A Project report on

"COURSE REGISTRATION SYSTEM"

Submitted in partial fulfillment of the requirement for the award of the degree of

BACHELOR OF TECHNOLOGY

In

COMPUTER SCIENCE & ENGINEERING

By

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(2015-2016)

GITAM UNIVERSITY

(Estd. u/s 3 of the UGC Act 1956)
Accredited by NAAC with 'A' Grade
Gandhinagar Campus,
Rushikonda, VISAKHAPATNAM – 530045 (AP)

CERTIFICATE

This is to certify that the project entitled "**COURSE REGISTRATION SYSTEM"** is a bonafide work carried out by **Dhanasetty Abhishek (1210312217), Vemuri Sai Krishna (1210312263), Rahul Chitta (1210312249), Yuva Sai Kamal (1210312261)** in partial fulfilment of the requirement for the award of the degree of Bachelor of Technology, in "Software Development Lab" from Department of Computer Science and Engineering, GITAM Institute of Technology, GITAM University during the academic year of 2015-16. This project work is original and was not submitted earlier for the award of any degree of any institution.

Project Coordinator's:

1) Dr. N. Murali Krishna
2) Sri. A. Sri Venkata Praneel

INTRODUCTION

1.1 ABSTRACT

At the beginning of each semester students may request a course catalogue containing a list of course offerings for the semester. Information about each course, such as professor, department, and prerequisites will be included to help students make informed decisions. The new on-line registration system will allow students to select four course offerings for the coming semester. In addition, each student will indicate two alternative choices in case a course offering becomes filled or canceled. No course offering will have more than ten students. The registration system sends information to the management system, so the student can be billed for the semester. This system is designed in such a way that Professors must be able to access the on-line system to indicate which courses they will be teaching. They will also need to see which students signed up for their course offering. For each semester, there is a period of time that students can change their schedules. Students must be able to access the on-line system during this time to add or drop courses. The management system will credit all students for courses dropped during this period of time.

GOAL:

The goal of this project is to create a Course Registration System to help a student learn about the courses available and provide the means to register for his desired course.

ANALYSIS AND DESIGN:

The first question to address is the need for a new registration system. Does the University have the resources needed to design and implement the new system? In addition to the assessment of need for the system, the risks posed by the new system are elaborated. In the case of an on-line registration system, one of the major risks is the ability to store the information in a manner that is easily and quickly accessible by all.

DEFINITION OF ACTORS:

The following actors will be used in the Use Case Diagrams and the various roles in which they play are explained.

Student: someone who is registered to take courses at the College.

Professor: someone who is licensed to teach at the College.

Admin: someone who is responsible for the maintenance of the Registration System.

Printing System: external system that bills students with respect to course enrolled for per semester.

We have different modules in this application, they are

1) **Student**
2) **Professor**
3) **Admin (HOD / Principal)**
4) **Printing System**

Module 1: Student

– Student's Login using Net-ID and password – will connect to the server. The student enters the student id number. The system verifies that the student ID number is valid and prompts the student to select the current semester or a future semester. The student enters the desired semester. The system prompts the student to select the desired activity

Module 2: Professor

Professor's Login using Net-ID and password – will connect to the server. Professors who are not available at a particular period of time can assign roles to the students. i.e., accepting the course or deleting the course the students have selected.

Module 3: Admin

Admin Login using his Net-ID and password – will connect to the server. Where the admin can verify, update the overall process who have changed the details for accepting or deleting the course.

Module 4: Printing System

It Displays the output in accordance with the request processed from the student and professor module, either HTML/PDF format. A professor can request admin to revoke his/her role. Admin accepts the request and adds response. They are not able to delegate his/her role to senior authorities.

SCOPE: The scope of the project developed is to make the courses available for the students online and then help them register to the courses available. It involves very simple procedure.

Objectives:

1. Building a platform for student's ease of access.

2. Can be used by teachers, students and Head of the department.

3. Reducing Manual Workload

4. Maintaining tables of all the student's Information (Registered courses).

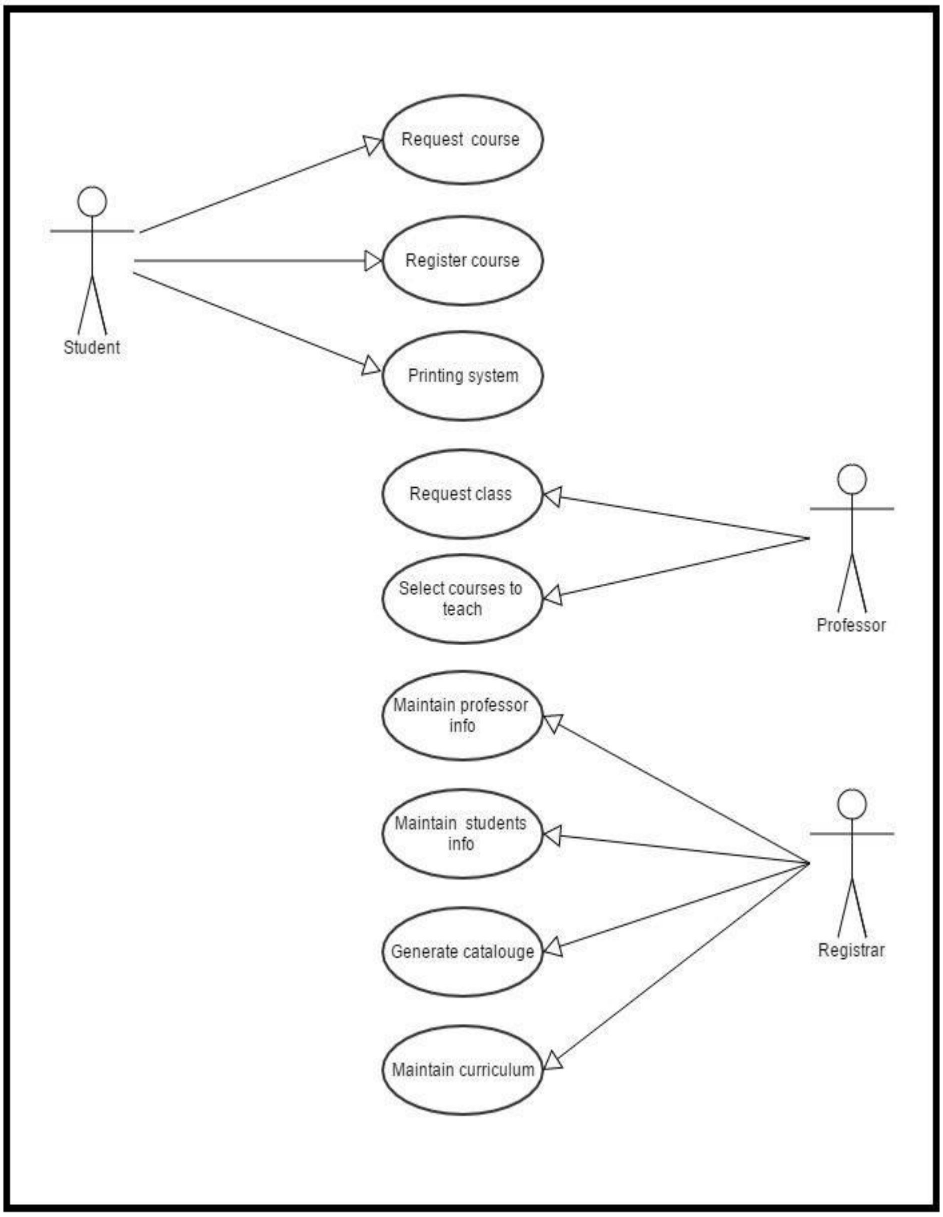
ROLES AND RESPONSIBILITIES:

User

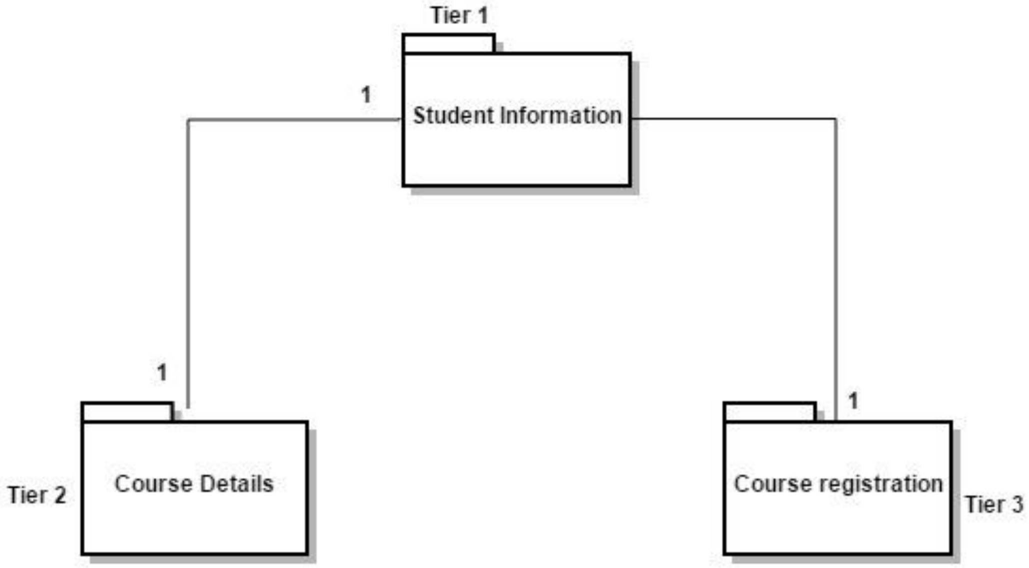
1. The user has to register in the online course registration portal wherein he /she is given a unique user ID and a Password.
2. After login they will have access to the available courses from which he can select and then register.
3. There will be a deadline for each course available and the student has to register himself within the deadline or else the student will no longer have access to that course
4. Modification of any courses after the deadline is not permitted by the server.

Admin

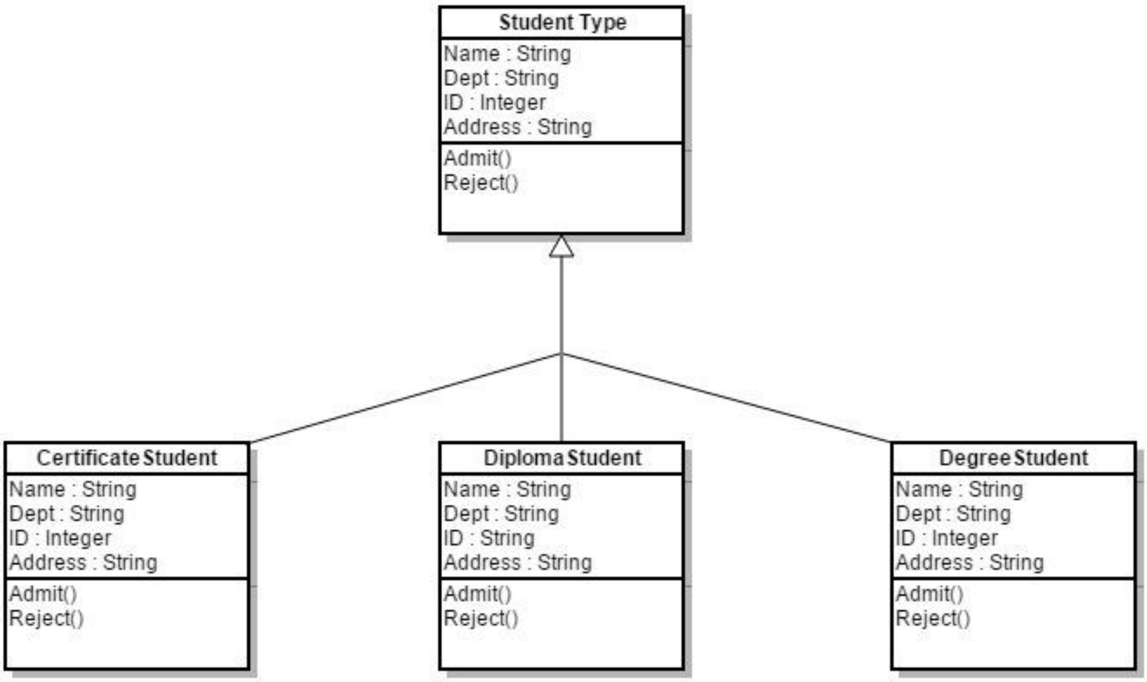
1. He has control over the whole portal, he takes care whether a new course is added or deleted from the list of available courses



