DESIGN OF AUTOMATED SYSTEM FOR MANAGEMENT OF SEMINARS AT NATIONAL INSTITUTE OF TECHNOLOGY, ROURKELA

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF

THE REQUIREMENT FOR THE DEGREE OF

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In

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CERTIFICATE

This is to certify that the thesis entitled **"Design of Automated system for Management of Seminars at National Institute of Technology Rourkela"** submitted by Rajat Kumar Soreng, in partial fulfillment of the requirements for the award of Degree of Bachelor of Technology in Computer Science and Engineering at National Institute of Technology, Rourkela is an authentic work carried out by them under my supervision and guidance. To the best of my knowledge, the matter embodied in the thesis has not been submitted to any other university / institute for the award of any Degree or Diploma.

Date: Prof. Durga Prasad Mohapatra

Place:

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ABSTRACT

National Institute of Technology, Rourkela is one of the reputed institutions for technical education in India covering an area of 262 hectares. The main objective of the project is to develop a portal for management of seminars which will he hosted on our institution server. The portal provides a suitable and easy display for which the admin, department or student can view and upload the seminar details. Basically at what time, which department, which speaker, contact details etc. are provided on this portal. Using ASP.NET technologies and SQL Server, this portal is designed.

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CHAPTER-1

INTRODUCTION

1. INTRODUCTION

Many technologies have developed in this world. Computer is the best example of this. People anciently used pen and paper for writing documents. But, nowadays, automated systems are being used for designing. Automated means automatic updation.

Particular events are there for particular time period. If the time is elapsed, event has become history. This is possible by automated systems. Today will become yesterday and tomorrow will become today.

Anciently, there used to be manual systems. There used to be many problems with these systems. The users had to keep in mind, every bit of a thing. To avoid these problems, nowadays, there are automated systems. In case of automated systems, we don't need to remember anything. Everything is displayed clearly in case of automated system.

A **seminar** is a form of academic instruction, either at an educational institution or offered by a commercial or professional organization. It has the function of bringing together small groups for continuous meetings, focusing every time on some particular subject, in which everyone present is requested to actively participate.

The development of portal for management of seminars generally means creating a website in which the seminar activities of the institute is viewed by the administrator, department and viewer. The project work is about the designing and hosting the website for the management of seminars at NIT Rourkela. On "Microsoft .NET" platform using "ASP.NET" technology and

"SQL Server", the website is designed. The portal has basically three user parts where one is public (no authentication required) who can only view, second is department who is specific to a

particular department (has specific authentication) and third is administrator (has an authentication) who will manage or control the website. The website consists of basic pages from which the user can navigate to view and know the relevant information like past seminars, today's seminars and upcoming seminars. Seminars can be viewed according to today, this week, this month. We can search the seminars department wise, topic wise, speaker, date wise.

There are different kinds of seminars.

- Master Degree students are supposed to present seminars.

- Whenever any faculty goes for conference, on return he is supposed to present seminars.

- Visiting guest can give seminars.

Prior to the design of website for management of seminars "System Development Life Cycle "is analyzed and described.

CHAPTER-2

REQUIREMENT SPECIFICATION

REQUIREMENT SPECIFICATION

In this phase, mainly a SRS document of the required system is prepared. SRS document is the Software Requirement Specification document in which the goals of implementation, functional requirements as well as non-functional requirements and Environmental Characteristics are discussed.

2.1. Functional Requirements:

For documenting the functional requirements, the set of functionalities supported by the system are to be specified. A function can be specified by identifying the state at which the data is to be input to the system, its input data domain, the output data domain, and the type of processing to be carried on the input data to obtain the output data.

 Basically the management parts are the functional requirements which are uploading details.

For administrator, he can upload the details of seminar of any department. For departmental user, he can upload the details of seminar of a particular department.

R 1: View seminars

R 1.1: Seminars option

INPUT: Select the seminars option.

OUTPUT: User is prompted to view past seminars, upcoming seminars, today's seminars.

R 1.2: past seminars.

INPUT: Select the past seminars option.

OUTPUT: User is prompted to view previous seminars.

R 2: Search seminars

R 2.1:   seminars search

INPUT: Select the search seminars option.

OUTPUT::User is prompted to search seminars according to date, speaker, topic, and venue.

R 3: Upload seminars

INPUT: Select the upload details option.

OUTPUT: User is prompted to upload date, time, speaker, topic, abstract.

