

P-3256



# ENTERPRISE MAINTENANCE PACKAGE



PROJECT REPORT

*Submitted By*

**SARANYA .S**

**Register No.: 0720300039**

*in partial fulfillment for the award of the degree  
of*

**MASTER OF COMPUTER APPLICATIONS**

*in*

**COMPUTER APPLICATIONS**

**KUMARAGURU COLLEGE OF TECHNOLOGY**

**(An Autonomous Institution Affiliated to Anna University, Coimbatore)**

**May, 2010**

# KUMARAGURU COLLEGE OF TECHNOLOGY

(An Autonomous Institution Affiliated to Anna University, Coimbatore)

**COIMBATORE – 641 006.**

Department of Computer Applications

**PROJECT WORK**

**MAY 2010**

This is to certify that the project entitled  
**ENTERPRISE MAINTENANCE PACKAGE**

is the bonafide record of project work done by

**SARANYA .S**

**Register No: 0720300039**

of MCA (Computer Applications) during the year 2009-2010.



Project Guide



Head of the Department

Submitted for the Project Viva-Voce examination held on 17.5.2010.



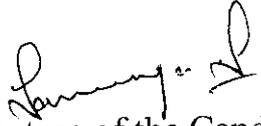
Internal Examiner



External Examiner

## DECLARATION

I affirm that the project work titled “**ENTERPRISE MAINTENANCE PACKAGE**” being submitted in partial fulfilment for the award of **MASTER OF COMPUTER APPLICATIONS** is the original work carried out by me. It has not formed the part of any other project work submitted for award of any degree or diploma, either in this or any other University.

  
Signature of the Candidate

NAME :SARANYA.S

REG NO : 0720300039

I certify that the declaration made above by the candidate is true

  
Signature of the Guide  
MS.M.C.S.GEETHA

Lecturer,

Department Of Computer Applications

Kumaraguru College Of Technology.

May 04, 2010

**TO WHOMSOEVER IT MAY CONCERN**

Subject : Project completion.

Respected Sir/Madam,

This is to certify that, **Miss. S. SARANYA (Reg.No:0720300039)** doing her final year MCA (Master of Computer Applications) in **Kumaraguru College of Technology, Coimbatore** has successfully completed her project entitled "**Enterprise Maintenance Package**" as a part of her academic fulfillment for the period from December 2009 to April 2010.

Her performance and conduct during this project tenure was found to be very good.

We wish her all the best for a successful future.

Thanking you,



**D. Vijai Srinivas**  
**Founder**  
**VAL Technovations**

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**Our Range of Products**

**POS, Barcode Products, Security Systems, Biometrics,  
RFID, Multimedia Projectors, Computers and Pheripherals.**

## BONAFIDE CERTIFICATE

Certified that this project report “ENTERPRISE MAINTENANCE PACKAGE” is the bonafide work of Ms. SARANYA . S (Reg.No. 0720300039) who carried out the research under my supervision. Certified further, that to the best of my knowledge the work reported herein does not form part of any other report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

  
Project Guide

  
Head of the Department

Submitted for the viva-voce examination held on \_\_\_\_\_

Internal Examiner

External Examiner

## ACKNOWLEDGEMENT

First of all, I wish to thank the almighty who have blessed me with good health and wealth to carry out this project successfully.

I wish to express my sincere thanks to **Dr. S. Ramachandran**, Principal, Kumaraguru College of Technology, Coimbatore, for permitting me to undertake this project.

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My deepest acknowledgement to the Project Co-ordinator **Mr. S. Hameed Ibrahim**, Senior Lecturer, Master of Computer Applications, Kumaraguru College of Technology, Coimbatore, for his timely remarks and comments about the project, which helped me to improve my knowledge and project.

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I wish to thank all my teaching and supporting staff members for their timely help to complete the project successfully.

My heartfelt thanks to my lovable family members and friends, who have provided the mental support for me throughout the course of this project work.

## ABSTRACT

This software system “**Enterprise Maintenance Package**” is developed to automate the entire management process of the IT concern. This system can be implemented in IT concern for its automated workings of the internal processes.

Administrator can log on to the system with unique user name and password and view into various reports. Administrator has the overall control of the system. Also the administrator has rights to make any necessary change to the system. The administrator is the one to add and allow a user to access the system.

The profiles of the students, staff, courses and projects offered are maintained. The system will have separate database for each profile and student’s fees calculations and salary calculation of the staffs are done automatically. The batch allocation for the students and staff are done by the system. The material allocation for the student’s project is done by the user.

The staff can log on to the system and update the syllabus covered by them.

Hence the software will be designed to control all the internal processes of the IT concern under one roof.

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*CHAPTER I*

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*INTRODUCTION*

## CHAPTER 1

### INTRODUCTION

This chapter is organized into two parts. The first part deals with the organization profile. It provides a brief insight into the history of the organization and the products. The second part gives an introduction about the project.

#### 1.1 ORGANIZATION PROFILE

V TEC is a Technology company operating in the space of Embedded System, Digital Signal Processing, focusing on R&D and Product development. V Tec was established in 2004 in Coimbatore, India. V Tec serves the sectors of Wireless Communication (RF, GSM, GPS, ZIGBEE, Bluetooth), Embedded System Development (PIC, ARM, ATMEL and other controllers), Textile Industry, Automotive, Agriculture & Milk Industry Automation, Medical Instrumentation, Home Appliances & Consumer Electronics, Industrial Embedded system custom requirements bringing design, engineering, production and other capabilities of V Tec to its customers. The company does R&D and Product development in Embedded systems and Electronics field, Products in Embedded system , Custom Software development. In addition to the business in Embedded systems, the company also provide solutions in Software and Education through our group companies- VAL Technovation and VALue Technologies.

Valtechnovations is an IT services and training centre for the students. The company offers a high quality education for the students in the computer field. The concern has deep domain expertise hence it offers many computer courses for the students. The company also offers computer projects for the students. It continuously adds experienced team members and staff members with distinguished track records.

## 1.2 PROJECT OVERVIEW

This project entitled “ENTERPRISE MAINTENANCE PACKAGE” is to automate the entire management process of the IT concern. It can be implemented in a concern for its automated workings since it has been designed for administrator, staff and other users.

This system will completely manage the internal processes of an IT concern. This online system will satisfy the need of e-advertisement of the company. The interested people can visit this site and can know the software, hardware and embedded systems available in the company. They can also be aware of the courses offered by the company for the students.

The project holds many operations depending upon the user who is logged on to the system. The administrator has complete rights on the system. He can make any necessary changes to the system. The administrator will have the rights to view all the reports and he will get the alert messages from the system. He has the rights to add or delete or block a user of the system.

The user of the system can perform the functions like adding a student and staff and can maintain the course and project details. The materials allocated for the project are also maintained by the user. The batch allocations for the students and staff are done by the user. The transactions for the student’s fee and staff salary are done by the user. The staff can update the syllabus that they covered.

The system will manage all the basic requirements to automate an IT concern with necessary tools and functionalities. Thus the system will decrease the processing time tremendously and it inherits the property of minimum cost.

## *CHAPTER II*

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# *SYSTEM STUDY AND ANALYSIS*

## CHAPTER 2

### SYSTEM STUDY AND ANALYSIS

A complete understanding of the requirement is essential for the success of software development. The software scope, initially established by the system engineer and refined during the project planning, is refined in detail. Model of the required data, information and control flow, and operational behaviour are created. Alternative solution are analyzed and allocated to various software elements. The feasibility study evaluates the viability of the project and presents the recommended strategy adopted for the development.

#### 2.1 EXISTING SYSTEM

The Existing System is done manually where it takes lot of time. There is all the chance for error and since it is done manually it is a tiring job.

##### **Drawbacks of the Existing System**

The existing system has many disadvantages.

Some of them are,

- The student's management process is done through computer and the rest of the processes are done manually.
- The batch allocation and salary calculation are tedious process when done manually.
- Takes lot of time.
- High cost.
- More human resource is needed.
- Redundancy can occur and less reliable.

## **2.2 PROPOSED SYSTEM**

The proposed system is designed in a way to overcome the drawback of the existing system. The system is done to automate all the feasible functionalities of the internal processes of the company.

### **2.2.1 Advantages of Proposed System**

- It is a fully automated system: all the internal processes are done by the system.
- Easy view of reports to the admin.
- Alerts of fees due to the admin.
- Online update of syllabus covered by the staff.
- Easy transactions of students fee and salary for the staff.
- Reduces the human resource and cost.
- Increases the performance.
- Time is reduced, since all the processes are done by system.
- Easy to handle the system and it is easy to update details.
- More than one customer can interact with the system.

## CHAPTER III

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# DEVELOPMENT ENVIRONMENT

## CHAPTER 3

### DEVELOPMENT ENVIRONMENT

#### 3.1 HARDWARE REQUIREMENTS

The hardware necessary to support the system are identified. The system has its hardware specifications as the following specifications.

- Processor : Pentium Dual-Core
- Speed :1.8 GHZ
- Hard Disk Drive :100 GB
- RAM :1 GB
- Cddrive :52x Cd Rom
- Keyboard : Standard 102 Keys
- Mouse :3 Buttons

#### 3.2 SOFTWARE REQUIREMENTS

The current system has been developed by using the following software specifications.

