copy, and paste.

# FrontPage

Microsoft FrontPage 97, a World Wide Web authoring and management Tool, that requires no programming knowledge, but is robust enough for Experienced Web site developers. FrontPage 97 has everything you need to Design and build a World Wide Web site quickly and easily.

FrontPage 97 includes:

1. FrontPage Explorer, where we can view and manage your Web site
2. FrontPage Editor, where we can create and edit Web pages without needing to know HTML.

FrontPage includes many other features that make Web site creation easy, such as:

- Full set of wizards and templates for creating pages and FrontPage webs
- WebBot components, for providing complex functionality without programming
- To Do list for tracking tasks as you create each FrontPage web.

In FrontPage, you use the graphical FrontPage Explorer to create, view, and maintain your FrontPage webs and to publish them on your computer, your Local Area Network (LAN), or the Internet. The FrontPage Explorer has commands for administering FrontPage webs, testing and repairing hyperlinks, viewing all of a FrontPage web's files and folders, importing and exporting files, and launching the FrontPage Editor and other applications to create and edit your FrontPage web's contents.

The FrontPage Editor is the tool you'll use for creating, editing, and testing your World Wide Web pages. As you add text, images, tables, form fields, and other elements to your page, the FrontPage Editor displays them as they would appear in a World Wide Web browser.

The FrontPage Editor generates all the popular HTML tags and lets you incorporate popular new HTML extensions, such as frames, ActiveX Controls, and Java applets. Although it is very powerful, the FrontPage Editor is easy to use and has a familiar, word-processor interface.

The FrontPage Explorer creates a To Do List for every FrontPage web that we create. The To Do List is shared by all authors working on the FrontPage web and contains a list of the tasks needed to complete it, along with each task's assigned author, priority, description, and the page or file linked to the task.

You can add tasks to the To Do List, modify task names, assigned authors, and descriptions. You can also remove tasks from the list at anytime. When a task is done, you can mark it as completed then archive it or delete it from the To Do List.

# The FrontPage Explorer

The Microsoft FrontPage Explorer is a tool for creating, viewing, and maintaining FrontPage webs. We can use the FrontPage Explorer's powerful graphical interface to create and publish FrontPage webs on your computer, on your Local Area Network (LAN), or the Internet.

A FrontPage web is a set of files and folders that you can open, edit, and test in the FrontPage Explorer. It contains the World Wide Web pages, other files, and folders that form your World Wide Web site's contents, along with additional FrontPage support files.

We can create a FrontPage web on a World Wide Web server that has the FrontPage Server Extensions installed. (These are a set of programs and scripts that support FrontPage and extend the functionality of the Web server.) We can also create a FrontPage web without a Web server, directly on a computer's file system. In either case, We can use the full set of FrontPage Explorer and FrontPage Editor commands to edit our FrontPage web and its pages and files.

Here are some of the key features of the FrontPage Explorer:

- FrontPage web Wizards and templates to create professional-quality webs of many popular types like the Corporate Presence Wizard, a discussion group with the Discussion Web Wizard, a personal FrontPage web with the Personal Web template, and a project-management FrontPage web with the Project Web template.
- The Administer can assign passwords and IP address restrictions to protect the FrontPage web from unauthorised visitors.
- We can view our entire FrontPage web graphically through the Folder & Hyperlink View.
- We can rename webs, import files to our web and all its contents can be edited



## The FrontPage Editor

The Microsoft FrontPage Editor is a tool for creating, editing, and testing World Wide Web pages. As you add text, images, tables, form fields, and other elements to your page, the FrontPage Editor displays them, as they would appear in a World Wide Web browser.

The FrontPage Editor generates all the popular HTML tags including all popular HTML extensions, such as frames, ActiveX Controls, and Java applets.

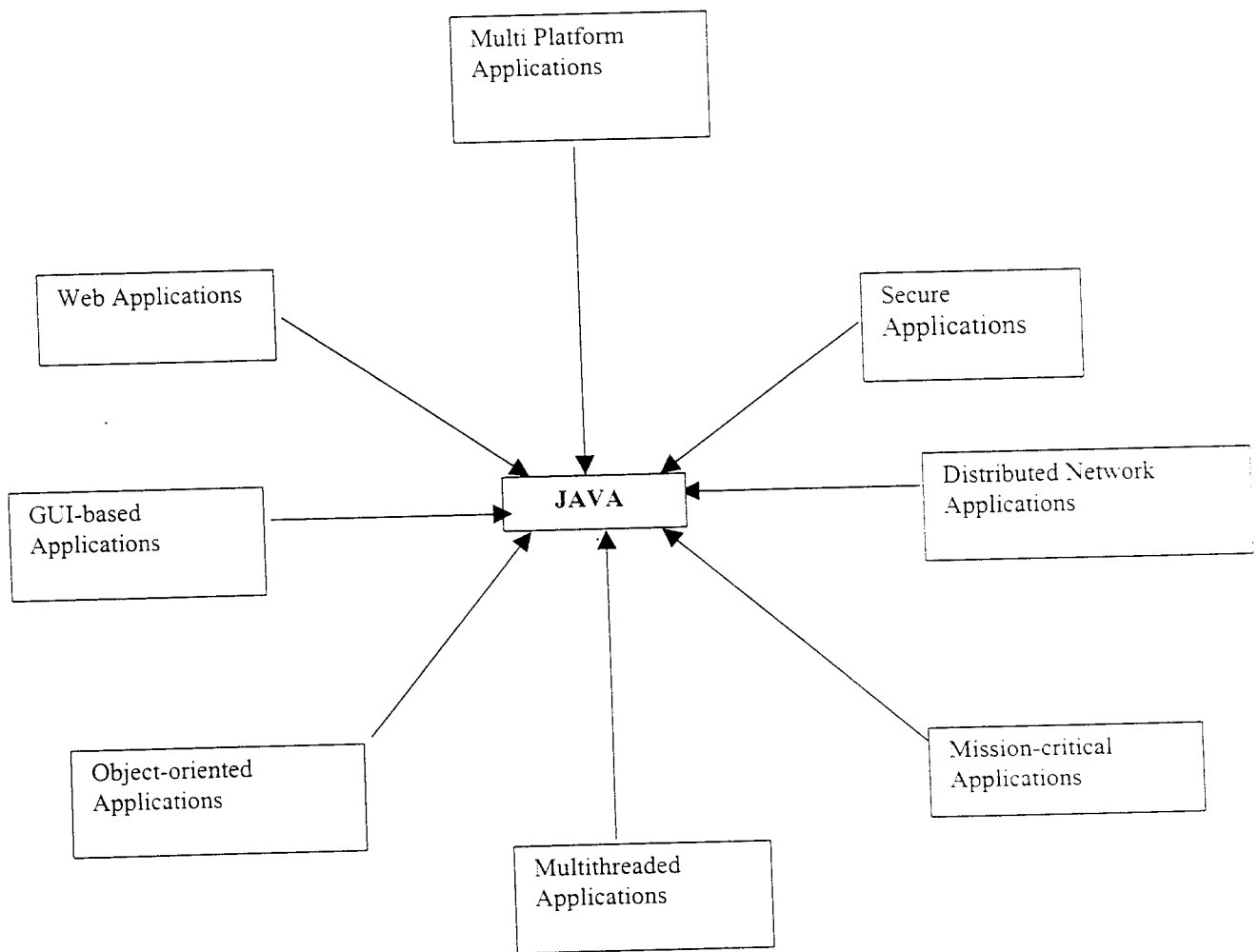
Although it is very powerful, the FrontPage Editor is easy to use and has a familiar, word-processor interface.