2.2. Non-functional Requirements:

These are the requirements that are not functional in nature. Especially these are the constraints the system must work within.

- **Performance Requirements:** The system response time must be less than 30 seconds for the user interface. Or else the system will show TIMED OUT.
- **Safety Requirements:** All the system data must be backed up every day and the backup copies stored in another server at different location for disaster recovery.

2.3. Goals of Implementation:

The implementation of the system provides a portal which will provide a good looking user interface for which the end user can view and search the required information from the system.

 The end user can know the seminar details such as past seminars, upcoming seminars. And for the administrator, he will be given the universal power to manage the activities or functions displayed in the portal.

2.4. Environmental Characteristics:

This section of the SRS Document describes the properties of the environment with which the system will interact. The system is interacted in 3-tier architecture.

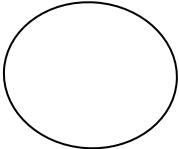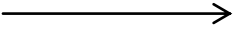| Hardware Specification	Software Specification
Processor: Intel Core 2 Duo(32 bit)	**Database Server:** Microsoft SQL Server 2005(32 bit) express with service pack 3
RAM: 3 GB	
Hard Disk:80GB	**Application Server or Web Server:** Microsoft .NET Framework 3.5 Service Pack 1
	Client Computer: A supported Browser

CHAPTER 3

DESIGN

3.1DESIGN

Design phase deals with transforming the requirements, as described in the SRS document, into a form that is implemented using a programming language. The various designs of this system are shown as following:

1. Data Flow Diagram:

Data Flow diagram is a graphical representation of flow of data throughout the information system. Data flow diagrams illustrate how data is processed by a system in terms of inputs and outputs.