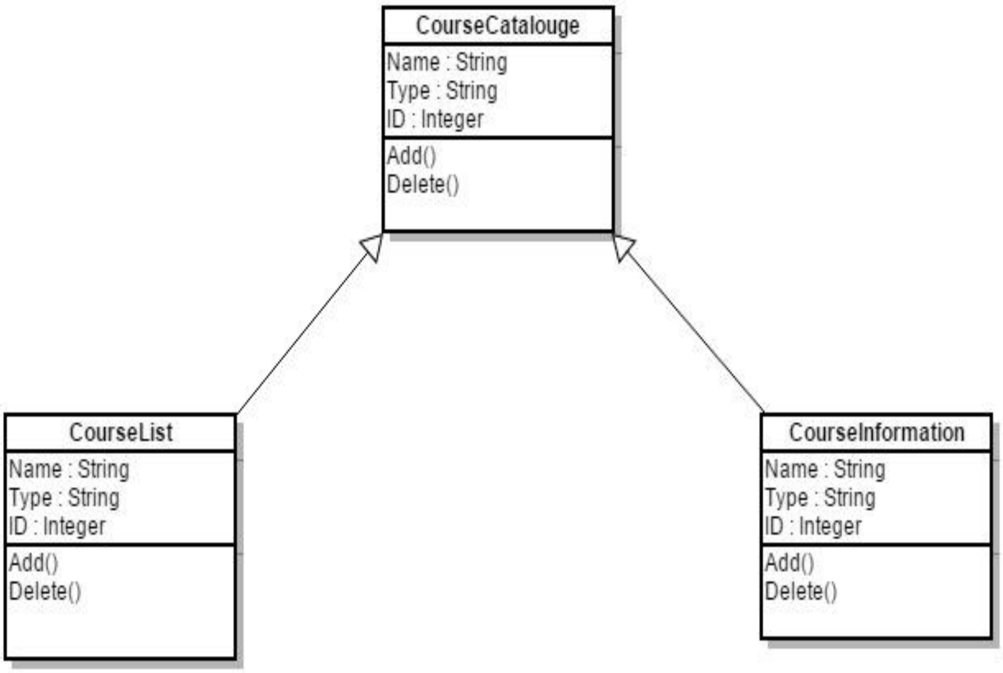
Student Registration Use Case Diagram



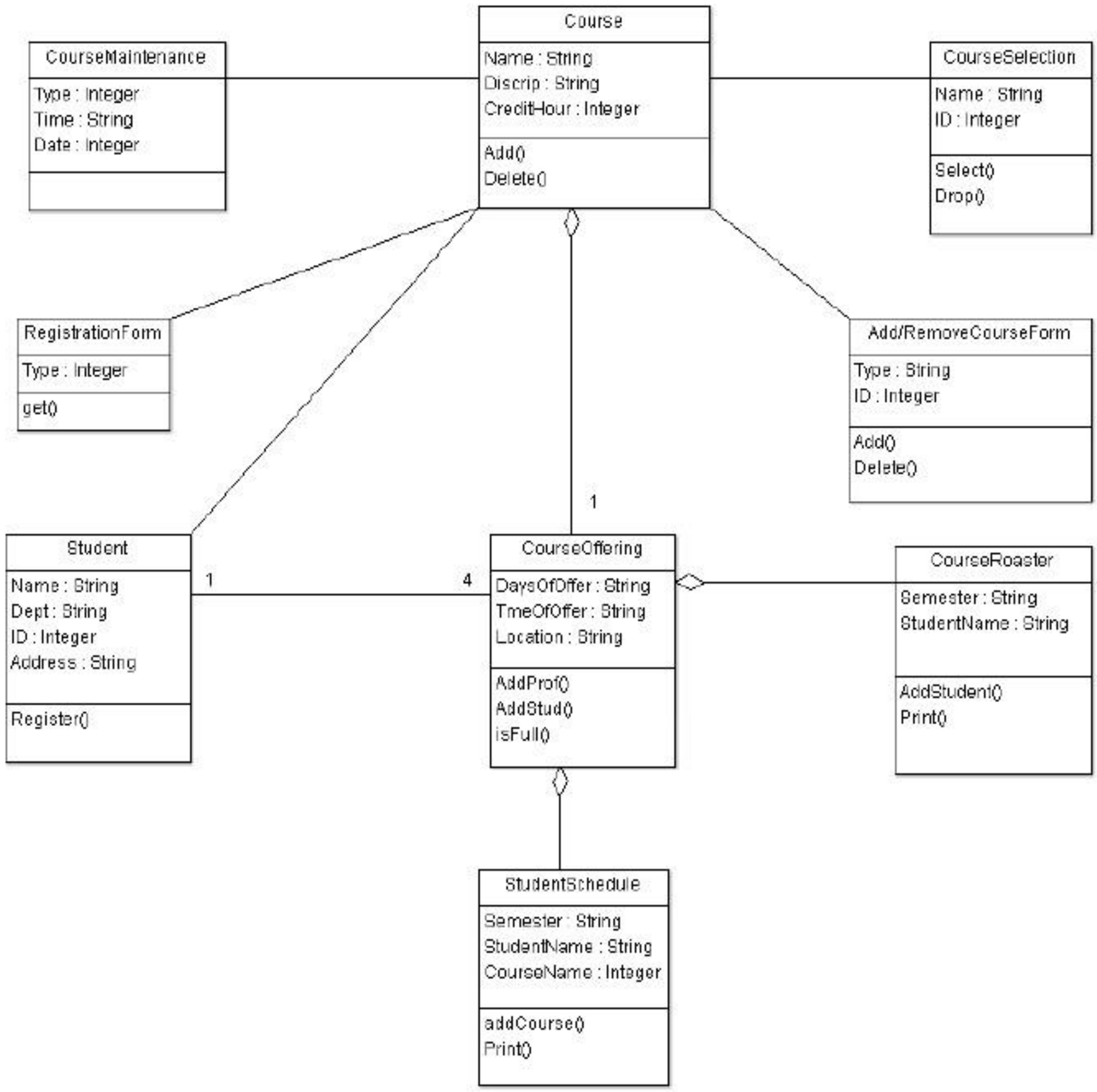
A Three (3) Tier Class Diagram



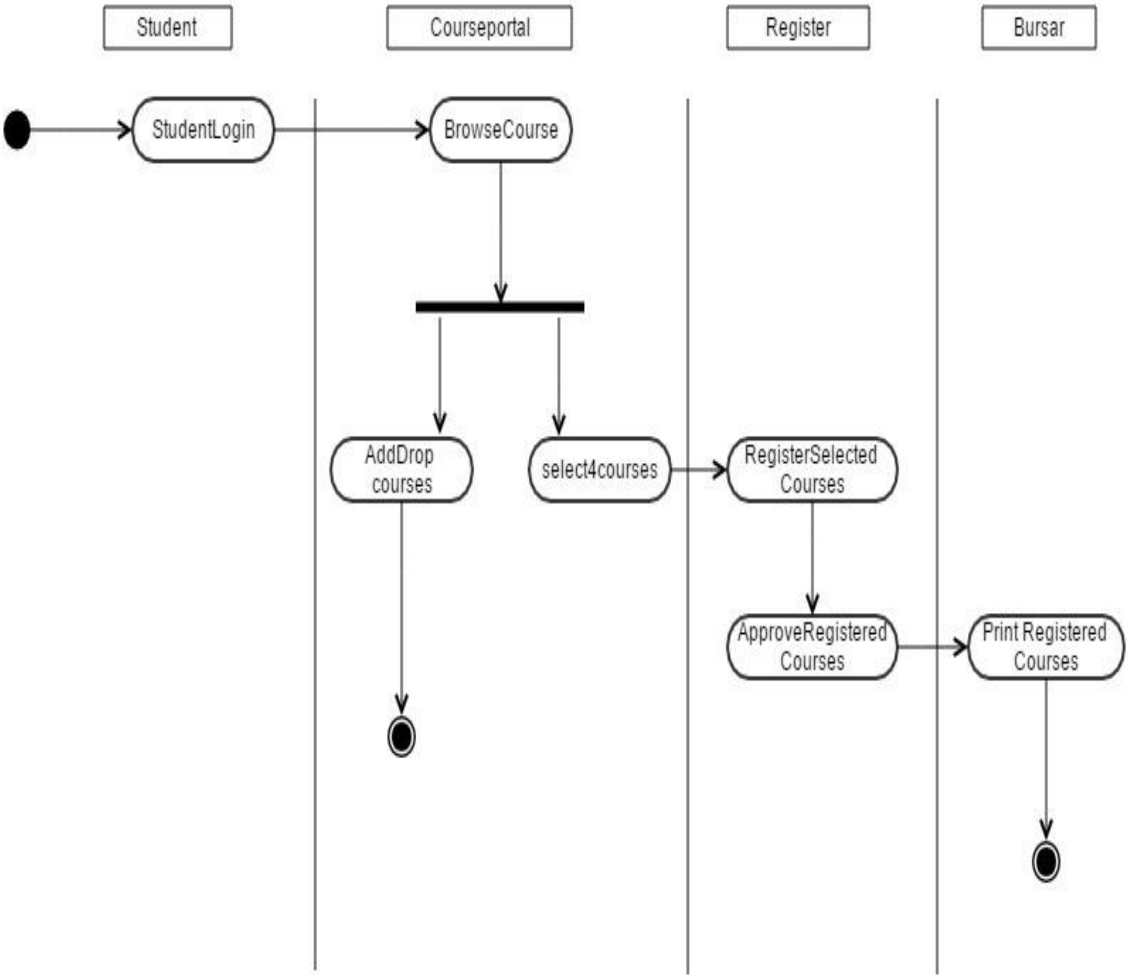
Student Type Package Class Diagrams (Tier 1)