Here are some of the key features of the FrontPage Editor:

- We can create new HTML pages based on built-in Wizards and templates. We can open files of many popular types, and the FrontPage Editor converts them to HTML.
- We can insert text in all HTML styles, create multilevel lists, change text size and colour.
- Using a point-and-click interface, We can create hyperlinks to pages and files in your FrontPage web or to pages and files on the World Wide Web.
- We can insert an image of almost any type and can create tables.
- Create an image map by adding hotspots, areas in an image containing hyperlinks.
- Create forms containing text fields, radio buttons, drop-down lists, and push buttons. To process a form, we can assign a built-in FrontPage WebBot component or add our own CGI script.
- We can insert ActiveX Controls, plug-ins, and Java applets in the FrontPage Editor.
- We can launch a script-editing session and create and insert JavaScript scripts and Microsoft Visual Basic Scripting Edition scripts.

# Java

Java is the programming language of the Web. Ever since its emergence in 1995 it has taken up its present place in the developing of Complex Applications on the Web.



Java can be used to create two types of programs:

- Applets
- Applications

An Application is a program that runs on the computer, under the operating system of that computer. It is more or less same as programming languages such as C or C++.

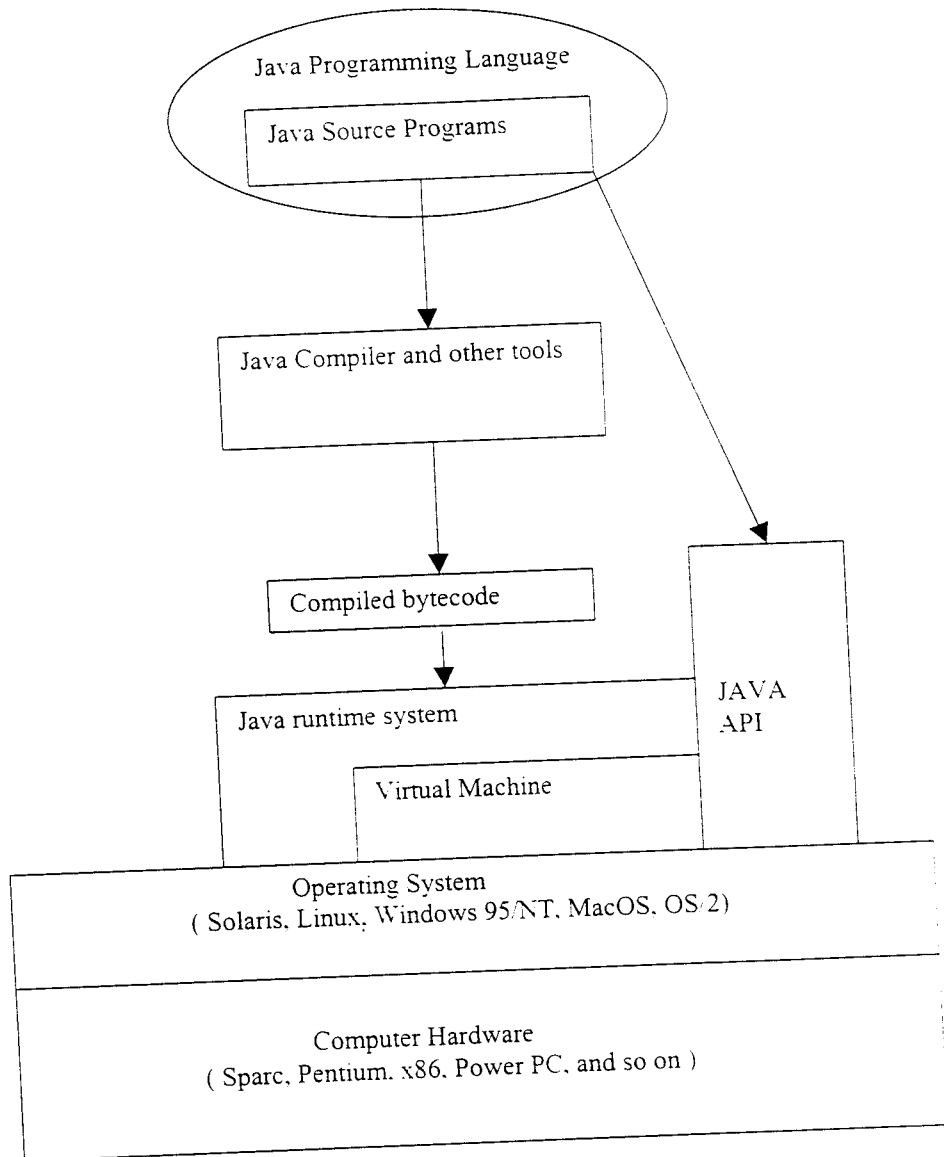
Applet is an application designed to be transmitted over the Internet and executed by a Java compatible web browser. It is a tiny program dynamically downloaded across the network.

Applets are intelligent programs, which respond to users input, and dynamically changes its role.

## **Security**

When we use a Java compatible web browser, it is possible to safely download Java applets without fear of viral infection or malicious intent. Java achieves this by confining a Java program to the Java execution environment and not allowing it access to other parts of the computer. The code developed by the programmer is compiled using Java compiler to get what is called a compiled byte code.

Byte code is a highly optimized set of instructions. These instructions are designed to be executed by a virtual machine that the Java run time systems emulate. That is, the Java run time system is an interpreter for byte code.



### Java Security Model

## **Portability**

Since Java programs are interpreted rather than compiled, it is easier to run them in a variety of environments. The reason is that only the Java run time system needs to be implemented for each platform. Once the run time package exists for a given system, any Java program can run on it.

## **Multithreading**

Java was designed to meet the real world requirement of creating interactive networked programs. To accomplish this, Java supports multithreaded programs, which allows you to write programs that do many things at once.

Java supports Multithreading by providing synchronization capabilities that ensure that threads share information and execution time in a way that is thread safe. Multithreading also allows Java to use idle CPU time to perform necessary garbage collection and general system maintenance, enabling these functions to be performed with less impact on program performance.

## **Java is Object Oriented**

Java deals with classes and objects, pure and simple. Java provides all the luxuries of object-oriented programming:

- \* Class hierarchy
- \* Inheritance
- \* Encapsulation
- \* Polymorphism

The main reason for developing object-oriented software, beside clarity and simplicity, is the desperate hope that somehow the objects developed will be reused. Java not only encourages software reuse it demands it. Java's object-oriented structure forces us to develop more useful, more tailorable, and much simpler software the first time around.