<u>Name</u>	<u>Notation</u>	<u>Role</u>
Process		Transforms incoming data flow to output data flow
DataStore		Repositories of data in the system.
Dataflow		Dataflow are pipelines through which packets of information flow.
External Entity		External entities are objects outside the system, with which the system communicates
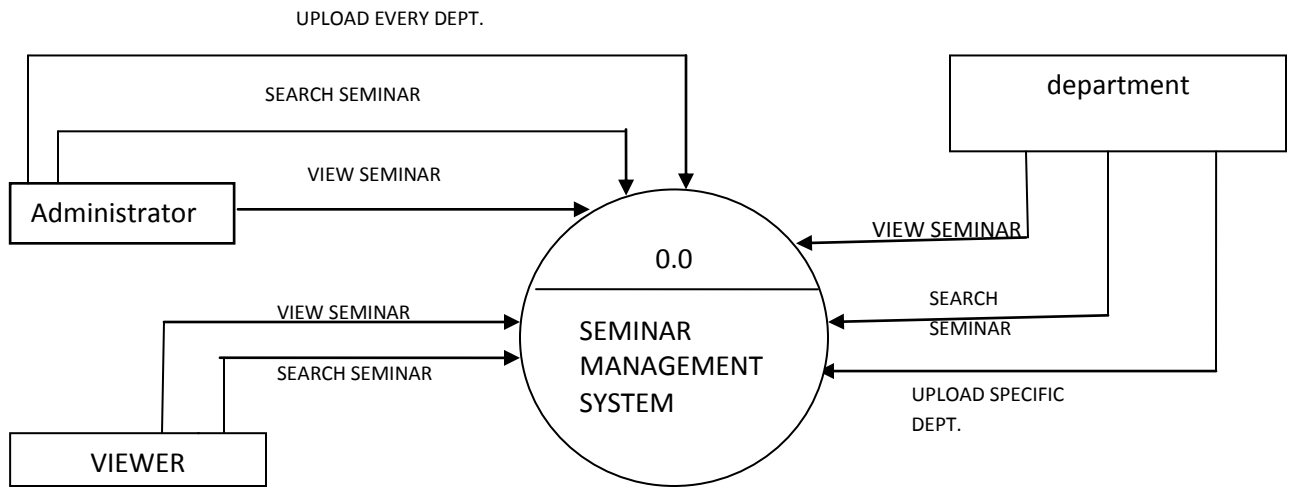
FIGURE 3.1: CONTEXT DIAGRAM
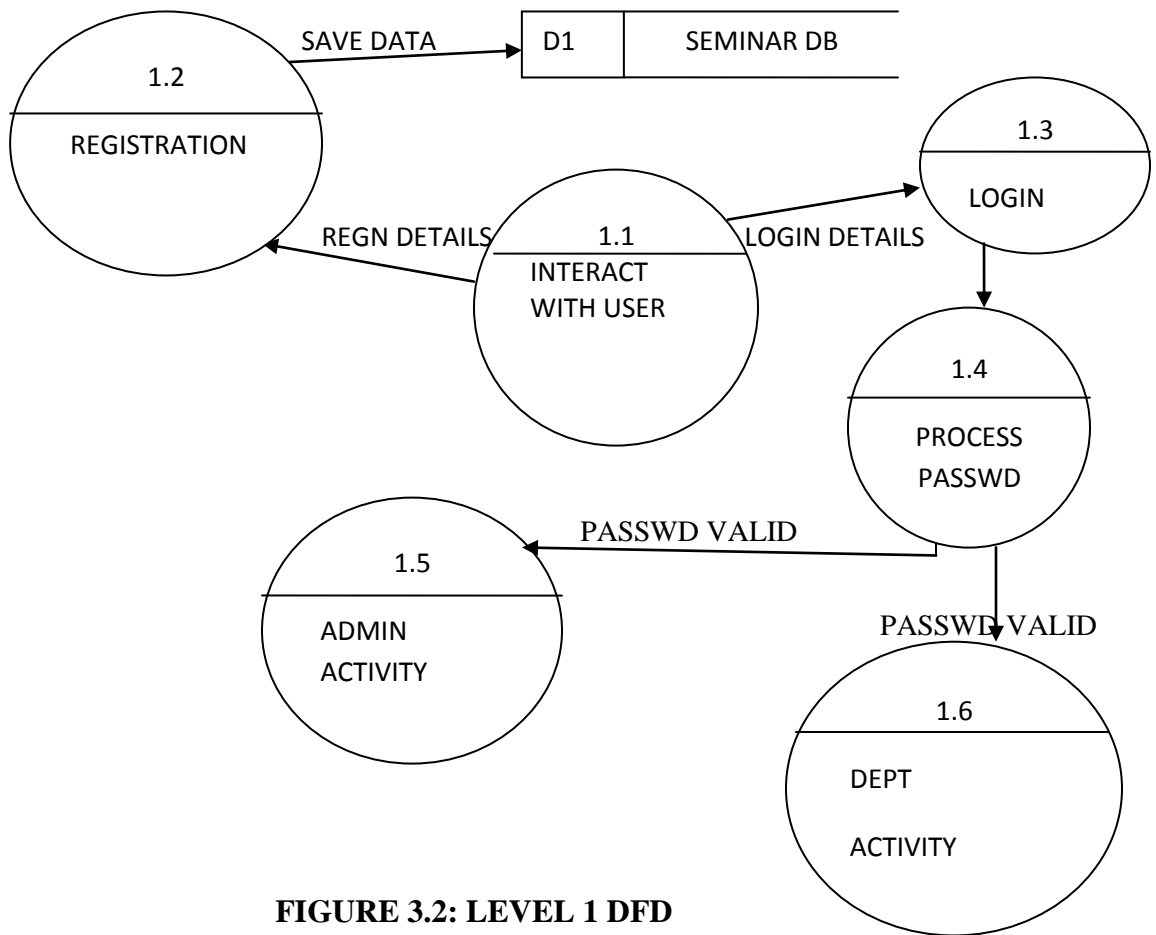
FIGURE 3.2: LEVEL 1 DFD

3.2. DATA DICTIONARY

Upload Details of Admin: {dept + topic + date + time + title + abstract + venue + contact details}

Upload Details of Departmental user: {topic + date + time + title + abstract + venue + contact details}