- Platform :Windows XP
- Designing Tool :HTML 4.0, Photoshop
- Components used :.Net Framework 2.0, ADO.Net, CSS
- Front end :ASP.NET 2.0, VB SCRIPT, HTML
- Database :MS SQLSERVER 2005
- Web Browser :Mozilla Firefox 3.6.3
- Web Server :ASP.NET Development Server,  
Internet Information Server

## **3.3 SOFTWARE OVERVIEW**

### **ASP.NET OVERVIEW**

ASP.NET is a unified Web development model that includes the services necessary for you to build enterprise-class Web applications with a minimum of coding. ASP.NET is part of the .NET Framework, and when coding ASP.NET applications you have access to classes in the .NET Framework. You can code your applications in any language compatible with the common language runtime (CLR), including Microsoft Visual Basic, C#, JScript .NET, and J#. These languages enable you to develop ASP.NET applications that benefit from the common language runtime, type safety, inheritance, and so on.

ASP.NET includes:

- A page and controls framework
- The ASP.NET compiler
- Security infrastructure
- Application configuration
- Debugging support
- An extensible designer environment

### **PAGE AND CONTROLS FRAMEWORK:**

The ASP.NET page and controls framework is a programming framework that runs on a Web server to dynamically produce and render ASP.NET Web pages. ASP.NET Web pages can be requested from any browser or client device, and ASP.NET renders markup (such as HTML) to the requesting browser. As a rule, you can use the same page for multiple browsers, because ASP.NET renders the appropriate markup for the browser making the request. However, you can design your ASP.NET Web page to target a specific browser, such as Microsoft Internet Explorer 6, and take advantage of the features of that browser. ASP.NET supports

mobile controls for Web-enabled devices such as cellular phones, handheld computers, and personal digital assistants (PDAs).

ASP.NET Web pages are completely object-oriented. Within ASP.NET Web pages you can work with HTML elements using properties, methods, and events. The ASP.NET page framework removes the implementation details of the separation of client and server inherent in Web-based applications by presenting a unified model for responding to client events in code that runs at the server. The framework also automatically maintains the state of a page and the controls on that page during the page processing life cycle.

### **ASP.NET COMPILER:**

All ASP.NET code is compiled, which enables strong typing, performance optimizations, and early binding, among other benefits. Once the code has been compiled, the common language runtime further compiles ASP.NET code to native code, providing improved performance. ASP.NET includes a compiler that will compile all your application components including pages and controls into an assembly that the ASP.NET hosting environment can then use to service user requests.

### **SECURITY INFRASTRUCTURE:**

In addition to the security features of .NET, ASP.NET provides an advanced security infrastructure for authenticating and authorizing user access as well as performing other security-related tasks. You can authenticate users using Windows authentication supplied by IIS, or you can manage authentication using your own user database using ASP.NET forms authentication and ASP.NET membership. Additionally, you can manage the authorization to the capabilities and information of your Web application using Windows groups or your own custom role database using ASP.NET roles. You can easily remove, add to, or replace these schemes depending upon the needs of your application

**ASP.NET CONFIGURATION:**

ASP.NET applications use a configuration system that enables you to define configuration settings for your Web server, for a Web site, or for individual applications. You can make configuration settings at the time your ASP.NET applications are deployed and can add or revise configuration settings at any time with minimal impact on operational Web applications and servers. ASP.NET configuration settings are stored in XML-based files. Because these XML files are ASCII text files, it is simple to make configuration changes to your Web applications. You can extend the configuration scheme to suit your requirements.

**DEBUGGING SUPPORT:**

ASP.NET takes advantage of the run-time debugging infrastructure to provide cross-language and cross-computer debugging support. You can debug both managed and unmanaged objects, as well as all languages supported by the common language runtime and script languages. In addition, the ASP.NET page framework provides a trace mode that enables you to insert instrumentation messages into your ASP.NET Web pages.

**EXTENSIBLE DESIGNER ENVIRONMENT:**

ASP.NET includes enhanced support for creating designers for Web server controls for use with a visual design tool such as Visual Studio. Designers enable you to build a design-time user interface for a control, so that developers can configure your control's properties and content in the visual design tool.

## **INTRODUCTION TO SQL:**

SQL was invented and developed by IBM in early 1970's. SQL stands for Structured Query Language. In order to communicate with the databases,

SQL supports the following categories of commands:-

- Data Definition Language -create, alter, and drop commands.
- Data Manipulation Language -insert, select, delete and update commands.
- Transaction Control Language -commit, save point and rollback commands.
- Data Control Language -grant and revoke commands.

### **The following are the advantages of SQL:**

- Non-procedural language, because more than one record can be accessed rather than one record at a time.
- It is the common language for all relational databases. In other words it is portable and requires very few modifications so that it can work on other databases.
- Very simple commands for querying, inserting, deleting and modifying data and objects.