# Powerbuilder 5.0

Powerbuilder is a graphical client/server application development tool. It provides all the tools to build industrial strength applications such as order entry, accounting and manufacturing systems. It also supports cross platform application development and deployment.

Design of PB is mainly based on concepts like graphical user interface (GUI), Client/Server technology and objective orientation.

A Client Server application splits the database as, Client PC which runs the database application and database Server which runs all parts of the actual DBMS.

Database application on client PC is called as front end system and database Server is called the backend system.

Application is divided into many components called as objects. Main concepts involved in object orientation are Encapsulation, Inheritance and Polymorphism.

PB application are event driven and actions can be given using Scripts. Scripts are a set of statements that can be attached to events of objects and can be activated when that particular event is triggered.

Painters are workspaces provided with tools and menu options, using which we can create objects that go into our applications. Every painter is associated with painterbar.

## Window

Window is a PB object that serves as an interface between the application and user. A window is used to accept user input, display information and respond to user's keyboard or mouse actions by triggering the corresponding events. There are many types of windows like the main, child, pop-up, response, MDI Frame, MDI Frame with microhelp.

We can also use the inherit option to have many windows of same properties and functionality in common by inheriting them from one window to another. We can place a variety of controls from the menu bar. The controls are classified based on the purpose they serve like

- \* Controls that invoked actions
- \* Controls that display date
- \* Controls that indicate choices
- \* Controls for decoration
- \* Powerscript Language

The language supported by Powerbuilder is called the Powerscript language in which we can write scripts and user defined functions during creation of Application. In built functions in PB is called Powerscript functions. These functions can be classified as follows:

- \* Built-in functions
- \* User-defined functions
- \* External functions

PB is designed to access and interact with database of any DBMS type either through an interface called the ODBC interface or through Powerbuilder's own native DB interfaces. No additional software is necessary other than DBMS and PB for connecting to database if native interface is used. Database profile should be defined to connect with db. DB profile is a structure containing parameters.



We can create tables with required number of columns and rows. We can also define primary key, foreign keys and indexes for the table in the properties dialog box. The created table can be changed using corresponding options.

## **DataWindow**

DataWindow is a completely encapsulated object with in-built functions to connect to the database automatically. DataWindow can be created in DataWindow painter. The design of DataWindow is based on the data source option for the dw object. Some of dw sources are Quick Select, SQL Select, Query and Stored Procedures. After selecting data window source, the presentation style should be selected to display the data in required design formats.

## **Functions and Structures:**

Function is a set of statements that can take in any number of input values or arguments as they are called and also return a single value through the name of the function.

Functions in Powerbuilder can be divided into two types:

1. Powerscript Functions
2. User-Defined Functions

Powerscript functions are predefined functions, we can make use of these functions when we want to perform any operations.

User-Defined functions can be divided into three types

1. Global functions
2. Object Level functions
3. External functions

*Development Phase*

---

# Database Design

## Tables

### \* Master Tables

Company Master

Coordinator Master

### \* Transaction Tables

Candidate

Course

Performance

#### 1. Structure of Company Master

S. No.	Name of the Field	Data Type	Width	Description
01	Companycode	Text	10	Primary Key
02	Companyname	Text	40	Name of the Company
03	Address	Text	40	Address
04	City	Text	40	
05	State	Text	30	
06	Country	Text	30	
07	Pincode	Number		
08	Lineofbusiness	Text	10	
09	Phonenumber	Number		
10	Emailaddress	Text	40	
11	Website	Text	40	
12	Personincharfe	Text	30	Staff Incharge of Training
13	Sexcode	Text	1	
14	Designation	Text	30	Designation of the staff
15	Password	Text	20	Password to Authentication

## 2. Structure of Coordinator Master

S. No.	Name of the Field	Data Type	Width	Description
01	Coordinatorid	Number		Primary Key
02	Coordinatormname	Text	30	Name of the Coordinator
03	Designation	Text	20	Designation of Coordinator
04	Specilisation	Text	30	
05	Address	Text	40	Address
06	City	Text	30	
07	State	Text	30	
08	Pincode	Number		
09	Country	Text	30	
10	Phonenumber	Number		
11	Emailaddress	Text	40	
12	Website	Text	40	
13	Password	Text	20	Password for Authentication

## 3. Structure of Course

S. No.	Name of the Field	Data Type	Width	Description
01	Coursecode	Number		Primary Key
02	Courseaname	Text	50	Title of the Course
03	Coursecategory	Text	20	Category of the course
04	Traineelevel	Text	20	Position of the Trainee
05	Startingdate	Date		Starting date of the course
06	Completiondate	Date		Completion date of the course
07	Feepertrainee	Currency		Fee per candidate
08	Nooftraineepercompany	Number		No of candidates/company
09	Coordinatorid	Number		Foreign key to Coordinator
10	Website	Text	50	Address of the website
11	Future	Yes/No		Is it a future course

