A WEB APPLICATION FOR DESIGN AND SIGN SYSTEM USING ASP.NET

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The Supervisory Committee certifies that this ***disquisition*** complies with North Dakota State University's regulations and meets the accepted standards for the degree of

MASTER OF SCIENCE

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ABSTRACT

Design and Sign System is a web application which aims to improvise the user interface, work management along with existing database of a legacy application that allows administration team to maintain day-to-day activities of graphic services. Proposed solution is implemented using ASP.Net as front end and SQL Server for data management. The entire project is categorized into four modules.

Project Module allow team to create new/ modify existing project(s) with required information. Resource Module provides the information on resources availability. Designer Module has the ability to create, modify and delete designers. Reports Module provides the ability to track down the reports such as capacity and resource utilization.

In closure, project goal is to provide the team of graphic services with a better user friendly interface and navigations allowing them to maintain and carry out their day-to-day activities in an easiest way without much effort.

ACKNOWLEDGEMENTS

The successful completion of any task would be incomplete without mentioning the people who made it possible, with continuous guidance and encouragement crowns all the efforts with success.

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.

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LIST OF ABBREVIATIONS

OS	Operating System
UI	User Interface
SRS	Software Requirement Specification
HTML	Hyper Text Markup Language
CSS	Cascading Style Sheet
JS	Java Script
UML	Unified Modeling Language
ANSI	American National Standards Institute
SQL	Structured Query Language

CHAPTER 1. INTRODUCTION

Design and Sign System, is a web application, that is developed for the Graphics & Services Department to maintain the day to day activities, used to track resources and projects ordered.

Graphics & Services provides the poster print services as per the customer needs. The legacy application that is currently being used by the department is not easy to maintain and project data is captured with necessary and unnecessary fields on the screen and very difficult to track the resources that are available and used from the inventory management system. The legacy application is developed in Classic ASP and data is stored in MS Access.

The Design and Sign System is a proposed application, that is usually tied up with a relational database to manage the data captured via user interface. Front end of the application is developed using ASP.NET Web Forms. The entire functionality of the system is analyzed and divided into modules and each of them is integrated with a unified interface. The modules in the project are classified as follows:

Project – Creating the projects that are ordered by the customer as unique project, which captures all the necessary information needed to print the poster as requested.

Resource – The resources that are managed in the inventory can be captured using the resource screen and can track the list of available vs used, that helps the store recorder to order the resources when needed.

Designer – Has the ability to add or modify or delete the users of the system and can assign roles to access the system.

Reports – Tracks the resources availability vs resources used from the inventory management system.

This chapter gives an overview about the aim, objectives, background and operation environment of the system.

1.1. Project Aims & Objectives

The project aims and objectives will be accomplished after completion of this project is discussed in below subchapters:

- UI re-design with user friendly interface and easy navigations
- Upgrade Database from MS Access to SQL Server 2014
- Create easy and better UI Navigation for end users
- Project Module
- Designer Module
- Resources Module
- Reports Module – Generate reports to track down the work progress

1.2. Background of Project

Design and Sign is a web application which refers to graphic services work management. It is used by the graphic services team to manage the projects received from students using a computerized system where he/ she can record various project related information like create, modify projects, resources and designers.

Project Module helps the administrator to collect the information about the project from the student which would allow them track/ assign the number of projects using the application along with providing detailed description about projects. With the help of Design and Sign application, it is easy to track the status of various projects at any given instinct.

Design Module allows users to add the new designers and has the ability to assign the designer a role such as User, Guest and Administrator and allow them to access the system. In other words, the system has restricted the designer to access the system based on roles. For example, Admin designer such as Manager, Primary Admin has access to all the screens in the system.

Resource Module tracks down the inventory availability information such as quantity, cost and so on. In addition, report module is also included in Design and Sign System. If end user of the system is admin/ manager, the user is able to generate different kinds of reports like lists of productivity reports, capacity and resource utilization reports.

All these modules help the end-users of the system to manage system with more efficient and accessible way as compared to the legacy application.

1.3. Operation Environment

Table 1. Operation Environment for the Design and Sign System

PROCESSOR	Intel Core Processor
OPERATING SYSTEM	WINDOWS7 Or Higher
MEMORY	1GB RAM Or More
HARD DISK SPACE	Minimum 30 GB for Database Usage for future
DATABASE	SQL Server 2014
TECHNICAL SKILLS	JavaScript, CSS, HTML, ASP.NET
IDE	Visual Studio 2013
WEB SERVER	IIS 7.0

CHAPTER 2. SYSTEM ANALYSIS

In this chapter, we will discuss and analyze the development process of Design and Sign System including software requirement specification (SRS) and comparison between legacy and proposed system. The functional and non-functional requirements are included in SRS that provides complete description and overview of system requirement before the development is carried out. Besides that, legacy vs proposed provides a view of how the proposed system will be more efficient than the legacy one.

2.1. Software Requirement Specification

2.1.1. General Description

Design and Sign System is a web application system which helps end-user to manage the department daily activity in electronic format that diminishes some of the risks such as improvement in the screen with necessary fields, enhanced UI and screen navigation. It can help end user accessing the system to manage the graphic projects more effectively and time-saving.

2.1.2. Problem Statement

Below is the list of problems with legacy application: The application is developed using classic ASP using MS Access which is very poor in design and performance. The legacy application is not easily manageable to maintain day-to-day activities of the project.

Difficult to track project status – When there is no proper data capture and validation of the system, there exists a difficulty in searching for records, if the graphic projects are large in number(s).

Unused fields – Unused fields in the screens consumes more space and ambiguity for the end user to provide the input in fields listed on form.

Poor Performance – Access to data access for various projects is slow and the UI design is poor which create more complexity to end-user.

Cost consuming – Due to poor performance, sometimes the work is managed using paper which will increase the cost as well as re-work to input the information in design and sign system.

2.1.3. System Objectives

Improvement in UI and performance - The system is established to handle with the current issues and problems of design and sign system. The system has the ability to add project, resource, designers and user inputs are validated at any given scenario.

Save cost – With the proposed system, the data is maintained in a centralized database to access the project status.

Save time – End user of the system is able to search/ edit project by using few clicks of mouse and few search options within stipulated time.

Reports – Admin users able to track and manage the work.

2.1.4. Non Functional Requirements

Efficiency Requirement - When a design and sign system will be implemented the end user will easily access the projects such as searching, designer's management and resource tracking will be become easier.

Reliability Requirement - The system should accurately perform creation, modification, deletion of a project, input validation, report generation, cost calculation and project status.

Usability Requirement - The system is designed in a user friendly environment, so staff of graphics department can perform various tasks easily.

Implementation Requirements – On Implementation, the entire system uses ASP.Net, HTML, CSS, JavaScript in front end and the backend is maintained using SQL Server.

2.1.5. Functional Requirements

2.1.5.1 Login

The login screen allows the user to login into system. It is required to enter userid and password before the user(s) is allowed to enter the system. The userid and password credentials are validated against the database and access is provided to system assuming credentials are valid. Otherwise invalid credentials do not provide system access to the user.

2.1.5.2. Add Project

This screen allows the user to add the projects in system.

- System must be able to validate the user inputs for corresponding fields
- Mandatory fields like Project type, project description are provided to create a project
- System must be able to allow resource addition while creating a project
- Duplicate order feature allows the project to create with existing information with unique id.

2.1.5.3. All Projects

This screen lists all the projects that are added to the system.

- Display all the projects that are entered in the system.
- Display the list of columns such as Project ID, Project, Customer Name, Assigned To, Status, and Next Due Date of the project information.

2.1.5.4. Add Designer

This screen allows user to add designers to the system. Designers are the users who interact with the system such as users, guests and administrator.

- System must be able to validate the user inputs for the corresponding fields
- Access level of the user is assigned while adding the new user to the system by the administrator.

2.1.5.5. All Designers

This screens display all the designers irrespective of their roles assigned in the system.

- System must be able to allow the administrator to change the access level
- Edit feature allows the administrator to change the role of the designer
- Delete feature allows the administrator to delete the designer from the system

2.1.5.6. Add Resource

This screen allows user to track down the inventory management by department that are being used as resources to develop the project.

- System must be able to add new resources to the system such as Resource Name, Cost, and Quantity so on.
- System must be able to validate the user inputs for corresponding fields

2.1.5.7. All Resources

This screen displays all resources with required information in the system.

- System must be able to allow the administrator to perform edit/delete action
- Edit feature allows administrator to modify the resource related information
- Delete feature allows administrator to delete the resource from the system

2.1.5.8. Reports

This screen displays the list of reports that are helpful to track down the work progress by administrator or manager. System must allow access to reports to the end users of the system such as administrator or manager but not for others

Resource Availability Report - Displays the resources in a graphical bar representation i.e. availability vs resources used from the resources table using sql query.

Capacity Utilization Report - Display the work capacity of designers in a graphical bar representation on projects assigned vs project completed from the project table using sql query.

2.1.6. Software Requirements

Development tools and Programming language- ASP.Net is used to develop the web forms using C# code and HTML CSS Style Sheets. Java Script is used for input validation.

Operating System - Windows 7 is used as operating system as it is firm and provisions more features along with user friendly

Database SQL Server - SQL Server 2014 is used as database as it easy to maintain and retrieve records by simple queries, stored procedures, functions which are flexible to write and understand.

2.1.7. Hardware Requirements

Intel core i5 is used as a processor as it is fast, reliable and stable to run PC for longtime. RAM 1 GB is used as it will provide fast writing and reading abilities and in turn support in processing the applications faster.