Contact Details :{ mobile no + email id + name}

Registration Details :{ name + contact details + dept + birth date}

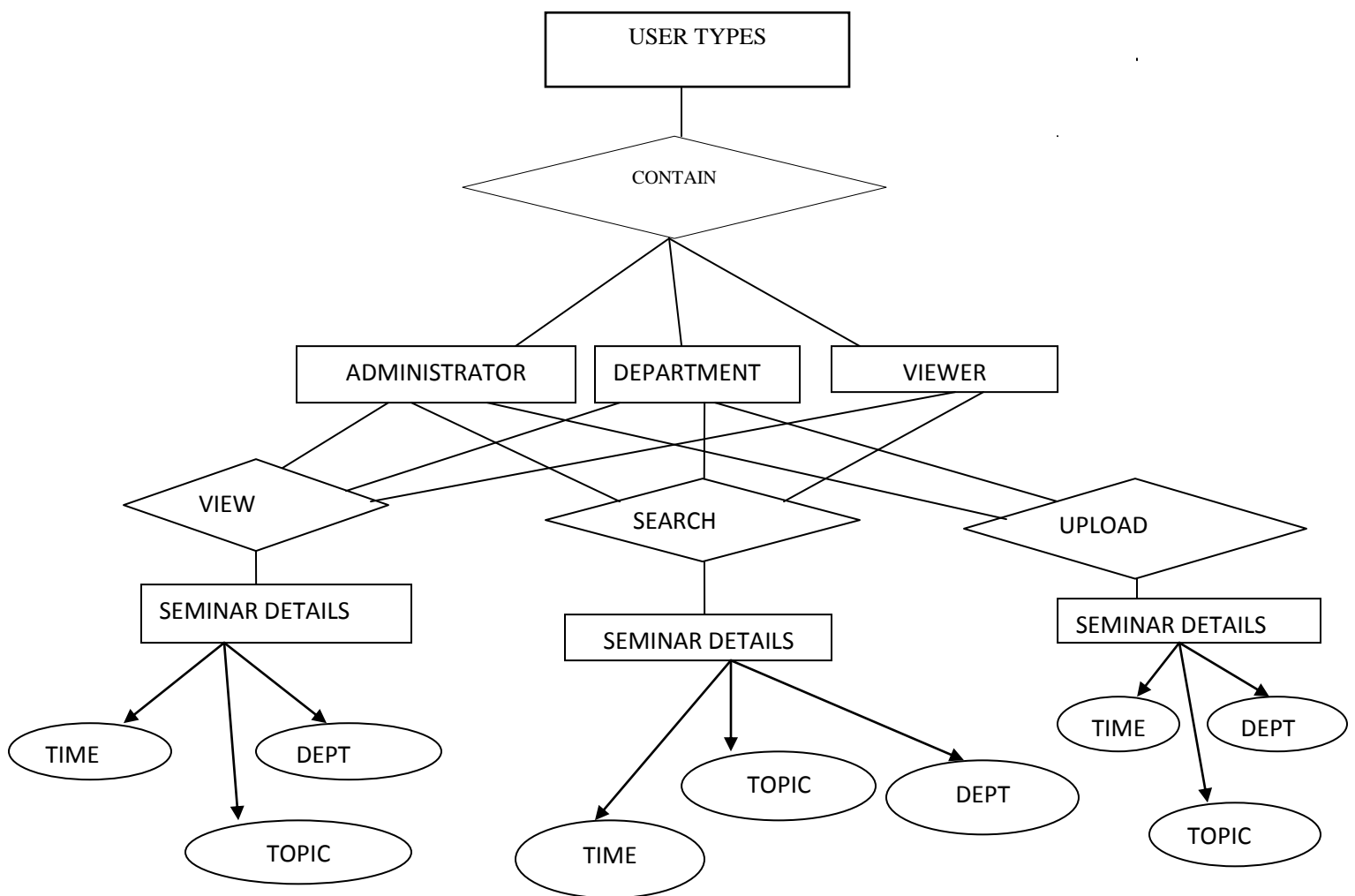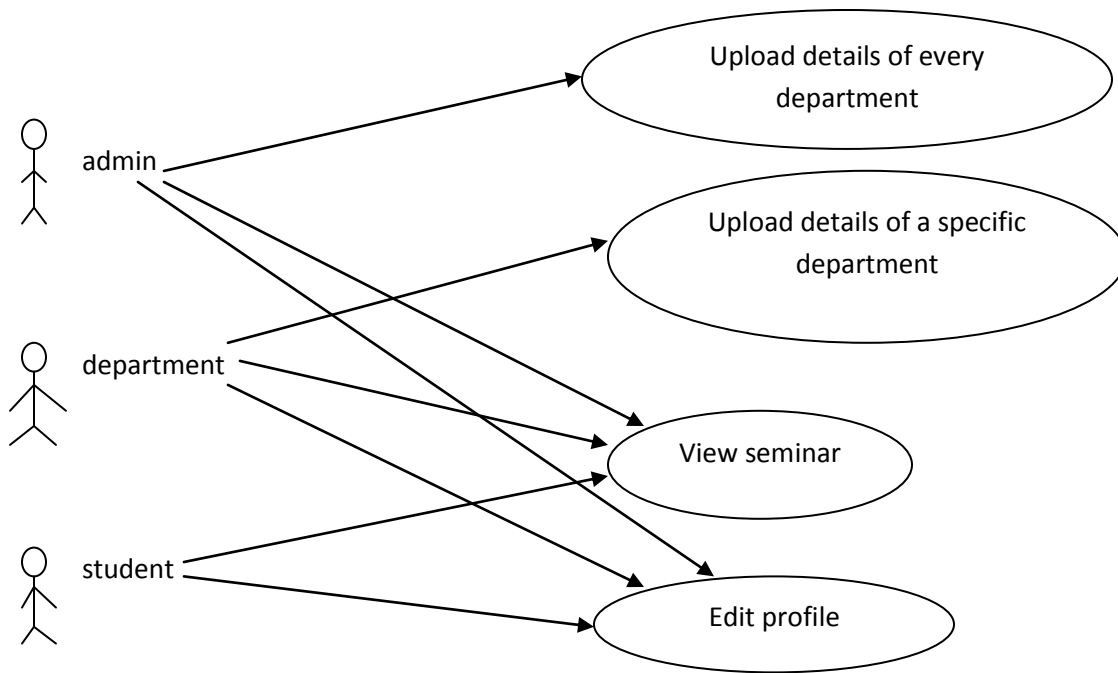Login Details :{ username + password}