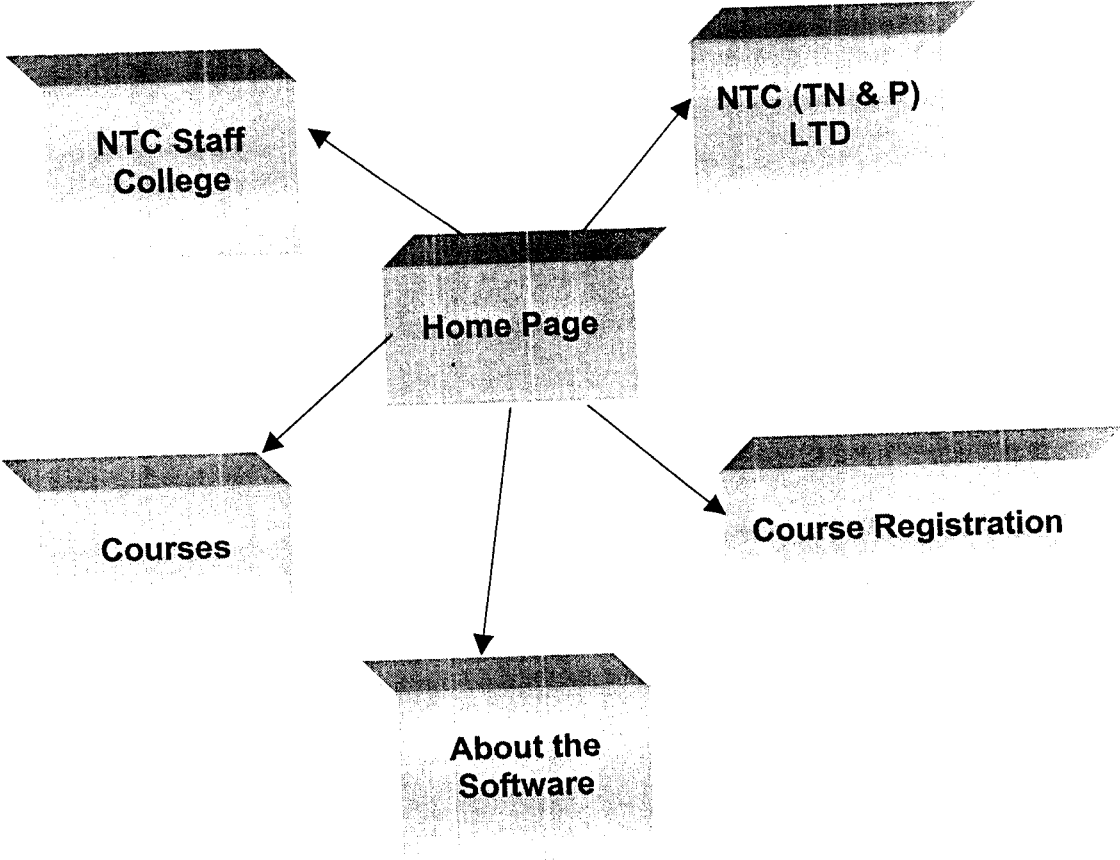
#### 4. Structure of candidate

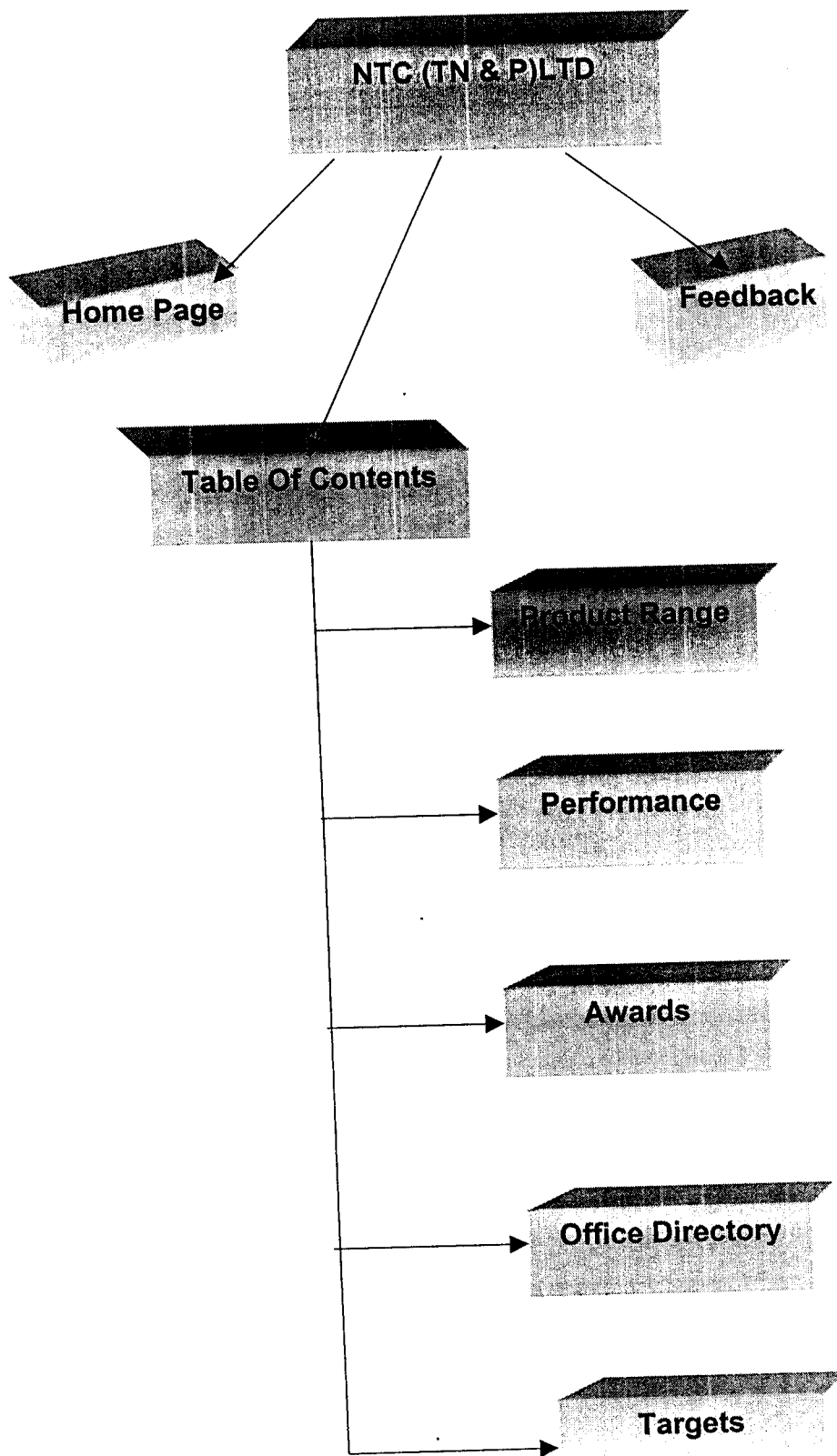
S. No.	Name of the Field	Data Type	Width	Description
01	Registrationnumber	Number		Primary Key
02	Coursecode	Number		Foreign Key to Course
03	Companycode	Text	30	Foreign Key to CompanyMaster
04	Name	Text	25	Name of the Candidate
05	Age	Number		Age > 21
06	Department	Text	30	
07	Designation	Text	30	
08	Qualification	Text	30	Qualification of the Candidate
09	Sexcode	Text	1	
10	Password	Text	20	Password for Authentication
11	FeePaid	Yes/No		Check if fees is paid

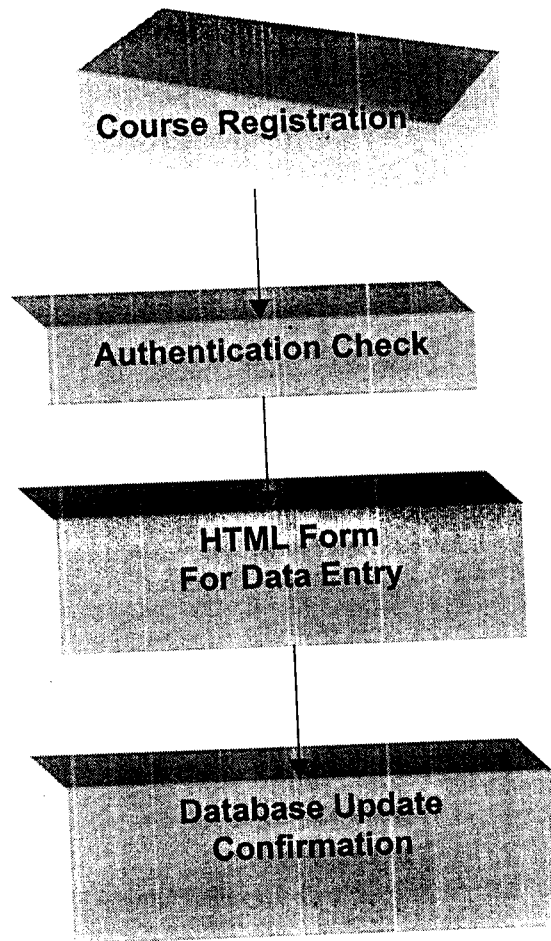
#### 5. Structure of Performance

Serial No	Name of the Field	Data Type	Width	Description
01	Registrationnumber	Number		Foreign Key to candidate
02	Performancehead	Text	20	
03	Rating	Number		Between 0 - 10