2.2. Legacy vs Proposed

Table 2. Comparison of Legacy System vs Proposed System

Legacy System	**Proposed System**
Developed in Classic ASP using MS Access as database	Developed in ASP.Net Web Application using SQL Server 2014
UI Design of the screens are poor	Improved UI design and Navigation of screens in the system
Interaction with the screens in the system are ambiguous due to unused fields	Unused fields are removed on screens, which makes easy interaction with the system
Doesn't not have an organized content in the application.	Organized content on screens with necessary information and divided the entire work into four modules
Doesn't have a proper structure to track down the inventory management in the department	Resource module with add/edit/delete actions are provided to track down the inventory
Unable to track down the work and monitor due to partial data	Data is centralized and able to track down the work progress by using Reports module

2.3. Software Tools Used

The entire project is divided in two parts the front end and the back end. The front end is designed using of HTML, ASP.NET, CSS, Java script. The back end is designed using SQL Server which is used to design the databases

2.3.1. Front End

HTML or **Hyper Text Markup Language** is the main markup language for creating web pages and additional information also displayed in a web browser that is embedded in ASP.NET Pages. The Master pages are designed using HTML and are written using the *tags* enclosed in angle brackets (like <html>), within the asp.net page content. The headings, images display and the alignment of menu with box like structure on left hand side of the menu are designed using HTML tags like <img></img>, <h1></h1>, <block></block>. The first tag in a pair is the *start tag*, and the second tag is the *end tag. The text can be added between the tags to display as required.* The web browser read HTML documents and interpret the tags and displays only the text written between the tags. Using HTML elements, we have designed a blocks for the module on left side of the menu. We have inserted the images and objects using HTML to create user friendly forms and organized the web content in a way that the page has headings, paragraphs, lists, links, quotes and other items. HTML can also embed the scripts written in languages such as JavaScript to validate the controls of web pages.

CSS- Cascading Style Sheets is a style sheet language that enhances the User Interface and formatting of a document written in a markup language. It is primarily focused on document content presentation in a web page such as the page layout, background, themes, colors, and fonts. This provide more flexibility, ease of identification of the content on web page and reusability of format across the website with consistent look, and reduce re-work on design. We have developed the common styles for heading, bullets, images, layouts and so on and all are documented in a style.css file, which we can link up the style sheet in any asp.net page across the project. For example, the class "Heading-1A" is the style that can be applied for the headings on each and every page. We have defined a custom grid style that suits for our user interface needs.

JavaScript (**JS**) is a dynamic programming language and prototype-based scripting language, that allow client-side as well as server-side scripts to interacting with the end user or system, control the browser, communicate asynchronously, and validate the document content that is displayed. It is a multi-paradigm language, supporting object-oriented and functional programming styles. On the client side, JavaScript was traditionally implemented as to validate the client data before submission of form data to the server, which eventually saves the time and right data is submitted that meets the specification. For example, we have written a validation using java script to check whether the input given by the user must always be a decimal number for the Project Cost and it cannot accept characters in the text box control. Using regular expression, we have validated the text box control to accept only decimals but not any alphabetic or special characters using java script function.

ASP.NET is a is a development framework that is helpful to build web pages and web sites with HTML, CSS, JavaScript and server side scripting. ASP.NET is part of the .NET Framework, and have access to classes in the .NET Framework and can either in visual basic or C#.

The Web Forms framework is very popular and easy to build the web pages and can develop the web application in rapid application development (RAD) environment by the developers. A web application can be easily designed by the developers, without having much expertise in HTML, CSS and JavaScript.

Below are the list of features using Web Forms:

- A rich collection of controls for data access and data display
- Allows customization as per the needs and can modify the properties and styles of controls that display on web page
- An Event model is handled very well for the web form controls on client side as well as server side
- Automatic protection of data between HTTP requests, which makes it easy for a programmer to build the client applications for the stateless web.

Web Forms works well for small teams and our project needs because it has the large number of components available for rapid application development. The components are tightly integrated and usually require less code than ASP.NET MVC applications. Therefore, Web Forms is not subjected to rapid application development but many complex commercial apps and app frameworks are built using Web Forms.

2.3.2. Back End

SQL Server is a Microsoft product that is used to manage and store information. It is also called as Relational Database Management System. SQL stands for Structured Query Language. According to ANSI (American National Standards Institute), it is the standard language for relational database management systems. A Database is a logical object that has a collective organized information that can be easily accessed, managed and updated. The data is stored in the form of rows and columns called Tables.

SQL statements are used to perform tasks such as update data on a database, or retrieve data from a database. The standard SQL commands such as "Select", "Insert", "Update", "Delete", "Create", and "Drop" are used to query against the database.

SQL Server 2014 is a powerful and reliable free data management system which delivers a rich and reliable data store for lightweight web sites and desktop applications.

CHAPTER 3. SYSTEM DESIGN

3.1. Database Design

Below are the tables designed in database to maintain the application information.

3.1.1. Designer Table Design

Table 3. Schema for Designer Table

Field	Data type	Default	Key	Properties
DesignerID	Int	Not Null	Primary Key	Identity(1,1)
UserName	Varchar(300)	Null		
Password	Varchar(100)	Null		
Name	Varchar(400)	Null		
AccessLevel	Varchar(100)	Null		

3.1.2. Resources Table Design

Table 4. Schema for Resources Table

Field	Data type	Default	Key	Properties
MaterialID	Int	Not Null	Primary Key	Identity(1,1)
Name	Varchar(500)	Not Null		
Description	Varchar(700)	Not Null		
Location	Varchar(100)	Null		
Quantity	Int	Null		
Manufacturer	Varchar(500)	Null		
PartNumber	Varchar(100)	Null		
Notes	Varchar(600)	Null		
Cost	Decimal(18,2)	Not Null		
TotalCost	Decimal(18,2)	Not Null		

3.1.3. Project Table Design

Table 5. Schema for Project Table

Field	**Data type**	**Default**	**Key**	**Properties**
ProjectID	Int	Not Null	Primary Key	Identity(1,1)
ProjectName	Varchar(250)	Null		
Name	Varchar(500)	Null		
NAID	Varchar(200)	Null		
SSN	Varchar(200)	Null		
Address1	Varchar(500)	Null		
Address2	Varchar(500)	Null		
Department	Varchar(100)	Null		
DayPhone	Varchar(50)	Null		
Evening Phone	Varchar(50)	Null		
DateTaken	Datetime	Null		
TakenBy	Varchar(100)	Null		
TargetProofDate	Datetime	Null		
Designer	Varchar(100)	Null		
NextDueDate	Datetime	Null		
Status	Varchar(100)	Null		
Notes	Varchar(600)	Null		
PaymentMethod	Varchar(100)	Null		
DatePaid	Datetime	Null		
IDBA Amount	Decimal(18,2)	Null		
ARA Amount	Decimal(18,2)	Null		
DepartmentNumber	Varchar(100)	Null		
FundNumber	Varchar(100)	Null		
ProjectNumber	Varchar(100)	Null		

3.1.4. Used Resources Table

Table 6. Schema for Used Resources Table

Field	**Data type**	**Default**	**Key**	**Properties**
UsedResourceID	Int	Not Null	Primary Key	Identity(1,1)
MaterialID	Int	Null		
ProjectID	Int	Null		
ResourceQuantity	Int	Null		
ResourcePrice	Int	Null		
ResourceName	Varchar(200)	Null		
TotalPrice	Int	Null		

3.2. UML Diagrams

3.2.1. Use Case Diagram for Design and Sign System

The below use case diagram shows a user interaction with the design and sign system that shows the relationship between the user and the different use cases in which the user is involved.

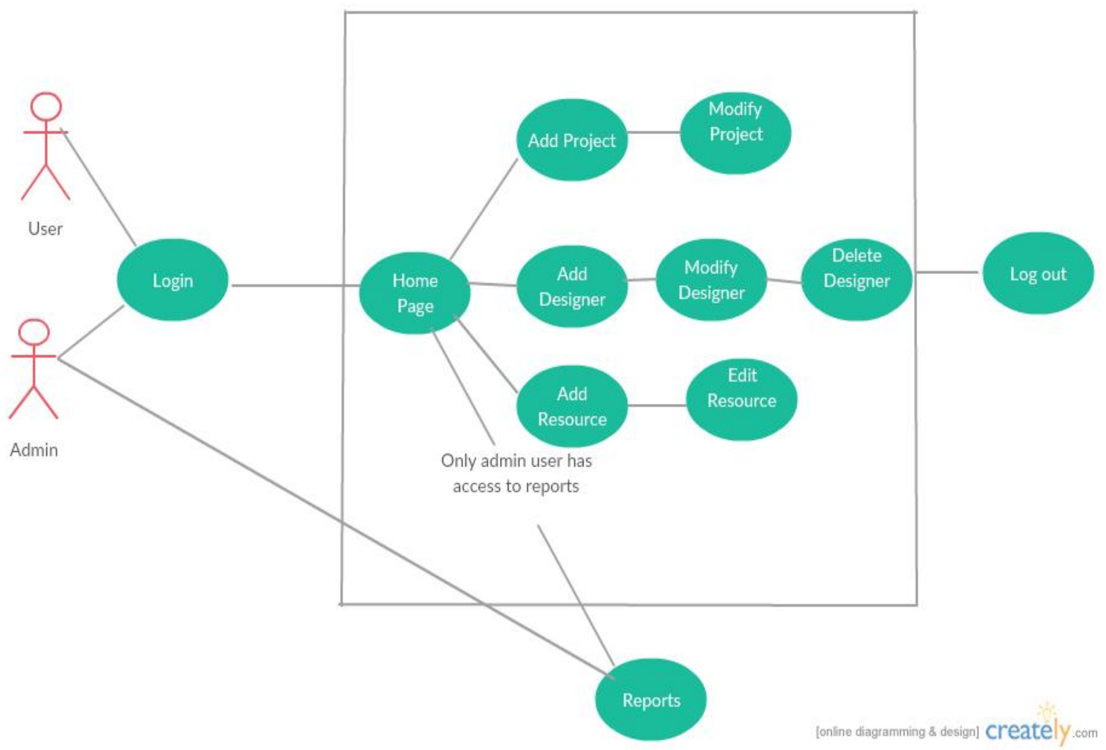


Fig. 1. Use Case Diagram for Design and Sign System

3.2.2. Class Diagram for Design and Sign System

The below class diagram shows the structure of a design and sign system, system's classes their attributes, operations and the relationship among objects.