3.3. Entity Relationship Diagram:

FIGURE 3.3 ER Diagram

3.4. Use Case Diagram

FIGURE 3.4 USE CASE DIAGRAM

CHAPTER 4

IMPLEMENTATION

Implementation is another phase during which the theory is put into practice. The major steps in-evolved in this particular phase are:

- Acquisition and Installation of Hardware and Software

- Conversion

- User Training

- Documentation

The hardware and the software required for debugging the system should be made fully operative before implementation. This translation is also one of the most critical and costly activities in the system development life cycle. The data from the old system should be converted to run in the new format of the new system. The database needs to be configured with security and recovery procedures need to be fully defined [1].

During this phase, all the programs of the system are loaded onto the user's computer systems. After loading the system, training of the user begins. Essential topics of such type of training are:

- How to execute the package

- How to pass the data

- How to process the data

- How to take out the reports

After the users are trained about the computerized system, working has to change from manual to computerized working. The process is called 'Changeover'.

(i) Direct Changeover: The new system is completely replaced on the old system. It is a certain approach and needs complete system testing and training.

(ii) Parallel run: Both the systems, i.e., computerized and manual, are implemented simultaneously for some defined period. The same information is processed by both the systems. This strategy is less risky but more costly because of the following:

- Manual results can be compared with the results of the computerized system.

- The operational work can be doubled.

Failure of the computerized system at the early stage does not change the working of the organization, because the manual system goes on, as it used to do.

(iii) Pilot run: In pilot run, the new system is put into run with the data or information from one or more of the preceding periods for the whole or part of the system. The outcomes at this stage are compared with the old system results. It is less costly and risky than parallel run approach. This particular strategy builds the confidence and the errors are found easily without affecting the operations.

The documentation of the system is also one of the main activities in the system development life cycle. This ensures the stability and continuity of the system. There are basically 2 types of documentation. These are: User or Operator Documentation and System Documentation

The user documentation is a complete explanation of the system from the end user's point of view how to use or operate the system. It contains the major error messages likely to be run into by the users. The system documentation comprises the details of system design, programs,

Coding, system flow, data dictionary, etc. This helps to realize the system and permit changes to be made in the existing system to fulfill new user needs.

4.1 TECHNOLOGIES USED

4.1.1 ASP.NET TECHNOLOGIES

ASP.NET is a Web platform which provides all the services that developers require to construct enterprise-class server-based Web applications. ASP.NET is developed on the .NET Framework, so that all .NET Framework features are obtainable to ASP.NET applications. All web applications can be written in any language that is well-suited with the common language runtime (CLR), including Visual Basic and C# [2].

To create ASP.NET Web application, Visual Studio is used. The tools and options in Visual Studio are designed for creating Web applications which are referred to collectively as Visual Web Developer. In addition to this, a free product—Visual Web Developer Express—is available that comprises the core set of Web-design features from Visual Studio [2].