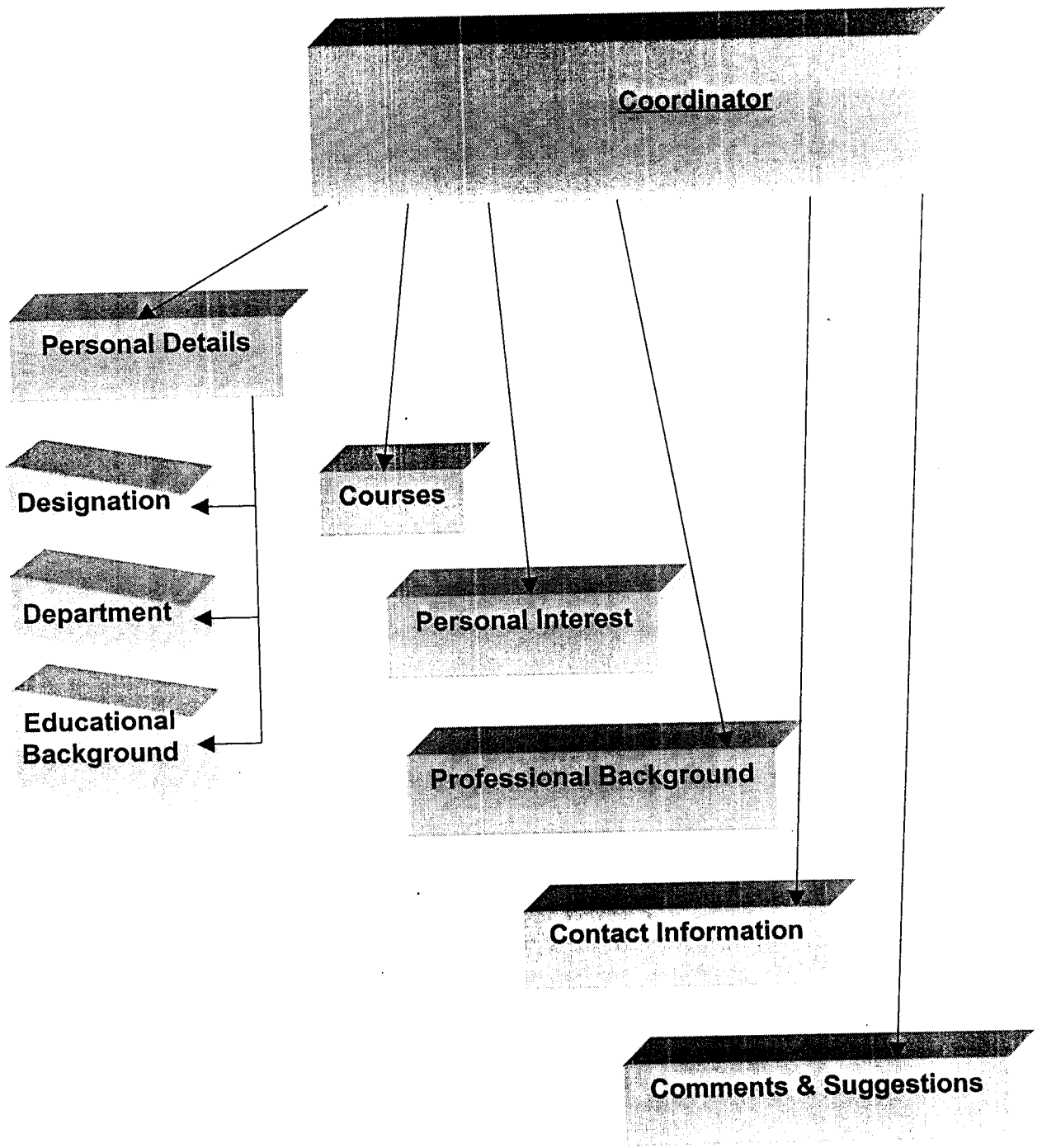
# Web Site Design

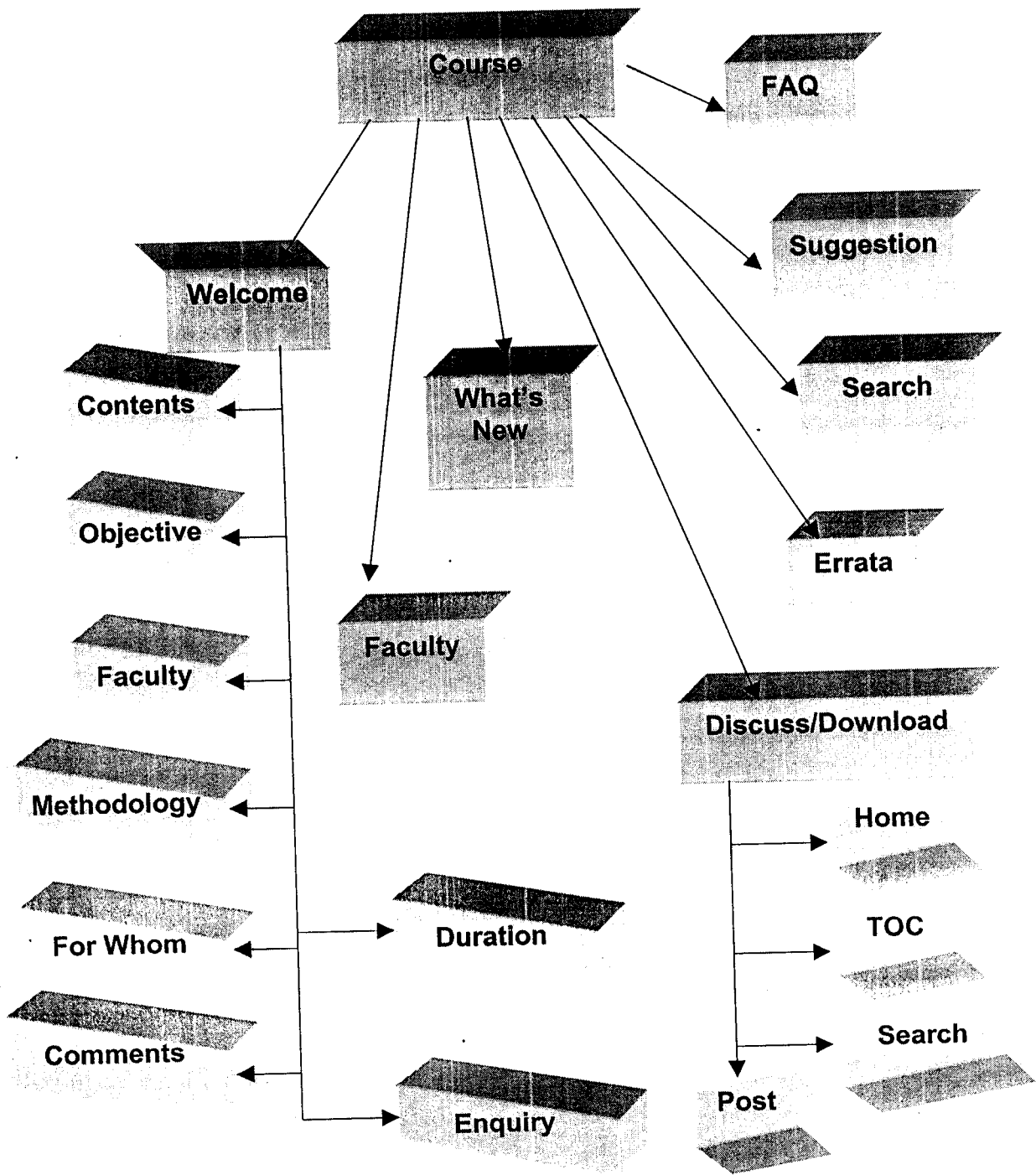


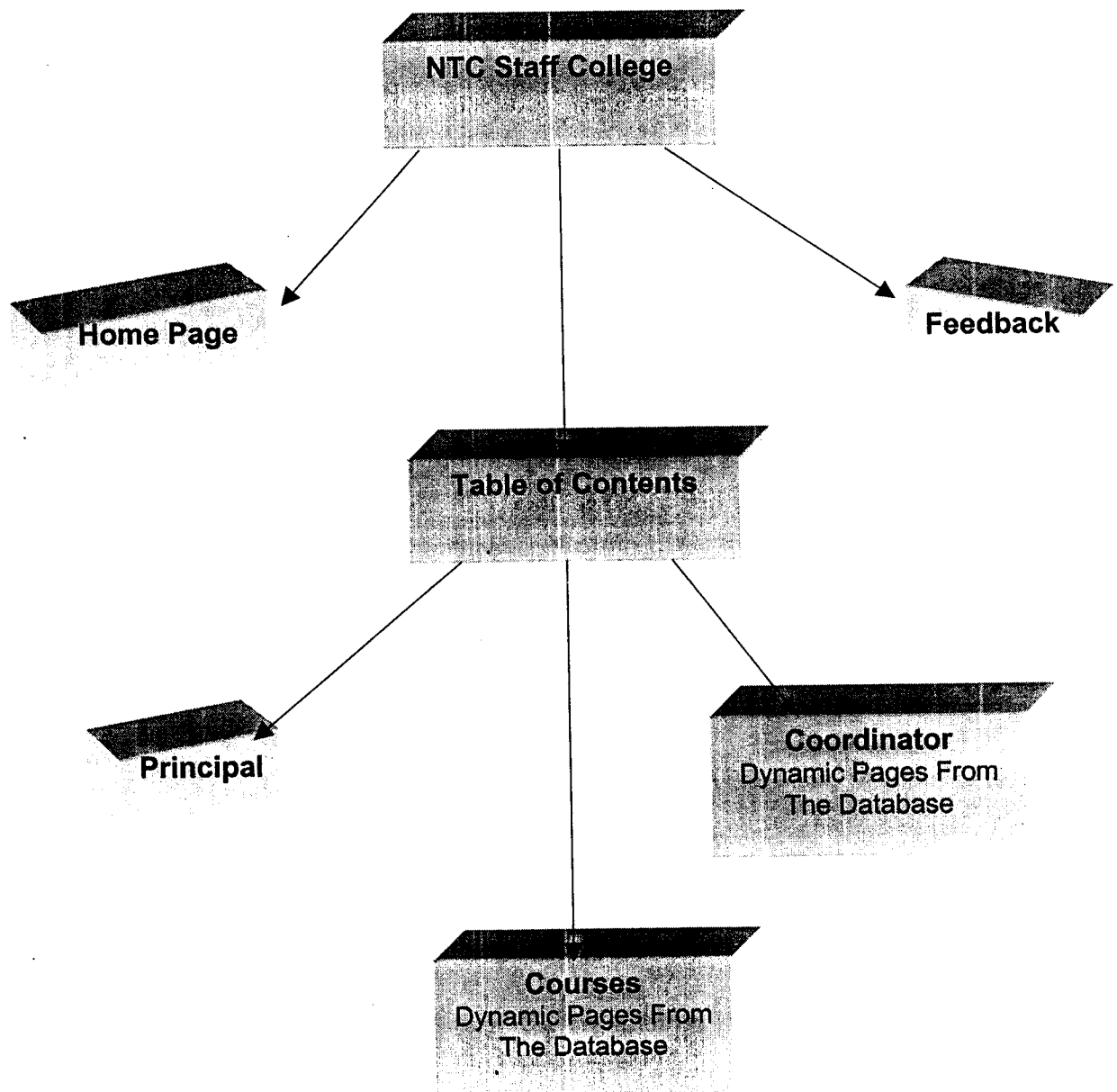












# **Module Design**

## **Creation of Database**

The database design has been implemented in MS Access '97 with five tables.

## **ODBC Connectivity**

The Open Data Base Connectivity is a programming interface developed by Microsoft that allows the database to be interfaces with any other client like PowerBuilder, Visual Basic, Internet Database Connector (IIS) etc.

The ODBC data source name – **Mgtedu** is associated with the corresponding MS Access database file.

## **Course Maintenance System**

The course maintenance system is primarily designed for the staff present in the management-training institute.

It gives an easy GUI based user interface for updating and maintaining the database. Information can be viewed, inserted, deleted and modified in all the five tables depending on the database constraints.

## **Creation of Dynamic Web Pages**

Dynamic web pages vary their contents based on the information available currently in the database.

The SQL Query is specified using in a .idc file and dynamic pages are available in the corresponding .htx files, which may have one or more hyperlinks to the static pages.

The dynamic web pages created included

- Current Course list
- Future Course list
- Coordinator list
- Authentication for sensitive pages such as course material download page, Discussion web, Course Registration

*Conclusion*

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## **Conclusion**

This project is done for the NTC Staff College and the personal manager of NTC (TN&P) supplied the domain specific knowledge required for the development of the system. Being constantly in touch with the user so as to ascertain and incorporate various suggestions and modifications, is a rare privilege that a system designer can have. This was fully made use of and every attempt has been made to meet the stated user requirements. After a systematic approach, the new system is developed implemented and tested successfully. Overall, the system is working up to the expected level.

*Scope for Future Enhancement*

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## **Scope for Future enhancements**

The proposed can be enhanced in a way, which will include Fee Remittance utilizing the Electronic Funds Transfer System and the Electronic Funds Interchange (EFTS & EFI) technologies.

Contact programs and seminars can be done more interactively using the V-SAT technology, which will convert from one-way video/two-way audio to two-way video/two-way audio via the V-SAT links.

Further with the introduction of ISDN services and the availability of low-cost video camera attachments of low-cost video camera attachments for PCs, it is now possible for students to directly join in a videoconference from their work place or residence.