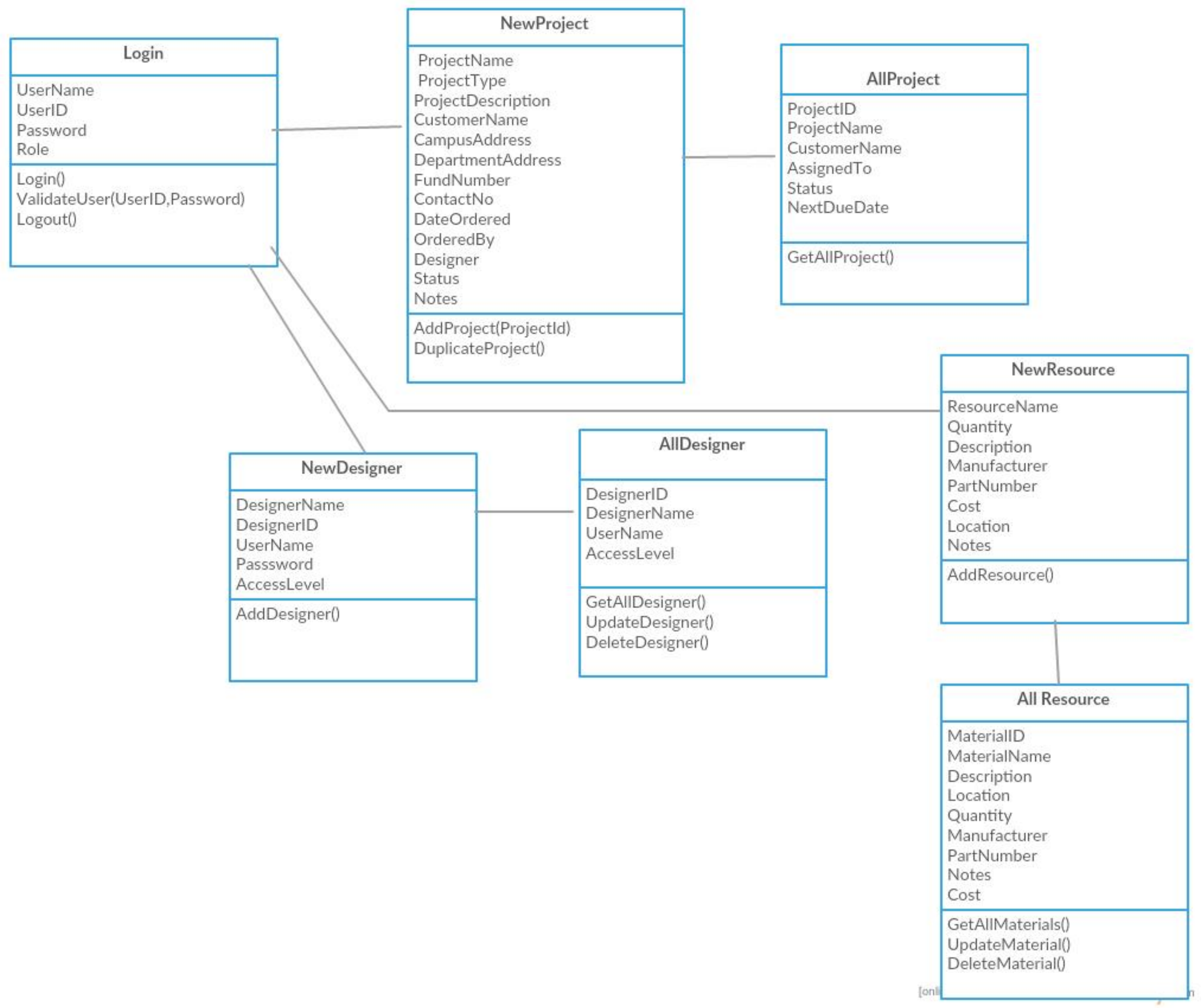
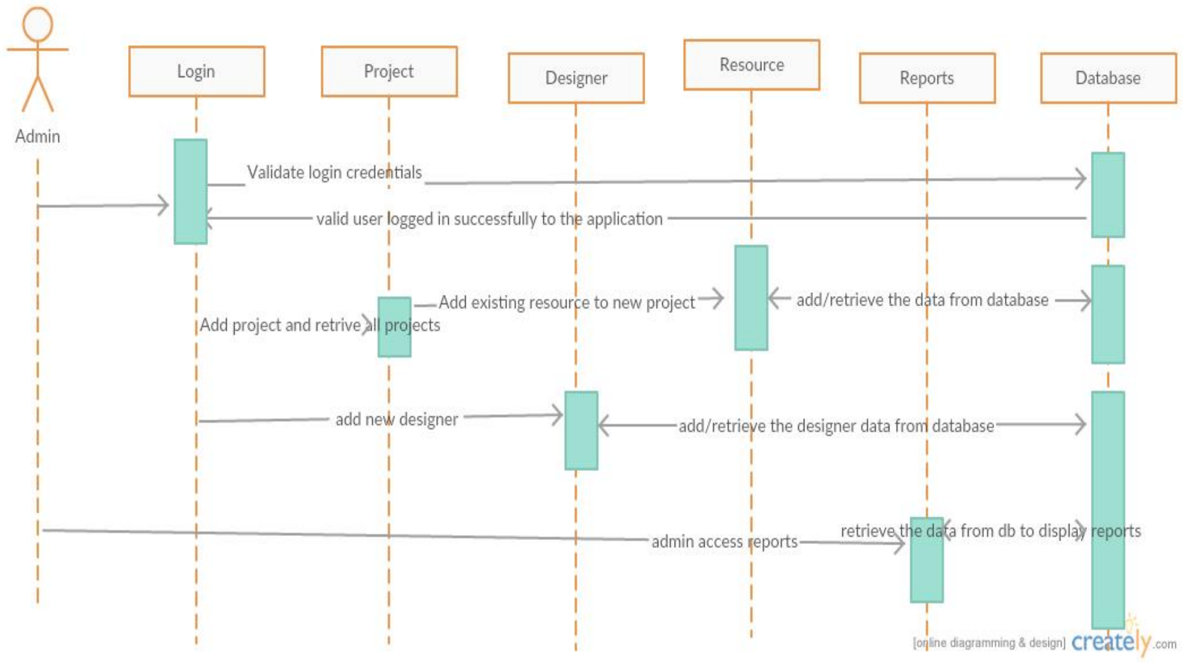


Fig. 2. Class Diagram for Design and Sign System

3.2.3. Sequence Diagram for Design and Sign System

The below sequence diagrams shows the flow of logic with in a design and sign system



Admin
Login
Project
Designer
Resource
Reports
Database
Validate login credentials
valid user logged in successfully to the application
Add existing resource to new project
add/retrieve the data from database
Add project and retrive all projects
add new designer
add/retrieve the designer data from database
admin access reports
retrieve the data from db to display reports
[online diagramming & design] creately.com

Fig. 3. Sequence Diagram for Design and Sign System

CHAPTER 4. SYSTEM IMPLEMENTATION

To achieve the goals and acceptance from a customer, we followed a standard methodology called incremental build model to implement the system. The incremental build model is a method of software development where the application is categorized into modules and a small component of the module functionality is implemented where the functionality is designed, implemented and tested incrementally until the module is finished and satisfies all the requirements. This model combines the elements of the waterfall model with the iterative philosophy of prototyping.

The application work is categorized into modules, each of which is designed and built separately. Each functionality is delivered to the client when it is completed. This allows us to track down the behavior of the functionality that meets the customer expectations or not and avoids the long development time.

The release to customer is referred as “increments”, in each increment we have provided more functionality in the module to the customers. After the first increment, the module is ready for the customer with small functionality implementation.

Based on customer acceptance rate on the functionality tested and feedback was taken from the customer, a plan is developed for the next increments, and changes are made accordingly and communicated to the development team as well as the client to track the implementation progress. This process continues, with increments being delivered until all the modules are successfully delivered.

After each iteration, regression testing is conducted because to identify the bugs before we delivered the application to the customer and it saves time and cost of the project.

4.1. Module Description

The legacy application has carried out all the tasks in the form of hyperlinks provided in the home page without any organized manner which is not easy to use by the end users of the system. In order to overcome that, we have categorized the entire tasks into three modules and provided an extra module called “Reports” to track the down the resources and project status.

In project module, we grouped all the tasks related to the project such as new project, current projects, all projects, closed projects.

In Designer module, we grouped all the tasks such as new designer, active designers, all designers and has provided the features such as modify/delete the designers.

In Resource module, we grouped the tasks on resource inventory management such as addition, modification, deletion of resources and listed all resources.

In Reports module, all the reports related to the project are grouped here.

4.1.1. Admin Module

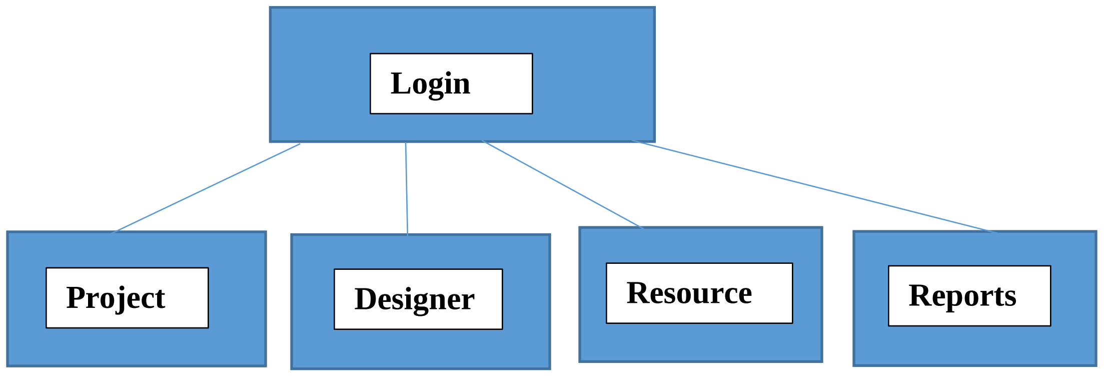
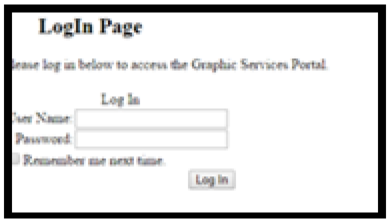


Fig. 4. Admin Module for Design and Sign System

The above modules contain various features like add/modify/deletion of project, designer, resources and report generation.