*CHAPTER IV*

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*SYSTEM DESIGN*

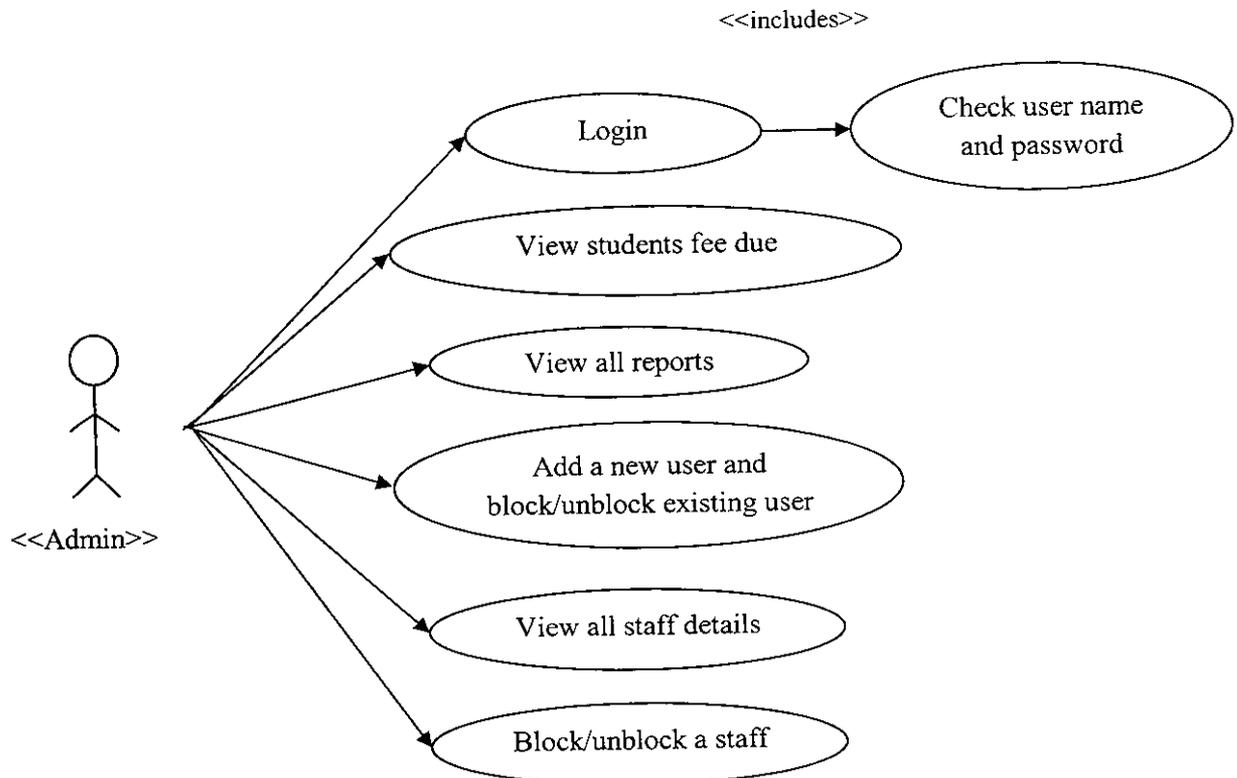
## CHAPTER 4

### SYSTEM DESIGN

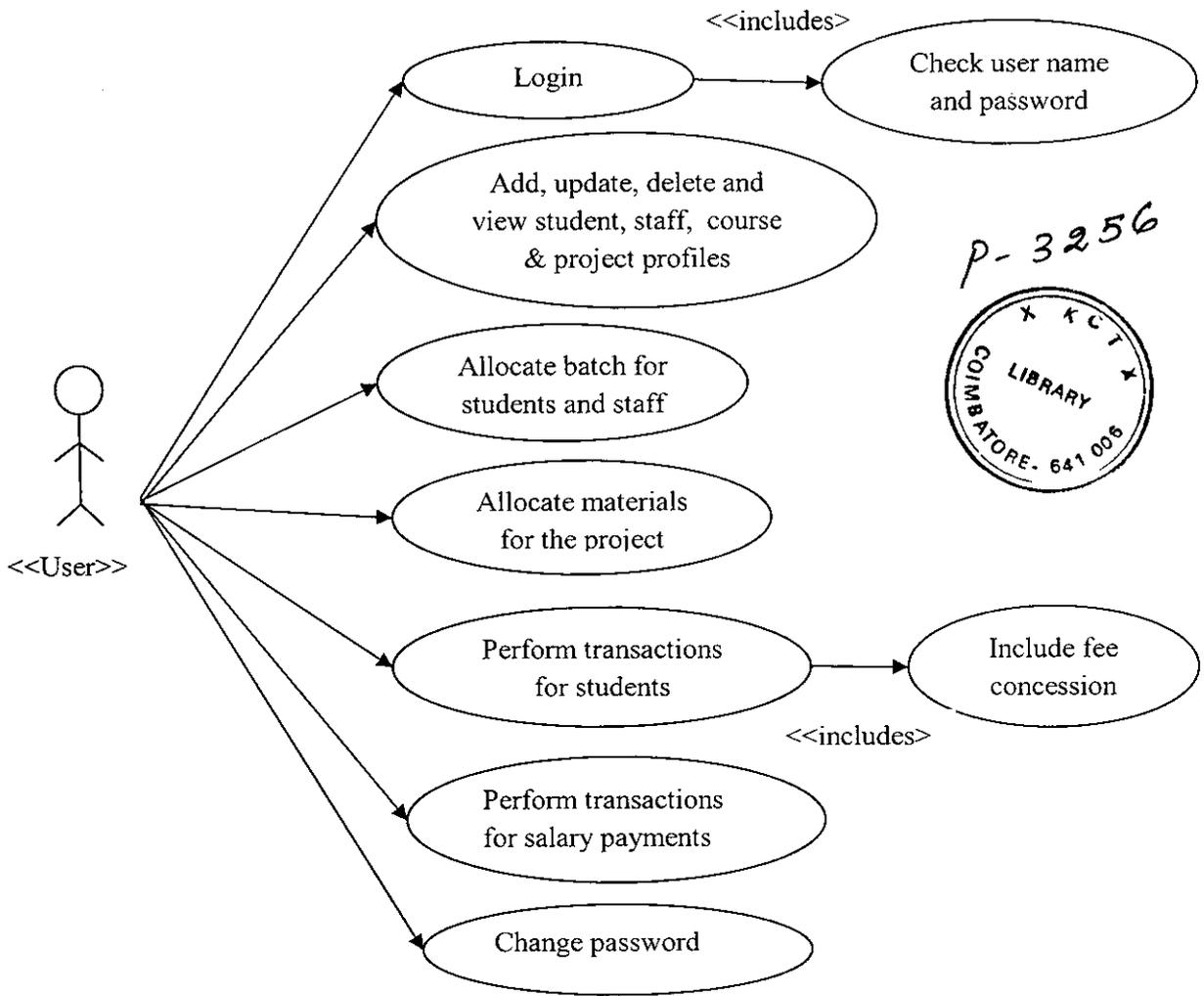
#### 4.1. USE-CASE DIAGRAMS

A use case diagram in the Unified Modeling Language (UML) is a type of behavioural diagram defined by and created from a Use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases. The main purpose of a use case diagram is to show what system functions are performed for which actor. Roles of the actors in the system can be depicted.

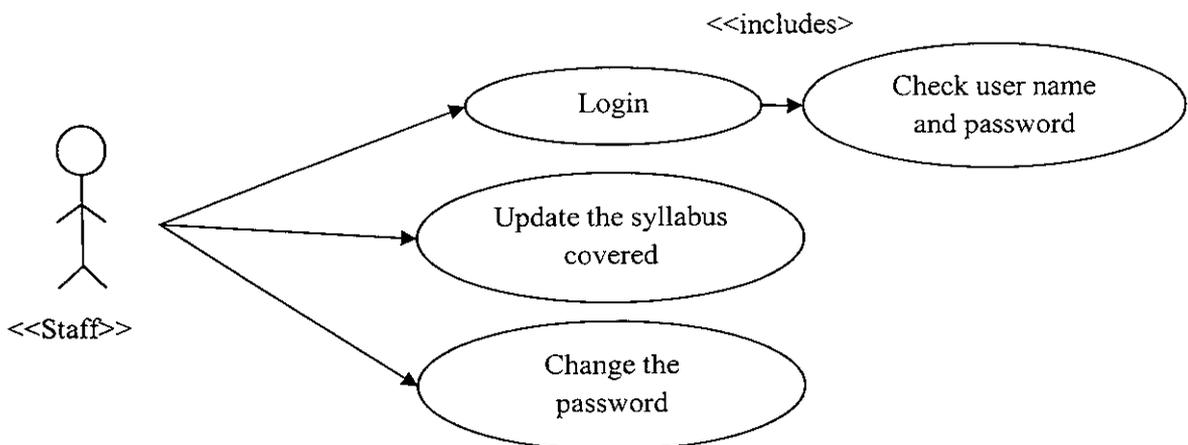
**Fig 4.1(a): Administrator Use Case Diagram:**



**Fig 4.1(b): User Use Case Diagram:**



**Fig 4.1(c): Staff Use case Diagram**



## 4.2 ELEMENTS OF DESIGN

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

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

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

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

- ✓ Input Design
- ✓ Output Design
- ✓ Database Design

### 4.2.1 INPUT DESIGN

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

- ↻ Controlling the amount of input required
- ↻ Avoiding delayed responses
- ↻ Keeping process simple
- ↻ Controlling and avoiding errors

## Completeness Check

This checks whether the important fields have been keyed or not. For example if the new password and confirm new password fields that are required for change password page are not been entered by the user then a validation message 'Mandatory fields' is raised and the request is blocked temporarily without sending it to the server. This insists the user to enter value for the mandatory fields.

The following are the WebPages that gets inputs from the user:

- ✓ **Login page**

The login page gets the username, password and type of user and allows or denies the user after validation.

- ✓ **Add user page**

New user is added in this page by the administrator.

- ✓ **Manage staff page**

This page gets staff id as input to view the staff details and block/unblock the staff.

- ✓ **Profile update pages**

These pages get details from the user to add, update and delete the student, staff, course and project profiles.

- ✓ **Batch page**

This page gets the batch details from the user to add, delete or close a batch. It also updates daily batch allocation.

- ✓ **Transaction page**

The student's fee details and staff's salary details are entered as input to perform transactions.

- ✓ **Syllabus update page**

The syllabus completed by the staff is updated in this page.

### 4.2.2 OUTPUT DESIGN

Output generally refers to the results and information that are generated by the system. For many end-users, output is the main reason for developing the system and the basis on which they will evaluate the usefulness of the application. Most end-users will not actually operate the information system or enter data through workstations, but they will use the output from the system. When designing output, system analysis must accomplish the following.

- ☞ Determine what information to present
- ☞ Decide whether to display, print or speak the information and select the output medium
- ☞ Arrange the presentation of information in an acceptable format.
- ☞ Decide how to distribute the output to intended recipients.

The arrangement of information on a display or printed document is termed as layout. Accomplish the general activities listed above will require specific decisions, such as whether to use pre-printed forms when preparing reports and documents, how many lines to plan on a printed page or whether to use graphics and colour.

The output design is specified on layout performs, sheets that describe the location characteristics, and format of the column headings and pagination.

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

The following reports are been generated using report and report viewer components available within .NET framework. All the reports below can be viewed by the admin.

#### ✓ **Student's fee due report**

The admin home page shows the student's fee due report when the admin log on to the system. The fee receipts are displayed in the report.

✓ **Student's profile report**

Admin can view the students profile which includes their personal details like address, phone number etc.,

✓ **Staff profile report**

The staff details like staff id, name and personal details will be displayed in this report.

✓ **Course report**

The course details such as course id, course name, fee, duration and the syllabus are shown in this report.

✓ **Project report**

The admin can view the project details like project id, title, fee and other details with this report.

✓ **Materials report**

The material details allocated for the project are shown in this report. The details like material id, name, description, stock available are stored in this report.

✓ **Batch report**

The batch allocation for the students is generated in this report. The batch id, course id, project and other details are been displayed.

✓ **Transaction report**

The reports for transaction made by the students for their course and project fee are generated in this report page.

✓ **Salary report**

The payments made for staff salary are generated by this report.

### 4.2.3 DATABASE DESIGN

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

**Table 1: Login**

Field Name	Field Type	Width	Description
<u>Username</u>	Varchar	10	User Name
Password	Varchar	10	Password
Status	Varchar	10	Status of the user logged on

**Table 2: Course**

Field Name	Field Type	Width	Description
<u>Courseid</u>	Varchar	10	Course ID
CName	Varchar	25	Course Name
fee	Numeric	10	Course Fees
Duration	Varchar	10	Course Duration
Syllabus	Varchar	1500	syllabus

**Table 3: Project**

Field Name	Field Type	Width	Description
<u>Projectid</u>	Varchar	10	Project ID
Title	Varchar	25	Project title
Fee	Numeric	18	Project Fees
Duration	Varchar	10	Project Duration
Description	Varchar	1500	Project description

**Table 4: Batch**

Field Name	Field Type	Width	Description
<u>Batchid</u>	Varchar	10	Batch ID
id	Varchar	10	Course ID or project ID
limit	Numeric	18	Students limit
Sdate	Date		Start date
Edate	Date		End date
Remaining	Numeric	18	Remaining limit
Status	Varchar	10	Batch status

**Table 5: Batch Allocation**

Field Name	Field Type	Width	Description
<u>Batchid</u>	Varchar	10	Batch ID
<u>CDate</u>	Date/time		Date of the batch
<u>Time</u>	Varchar	10	Time of the batch
Duration	Numeric	10	Duration of the batch

**Table 6: Student master**

Field Name	Field Type	Width	Description
<u>Studentid</u>	Varchar	10	Student ID
SName	Varchar	20	Student name
Address	Varchar	25	Address
Phone	Numeric	12	Phone Number
Mobile	Numeric	10	Mobile number
Degree	Varchar	15	Current Degree Course
College	Varchar	20	College of the student