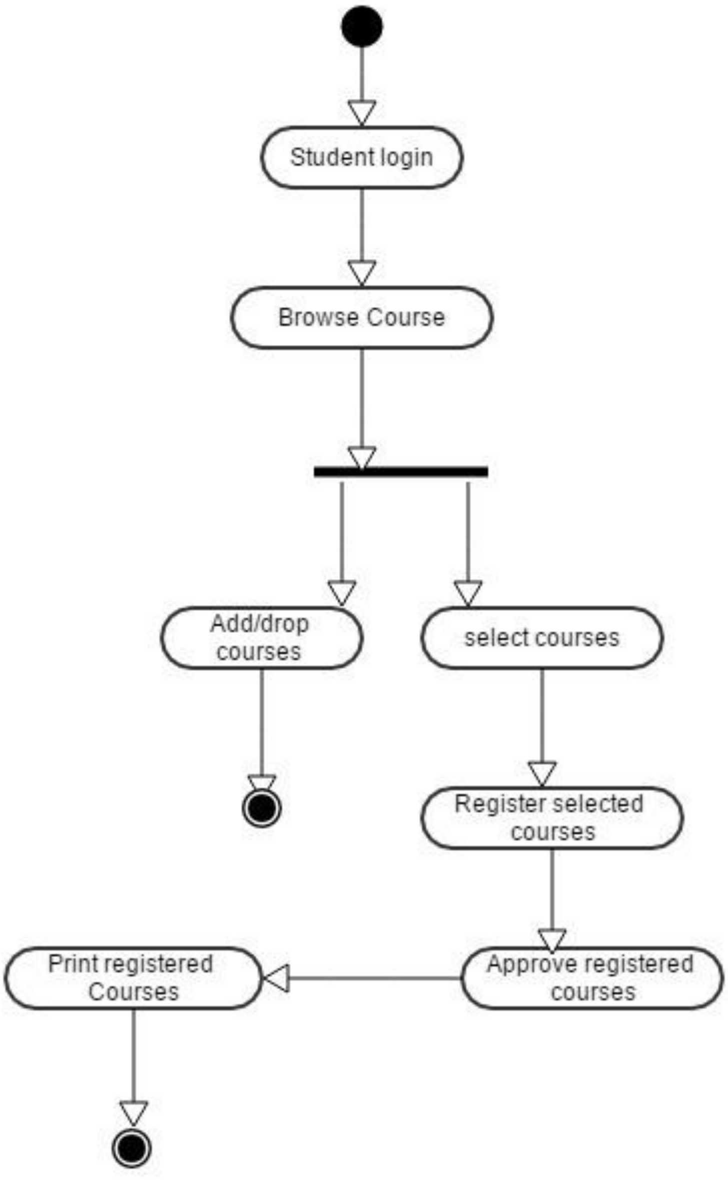
Course Detail Package Class Diagram (Tier 2)



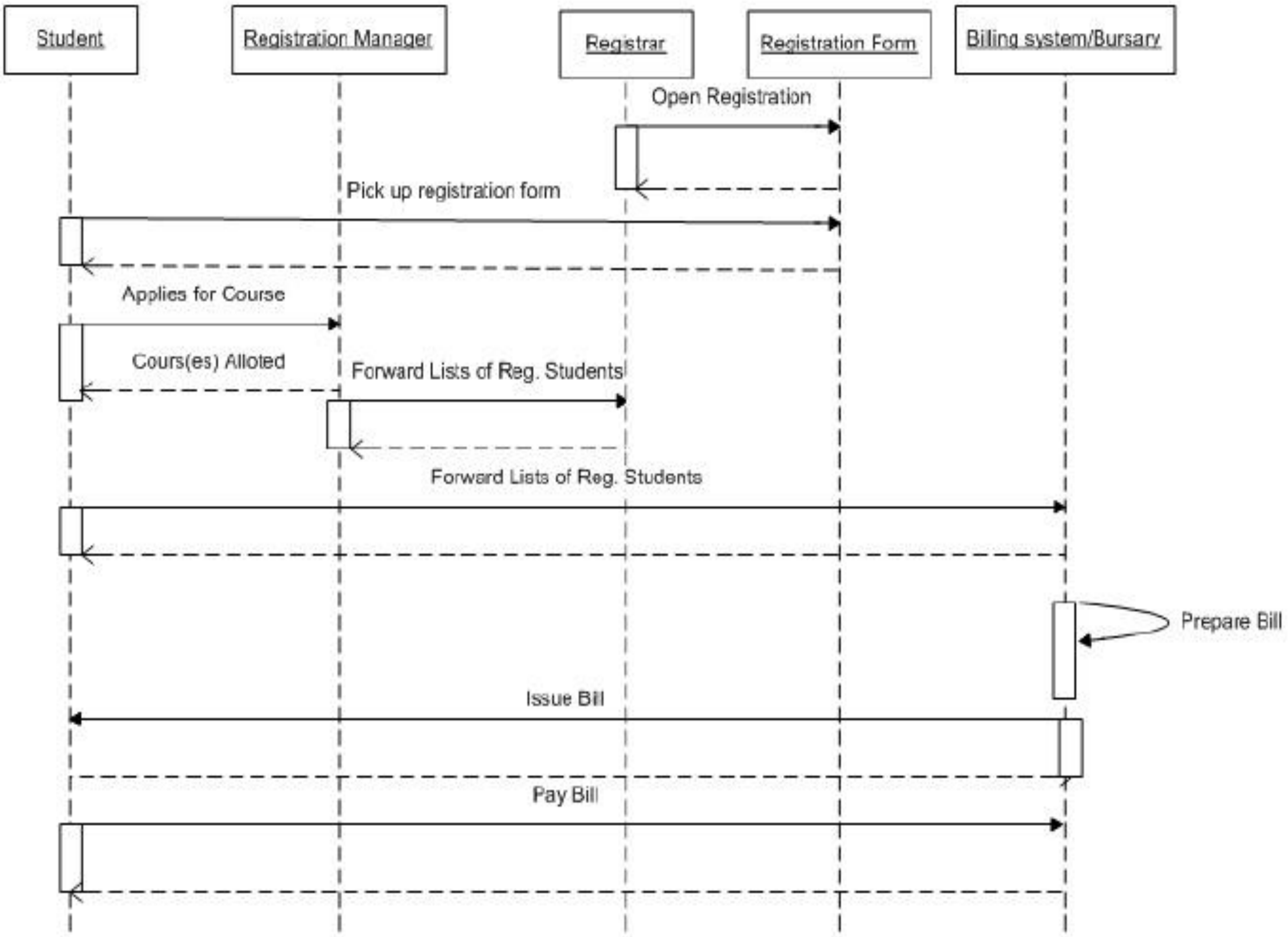
Course Registration Package Class Diagram (Tier 3)



Student Course Registration Activity Diagram with Swim Lane



Student Registration Activity Diagram without Swim-Lane



Student's Registration Sequence Diagram

- **SYSTEM ANALYSIS**

4.1 EXISTING SYSTEM:

Prior to this initiative, Course registration at the college is done by hand. Students fill out forms that contain their course selections and return the forms to the registrar. Clerks then enter the selections into a database and a process is executed to create student schedules. The registration process takes from one to two weeks to complete.

The university decided to investigate the use of an online registration system. This system would be used by professors to indicate the courses they would teach, by students to select courses, and by the registrar to complete the registration process

4.2 PROPOSED SYSTEM:

The new on-line registration system will allow students to select four course offerings for the coming semester. In addition, each student will indicate two alternative choices in case a course offering becomes filled or canceled. No course offering will have more than ten students. No course offering will have fewer than three students. Once the registration process is completed for a student, the registration system sends information to the billing system, so the student can be billed for the semester**.**

DEFINITION, ACRONYMS AND ABBREVATIONS

ABBREVATIONS:

JSP :	JAVA Server Pages
SQL :	Structured Query Language
HTML:	Hyper-Text Mark-up Language

DEFINITIONS:

JSP:

JSP (Java Server Pages) is a Web application framework developed and marketed by Microsoft to allow programmers to build dynamic Websites, Web applications and Web services.

SQL SERVER:

It is a software product whose primary function is to store and retrieve data as requested by other software applications, be it those on same computer or those running on another computer across network (including the Internet).

HYPERTEXT MARKUP LANGUAGE:

Hypertext Markup Language, a standardized system for tagging text files to achieve font, colour, graphic, and hyperlink effects on World Wide Web pages.