ASP.NET 3.5 provides a link to topics which defines the version of ASP.NET that is fragment of the .NET Framework 3.5 and that describe how to create Web applications with the help of Visual Studio 2008 and Visual Web Developer 2008 Express Edition.
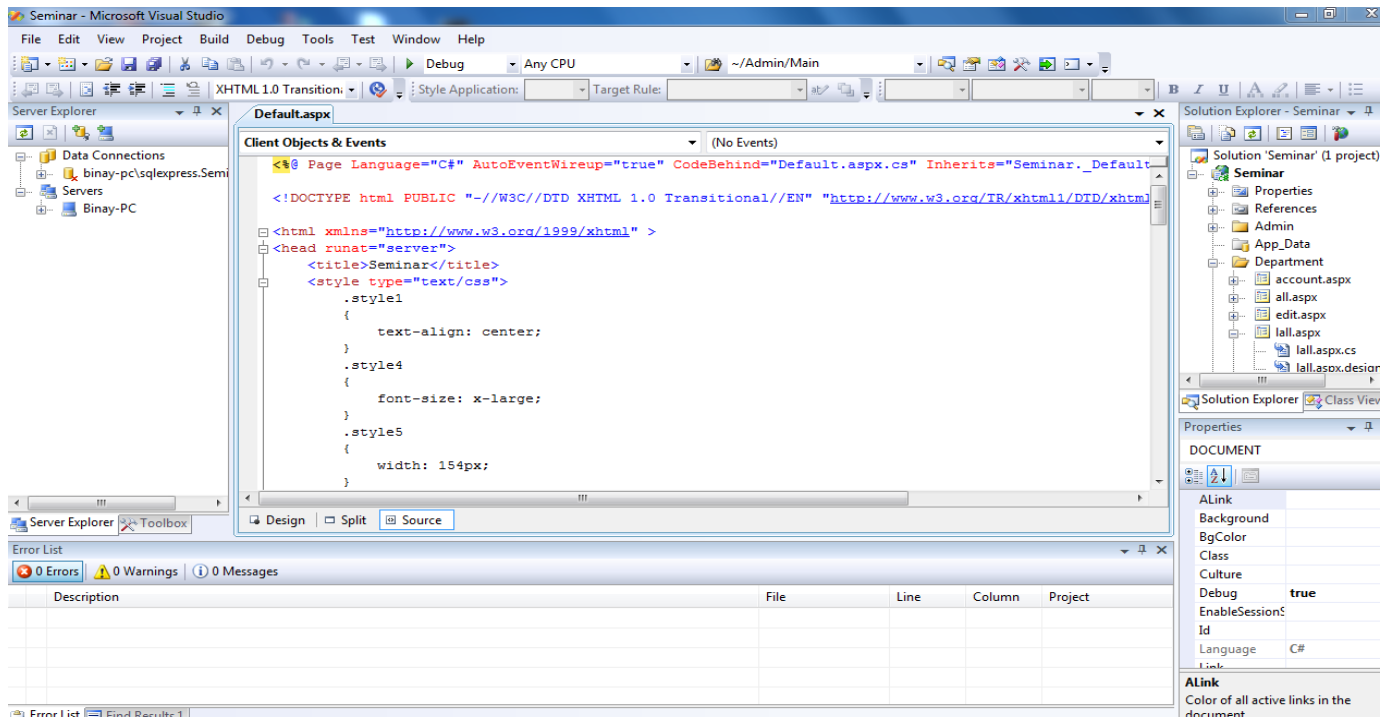
FIGURE 4.1MICROSOFT VISUAL STUDIO 2008

4.1.2 SQL SERVER

Microsoft SQL Server is a relational database management system developed by Microsoft. SQL

Server Express is a cost free and easy-to-use database product that is based on SQL Server 2005

technology. It is designed to deliver a database platform that offers superior ease of use, enabling

fast deployments for its objectives. The ease of use begins with a simple and robust graphical

user interface (GUI) that guides the user throughout the installation process. The GUI tools that

emanate for free with SQL Server Express which includes SQL Server Management Studio

Express Edition, Surface Area Configuration Tool and SQL Server Configuration Manager. These tools abridge the basic database operations. The design and development of database applications are made easier by the integration with Visual Studio projects [3].

In this Project, SQL Server 2005 (Express) is used for database operations and integrated with the Microsoft visual studio 2008.Here SQL Server Management Studio Express is the GUI tool.

4.2 CODING

The goal of the coding phase is to translate the design of the system into code in a given programming language. For a given design, the objective of this phase is to implement the design in best possible method. The coding phase affects both testing and maintenance. A well written code reduces the testing and maintenance effort. Since the testing and maintenance cost of software are much expensive than the coding cost, the goal of coding should be to reduce the testing and maintenance effort. Hence, during coding the emphasis must be on developing programs which are easy to write. Clarity should be achieved, during the coding phase [1].