**Table 7: Student Transaction**

Field Name	Field Type	Width	Description
<u>Studentid</u>	Varchar	10	Student id
<u>Id</u>	Varchar	10	Course id/project id
Batchid	Varchar	10	Batch id
Start date	Date		Date of joining
End date	Date		Date of completion
Extension	Numeric	18	Extension of date
Paidamt	Numeric	18	Amount paid

**Table 8: Staff**

Field Name	Field Type	Width	Description
<u>Staffid</u>	Varchar	10	Staff ID
<u>Password</u>	Varchar	10	Password
Type	Varchar	10	Type of the staff
Sname	Varchar	20	Name of the staff
Qualification	Varchar	25	Qualification
Address	Varchar	25	address
Specialization	Varchar	25	Specialization
Phone	Numeric	10	Phone number
Mobile	Numeric	10	Mobile number
Doj	Date	10	Date of joining
Status	Varchar	10	Status of login

**Table 9: Salary**

Field Name	Field Type	Width	Description
<u>Staffid</u>	Varchar	10	Staff id
<u>Salaryamt</u>	Decimal	10	Final salary amount
<u>Hoursworked</u>	numeric	10	Number of hours handled
<u>SDate</u>	Date		Date of payment

**Table 10: Material**

Field Name	Field Type	Width	Description
<u>MaterialID</u>	Varchar2	10	Material ID
Mname	Varchar2	25	Name of the material
Description	Varchar2	25	Description of the material
Stock	Varchar2	10	Availability of Stock
Costprice	Numeric	18	Cost price of the material
Salesprice	Numeric	18	Sales prise of the stock

**Table 11: Material allocation**

Field Name	Field Type	Width	Description
Projectid	Varchar	10	Project ID
<u>MaterialID</u>	Varchar2	10	Material ID
Materialname	Varchar	10	Material name
Qty	Numeric	18	Quantity issued
Amt	Numeric	18	Amount of material
Issuedate	Date		Date of issue

**Table 12: Transaction**

Field Name	Field Type	Width	Description
<u>Tid</u>	Varchar	10	Transaction ID
Studentid	Varchar	10	Student ID
Id	Varchar	10	Course ID/Project ID
Tdate	Date		Transaction date
Paymode	Varchar	10	Mode of payment
Chequeno	Varchar	10	Cheque number
Bank	Varchar	10	Bank name
Tax	Numeric	18	Tax percentage
Discount	Numeric	18	Discount allowed
amt	Numeric	18	amount

**Table 13: Topics covered**

Field Name	Field Type	Width	Description
Staffid	Varchar	10	Staff id
Id	Varchar	10	Course id/ project id
Batchid	Varchar	10	Batch id
Topics	Varchar	1000	Topics covered
Tdate	Date		Date of completion

#### 4.2.4 MODULAR DESIGN

**Modular design or "modularity in design"** is an approach that subdivides a system into smaller parts (modules) that can be independently created and then used in different systems to drive multiple functionalities. Besides reduction in cost (due to lesser customization, and less learning time), and flexibility in design, modularity offers other benefits such as augmentation (adding new solution by merely plugging in a new module), and exclusion.

This system is also modularized to reduce the complexity of the system. This contains various modules.

- Login module
- Student and staff profile module
- Course and project module
- Batch module
- Transaction module

##### **Login Module:**

This module allows users to enter into the system. The system includes three types of users- administrator, user and staff. The administrator holds the major rights over the system. The administrator can create an user and he ca block/unblock an user. The administrator can view all the reports and manage the staff.

The user can perform various operations like adding, updating and deleting students, course, and project profiles. He can also maintain the batch details and material details allocated for a project. The staff can update the syllabus covered when they log on to their id.

##### **Student and Staff Module:**

The details of the students are maintained by the user and the course or project they undertake are also maintained. The staff details are maintained and the batch allocation for staff is also done. The syllabus covered by the staff will be updated by the staff.

**Course and Project Module:**

The courses offered by the concern are maintained. The student's details and their course allocation are done. The projects allocated for students are maintained. These details are been updated and manipulated.

**Batch Module:**

The batches are allocated for students and staff by the user depending upon the course and project. Batch allocation for each day is been done.

**Transaction Module:**

The student's fees are calculated based on their course and project. The transaction is done by both cash and cheque payment. The bill can also be generated. The salary for staff are calculated based their hours worked.

**Reports Module**

Reports forms the main output of any system. This system too has many reports which will help admin and agent to take many important decisions. This system contains many reports as follows.

- Student's fee due report
- Student's profile report
- Staff profile report
- Course report
- Project report
- Materials report
- Batch report
- Transaction report
- Salary report

## CHAPTER V

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# SYSTEM IMPLEMENTATION AND TESTING

## CHAPTER 5

### SYSTEM IMPLEMENTATION AND TESTING

System implementation is the part of the software engineering life cycle, where the design artifacts are converted to a working application. Coding is done in this stage using a framework and programming language, which would solve the specific problem the best way. Once the design is coded into a working application, it is verified and tested in detail. The tested product is successfully developed and yet to be implemented in the user environment.

#### 5.1 VERIFICATION

**System Verification** is the process of evaluating software to determine whether the products of a given development phase satisfy the conditions imposed at the start of that phase. Verification is ensuring that the product has been built according to the requirements and design specifications- i.e., you built it right.

- In this website, review of interim work steps is done to ensure they are acceptable.
- In data access, it verifies whether the right data is being accessed in terms of the right place and in the right way.
- The forms in this project are verified by giving different inputs to the project and testing the output for the given input.

#### 5.2 SYSTEM VALIDATION

**System Validation** is the process of evaluating software during or at the end of the development process to determine whether it satisfies specified requirements. Validation checks that the product design satisfies or fits the intended usage (high-level checking) — i.e., you built the right product. This is done through dynamic testing and other forms of review. Validation ensures that the product actually meets the user's needs, and that the specifications were correct in the first place.

- In this project, validation is done in all aspects of the user.
- In login, if a wrong user name and password is given by an user then system will not allow the user into the system and it will generate “invalid user” as error message. The type of user should also be selected correctly.
- All the important fields are made as dropdown list so that the user will not make any mistakes while entering the data.
- The forms will accept only valid phone numbers and email address. In case the user enters less or more digits of numbers for phone number, the system will generate error message.

### **5.3 TESTING**

Testing is a critical element of software quality and assurance and represents the ultimate review of specification design and coding. It is a vital activity that has to be enforced in the development of any system. This could be done in parallel during all the phases of system development. The feedback received from these tests can be used for further enhancement of the system under consideration. The main type of test carried out in Enterprise Maintenance Package is Unit Testing and Integration Testing.

#### **5.3.1 Unit Testing**

A series of stand-alone tests are conducted during Unit Testing. Each test examines an individual component that is new or has been modified. A unit test is also called a module test because it tests the individual units of code that comprise the application.

- In Enterprise maintenance package each component i.e. each form is tested individually to verify that the detailed design for unit has been correctly implemented.
- Initially the flow of control and data through that page is checked.

- Each page is tested in unit testing and the pages are made to work fine with the system.
- In a page, each control is further tested in unit testing. The process is done in all the forms of the system.

### **5.3.2 Integration testing**

Integration testing is a logical extension of unit testing. In its simplest form, two units that have already been tested are combined into a component and the interface between them is tested. A component, in this sense, refers to an integrated aggregate of more than one unit.

Many forms in the system have communication between each other. This helps in testing integration testing.

- For ex: In adding a student's profile, after successful update of a student, the detail gets updated in all the other pages instantly wherever the student details are used.
- All the updates made to the forms can be viewed in the report instantly.
- Adding a new staff, course or project will get updated instantly to the other pages of the project.
- Another example is when a material is been added then all the other pages like material allocation gets updated with the new material at an instant and the cost is retrieved automatically.
- Here more than a single process is involved and so it needs integration testing.

### **5.3.3 System Testing**

The system testing is the process of testing the entire system in relation to its functionality. The entire system is been tested with the requirements and the proper functionality of the system is tested. The system is made to work properly with the database and the valid data access is also verified.

- The date entered into the system is checked for its proper update in all other forms where the particular data occurs
- For example when a student detail is been added all the other pages where the student details occurs will also get the update immediately.
- The update is been checked with that form instantly.
- When a transaction is made for students fee or salary for the staff,\ the admin can view the report instantly.
- Similarly any update made to the system is checked for its correctness in all other related page.
- Thus the system is completely tested for its proper functionality.

## CHAPTER VI

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## CONCLUSION

## CHAPTER 6

### CONCLUSION

**Enterprise maintenance package** is developed to help the IT concern by fully automating all its internal processes. Since all the work is done in the system there is very less chance of error or confusion. The administrator is well benefited by the system by getting complete reports of the processes happening in the system. Also he has more privilege by controlling the other user access to the system. All the manual processes are been converted to the automated system so that the user will find it easy to work and to maintain all the records. The system advertises the products, services and the details about the company. Since the batch allocation and fees and salary transactions are done by the system there will not be any redundancy and the time consumption will be very less. The system which has been developed with a powerful tool like ASP.NET will satisfy all needs of the concern.

It is designed to be highly flexible, so that any future modification and requirements can easily be incorporated.

## *CHAPTER VII*

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### *FUTURE ENHANCEMENT*

## CHAPTER 7

### FUTURE ENHANCEMENT

This project has been developed as a Master's project and is constrained by time. There is scope for extending the system as per the need.