4.2. Output Screens

4.2.1. Login Screen



LogIn Page

lease log in below to access the Graphic Services Portal.

Log In

ser Name:

Password:

Remember me next time.

Log In

Fig.5. Login Page

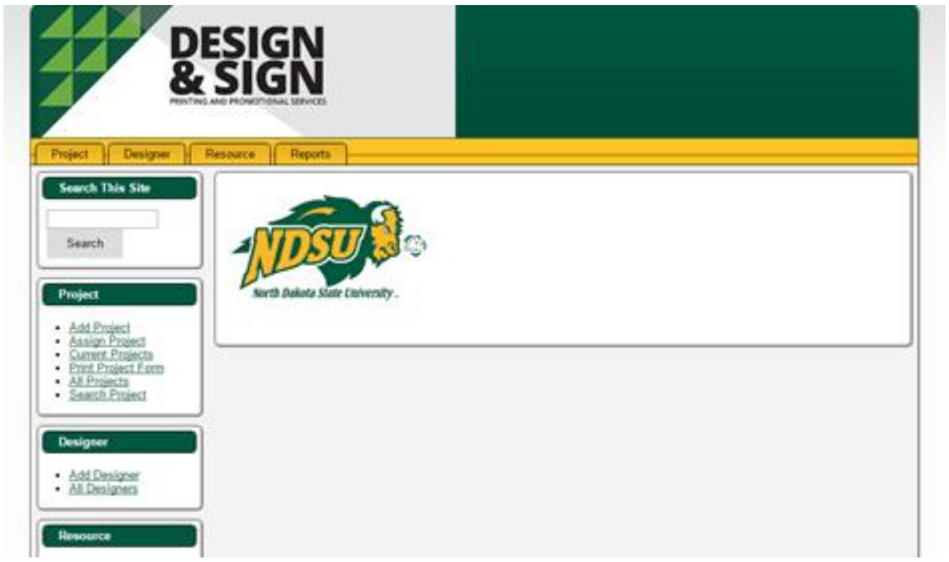
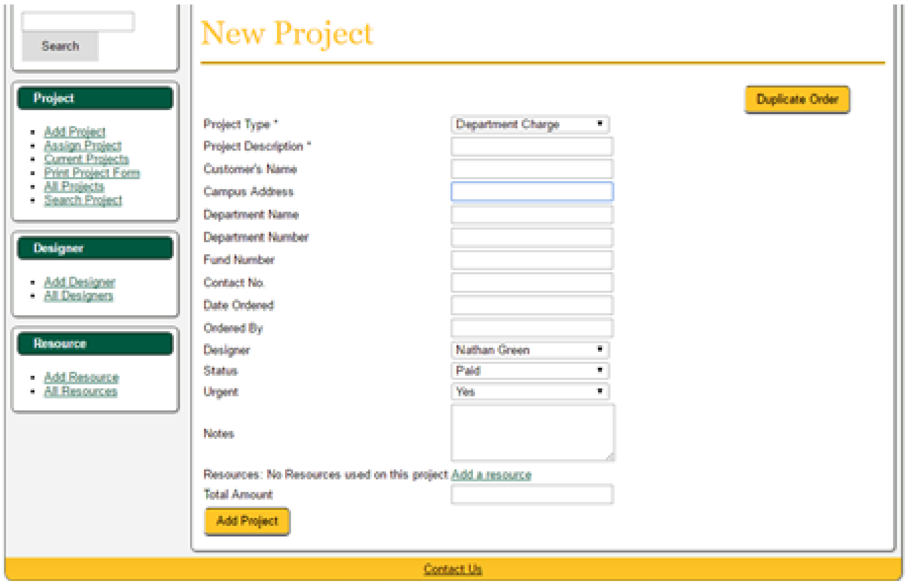


Fig.6. Successful Login Page

4.2.2. Add Project



New Project

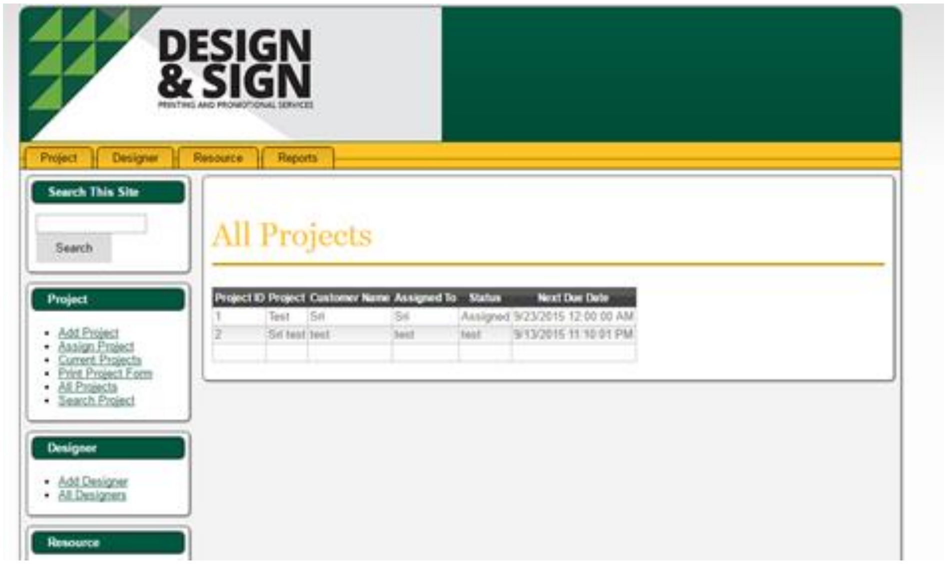
Project Type *	Department Charge
Project Description *	
Customer's Name	
Campus Address	
Department Name	
Department Number	
Fund Number	
Contact No.	
Date Ordered	
Ordered By	
Designer	Nathan Green
Status	Paid
Urgent	Yes
Notes	

Resources: No Resources used on this project Add a resource

Total Amount

Fig.7. New Project Page

4.2.3. All Projects

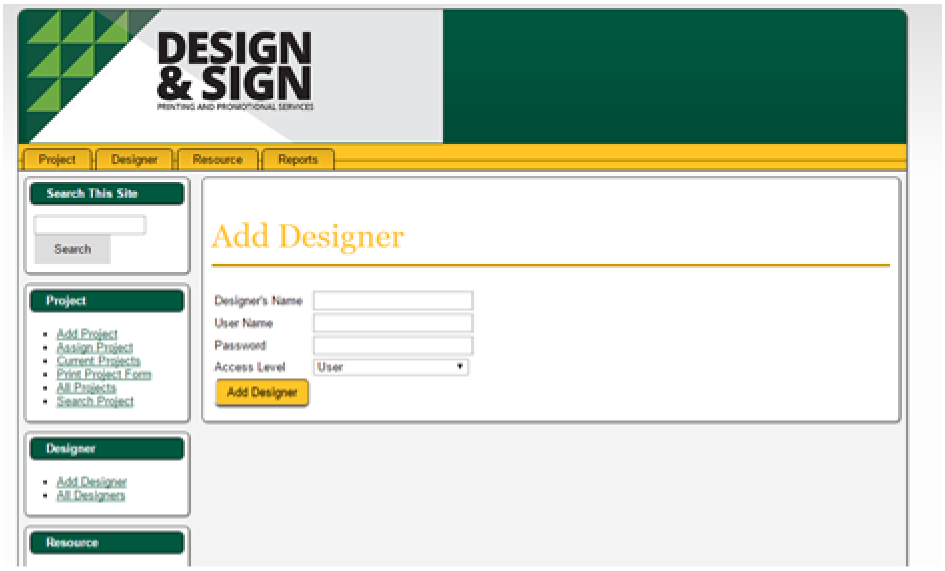


All Projects

Project ID	Project	Customer Name	Assigned To	Status	Next Due Date
1	Test	Sri	Sri	Assigned	9/23/2015 12:00:00 AM
2	Sri test	test	test	test	9/13/2015 11:10:01 PM