*Appendix*

---

*Sample Output*

---

*Source Code*

---

## Dynamic Billboard.Java

```
import java.net.*;
import java.awt.*;
import java.awt.image.*;

public class DynamicBillboard
    extends java.applet.Applet
    implements Runnable {

    BillData[] billboards;
    int current_billboard;
    int next_billboard;

    String[] transition_classes;
    Thread thread = null;
    Image image = null;
    long delay = -1;
    boolean mouse_inside_applet;
    String link_target_frame;

    public void init() {
        String s = getParameter("bgcolor");
        if(s != null) {
            Color color = new Color(Integer.parseInt(s.substring(1), 16));
            setBackground(color);
            getParent().setBackground(color);
            getParent().repaint();
        }
        billboards = new BillData[Integer.parseInt(getParameter("billboards"))];
        current_billboard = next_billboard = (int)(Math.random() * billboards.length);
        parseBillData();
    }

    void parseBillData() {
        String s = getParameter("bill" + next_billboard);
        int field_end = s.indexOf(",");
        Image new_image = getImage(getDocumentBase(), s.substring(0, field_end));
        URL link;
        try {
            link = new URL(getDocumentBase(), s.substring(field_end + 1));
        }
        catch (java.net.MalformedURLException e) {
            e.printStackTrace();
            link = getDocumentBase();
        }
    }
}
```

```

    }
    billboards[next_billboard] = new BillData(link, new_image);
    if(image == null) {
        image = new_image;
    }
    else {
        prepareImage(new_image, this);
        billboards[next_billboard].initPixels(size().width, size().height);
    }
}

void finishInit() {
    if(delay != -1) {
        return;
    }
    delay = Long.parseLong(getParameter("delay"));

    link_target_frame = getParameter("target");
    if(link_target_frame == null) {
        link_target_frame = "_top";
    }

    String s = getParameter("transitions");
    int field_end = s.indexOf(",");

    int trans_count = Integer.parseInt(s.substring(0, field_end));
    transition_classes = new String[trans_count];
    for(--trans_count; trans_count > 0; --trans_count) {
        s = s.substring(field_end + 1);
        field_end = s.indexOf(",");
        transition_classes[trans_count] = s.substring(0, field_end);
    }
    transition_classes[0] = s.substring(field_end + 1);
    billboards[next_billboard].initPixels(size().width, size().height);
    mouse_inside_applet = false;
}

public boolean mouseMove(Event evt, int x, int y) {
    mouse_inside_applet = true;
    showStatus(billboards[current_billboard].link.toExternalForm());
    return true;
}

public boolean mouseExit(Event evt, int x, int y) {
    mouse_inside_applet = false;
}

```

```

showStatus("");
return true;
}

public boolean mouseUp(Event evt, int x, int y) {
    stop();
    if(getParent() instanceof Frame) {
        ((Frame)getParent()).setCursor(Frame.WAIT_CURSOR);
    }
    getAppletContext().showDocument(billboards[current_billboard].link,
        link_target_frame);
    return true;
}

public void paint(Graphics g) {
    g.drawImage(image, 0, 0, this);
}

public void update(Graphics g) {
    paint(g);
}

public void start() {
    next_billboard = current_billboard;
    image = billboards[current_billboard].image;
    if(getParent() instanceof Frame) {
        ((Frame)getParent()).setCursor(Frame.HAND_CURSOR);
    }
    if(thread == null) {
        thread = new Thread(this);
        thread.start();
    }
}

public void stop() {
    if(thread != null) {
        thread.stop();
        thread = null;
    }
}

public void run() {
    while((checkImage(image, this) & ImageObserver.ALLBITS) == 0) {
        try { Thread.sleep(600); } catch (InterruptedException e) {}
    }
    finishInit();
}

```

```

int last_transition_type = -1;
BillTransition transition;
long next_billboard_time;
while(true) {
    next_billboard_time = System.currentTimeMillis() + delay;
    current_billboard = next_billboard;
    if(++next_billboard >= billboards.length) {
        next_billboard = 0;
    }
    if(billboards[next_billboard] == null) {
        parseBillData();
        try { Thread.sleep(120); } catch (InterruptedException e) {}
    }
    int transition_type = (int)(Math.random() *
        (transition_classes.length - 1));
    if(transition_type >= last_transition_type) {
        ++transition_type;
    }
    last_transition_type = transition_type;

    try {
        String trans = transition_classes[last_transition_type];
        transition = (BillTransition)Class.forName(trans).newInstance();
    }
    catch(Exception e) {
        e.printStackTrace();
        continue;
    }

    transition.init(this, billboards[current_billboard].image_pixels,
        billboards[next_billboard].image_pixels);

    if(System.currentTimeMillis() < next_billboard_time) {
        try {
            Thread.sleep(next_billboard_time - System.currentTimeMillis());
        } catch (InterruptedException e) {}
    }

    Graphics g = getGraphics();
    for(int c = 0; c < transition.cells.length; ++c) {
        image = transition.cells[c];
        g.drawImage(image, 0, 0, null);
        getToolkit().sync();
        try { Thread.sleep(transition.delay); }

```



```
    catch(InterruptedException e) { };
  }
  image = billboards[next_billboard].image;
  g.drawImage(image, 0, 0, null);
  getToolkit().sync();
  g.dispose();
  if(mouse_inside_applet == true) {
    showStatus(billboards[next_billboard].link.toExternalForm());
  }
  transition = null;
  try { Thread.sleep(120); } catch (InterruptedException e) {}
}
}
```

## Default.html

```
<!DOCTYPE HTML PUBLIC "-//IETF//DTD HTML//EN">
```

```
<html>
```

```
<head>
```

```
<meta http-equiv="Content-Type"
```

```
content="text/html; charset=iso-8859-1">
```

```
<meta name="GENERATOR" content="Microsoft FrontPage 2.0">
```

```
<title>NTC SC Home Page</title>
```

```
<meta name="FORMATTER" content="Microsoft FrontPage 2.0">
```

```
</head>
```

```
<body background="back1.jpg">
```

```
<p></p>
```

```
<p> </p>
```

```
<!--webbot bot="Include" tag="BODY"
```

```
u-include="_private/navbar.htm" startspan -->
```

```
<p> <a href="Default.htm"></a><a href="toc.htm"></a><a href="feedback.htm"></a> </p>
```

```
<!--webbot bot="Include" endspan i-checksum="17039" -->
```

```
<p><!--webbot bot="PurpleText"
```

```
preview="Write an introductory paragraph for your home page here. This is like the front door to your home on the Internet. Invite visitors to step in and have a look around. "
```

```
--></p>
```

```
<p> </p>
```

```
<h2><font color="#FFFFFF">Our Mission</font></h2>
```

```
<p><font color="#FFFFFF"><!--webbot bot="PurpleText"
```

```
preview="Write one or two short sentences that describe your company's philosophy and ambitions. Something like, 'To become the leading provider of ...'."
```