- More reports can be generated, if the need arises.
- The advertisements which exist as static page can be modified to dynamic page where the users can access the items and contact the concern through online.
- The attendance maintenance of the students and staff can be automated by the system.
- The students can be allowed to apply for courses through online.
- Staff can be provided with more functionality like finding out their daily schedule and updating new information to the site so that many persons can view it.
- Tests can be conducted for students through online and their result updates can be done in online.
- Many more enhancements can be made to the system since it is very flexible and the environment is an emerging one.

## CHAPTER VIII

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### APPENDIX

## APPENDIX

## SCREEN SHOTS

## Home page:

**VAL Technovations**  
SOLUTION PROVIDER

Home | Products | Services | About Us | Contact Us

**Newsletter**

User Name:

Password:

Administrator  
 User  
 Staff

**Contact Info**

**Welcome**

**Our strengths.....!**

<p><b>Support</b></p>  <p>Are you looking for a best plan for your computer needs? Then you have got it! We offer our customers with first hand support for our delivered software, hardware and embedded systems. We provide support and maintenance with our qualified technicians and a 24x7 support team. We offer best coaching and training for our students on the attend courses.</p>	<p><b>Development</b></p>  <p>Are you a perfectionist regarding your software needs? Then here you are! We develop software based on the exact requirements of our customers' specifications and provide lifetime support and maintenance. We have wide range of hardware parts with various specifications and brands. Regarding our teaching, we provide our students</p>	<p><b>Strategy</b></p>  <p>We plan for your best plan to come true. We always keep expanding and enhancing our product development to go hand in hand with technology advancements. We also plan to provide our customers with round the clock customer service to do what you really expect to do.</p>
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**Highlights**

## Product page:

**VAL Technovations**  
SOLUTION PROVIDER

Home | Products | Services | About Us | Contact Us

**Newsletter**

Administrator  
 User  
 Staff

**Contact Info**

**Products**

Access Control/Time Attendance Systems, Card Reader Systems (See also Smart Card Readers), Control Panels, Controllers, Electronic Counters, Microcontroller Based, Global Positioning Systems (GPS), GSM Gateways, LED Displays, Det-Matrix Lighting Systems, Solar Remote Control Systems, RFID Products, Robots Kits And Accessories, Smart Card Readers (See also Card Reader.), Solar Lamps, Solar LED Lamps, Timers, Electronic Gate Switches, Timers, Industrial Timers, Microcontroller Based, Vehicle Tracking Systems

**Highlights**

## Course page:

**VAL Technovations**  
AS PART OF THE QUALITY

Home

Newsletter

Contact Info

Highlights

**C Programming**

- Introduction to C
- C Language Fundamentals
- A first practical program
- Conditional and Loops
- Arrays
- Character Strings
- Pointers and references
- Structures and Unions
- File Handling
- Standard Libraries and other headers
- Memory Management
- Secure C Programming
- C Web Programming

**C++ Programming**

- Introduction to C++ Programming
- Fundamentals and Advanced C++ Programming (40)
- Arrays, Strings and Pointers
- Loops, Switch and Decisions
- Objects and Classes in C++
- Extended Classes
- Data Hiding and Abstraction
- Overloading and Overriding
- Constructors and Destructors
- Virtual Functions, Inline Functions, Friend Functions
- Operator Overloading

## Contact page:

**VAL Technovations**  
AS PART OF THE QUALITY

Home

Newsletter

Contact Info

Highlights

**VAL Technovations**

Established: 2004  
Annual Turnover: 10 million  
Employees: 18  
Brand: VAL Technovations, VALU Technologies, V Tec

Address: 545, Muttupalayam Road, North Colchester, Coimbatore- 641002  
Phone: 9427-4370707  
Website: www.vtec.co.in

**More Info:** V TEC is a Technology Company operating in the space of Embedded System, Digital Signal Processing, Working on R&D and Product development. V Tec was established in 2004 in Coimbatore, India. V Tec serves the sectors of Wireless Communication (RF, GSM, GPRS, ZigBEE, Bluetooth) & Embedded System Development (PIC, ARM, ATMEL and other controllers) & Textile Industry & Automobile & Agriculture & Milk Industry Automation & Medical Instrumentation & Home Appliances & Consumer Electronics & Industrial Embedded system custom requirements, bringing design, engineering, production and other capabilities of V Tec to its customers. What we do & R&D and Product development in Embedded systems and Electronics field & Products in Embedded system & Custom Software development in addition to our business in Embedded systems, we provide solutions in Software and Education through our group companies- VAL Technovations and VALU Technologies.

Admin home page:

The screenshot shows the 'Admin home page' for VAL Technovations. The header includes the company name and logo. Below the header, there are navigation links for 'Newsletter' and 'Contact info'. The main content area displays a 'Student Fee Due' receipt for student 'stu2'. The receipt includes the following details:

- STUDENT ID:** stu2
- DATE:** 4/25/2010 1:40:52 AM
- COURSE ID:** C1
- VAT:** 18 %
- DISCOUNT Rs.:** 158

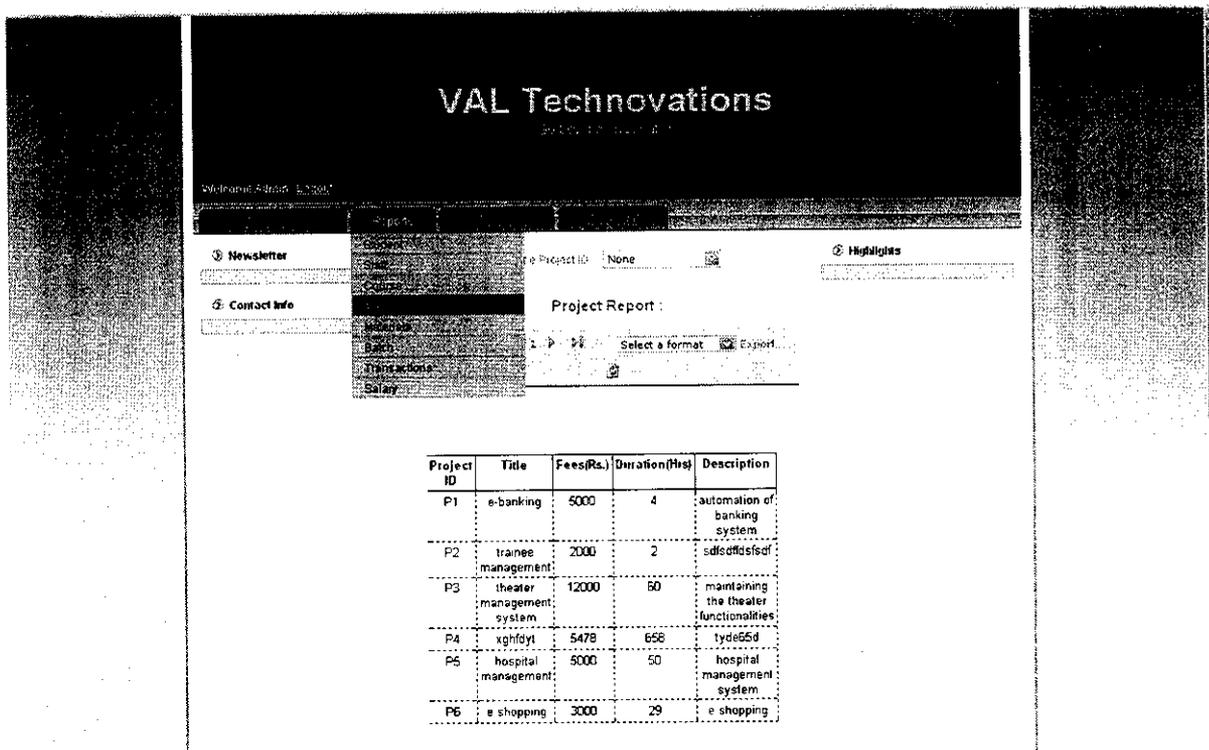
Students report page:

The screenshot shows the 'Students report page' for VAL Technovations. The header is the same as the admin page. Below the header, there are navigation links for 'Newsletter' and 'Contact info'. The main content area displays a table of student details. The table has the following columns: Student ID, Name, Address, Phone Number, Mobile Number, Degree, and College. The data is as follows:

Student ID	Name	Address	Phone Number	Mobile Number	Degree	College
stu1	saranya	coimbatore	2238474	9894048738	mca	kct
stu2	ramya	trichy	2274758	9847382947	mca	psg
stu3	revathy	karakudi	3672929	9826378836	mba	grd
STU4	praveen	coimbatore	2378574	9864537828	BE	kct
STU5	priya	udumalpet	2738476	9783628020	mca	psg
STU6	kavitha	cbn	26354799	9896343678	mba	grd