Fig.8. List of All Projects

4.2.4. Add Designer



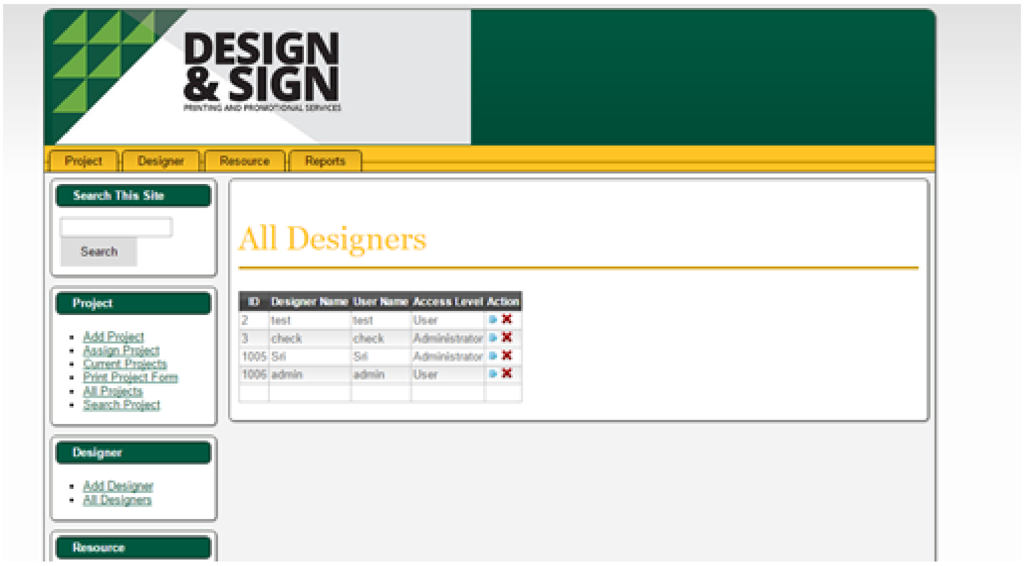
Add Designer

Designer's Name	
User Name	
Password	
Access Level	User

Add Designer

Fig.9. New Designer Page

4.2.5. All Designers

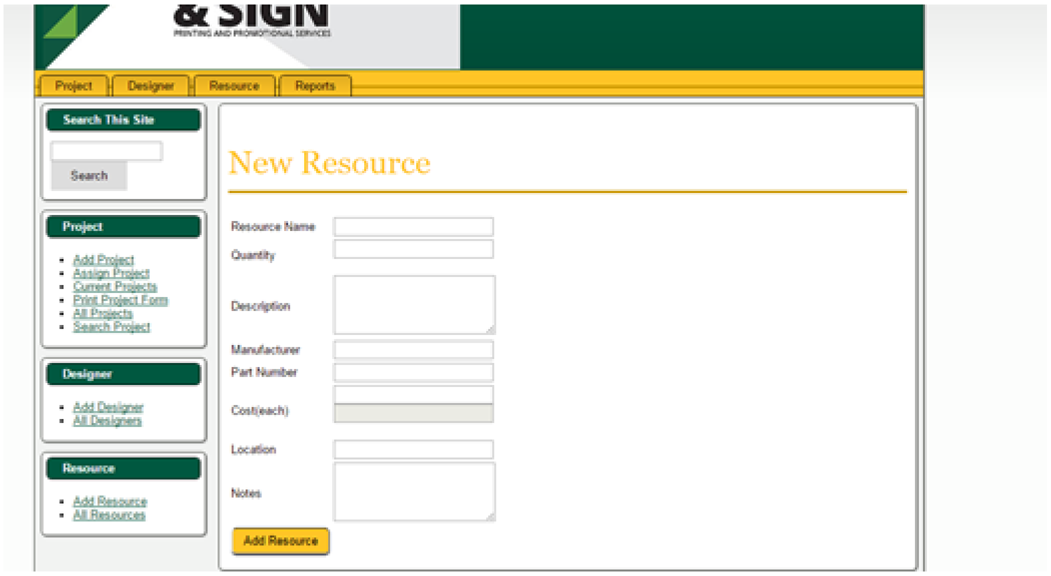


All Designers

ID	Designer Name	User Name	Access Level	Action
2	test	test	User	
3	check	check	Administrator	
1005	Sri	Sri	Administrator	
1006	admin	admin	User	

Fig.10. List of Designers

4.2.6. Add Resource

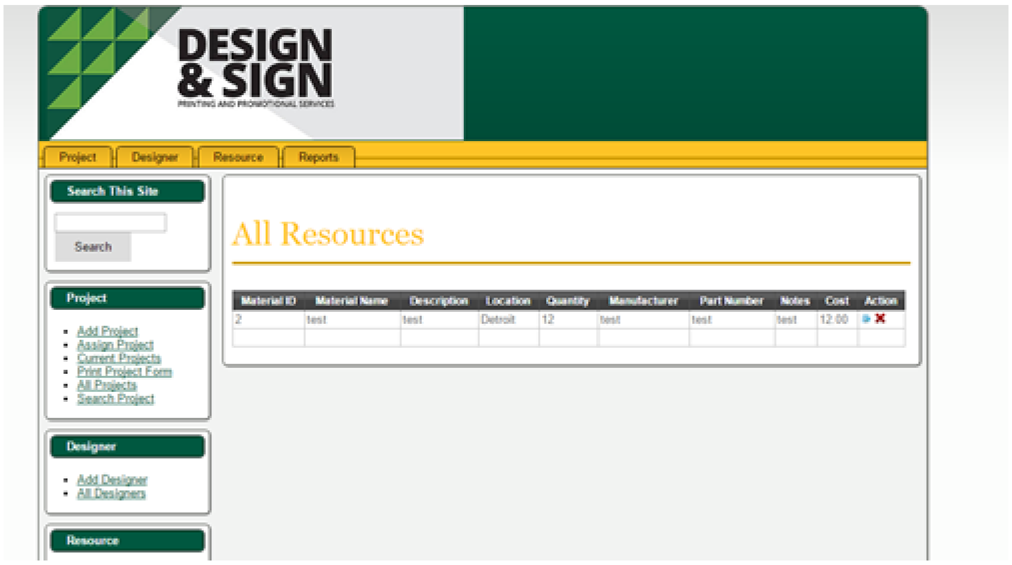


New Resource

Resource Name	
Quantity	
Description	
Manufacturer	
Part Number	
Cost(each)	
Location	
Notes	

Fig.11. New Resource Page

4.2.7. All Resources



All Resources

Material ID	Material Name	Description	Location	Quantity	Manufacturer	Part Number	Notes	Cost	Action
2	test	test	Detroit	12	test	test	test	12.00	✎ ✗

Fig.12. List of All Resources

4.2.8. Resources Utilization

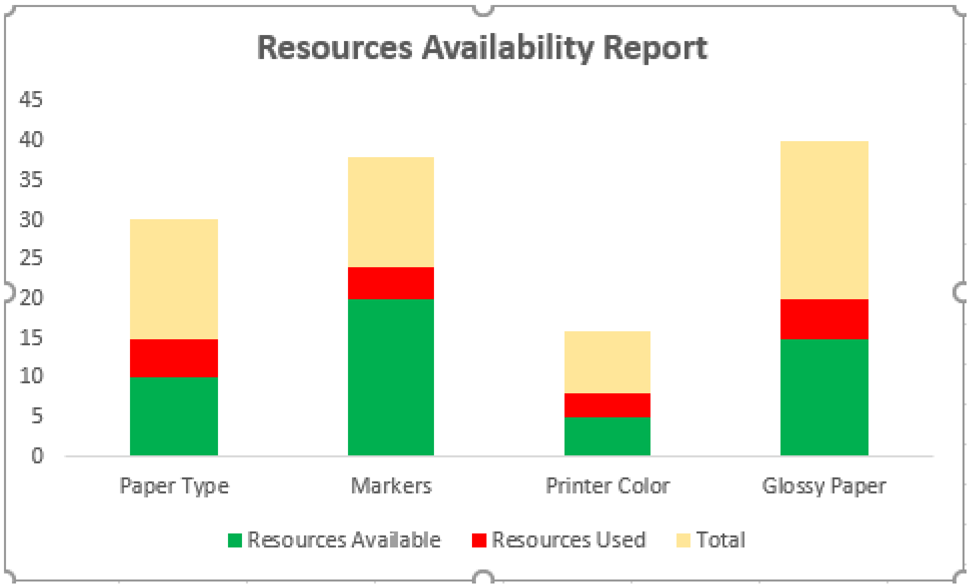


Fig.13. Resources Availability Report

4.2.9. Capacity Utilization

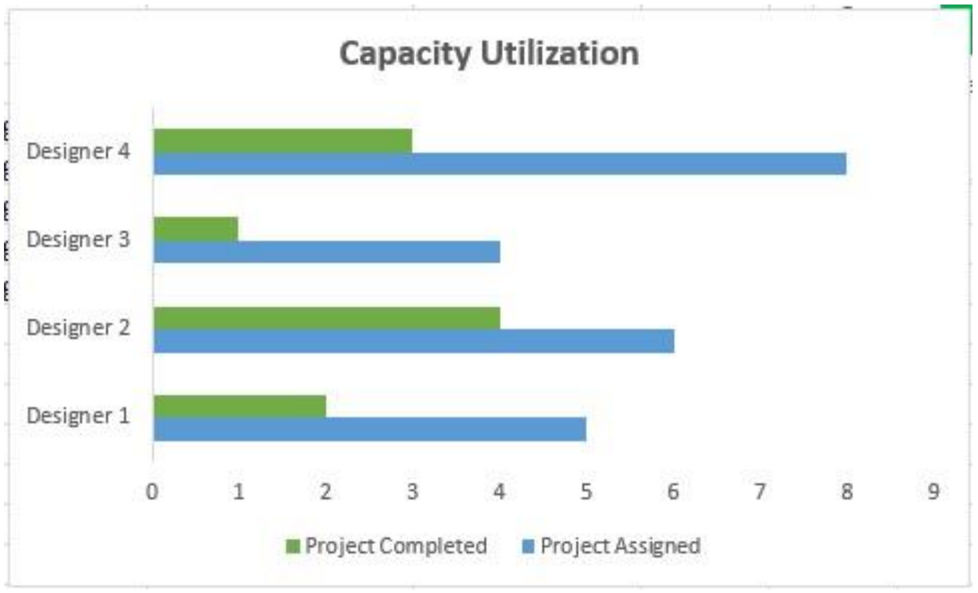


Fig.14. Capacity Utilization Report

CHAPTER 5. SYSTEM TESTING

The goal of system testing is to test the whole system in the context of software requirements specification. It tests the design, behavior of the functionality, out of scope test scenarios as well as the believed minimum expectations of the customer. Entire project went through two levels of testing: Unit Testing and Integration Testing.

5.1. Unit Testing

Unit testing will take place within the build phase of the project. After building each component to meet design specification, the developer is responsible for development of component and will conduct testing of his/ her own tasks based on design document to confirm that it functions properly as an individual unit. Unit testing was conducted on each and every module.

5.1.1. Test for Admin/Users Login Form

Login form allows to login users with two type of roles i.e. Admin or Users. We input the username, password and role of the user if validated as correct input then user able to successfully login to the system with default page. Otherwise, redirected back to the login page and shown an error message on the screen that provided credentials are invalid and re-enter again.

5.1.2. Test for Project Module

In this module, the admin can add project details by providing the all mandatory input fields with required validations and then details are added to the database successfully. Otherwise, the project form shows the error message on the screen if the required input field values are not validated properly and cannot submit the data.

It also contains modify and delete buttons if user click on edit button, data will be modified to the specific project database and if the admin clicks on delete button the specific project data will be deleted.

5.1.3. Test for Designer Module

In this module, the admin can add new designer by providing the all mandatory input fields with required validations and then details are added to the database successfully. Otherwise, the designer form shows the error message on the screen if the required input field values are not validated properly and designer cannot access the system.