A main concept that helps the understandability of programs is structured programming. The goal of structured programming is to organize the control flow in a program. That is, program text should be ordered as a particular sequence of statements, and during execution, the statements are executed in the sequentially order in the program.

In this Project, basically the *HTML, CSS, JavaScript, C#* codes are used.

Hypertext Markup Language (HTML) is main markup language for displaying web pages and other information that can be displayed in a web browser. *Cascading Style Sheets (CSS)* is a style sheet language used for describing the presentation of a document written in a markup
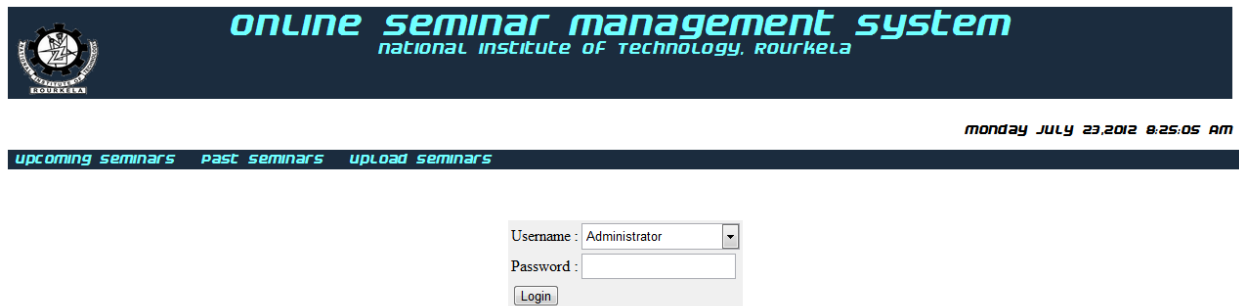
language...*JavaScript (JS)* is a prototype-based scripting language that is dynamic, weakly typed and has first-class functions. *C#* is a multi-paradigm programming language encompassing strong typing, imperative, declarative, functional, generic, object-oriented(class-based), and component-oriented .

4.3 RESULTS AND SCREEN SHOTS

After going through all the phases of System Development Life Cycle, the portal is designed successfully. The below figures are the screenshots of that portal given as

HOME PAGE: login page allows user to login

FIGURE 4.2: LOGIN PAGE

PAST SEMINAR PAGE: USED TO VIEW PAST SEMINARS

Date	Time	Department	Venue	Speaker	Topic	Target Audience
TODAY	1 : 0	PH	physics seminar hall nit rourkela	Prof. D.K. Bisoyi	Applications of small angle x rays scattering to nanoscience and nanotechnology	Faculty & All Students
21 July, 2012	3 : 45	MA	bba	jay	vector space	All Students
20 July, 2012	10 : 0	CR	bba	jkn:n:	gcvkb	UG
19 July, 2012	6 : 0	EE	backpost	raju bhai	samosa	Everyone & Public
18 July, 2012	14 : 23	Computer Science and engineering	computer science seminar hall	narayan muthuswamy	implementation of software techniques in software engineering	faculty
18 July, 2012	13 : 0	gbybhu	wswwwwwwwwwwwww www	byvtcrtv tcxewrtyu frdertyuion wertyui	ijnimimi rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr bbbbbbbbbbbbb	faculty
17 July, 2012	10 : 0	civil	fyfy	yfvy	gftfy	gvhy
15 July, 2012	8 : 0	CE	room no 105	avasha	mechanics	UG

Filter By
Department : None
Date : None
Speaker : None
Topic : None
GO

FIGURE 4.3: PAST SEMINAR PAGE

UPLOAD PAGE HELPS TO UPLOAD EVERY DEPARTMENT.

FIGURE 4.4: UPLOAD PAGE OF ADMIN

UPLOAD PAGE ALLOWS TO UPLOAD ONLY ONE DEPARTMENT.