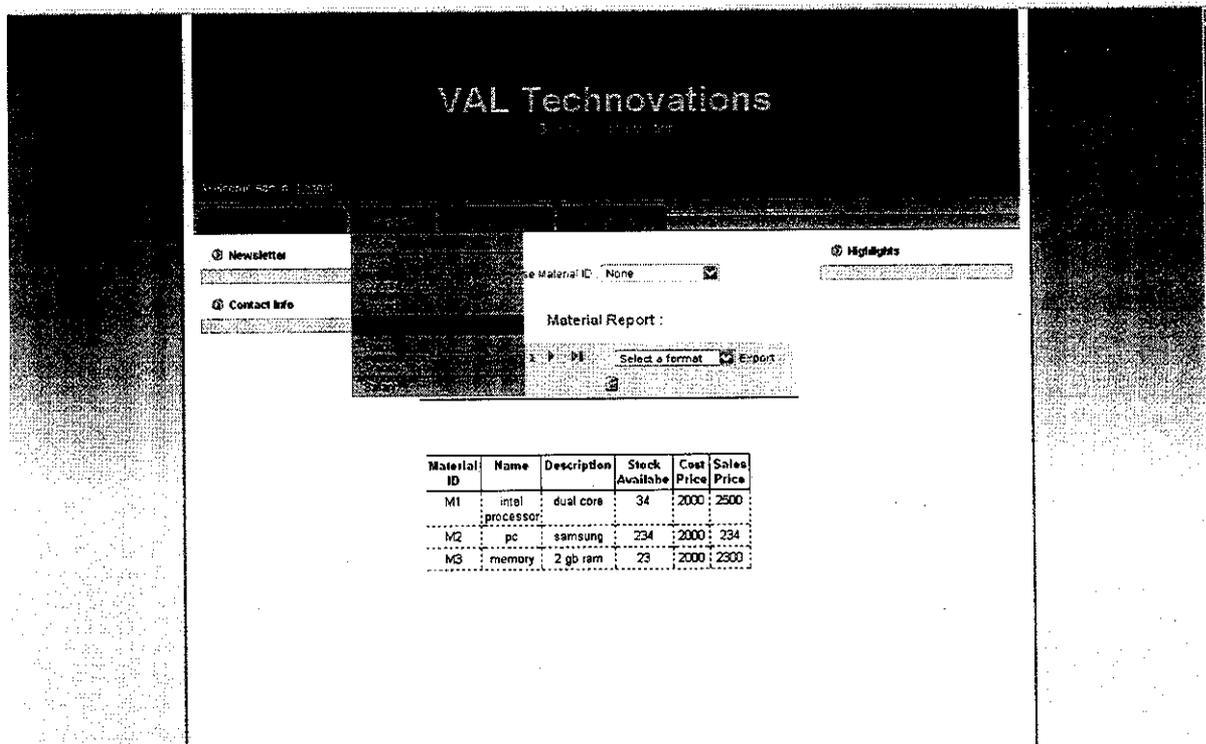
Project report page:



The screenshot shows the 'Project Report' page of the VAL Technovations system. The header includes the company name and a navigation menu with 'Newsletter' and 'Contact Info'. A sidebar on the left lists various system components like 'Project ID', 'Batch', 'Transactions', and 'Salary'. The main content area features a 'Project Report' section with a table of project data and an 'Export' button.

Project ID	Title	Fees(Rs.)	Duration(Hrs)	Description
P1	e-banking	5000	4	automation of banking system
P2	trainee management	2000	2	sdlsdlsd
P3	theater management system	12000	50	maintaining the theater functionalities
P4	xghfdyt	5478	656	tyde65d
P5	hospital management	9000	50	hospital management system
P6	e shopping	3000	29	e shopping

Materials report page:



The screenshot shows the 'Material Report' page of the VAL Technovations system. The header and navigation are consistent with the previous page. The main content area features a 'Material Report' section with a table of material data and an 'Export' button.

Material ID	Name	Description	Stock Available	Cost Price	Sales Price
M1	intel processor	dual core	34	2000	2500
M2	pc	samsung	234	2000	234
M3	memory	2 gb ram	23	2000	2300

Batch report page:

VAL Technovations  
Web Portal 4/25/2010 12:00:00

Student ID: None  
Course ID  
Project ID

Transaction Report  
Select a format Export

Batch ID	Course/Project ID	Batch Size	Start Date	End Date	Remaining Hours
B1	C1	1	4/25/2010 9:20:13 PM	4/25/2010 9:20:13 PM	40
B2	C3	4	4/26/2010 9:20:53 PM	4/26/2010 9:20:53 PM	40
B3	C3	4	4/26/2010 9:23:18 PM	4/26/2010 9:23:18 PM	40

Transaction report page:

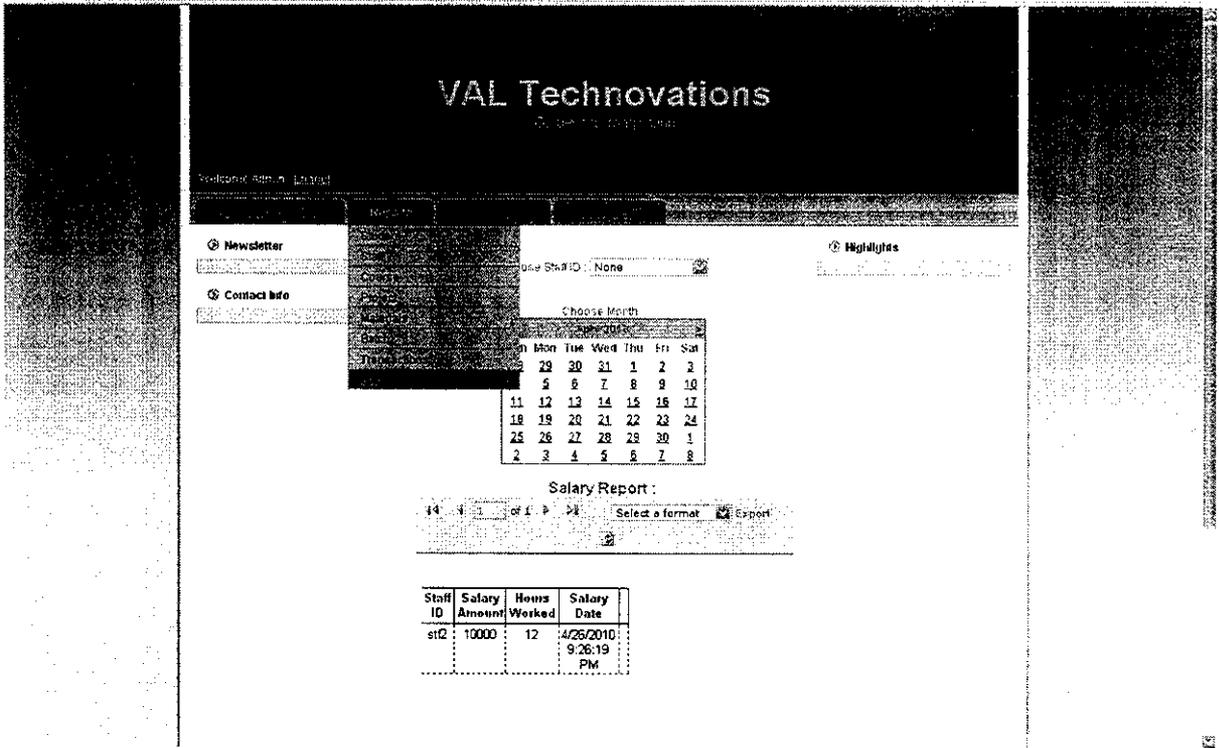
VAL Technovations  
Web Portal 4/25/2010 12:00:00

Student ID: None  
Course ID  
Project ID

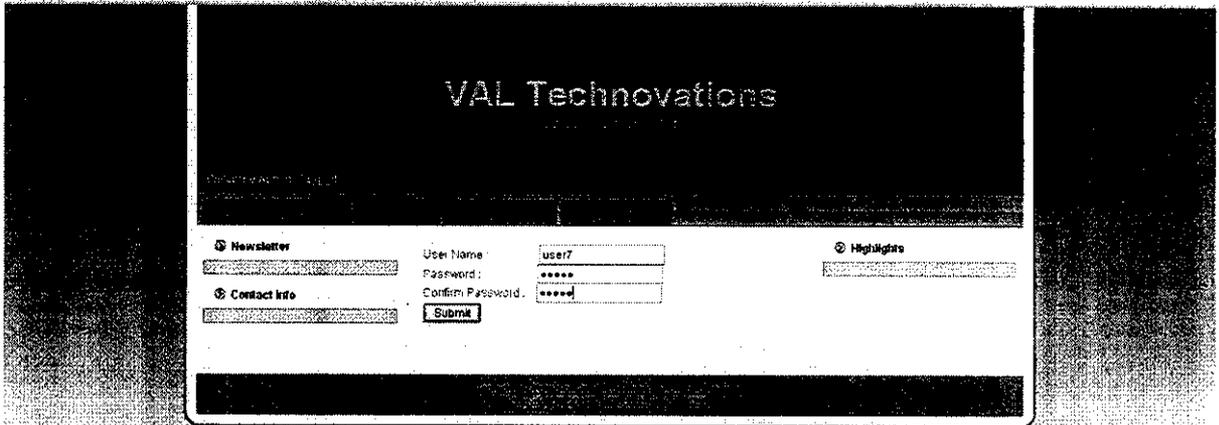
Transaction Report  
14 4/25/2010 of 1 PM Select a format Export

Transaction ID	Student ID	Proj-Course ID	Tran Date	Payment Mode	Cheq NO
T1	stu2	C1	4/25/2010 1:40:52 AM	Cash	987
T2	STU4	C3	4/26/2010 9:25:11 PM	Cash	
T3	STU4	C2	4/27/2010 3:41:34 PM	Cash	