It also contains modify and delete buttons if user click on modify button, the designer role can be updated successfully in the database and if the admin clicks on delete button the specific designer data will be deleted and cannot access the system.

5.1.4. Test for Resource Module

In this module, the admin can add new resource to the system and has the ability to track the list of available resources, by providing the all mandatory input fields with required validations and then resource details are added to the database successfully. Otherwise, the resource form shows the error message on the screen if the required input field values are not validated properly and resource cannot be added to the database.

Resource form has the ability to calculate automatically the total cost of all the specific resources by providing each resource cost.

It also contains modify and delete buttons if user click on modify button, the resource can be updated successfully in the database and if the admin clicks on delete button the specific resource data will be deleted from the database.

5.1.5. Test for Reports Module

Resource/Capacity Utilization – Reports like resource/capacity utilization displays the list of resources in a graphical bar representation, as part of testing, we have to test the graph showing the actual numbers on resources availability vs resources used. This can be validated with the backend data using sql queries.

5.2. Integration Testing

Integration testing is also referred as String testing which is one of the phases in software testing. The primary objective of String test is to ensure the software modules/ components function as per business rule interacted very well with related functions of the screens when combined together because output regenerated from one module can be considered as an input for other modules ensuring end-to-end functional flow works according to business requirement. In addition, it also ensures data sharing between multiple inter connected components/ modules through Synchronous and Asynchronous are meet the customer requirements. In closure, the integration testing is carried out after unit testing.

CHAPTER 6. CONCLUSION

6.1. Conclusion

This web application provides an improvised version of design and sign system in terms of user interface, database upgrade as well as the organized content on screens that capture necessary information, which will benefit the end users of the system.

It makes entire work easy to use and navigate through the screens where the end users can perform actions such as create, modify and delete the modules named projects, designers and resources. Also, it can generate reports to track the project status as well as work progress.

6.2. Future Work

There is a scope for future work in the proposed system such as Login authentication for all the students can be provided as well as validated using NDSU Students Active Directory via LDAP Connection, which makes entire system online that meets student needs/requests in the best way possible to create projects as well as to track project status.

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APPENDIX A. SAMPLE CODE

A.1. Code for Project Module

On submit click, the below code helps to create a new project with the required input fields and validate some of the fields on the project screen and able to successfully store the data in a database.

```
<%@ Page Title="" Language="C#" MasterPageFile="~/MasterPage.master"
AutoEventWireup="true" CodeBehind="AddProjects.aspx.cs" Inherits="Graphics.Test" %>

<asp:Content ID="Content1" ContentPlaceHolderID="Head" runat="server">

    <link rel="stylesheet" href="NDSUButton.css" />

</asp:Content>

<asp:Content ID="Content2" ContentPlaceHolderID="Content" runat="server">

    <form id="form1" runat="server">

        <link rel="stylesheet" href="NDSUButton.css" />

        <h1>New Project</h1>

        <div>

             <asp:Button ID="btnDuplicate" CssClass="ndsubutton" runat="server"
Text="Duplicate Order" />

            <table id="tblDept" runat="server">

                <tr>

                    <td>

                        <asp:Label ID="lblPrjType" runat="server" Text="Project Type
*"></asp:Label>

                    </td>

                    <td>

                        <asp:DropDownList ID="ddlPrjType" runat="server" Width="174px">

                            <asp:ListItem>Department Charge</asp:ListItem>

                            <asp:ListItem>Personal/Quick Print</asp:ListItem>

                            <asp:ListItem>Student Org/AR Group</asp:ListItem>

                        </asp:DropDownList>
                    </td>

                </tr>

                <tr>

                    <td>

                        <asp:Label ID="lblPrjDesc" runat="server" Text="Project 
Description *"></asp:Label>

                    </td>

                    <td>

                        <asp:TextBox ID="txtPrjDesc" runat="server" 
Width="174px"></asp:TextBox>

                        <asp:RequiredFieldValidator ID="RFVPrjName" runat="server" 
ErrorMessage="Project Name is Required" 
ControlToValidate="txtPrjDesc"></asp:RequiredFieldValidator><br />

                    </td>

                </tr>

                <tr>

                    <td>

                        <asp:Label ID="lblCName" runat="server" Text="Customer's 
Name"></asp:Label>

                    </td>

                    <td>

                        <asp:TextBox ID="txtCName" runat="server" 
Width="174px"></asp:TextBox>

                        <asp:RequiredFieldValidator ID="rfvCName" runat="server" 
ErrorMessage="Project Name is Required" 
ControlToValidate="txtCName"></asp:RequiredFieldValidator><br />

                    </td>

                </tr>

                <tr>

                    <td>

                        <asp:Label ID="lblCAddress" runat="server" Text="Campus 
Address"></asp:Label>

                    </td>
                    <td>

                        <asp:TextBox ID="txtCAddress" runat="server"
Width="174px"></asp:TextBox><br />

                    </td>

                </tr>

                <tr>

                    <td>

                        <asp:Label ID="lblDptName" runat="server" Text="Department
Name"></asp:Label>

                    </td>

                    <td>

                        <asp:TextBox ID="txtDptName" runat="server"
Width="174px"></asp:TextBox>

                        <asp:RequiredFieldValidator ID="RFVDept" runat="server"
ErrorMessage="Department is Required"
ControlToValidate="txtDptName"></asp:RequiredFieldValidator><br />

                    </td>

                </tr>

                <tr>

                    <td>

                        <asp:Label ID="lblDptNo" runat="server" Text="Department
Number"></asp:Label>

                    </td>

                    <td>

                        <asp:TextBox ID="txtDptNo" runat="server"
Width="174px"></asp:TextBox><br />

                    </td>

                </tr>

                <tr>

                    <td>

                        <asp:Label ID="lblFund" runat="server" Text="Fund
Number"></asp:Label>
```

```
                    </td>

                    <td>

                        <asp:TextBox ID="txtFund" runat="server"
Width="174px"></asp:TextBox><br />

                    </td>

                </tr>

                <tr>

                    <td>

                        <asp:Label ID="lblCntNo" runat="server" Text="Contact
No."></asp:Label>

                    </td>

                    <td>

                        <asp:TextBox ID="txtCntNo" runat="server"
Width="174px"></asp:TextBox><br />

                    </td>

                </tr>

                <tr>

                    <td>

                        <asp:Label ID="lblDateOrdered" runat="server" Text="Date
Ordered"></asp:Label>

                    </td>

                    <td>

                        <asp:TextBox ID="txtDateOrdered" runat="server"
Width="174px"></asp:TextBox><br />

                    </td>

                </tr>

                <tr>

                    <td>

                        <asp:Label ID="lblOrderedBy" runat="server" Text="Ordered
By"></asp:Label>

                    </td>
                    <td>

                        <asp:TextBox ID="txtOrderedBy" runat="server"
Width="174px"></asp:TextBox><br />

                    </td>

                </tr>

                <tr>

                    <td>

                        <asp:Label ID="lblDesigner" runat="server"
Text="Designer"></asp:Label>

                    </td>

                    <td>

                        <asp:DropDownList ID="txtDesigner" runat="server" Width="174px">

                            <asp:ListItem>Nathan Green</asp:ListItem>

                            <asp:ListItem>Sri Lalitha</asp:ListItem>

                            <asp:ListItem>Test Admin</asp:ListItem>

                        </asp:DropDownList>

                        <br />

                    </td>

                </tr>

                <tr>

                    <td>

                        <asp:Label ID="lblPStatus" runat="server"
Text="Status"></asp:Label>

                    </td>

                    <td>

                        <asp:DropDownList ID="ddlStatus" runat="server" Width="174px">

                            <asp:ListItem>Paid</asp:ListItem>

                            <asp:ListItem>No Payment</asp:ListItem>

                        </asp:DropDownList><br />
                    </td>

                </tr>

                <tr>

                    <td>

                        <asp:Label ID="lblUrgent" runat="server"
Text="Urgent"></asp:Label>

                    </td>

                    <td>

                        <asp:DropDownList ID="ddlUrgent" runat="server" Width="174px">

                            <asp:ListItem>Yes</asp:ListItem>

                            <asp:ListItem>No</asp:ListItem>

                        </asp:DropDownList><br />

                    </td>

                </tr>

                <tr>

                    <td>

                        <asp:Label ID="lblNotes" runat="server" Text="Notes"></asp:Label>

                    </td>

                    <td>

                        <asp:TextBox ID="txtNotes" runat="server" TextMode="MultiLine"
Height="57px" Width="174px"></asp:TextBox><br />

                    </td>

                </tr>

                <tr>

                    <td>

                        <asp:Label ID="lblRes" runat="server" Text="Resources: No
Resources used on this project"></asp:Label>

                    </td>

                    <td>
```

```
                        <asp:HyperLink ID="hlRes" runat="server" Text="Add a
resource"></asp:HyperLink>

                        <br />

                    </td>

                    <td></td>

                </tr>

                <tr>

                    <td>

                        <asp:Label ID="lblAmt" runat="server" Text="Total
Amount"></asp:Label>

                    </td>



                    <td>

                        <asp:TextBox ID="txtAmt" runat="server"
Width="174px"></asp:TextBox><br />

                    </td>

                </tr>



                <tr>

                    <td>

                        <asp:Button ID="btnSubmit" CssClass="ndsubutton" runat="server"
Text="Add Project" OnClick="btnSubmit_Click" /><br />

                    </td>

                </tr>

                <tr>

                    <td>

                        <asp:Label ID="lblStatus" runat="server" Text=""
Visible="false"></asp:Label>

                    </td>

                </tr>

            </table>
            </div>

        </form>

    </asp:Content>

    <asp:Content ID="Content3" ContentPlaceHolderID="Footer" runat="server">

    </asp:Content>

    <asp:Content ID="Content4" ContentPlaceHolderID="AfterBody" runat="server">

    </asp:Content>

using System;

using System.Collections.Generic;

using System.Linq;

using System.Web;

using System.Web.UI;

using System.Web.UI.WebControls;

using System.Data;

using System.Data.SqlClient;

using System.Data.Sql;

using System.Configuration;

namespace Graphics

{

    public partial class Test : System.Web.UI.Page

    {

        protected void Page_Load(object sender, EventArgs e)

        {

            if (!IsPostBack)

            {


            }
        }
        protected void btnSubmit_Click(object sender, EventArgs e)
        {
           string strconn = ConfigurationManager.ConnectionStrings["Conn"].ToString();
            SqlConnection conn = new SqlConnection(strconn);
            conn.Open();
            string query = "InsertProject";
            SqlCommand cmd = new SqlCommand(query, conn);
            cmd.CommandType = CommandType.StoredProcedure;
            SqlDataAdapter adp = new SqlDataAdapter(cmd);
            cmd.Parameters.AddWithValue("@ProjectName", txtProjName.Text.ToString());
          //  cmd.Parameters.AddWithValue("@Name", txtCustName.Text.ToString());
            //cmd.Parameters.AddWithValue("@NAID", txtCustNAID.Text.ToString());
           // cmd.Parameters.AddWithValue("@SSN", txtCustSSN.Text.ToString());
            cmd.Parameters.AddWithValue("@Address1", txtAddr.Text.ToString());
            //cmd.Parameters.AddWithValue("@Address2", txtAddr2.Text.ToString());
            cmd.Parameters.AddWithValue("@Department", txtDept.Text.ToString());
            cmd.Parameters.AddWithValue("@DayPhone", txtDayPhn.Text.ToString());
            //cmd.Parameters.AddWithValue("@EveningPhone", txtEvePhn.Text.ToString());
            cmd.Parameters.AddWithValue("@DateTaken", DateTime.Now);
            //cmd.Parameters.AddWithValue("@TakenBy", txtCustName.Text.ToString());
            //cmd.Parameters.AddWithValue("@TargetProofDate",
txtProfDate.Text.ToString());
            //cmd.Parameters.AddWithValue("@Designer", txtCustName.Text.ToString());
            cmd.Parameters.AddWithValue("@NextDueDate", DateTime.Now);
            //cmd.Parameters.AddWithValue("@Status", txtCustName.Text.ToString());
            cmd.Parameters.AddWithValue("@Notes", txtNotes.Text.ToString());
            cmd.Parameters.AddWithValue("@PaymentMethod",
ddlPay.SelectedValue.ToString());
```

```
            cmd.Parameters.AddWithValue("@DatePaid", DateTime.Now);

            cmd.Parameters.AddWithValue("@IDBAmount", txtFund.Text.ToString());

            cmd.Parameters.AddWithValue("@ARAmount", txtFund.Text.ToString());

            cmd.Parameters.AddWithValue("@DepartmentNumber", txtDept2.Text.ToString());

            cmd.Parameters.AddWithValue("@FundNumber", txtFund.Text.ToString());

            //cmd.Parameters.AddWithValue("@ProjectNumber", txtProject.Text.ToString());

            cmd.ExecuteNonQuery();

            lblStatus.Visible = true;

            lblStatus.Text = "New Project Added Successfully";

        }
```