6. DEFINITION, ACRONYMS AND ABBREVATIONS

ABBREVATIONS:

JSP	:	JAVA Server Pages
SQL	:	Structured Query Language
RBAC	:	Role Based Access Control

DEFINITIONS:

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SQL SERVER:

It is a software product whose primary function is to store and retrieve data as requested by other software applications, be it those on same computer or those running on another computer across network (including the Internet).

ROLE BASED ACCESS CONTROL:

Role Based Access Control is a database through which the data is accessed according the roles of the users who are accessing the database to retrieve the data.

SYSTEM REQUIREMENTS

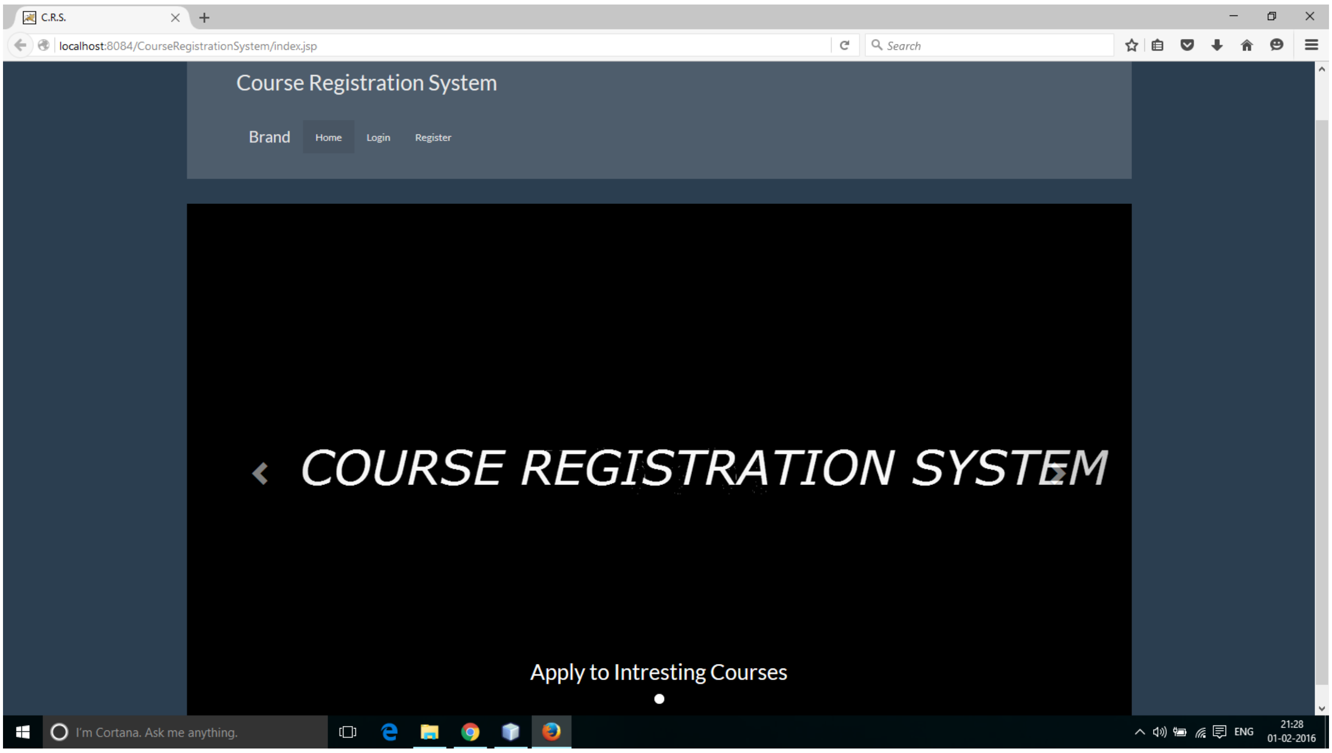
SOFTWARE REQUIREMENTS:

Operating system	:	Windows XP and above
Technology	:	JSP, Java 6 and above.
Web Server	:	Tomcat 7.0
Database	:	Oracle 10g
Software’s	:	Microsoft Visual Studio 2013, NetBeans

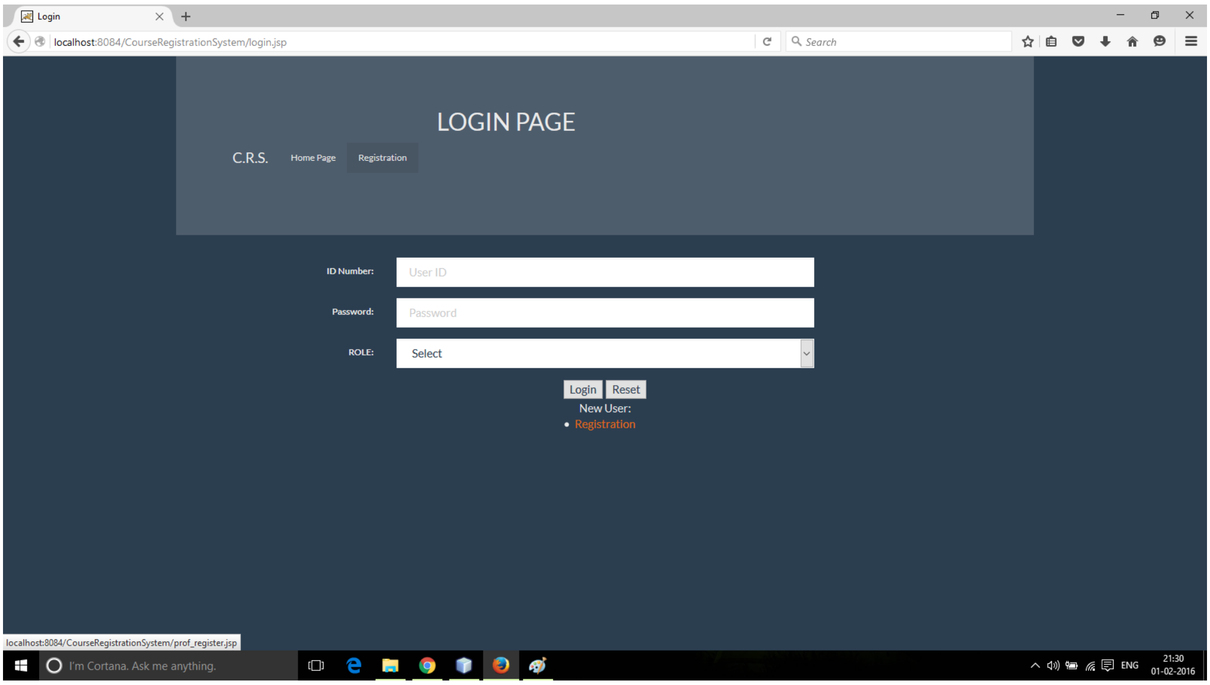
HARDWARE REQUIREMENTS:

Hardware	:	Pentium based systems with a minimum of P4
RAM	:	256MB (minimum)