FIGURE 4.5: UPLOAD PAGE OF DEPARTMENTAL USER

PAST SEMINARS PAGE ALLOWS TO VIEW PAST SEMINARS

national institute of technology, rourkela

upcoming seminars   past seminars   upload seminars

Date	Time	Department	Venue	Speaker	Topic	Target Audience
12 July, 2012	6 : 0	CS	home	nib	bin	UG
15 July, 2012	8 : 0	CE	room no 105	avasha	mechanics	UG
17 July, 2012	10 : 0	civil	fyfy	yfvy	gftfy	gvhy
18 July, 2012	14 : 23	Computer Science and engineering	computer science seminar hall	narayan muthuswamy	implementation of software techniques in software engineering	faculty
18 July, 2012	13 : 0	gbybhu	wswwwwwwwwwwwww www	byvtcrtv tcxewrtyu frdertyuion wertyui	ijnimimi rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr bbbbbbbbbbbbb	faculty
19 July, 2012	6 : 0	EE	backpost	raju bhai	samosa	Everyone & Public
20 July, 2012	10 : 0	CR	bba	jkn:n:	gcvkb	UG
21 July, 2012	3 : 45	MA	bba	jay	vector space	All Students
TODAY	1 : 0	PH	physics seminar hall nit rourkela	Prof. D.K. Bisoyi	Applications of small angle x rays scattering to nanoscience and nanotechnology	Faculty & All Students

Filter By

Department : None
Date   : This Month
Speaker   : None
Topic   : None

GO

FIGURE 4.6: PAST SEMINARS PAGE

FILTER BY DEPARTMENT PAGE ALLOWS TO VIEW DEPARTMENT WISE.

FIGURE 4.7: FILTER BY DEPARTMENT PAGE

FILTER BY SPEAKER PAGE ALLOWS TO VIEW SPEAKER WISE

FIGURE 4.8: FILTER BY SPEAKER PAGE

FILTER BY TOPIC PAGE ALLOWS TO VIEW TOPIC-WISE.

Date	Time	Department	Venue	Speaker	Topic	Target Audience
18 July, 2012	14 : 23	Computer Science and engineering	computer science seminar hall	narayan muthuswamy	implementation of software techniques in software engineering	faculty
15 July, 2012	8 : 0	CE	room no 105	avasha	mechanics	UG

Filter By

Department : None

Date : None

Speaker : None

Topic : me

GO

FIGURE 4.9: FILTER BY TOPIC PAGE

CHAPTER 5

TESTING

5.1TESTING

Before actually implementing the new system into operation, a test run of the system is done for eliminating the bugs, if any. It is an important phase of a successful system. After writing codes, the whole programs of the system, a test plan should be developed and run one given set of test data. The output of the test run must match the probable results. Occasionally, system testing is measured a part of implementation process [1].

Using the test data subsequent test run are carried out:

Unit testing: It is a method by which individual units of source code, sets of one or more program modules collectively with associated control data, usage procedures, and operating procedures, are tested to determine whether they are fit for use. Intuitively, one can view a unit as the smallest testable part of an application. In procedural programming a unit can be an entire module but is more commonly an individual function. In object-oriented programming a unit is an entire interface but could be an individual method. Unit test is created by programmers or by white box testers during the development process.

Each test case is independent from the others: substitutes like method stubs, mock objects can be used to assist testing a module in isolation. Unit tests are typically written and run by software developers to ensure that code meets its design and behaves as intended. Its implementation can vary from being very manual to being formalized as part of build automation.

Integration testing: It is the phase in software testing in which individual software modules are combined and tested as a group. It occurs after unit testing and before validation testing. Integration testing takes as its input modules that have been unit tested, groups them in larger

aggregates, applies tests defined in an integration test plan to those aggregates, and delivers as its output the integrated system ready for system testing.

System Testing: After writing the program test for each of the programs of the system and errors removed, and then system test is complete. During this stage the test is done on actual data. The complete system is put into execution on the actual data. At every stage of the execution, the output of the system is studied. During the outcome analysis, it may be found that the outputs are not matching the estimated output of the system. In such situation, the bugs or errors in the particular programs are recognized and are fixed and further verified for the expected output.

When it is confirmed that the system is running error-free, the users are called with their own real data so that the system could be presented running as per their requirements.

CHAPTER-6

CONCLUSION AND FUTURE WORK

5. CONCLUSION AND FUTURE WORK

The design of portal for management of seminars is done by using ASP.NET and SQL SERVER technologies. Here admin and departmental users can upload seminar details and public can view the seminars details.

After processing through all phases of the system development life cycle, the portal is developed. In future it will be hosted on the internet server which will be accessed by every member of the institute and can view the site and know all the information about seminars at National Institute of Technology Rourkela. The Administrator who will be assigned by the committee of the management of seminars will be given the secure login information and will change or modify the website as per the requirements decided by the committee.

In the similar way as management of seminars is done, design of portal for management of conferences and workshops can also be done.

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