A.2. Code for Designer Module

On click on Add Designer button, the below code helps to create the new designers that use the system with required input fields and validation.

```
<%@ Page Title="" Language="C#" MasterPageFile="~/MasterPage.master" AutoEventWireup="true"
EnableEventValidation="false"                              CodeBehind="AllDesigner.aspx.cs"
Inherits="Graphics.AllDesigner" %>

<asp:Content ID="Content1" ContentPlaceHolderID="Head" runat="server">

</asp:Content>

<asp:Content ID="Content2" ContentPlaceHolderID="Content" runat="server">

    <form id="form1" runat="server">

        <link rel="stylesheet" href="style.css" />

        <h1>All Designers</h1>

        <div>

            <asp:GridView ID="gvDesigner" runat="server" AutoGenerateColumns="false"

                ShowFooter="true"  GridLines="None"  CssClass="mGrid"  AlternatingRowStyle-
CssClass="alt" PagerStyle-CssClass="pgr"

                OnRowCommand="gvDesigner_RowCommand"

                OnRowDeleting="gvDesigner_RowDeleting"

                OnRowUpdating="gvDesigner_RowUpdating"
                OnRowCancelingEdit="gvDesigner_RowCancelingEdit"

                OnRowEditing="gvDesigner_RowEditing"                ViewStateMode="Enabled"
EnableViewState="true">

                <Columns>

                    <asp:TemplateField HeaderText="ID">

                        <ItemTemplate>

                            <asp:Label              ID="lblID"              runat="server"
Text='<%#DataBinder.Eval(Container.DataItem,"DesignerID") %>'></asp:Label>

                        </ItemTemplate>

                        <EditItemTemplate>

                            <asp:Label             ID="lblEditID"            runat="server"
Text='<%#DataBinder.Eval(Container.DataItem, "DesignerID") %>'>  </asp:Label>

                        </EditItemTemplate>



                    </asp:TemplateField>

                    <asp:TemplateField HeaderText="Designer Name">

                        <ItemTemplate>

                            <asp:Label            ID="lblDesigner"           runat="server"
Text='<%#DataBinder.Eval(Container.DataItem,"Name") %>'></asp:Label>

                        </ItemTemplate>

                        <EditItemTemplate>

                            <asp:TextBox        ID="txtEditDesigner"       runat="server"
Text='<%#DataBinder.Eval(Container.DataItem, "Name") %>'></asp:TextBox>

                        </EditItemTemplate>

                    </asp:TemplateField>

                    <asp:TemplateField HeaderText="User Name">

                        <ItemTemplate>

                            <asp:Label            ID="lblUserName"           runat="server"
Text='<%#DataBinder.Eval(Container.DataItem,"UserName") %>'></asp:Label>

                        </ItemTemplate>

                        <EditItemTemplate>
```

```
                                <asp:TextBox        ID="txtEditUserName"        runat="server"
Text='<%#DataBinder.Eval(Container.DataItem, "UserName") %>'></asp:TextBox>

                            </EditItemTemplate>

                        </asp:TemplateField>

                        <asp:TemplateField HeaderText="Access Level">

                            <ItemTemplate>

                                <asp:Label            ID="lblALevel"            runat="server"
Text='<%#DataBinder.Eval(Container.DataItem,"AccessLevel") %>'></asp:Label>

                            </ItemTemplate>

                            <EditItemTemplate>

                                <asp:TextBox            ID="txtALevel"            runat="server"
Text='<%#DataBinder.Eval(Container.DataItem, "AccessLevel") %>'></asp:TextBox>

                            </EditItemTemplate>

                        </asp:TemplateField>

                        <asp:TemplateField HeaderText="Action">

                            <ItemTemplate>

                                <asp:ImageButton        ID="imgbtnEdit"          runat="server"
CommandName="Edit"  ImageUrl="~/Images/untitled.png"  CausesValidation="true"  Height="12px"
Width="12px" />

                                <asp:ImageButton        ID="imgbtnDelete"        runat="server"
CommandName="Delete"  ImageUrl="~/Images/delete.png"  CausesValidation="true"  Height="12px"
Width="12px" />

                            </ItemTemplate>

                            <EditItemTemplate>

                                <asp:ImageButton        ID="imgbtnUpdate"        runat="server"
CommandName="Update" ImageUrl="~/Images/untitled.png" CausesValidation="true" Height="12px"
Width="12px" />

                                <asp:ImageButton        ID="imgbtnCancel"        runat="server"
CommandName="Cancel"  ImageUrl="~/Images/delete.png"  CausesValidation="true"  Height="12px"
Width="12px" />

                            </EditItemTemplate>

                            <FooterTemplate>

                            </FooterTemplate>

                        </asp:TemplateField>
```

```
                </Columns>

            </asp:GridView>

        </div>

    </form>

</asp:Content>

<asp:Content ID="Content3" ContentPlaceHolderID="Footer" runat="server">

</asp:Content>

<asp:Content ID="Content4" ContentPlaceHolderID="AfterBody" runat="server">

</asp:Content>

using System;

using System.Collections.Generic;

using System.Linq;

using System.Web;

using System.Web.UI;

using System.Web.UI.WebControls;

using System.Data;

using System.Data.Sql;

using System.Data.SqlClient;

using System.Configuration;


namespace Graphics

{

    public partial class AllDesigner : System.Web.UI.Page

    {

        protected void Page_Load(object sender, EventArgs e)

        {



           if (!IsPostBack)
```

```
  {
        LoadData();
  }
}

public void LoadData()
{
    DataSet ds = new DataSet();
    DataTable dt = new DataTable();
    string strconn = ConfigurationManager.ConnectionStrings["Conn"].ToString();
    SqlConnection conn = new SqlConnection(strconn);
    conn.Open();
    String query = "select DesignerID,Name,UserName,AccessLevel from Designers";
    SqlCommand cmd = new SqlCommand(query, conn);
    SqlDataAdapter adp = new SqlDataAdapter(cmd);

    adp.Fill(ds);
    cmd.ExecuteNonQuery();
    dt = ds.Tables[0];
    // if (dt.Rows.Count > 0)
    //{
    gvDesigner.DataSource = dt;
    gvDesigner.DataBind();
    //}
    conn.Close();
}

protected void gvDesigner_RowEditing(object sender, GridViewEditEventArgs e)
```

```
        {
            gvDesigner.EditIndex = e.NewEditIndex;

            LoadData();

        }
        protected void gvDesigner_RowUpdating(object sender, GridViewUpdateEventArgs e)
        {
            string strconn = ConfigurationManager.ConnectionStrings["Conn"].ToString();
            SqlConnection conn = new SqlConnection(strconn);
            Label lblEditID = (Label)gvDesigner.Rows[e.RowIndex].FindControl("lblEditID");

            TextBox                            txtEditDesigner                            =
(TextBox)gvDesigner.Rows[e.RowIndex].FindControl("txtEditDesigner");

            TextBox                            txtEditUserName                            =
(TextBox)gvDesigner.Rows[e.RowIndex].FindControl("txtEditUserName");

            TextBox                                txtALvl                                =
(TextBox)gvDesigner.Rows[e.RowIndex].FindControl("txtALevel");

            conn.Open();

            string          cmdstr          =          "update          Designers          set
name=@name,username=@username,accesslevel=@accesslevel where designerid=@designerid";

            SqlCommand cmd = new SqlCommand(cmdstr, conn);

            cmd.Parameters.AddWithValue("@name", txtEditDesigner.Text);
            cmd.Parameters.AddWithValue("@username", txtEditUserName.Text);
            cmd.Parameters.AddWithValue("@accesslevel", txtALvl.Text);

            cmd.Parameters.AddWithValue("@designerid", lblEditID.Text);

            cmd.ExecuteNonQuery();

            conn.Close();

            gvDesigner.EditIndex = -1;

            LoadData();

        }

        protected          void         gvDesigner_RowCancelingEdit(object         sender,
GridViewCancelEditEventArgs e)

        {

            gvDesigner.EditIndex = -1;



            LoadData();



        }

       protected void gvDesigner_RowDeleting(object sender, GridViewDeleteEventArgs e)

        {

            string strconn = ConfigurationManager.ConnectionStrings["Conn"].ToString();

            SqlConnection conn = new SqlConnection(strconn);

            conn.Open();

            Label lblDesId = (Label)gvDesigner.Rows[e.RowIndex].FindControl("lblID");

            string cmdstr = "delete from Designers where DesignerID=@DesignerID";

            SqlCommand cmd = new SqlCommand(cmdstr, conn);

            cmd.Parameters.AddWithValue("@DesignerID", lblDesId.Text);

            cmd.ExecuteNonQuery();

            conn.Close();

            LoadData();

        }))
```