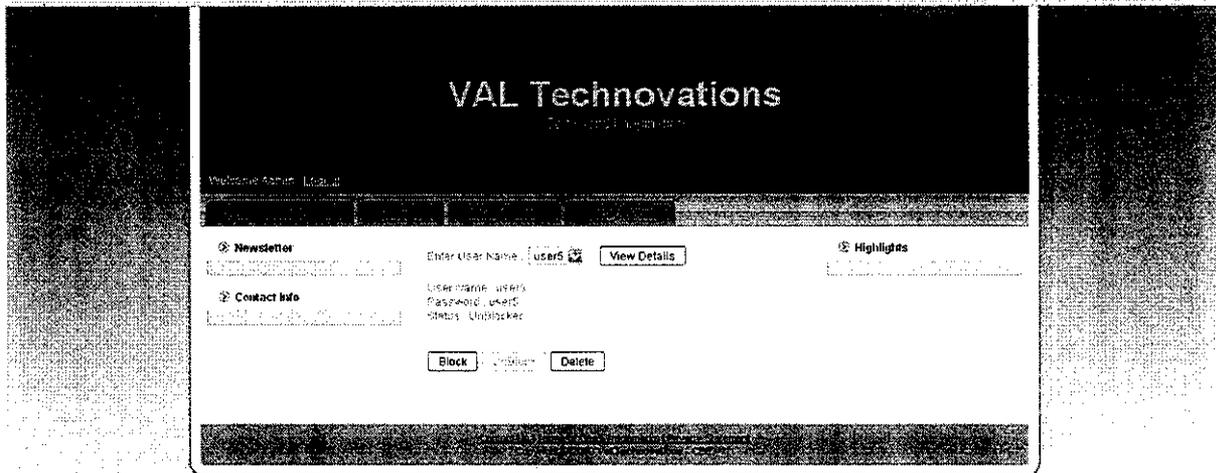
Salary report page:



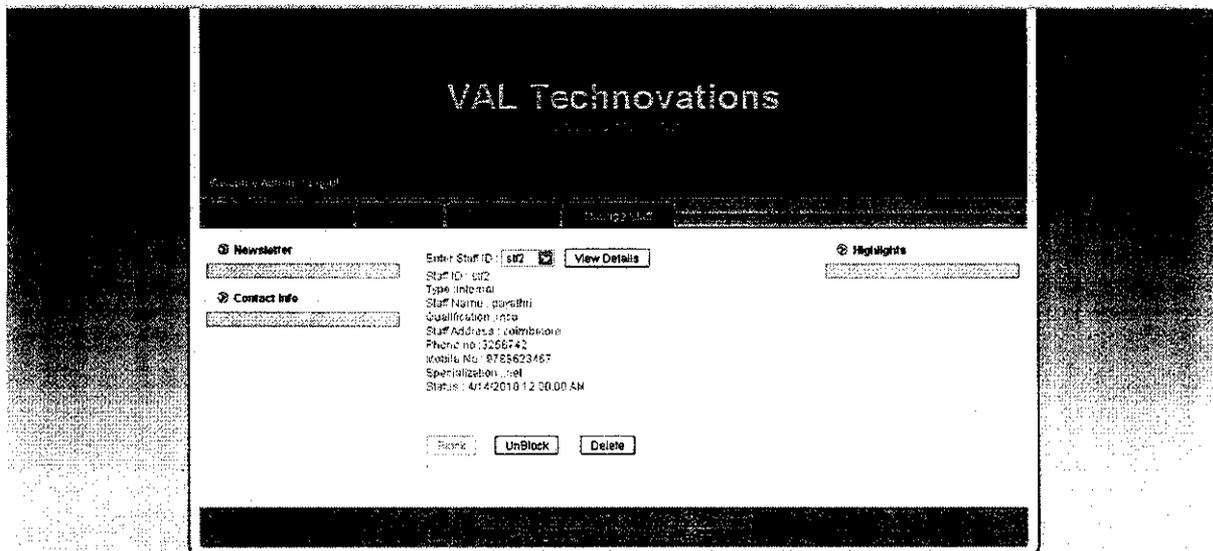
Add user page:



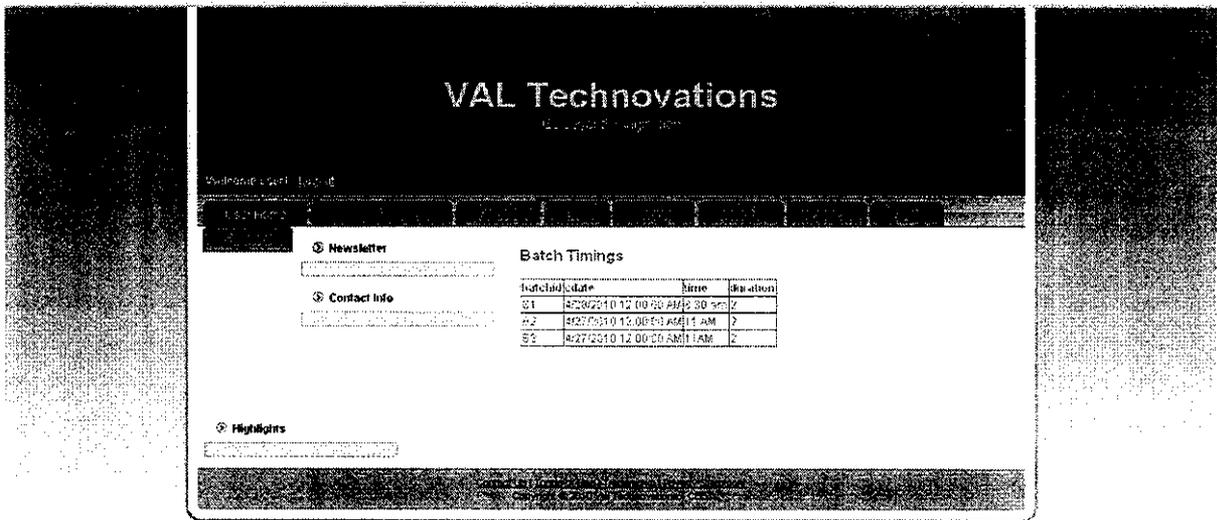
## Block/unblock user:



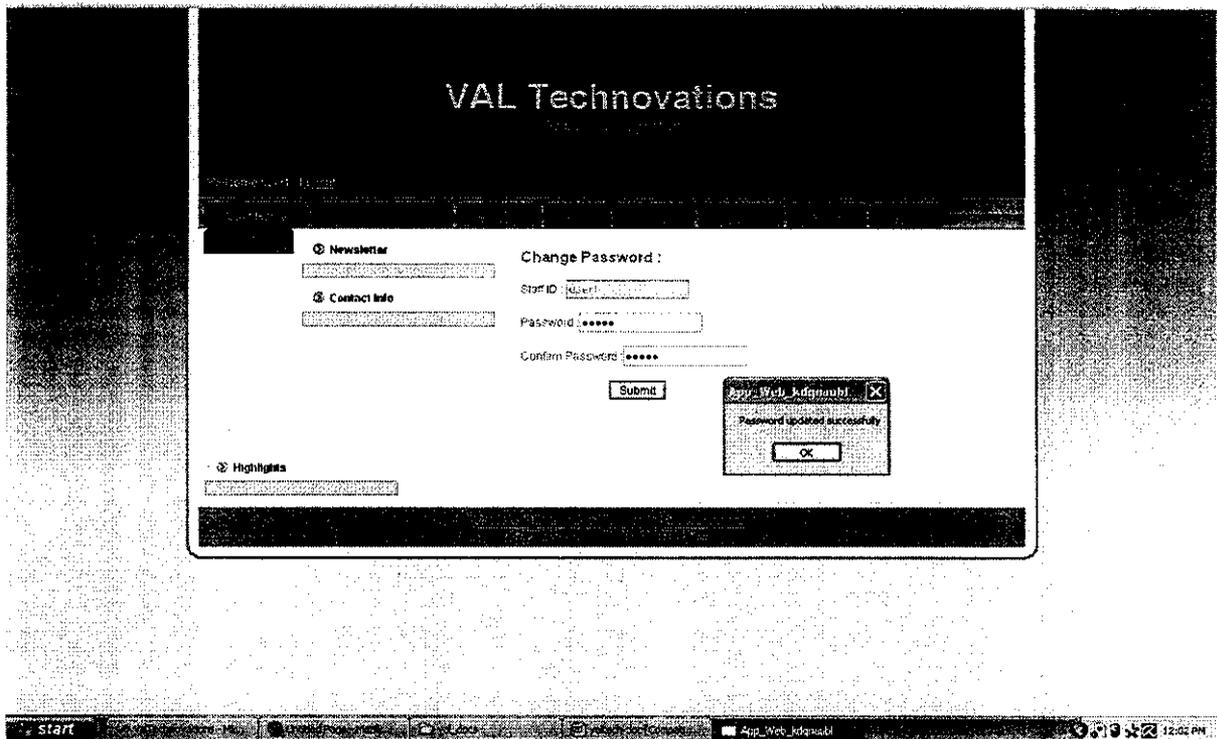
## Manage staff page:



User home page:



Change password page:



## Adding student's profile:

**VAL Technovations**  
Help | Home | About Us

Welcome user! Logout
Home

**Newsletter**

**Contact info**

### Student Details

Student ID	STU7
Student Name	Gowri
Address	cbc
Mobile No.	9863720234
Phone No.	2638490
Director	mca
College	Act
Email ID	gowri@gmail.com