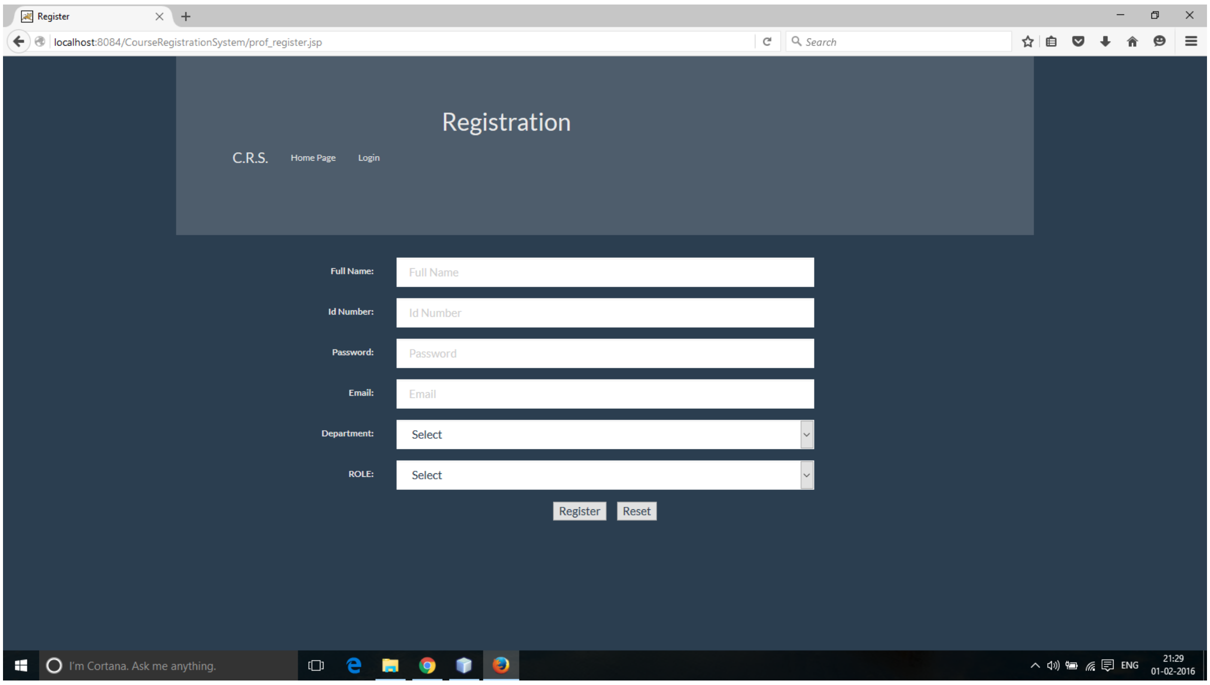
SCREENS


C.R.S.
localhost:8084/CourseRegistrationSystem/index.jsp
Search
Course Registration System
Brand
Home
Login
Register
COURSE REGISTRATION SYSTEM
Apply to Intresting Courses
I'm Cortana. Ask me anything.
ENG
21:28
01-02-2016

LOGIN PAGE



REGISTRATION PAGE


Register
localhost:8084/CourseRegistrationSystem/prof_register.jsp
Search
C.R.S.
Home Page
Login
I'm Cortana. Ask me anything.
ENG
21:29
01-02-2016

Registration

Full Name: Full Name

Id Number: Id Number

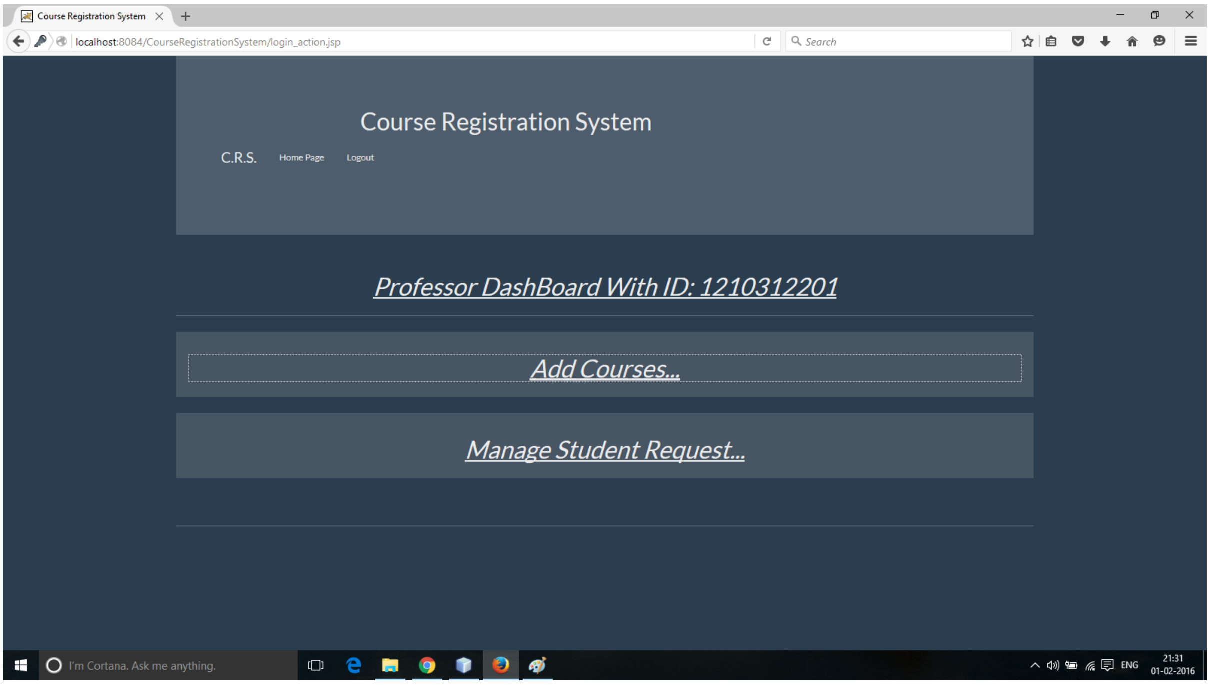
Password: Password

Email: Email

Department: Select

ROLE: Select

PROFESSOR PAGE-1

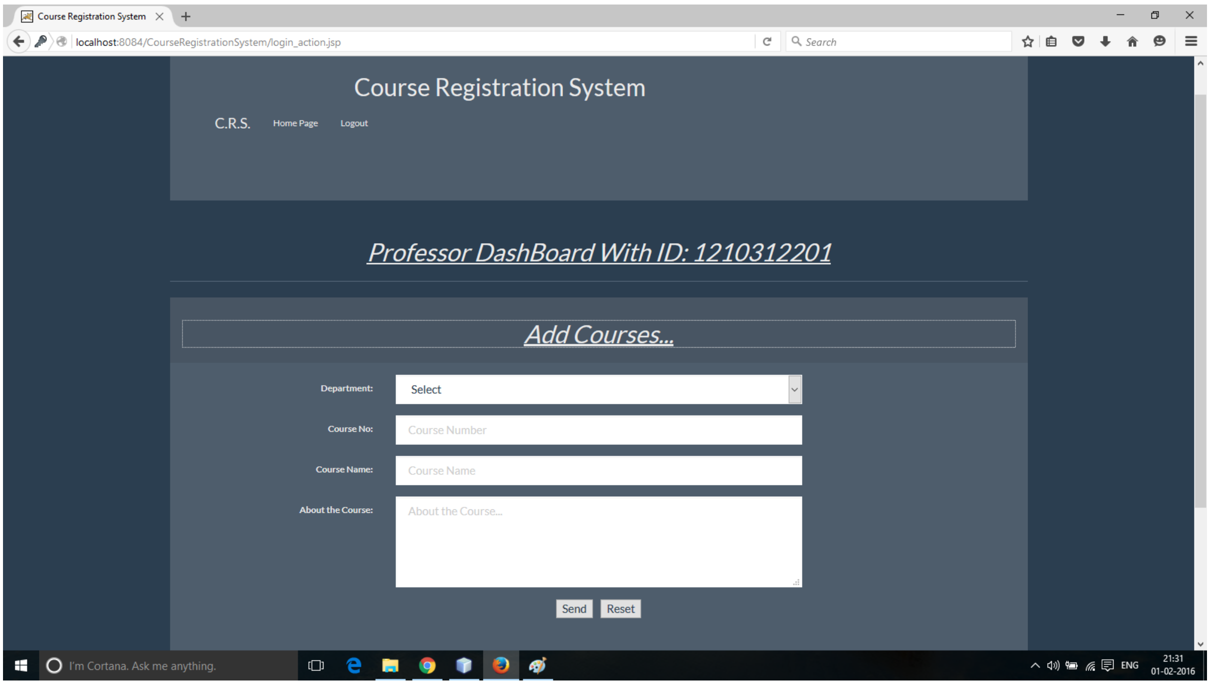

Course Registration System
localhost:8084/CourseRegistrationSystem/login_action.jsp
Search
C.R.S.
Home Page
Logout
I'm Cortana. Ask me anything.
ENG
21:31
01-02-2016

Course Registration System

Professor DashBoard With ID: 1210312201

Add Courses...
Manage Student Request...