A.3. Code for Resource Module

On click on add resource button, the below code helps to add the resources that are used in the project with required input fields and validation on the resource screen.

```
<%@ Page Title="" Language="C#" MasterPageFile="~/MasterPage.master" AutoEventWireup="true"
CodeBehind="AddResources.aspx.cs" Inherits="Graphics.AddResources" %>


<asp:Content ID="Content1" ContentPlaceHolderID="Head" runat="server">

</asp:Content>

<asp:Content ID="Content2" ContentPlaceHolderID="Content" runat="server">

    <form id="form1" runat="server">

        <link rel="stylesheet" href="NDSUButton.css" />

        <h1>New Resource</h1>

        <script type="text/javascript">

            function txtOnKeyPress(txtTotal) {

                if (txt1 != 'undefined') {

                    var txt1 = document.getElementById('<%=txtQty.ClientID%>');

                    var txt2 = document.getElementById('<%=txtCost.ClientID%>');

                    var txt3 = txt1 + txt2;

                }

            }

        </script>

        <div>

            <table>

                <tr>

                    <td>

                        <asp:Label    ID="lblResName"    runat="server"    Text="Resource
Name"></asp:Label>

                    </td>
                    <td>

                        <asp:TextBox ID="txtResName" runat="server"
Width="174px"></asp:TextBox>

                        <asp:RequiredFieldValidator ID="RFVResName" runat="server"
ErrorMessage="Resource Name is Required"
ControlToValidate="txtResName"></asp:RequiredFieldValidator><br />

                    </td>

                </tr>

                <tr>

                    <td>

                        <asp:Label ID="lblQty" runat="server" Text="Quantity"></asp:Label>



                    </td>

                    <td>

                        <asp:TextBox ID="txtQty" runat="server"
Width="174px"></asp:TextBox>

                        <asp:RequiredFieldValidator ID="RFVQty" runat="server"
ErrorMessage="Quantity is Required"
ControlToValidate="txtQty"></asp:RequiredFieldValidator><br />

                        <asp:RegularExpressionValidator ID="RegExQty" runat="server"
ValidationExpression="((\d+)+(\.\d+))$"

                            ErrorMessage="Please enter valid decimal/integer number with any
decimal places." ControlToValidate="txtQty" />

                    </td>

                </tr>

                <tr>

                    <td>

                        <asp:Label ID="lblDes" runat="server"
Text="Description"></asp:Label>

                    </td>

                    <td>
```

```
                        <asp:TextBox   ID="txtDes"   runat="server"   TextMode="MultiLine"
Width="174px" Height="60px"></asp:TextBox>

                        <asp:RequiredFieldValidator      ID="RFVDes"      runat="server"
ErrorMessage="Description                           is                       Required"
ControlToValidate="txtDes"></asp:RequiredFieldValidator><br />

                    </td>

                </tr>

                <tr>

                    <td>

                        <asp:Label                ID="lblMfr"                runat="server"
Text="Manufacturer"></asp:Label>

                    </td>

                    <td>

                        <asp:TextBox               ID="txtMfr"               runat="server"
Width="174px"></asp:TextBox><br />

                    </td>

                </tr>

                <tr>

                    <td>

                        <asp:Label      ID="lblPartNum"      runat="server"      Text="Part
Number"></asp:Label>

                    </td>

                    <td>

                        <asp:TextBox             ID="txtPartNum"             runat="server"
Width="174px"></asp:TextBox><br />

                    </td>

                </tr>

                <tr>

                    <td>

                        <asp:Label               ID="lblCost"               runat="server"
Text="Cost(each)"></asp:Label>

                    </td>
                    <td>

                        <asp:ScriptManager ID="ScriptManager2" runat="server">

                        </asp:ScriptManager>

                        <asp:UpdatePanel ID="UpdatePanel1" runat="server">

                            <ContentTemplate>

                        <asp:TextBox     ID="txtCost"     runat="server"     Width="174px"
AutoPostBack="True"  OnTextChanged="txtCost_TextChanged"></asp:TextBox>

                                 <br />

                                <asp:TextBox  ID="txtTotal"  runat="server"   Width="174px"
Enabled="false"></asp:TextBox>

                                 <asp:RequiredFieldValidator  ID="RFVCost"  runat="server"
ErrorMessage="Cost                             is                               Required"
ControlToValidate="txtCost"></asp:RequiredFieldValidator><br />

                        <asp:RegularExpressionValidator     ID="RegCost"     runat="server"
ValidationExpression="((\d+)+(\.\d+))$"

                            ErrorMessage="Please enter valid decimal/integer number with any
decimal places." ControlToValidate="txtCost" />

                                 </ContentTemplate>

                            </asp:UpdatePanel>

                       </td>

                </tr>

                <tr>

                    <td>

                        <asp:Label ID="lblLoc" runat="server" Text="Location"></asp:Label>

                    </td>

                    <td>



                        <asp:TextBox              ID="txtLoc"              runat="server"
Width="174px"></asp:TextBox><br />

                    </td>

                </tr>

                <tr>
```

```
                    <td>

                        <asp:Label ID="lblNotes" runat="server" Text="Notes"></asp:Label>

                    </td>

                    <td>

                        <asp:TextBox  ID="txtNotes"  runat="server"  TextMode="MultiLine"
Width="174px" Height="60px"></asp:TextBox><br />

                    </td>

                </tr>

                <tr>

                    <td>

                        <asp:Button  ID="btnSubmit"  CssClass="ndsubutton"  runat="server"
Text="Add Resource" OnClick="btnSubmit_Click" />

                    </td>

                </tr>

                <tr>

                    <td>

                        <asp:Label       ID="lblStatus"       runat="server"       Text=""
Visible="false"></asp:Label>

                    </td>

                </tr>

            </table>

        </div>

    </form>

</asp:Content>

<asp:Content ID="Content3" ContentPlaceHolderID="Footer" runat="server">

</asp:Content>

<asp:Content ID="Content4" ContentPlaceHolderID="AfterBody" runat="server">

</asp:Content>
```

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Web;
using System.Web.UI;
using System.Web.UI.WebControls;
using System.Data;
using System.Data.SqlClient;
using System.Data.Sql;
using System.Configuration;
using System.Text;
namespace Graphics
{
    public partial class AddResources : System.Web.UI.Page
    {
        protected void Page_Load(object sender, EventArgs e)
        {
            if(!IsPostBack)
            {

            }
        }
        protected void btnSubmit_Click(object sender, EventArgs e)
        {
            string strconn = ConfigurationManager.ConnectionStrings["Conn"].ToString();
            SqlConnection conn = new SqlConnection(strconn);
            conn.Open();
            string query = "InsertResource";
            SqlCommand cmd = new SqlCommand(query, conn);

            cmd.CommandType = CommandType.StoredProcedure;

            SqlDataAdapter adp = new SqlDataAdapter(cmd);

            cmd.Parameters.AddWithValue("@Name", txtResName.Text.ToString());

            cmd.Parameters.AddWithValue("@Description", txtDes.Text.ToString());

            cmd.Parameters.AddWithValue("@Location", txtLoc.Text.ToString());

            cmd.Parameters.AddWithValue("@Quantity", Convert.ToDecimal(txtQty.Text));

            cmd.Parameters.AddWithValue("@Manufacturer", txtMfr.Text.ToString());

            cmd.Parameters.AddWithValue("@PartNumber", txtPartNum.Text.ToString());

            cmd.Parameters.AddWithValue("@Notes", txtNotes.Text.ToString());

            cmd.Parameters.AddWithValue("@Cost", Convert.ToDecimal(txtCost.Text));

            string total = txtTotal.Text;

            cmd.Parameters.AddWithValue("@TotalCost",
       Convert.ToDecimal(total.Substring(6)));

            cmd.ExecuteNonQuery();

            lblStatus.Visible = true;

            lblStatus.Font.Bold = true;

            lblStatus.Text = "New Resource Added Successfully";

            lblStatus.ForeColor = System.Drawing.Color.Red;

            Clear();

        }

        public void Clear()

        {

            txtResName.Text = "";

            txtQty.Text = "";

            txtDes.Text = "";

            txtMfr.Text = "";

            txtPartNum.Text = "";
```

```
            txtCost.Text = "";

            txtTotal.Text = "";

            txtLoc.Text = "";

            txtNotes.Text = "";

        }

        protected void txtCost_TextChanged(object sender, EventArgs e)

        {

            decimal        Total        =        (Convert.ToDecimal(txtCost.Text)        *
Convert.ToDecimal(txtQty.Text));

            txtTotal.Text += "Total:"+ Convert.ToString(Total);

        }

    }

}
```