**Highlights**

ADDITIONAL COURSE DETAILS PAGE

## Adding course details page:

**VAL Technovations**  
Help | Home | About Us

Welcome user! Logout
Home

**Newsletter**

**Contact info**

Student ID	STU7
Course ID	C3
Batch ID	B3
Start Date:	

Sun	Mon	Tue	Wed	Thu	Fri	Sat
28	29	30	31	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	1
2	3	4	5	6	7	8

Extension:	0
Fee Amount:	2000

**Highlights**

ADDITIONAL COURSE DETAILS PAGE

**Adding staff details page:**

**VAL Technovations**  
VAL Technovations

Website user: 100002

Newsletter  
 Contact info

**Staff Details**

Staff ID:

Staff Name:

Type:

Qualification:

Address:

Phone no:

Mobile No:

Specialization:

Email ID:

Date of joining

Sun	Mon	Tue	Wed	Thu	Fri	Sat
28	29	30	31	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	1

**Adding course details page:**

**VAL Technovations**  
VAL Technovations

Website user: 100002

Newsletter  
 Contact info

**Course Details**

Course ID:

Course Name:

Syllabus:

Course Duration:  Hours

Course Fees:

**Adding material details:**

VAL Technovations  
2017-2018-2019

Admin user: 1234567

Material Details

Material ID: M4

Material Name: PC

Description: personal system

Stock Available: 20

Material Cost: Rs. 5000

Sales Price: Rs. 5500

Add

**Adding project details page :**

VAL Technovations  
2017-2018-2019

Admin user: 1234567

Material Details

Material ID: M4

Material Name: PC

Description: personal system

Stock Available: 20

Material Cost: Rs. 5000

Sales Price: Rs. 5500

Add

### Allocate materials page:

**VAL Technovations**  
Customer Management

Project ID:

Material ID:

Material Name:

Unit Price:

Quantity:

Total Amount:

**Highlights**

### Batch details page:

**VAL Technovations**  
Customer Management

**Batch Details**

Batch ID:

Batch Type:

Course ID:

Batch Strength:

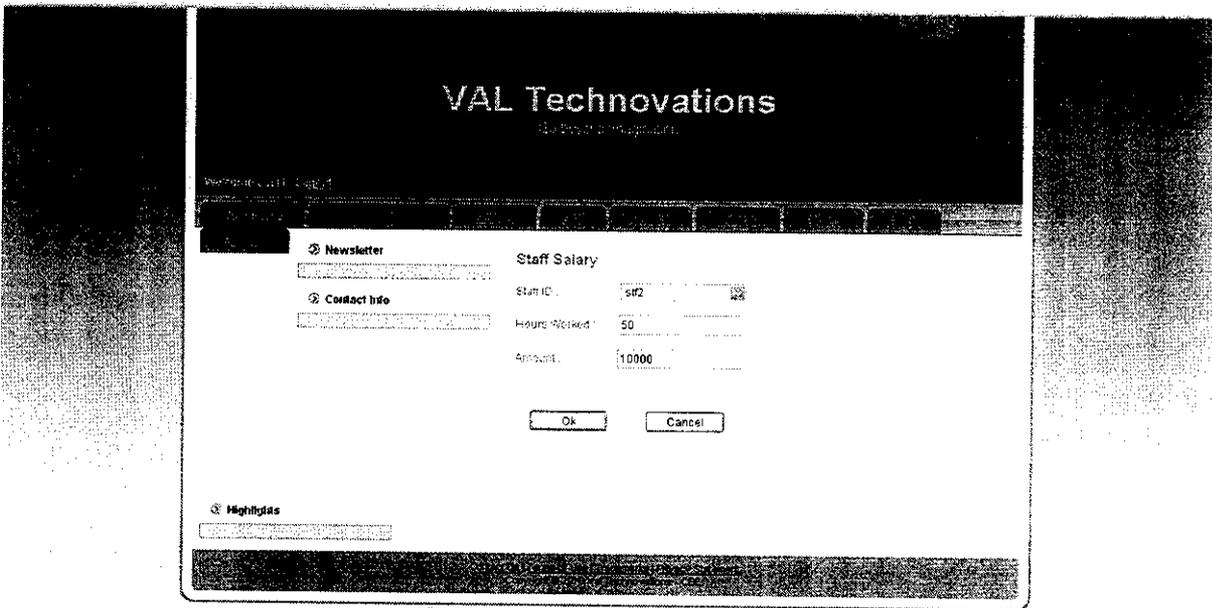
Student ID:

Total Hours:

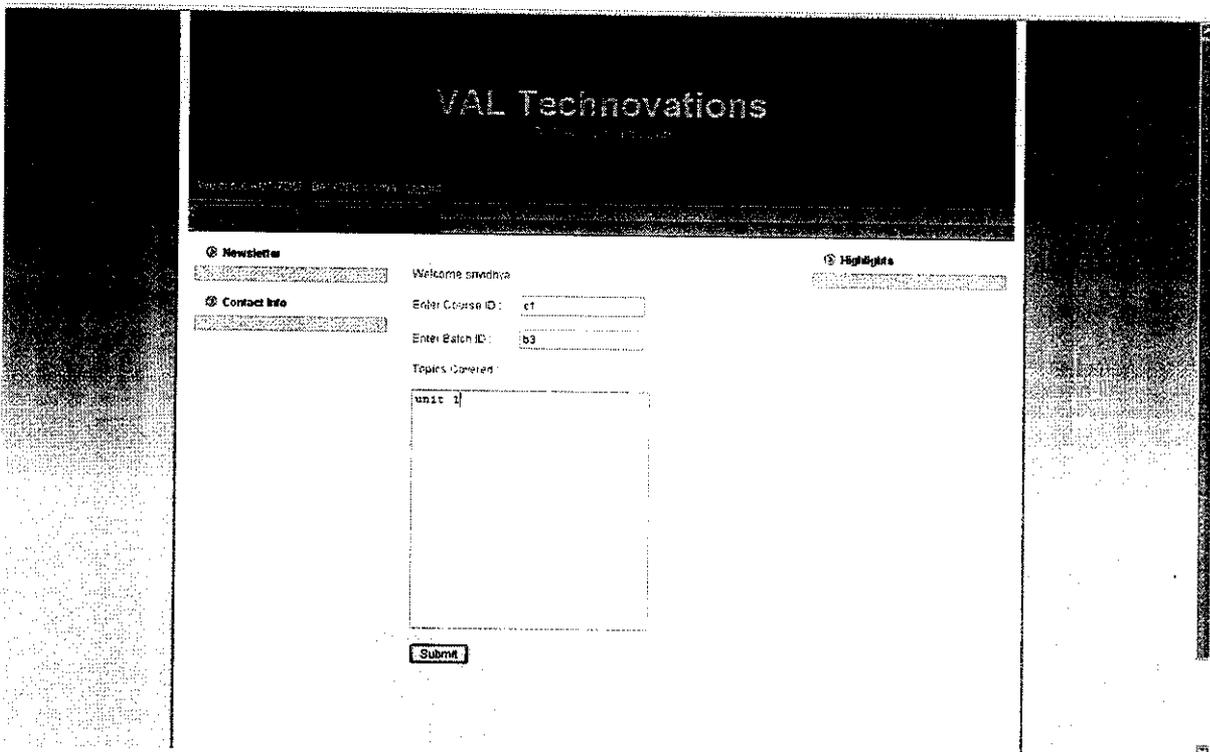
**Highlights**



Salary page:



Staff home page:



**SAMPLE CODING:****Coding for adding student profile:**

```

Partial Class AddStudent
    Inherits System.Web.UI.Page
    Dim con As New Connection
    Public Function generate() As String
        Dim str As String = "STU"
        Dim temp As String = ""
        Dim no As Long

        Try
            con.connect()
            con.cmd.CommandText = "select studentid from studentmaster"
            con.dr = con.cmd.ExecuteReader
            While con.dr.Read
                temp = con.dr(0).ToString
            End While
            con.dr.Close()
            If temp = "" Then
                str += "1"
            Else
                no = CInt(temp.Substring(3))
                no += 1
                str += no.ToString
            End If
            con.disconnect()

            Catch ex As Exception
                MsgBox(ex.Message)

            End Try
            Return str

        End Function

    Protected Sub Button1_Click(ByVal sender As Object, ByVal e As
System.EventArgs) Handles Button1.Click
        Try
            con.connect()
            con.cmd.CommandText = "insert into studentmaster values('" &
txtStudentid.Text & "','" & txtName.Text & "','" & txtAddress.Text & "','"
& Val(txtPhone.Text) & "','" & Val(txtMobile.Text) & "','" & txtDegree.Text
& "','" & txtCollege.Text & "')"
            con.cmd.ExecuteNonQuery()
            con.disconnect()

            Catch ex As Exception
                MsgBox(ex.Message)

            End Try
            Response.Redirect("AddStudent.aspx")
        End Sub

```

```
Protected Sub TextBox2_TextChanged(ByVal sender As Object, ByVal e As  
System.EventArgs) Handles txtName.TextChanged
```

```
End Sub
```

```
Protected Sub Page_Load(ByVal sender As Object, ByVal e As  
System.EventArgs) Handles Me.Load
```

```
txtStudentid.Text = generate()
```

```
End Sub
```

```
End Class
```

CHAPTER IX

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4. [www.wikipedia.com](http://www.wikipedia.com)