PROFESSOR PAGE-2



Course Registration System
localhost:8084/CourseRegistrationSystem/login_action.jsp
Search
C.R.S.
Home Page
Logout
Send
Reset
I'm Cortana. Ask me anything.
ENG
21:31
01-02-2016

Course Registration System

Professor DashBoard With ID: 1210312201

Add Courses...

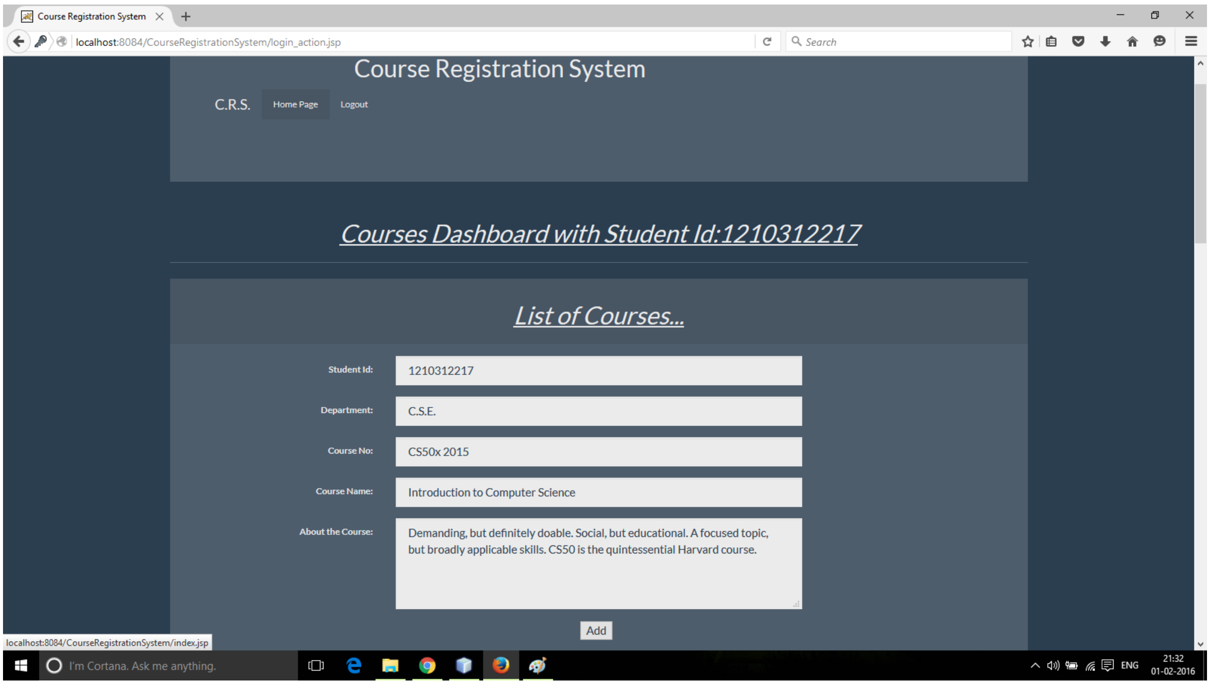
Department: Select

Course No: Course Number

Course Name: Course Name

About the Course: About the Course...

STUDENT PAGE-1



Course Registration System
localhost:8084/CourseRegistrationSystem/login_action.jsp
Search
C.R.S.
Home Page
Logout
Add
localhost:8084/CourseRegistrationSystem/index.jsp
I'm Cortana. Ask me anything.
ENG
21:32
01-02-2016

Course Registration System

Courses Dashboard with Student Id:1210312217

List of Courses...

Student Id: 1210312217

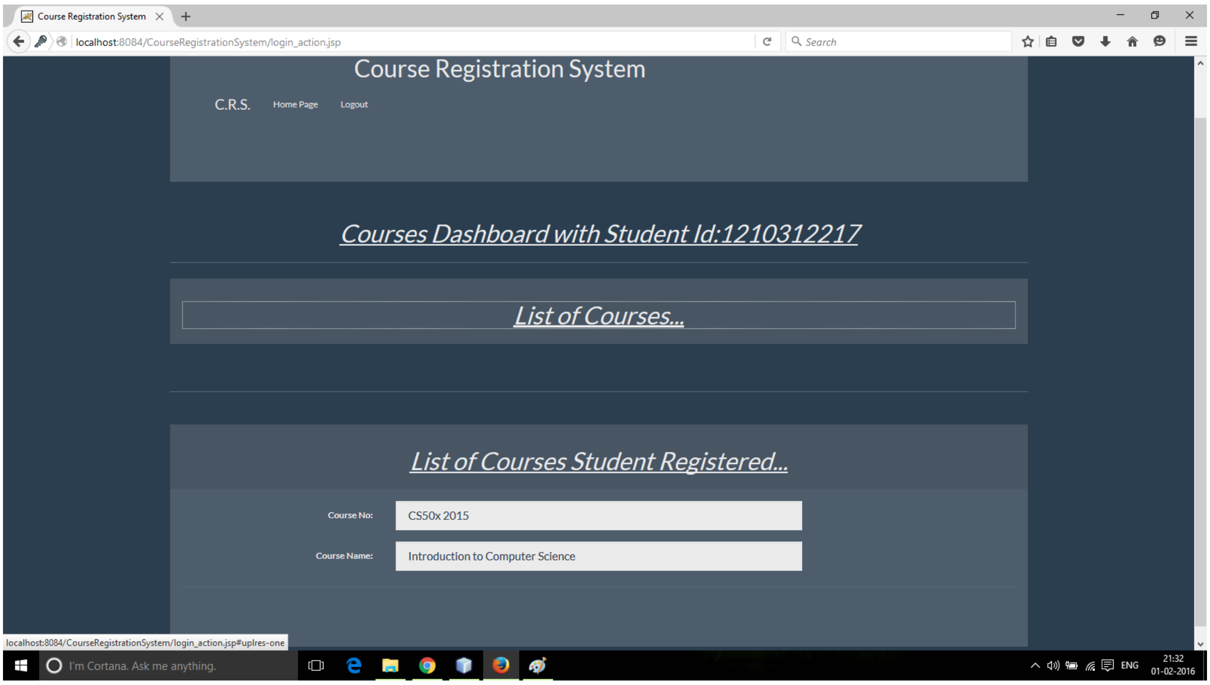
Department: C.S.E.

Course No: CS50x 2015

Course Name: Introduction to Computer Science

About the Course: Demanding, but definitely doable. Social, but educational. A focused topic, but broadly applicable skills. CS50 is the quintessential Harvard course.

STUDENT PAGE-2



Course Registration System
localhost:8084/CourseRegistrationSystem/login_action.jsp
Search
Course Registration System
C.R.S.
Home Page
Logout

Courses Dashboard with Student Id:1210312217

List of Courses...