--></font></p>

<dl>

<dd><font color="#FFFFFF" size="4">The mission of the NTC Staff College is to primarily develop the executives employed in NTC who could be the architects as well as the builders of the NTC Organisation.</font></dd>

</dl>

<p><font color="#FFFFFF"> </font></p>

<h2><font color="#FFFFFF">Company Profile</font></h2>

<p><font color="#FFFFFF"><!--webbot bot="PurpleText" preview="Describe who you are, and how you provide value to your customers." --> </font></p>

<p><font color="#FFFFFF"><!--webbot bot="PurpleText" preview="If you belong to any industry associations, list them here." --> </font></p>

<p><font color="#FFFFFF"><!--webbot bot="PurpleText" preview="What do other people say about your company? Try using some quotes from satisfied customers." --> </font></p>

<p><font color="#FFFFFF"><!--webbot bot="PurpleText" preview="Who are the people in your company? You might want to include a message from your president or the biographies of your founders." --> </font></p>

<dl>

<dd><font color="#FFFFFF" size="4">NTC Staff College was established in the year 1979, with hte generous support of </font></dd>

<dd><font color="#FFFFFF" size="4">NTC Holding Company and the Ministry of Textiles( Govt. of India ).</font></dd>

<dt>&nbsp;</dt>

<dd><font color="#FFFFFF" size="4">NTC Staff College focuses on the Management development needs of the 9 subsidiary corporations of NTC group, which is managing 125 nationalised textile mills.</font></dd>

<dt>&nbsp;</dt>

<dd>&nbsp;</dd>

</dl>

<p><font color="#FFFFFF"> </font></p>

<h2><font color="#FFFFFF">Contact Information</font></h2>

<p><font color="#FFFFFF"><!--webbot bot="PurpleText" preview="Tell readers how to get in touch with you. Remember that people can connect to your web from anywhere in the world; so provide international versions of telephone and fax numbers. It's also customary to provide e-mail addresses for key contact points, such as sales and customer support. " --></font></p>

<dl>

<dt><font color="#FFFFFF"><strong>Telephone</strong> </font></dt>  
<dd><font color="#FFFFFF"><strong>(0422) - 571675</strong></font></dd>  
<dt><font color="#FFFFFF"><strong>FAX</strong> </font></dt>  
<dd><font color="#FFFFFF"><strong>422 - 232171</strong></font>< dd>  
<dt><font color="#FFFFFF"><strong>Postal address</strong> </font></dt>  
<dd><font color="#FFFFFF"><strong>1083 - Avinashi road,</strong></font>< dd>  
<dd><font color="#FFFFFF"><strong>( Near PSG Institute of  
Technology ),</strong></font></dd>  
<dd><font color="#FFFFFF"><strong>Coimbatore.</strong></font>< dd>  
<dt>&nbsp;</dt>  
<dt><font color="#FFFFFF"><strong>Electronic mail</strong> </font></dt>  
<dd><font color="#FFFFFF">General Information: </font><a  
href="mailto:ntc"><font color="#FFFFFF">mail@NTCsc.com</font></a><font  
color="#FFFFFF"><br>  
</font></dd>  
<dt>&nbsp;</dt>  
<dt><font color="#FFFFFF">Copyright ) 1998 NTC Staff College<br>  
Last modified: <!--webbot bot="TimeStamp"  
s-type="EDITED" s-format="%B %d, %Y" startspan -->March  
13, 1998<!--webbot bot="TimeStamp" endspan  
i-checksum="25495" --> </font></dt>

</dl>

</body>

</html>

## *Bibliography*

---

## **Bibliography**

1. "Technological Blueprint for Distant Education " by Prof.Parag Diwan,  
from "INDIAN MANAGEMENT" - The Journal of the All India Management  
Association. ( Volume : 36 , No 2, February 1997 ).
2. "Management Education in the coming Millennium" by Prof. Kevin Fagg and  
Kathy Ramm, from "INDIAN MANAGEMEMT " (Volume 136, No3 February 1997).
3. Internet Information Server (Version 3.0 ) Documentation.
4. Java : The Complete Reference by Patrick Naughton and Herbert Schildt.

## *Internet Glossary*

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# Internet Glossary

## ***ACTIVE X***

A programming specification from Microsoft used by programmers for performing back-end applications previously accomplished by use of CGI scripts.

## ***ANONYMOUS FTP***

A method used to access an Internet host with FTP that does not require you to have an account on the target computer system. Simply log on to the Internet computer with the user name *anonymous* and use e-mail address as your password. This access method was originally provided as a courtesy so that system administrators could see who had logged on to their systems, but now it is often required to gain access to an internet computer that has FTP service

## ***BROWSER***

A program used to explore Internet or Internet resources. It presents the information like text, graphics, sound, or video –as a document on the screen. A browser lets you wander without having to worry about the technical details of the links between the nodes or the specific methods used to access them. Most popular ones are the Netscape Navigator and Internet Explorer.

## ***CGI***

It is the abbreviation of Common Gateway Interface. A standard way that programs can interface with web servers and allow them to run applications, such as search engines and to access database and other back-end applications.

## ***CLIENT***

An application that uses information or services provided by a server. Many of the common Intranet tools, including Gopher, FTP, and the web browsers, are all client applications interacting with the appropriate server.

## ***CLIENT-SERVER***

A network model, that distributes processing between the clients and the server on the network. Client request information from the server. The servers store data and programs and provide network-wide services to clients.

## ***DOMAIN***

A description of a single computer, a whole department, or a complete site used for naming and administrative purposes.

- On the Internet, Domain is part of the DNS.
- In Windows NT, a user can log on in to the local computer and be authenticated to access other servers within that domain.



## ***JAVA***

An object-oriented programming language developed by programmers at Sun Microsystems, designed to create distributed, executable applications for use with special web browsers. Many companies, including MICROSOFT, IBM, Adobe Systems, Oracle, Borland, Symantec, and other companies developing web applications have licensed Java technology.

## ***JAVA DATABASE CONNECTIVITY***

Abbreviated as JDBC. An API, that allows developers to write Java applets that can access a database.

## ***JPEG***

It is the abbreviation of Joint Photographic Experts Group. An image-compression standard and file format that defines a set of compression methods for high quality images, such as photographs, single video frames, or scanned pictures. JPEG can store 24-bit color images in as many as 16 million colors; files in GIF format can only store a maximum of 256 colors.

## ***LINK***

In a hypertext document, a connection between one element and another in the same or in a different document.

## ***NT FILE SYSTEM***

Abbreviated as NTFS. The file system native to windows NT and windows NT Server. There are several advantages to using NTFS, including long filenames, reduced file fragmentation, improved fault tolerance, increased system security, and much better recovery after a system crash.

## ***ODBC***

It is the abbreviation of Open Database Connectivity. A programming interface developed by Microsoft that allows clients to access many types of databases and file formats.

## ***PROTOCOL***

In networking and communications, the formal specification that defines the procedures to follow when transmitting and receiving data. Protocols define the format, timing, sequence, and error checking used on the network.

## ***SEARCH ENGINE***

A special web server that lets you perform keyword searches to locate interesting web pages.