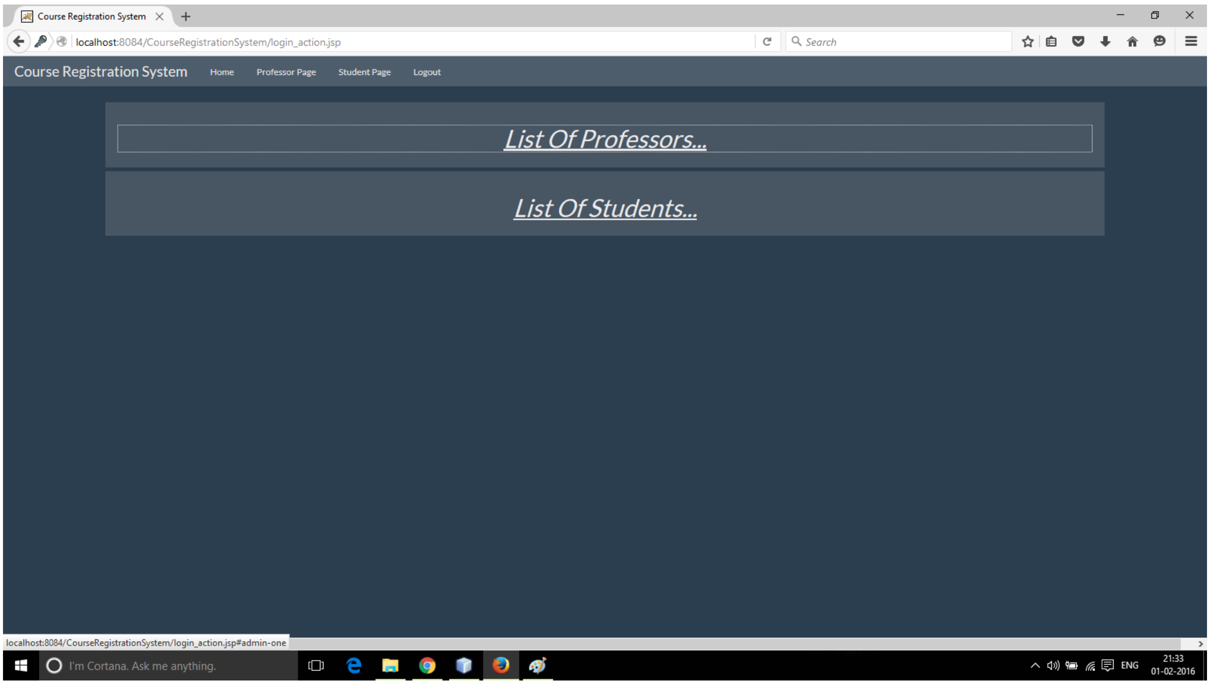
List of Courses Student Registered...

Course No: CS50x 2015

Course Name: Introduction to Computer Science

localhost:8084/CourseRegistrationSystem/login_action.jsp#uplres-one
I'm Cortana. Ask me anything.
ENG
21:32
01-02-2016

ADMIN PAGE



Course Registration System
localhost:8084/CourseRegistrationSystem/login_action.jsp
Search
Course Registration System
Home
Professor Page
Student Page
Logout

List Of Professors...

List Of Students...

localhost:8084/CourseRegistrationSystem/login_action.jsp#admin-one
I'm Cortana. Ask me anything.
ENG
21:33
01-02-2016

12. TEST PROFILE, TEST PLAN

12.1 INTRODUCTION:

Software testing is a critical element of software quality assurance and represents the ultimate review of specification, design and coding. In fact, testing is the one step in the software engineering process that could be viewed as destructive rather than constructive.

A strategy for software testing integrates software test case design methods into a well-planned series of steps that results in the successful construction of software. Testing is the set of activities that can be planned in advanced and conducted simultaneously. The underlying motivation of program testing to affirm software quality with methods that can economically and effectively is applied to both strategic to both large and small-scale systems.

The following are the testing objectives:

- Testing is a process executing a program with the intent of finding an error.
- A good test has a high probability of finding an as yet undiscovered error.
- A successful test is one that uncovers an as yet undiscovered error.

12.2 DESIGN OF TEST CASES AND SCENARIOS:

The objective is to learn tests that systematically uncover different classes of errors and do so with a minimum amount of time and effort. Testing cannot show the absence of defects, it can only show that software defects are present.

Unit Testing:

- Interface
- Number of input characters should be equal to number of arguments.
- Parameters and arguments attributes must match.
- Parameters passed should be in correct order.
- Global variable definitions consistent across module.
- If module does I/O.
- File attribute should be correct.
- Open/Close statements must be correct.
- Format specifications should match I/O statements.
- Buffer size should match record size.
- Files should be opened before use.

- End of file condition should be handled.
- I/O errors should be handled.
- Any textual errors in output information must be checked.
- Local Data Structures (common source of errors).
- Improper or inconsistent typing.
- Erroneous initializing or default values.
- Incorrect variable names.
- Inconsistent data types.
- Overflow, underflow, address exception.
- Boundary conditions and independent paths.
- Error handling.
- Error description unintelligible.
- Error noted does not correspond to error encountered.
- Error condition handled by system run-time before error handler gets control.
- Exception condition processing incorrect.

Integration Testing:

Module integrated by moving down the program design hierarchy. Can use depth first or breadth first top down integration verifies major control and decision points early in design process. Top-level structure tested most. Depth first implementation allows a complete function to be implemented, tested and demonstrated and does depth first implementation of critical function early. Top down integration forced (to some extend) by some development tools in program with graphical user interfaces. Begin construction and testing with atomic modules (lowest level modules).

Bottom up integration testing as its name implies being construction and testing with atomic modules. Because modules are integrated from the bottom up, processing required for module subordinate to a given level is always available and the need for stubs is eliminated.

Top-Down Integration:

Top-Down Integration testing is an incremental approach to construction of program structure. Modules are integrated by moving download through the computer hierarchy, beginning with the main control module.

The Top-Down integration process is performed in the following five steps:

The main control module is used as a test driver and subs are substituted for all the components directly subordinate to the main control module.

Depending on the integration approach selected, subordinate stubs are replaced one at a time with actual components.

Tests are conducted as each component is integrated.

On completion of each of test, another stub is replaced with the real components.

Regression testing may be conducted to ensure that new errors have not been introduced.

Bottom-Up Integration:

Bottom-Up Integration testing as its name implies, being construction as testing with atomic modules because components are integrated from the bottom up, processing required for components subordinate to a given level is always available and for stuns is eliminated.

The Bottom-Up Integration is performed in the following four steps:

Low-Level components are combined into clusters that perform a specific software stub function.

Driver is written to coordinate test case input and output.

The cluster is tested.

12.3 TEST CASES AND SCENERIOS:

A TEST Plan is a systematic approach to test a system as a machine or software. The plane typically contains a detailed understanding of what the eventual work flow will be UINT LEVEL plan for JOB ad.

Test Report and Results:

TEST REPORT NO	1
PROJECT NAME	EFFECTIVE COLLABORATION WITH INFORMATION SHARING IN VIRTUAL UNIVERSITIES
MODULE NAME	STUDENT REGISTRATION
FORM NAME	REGISTRATION
UNIT NAME	USER NAME & DETAILS OF STUDENTS
TEST RESULTS	ON CLICKING SUBMIT BUTTON AFTER PROVIDING YOUR PARTICULAR ACCOUNT WILL BE CREATED AND YOU CAN LOGIN TO THE SITE.

TEST PLAN 1:

Project Name: EFFECTIVE COLLABORATION WITH INFORMATION SHARING IN
VIRTUAL UNIVERSITIES.

Module Name: STUDENT Module.

Unit Name: User Name.

Test Result: The User Name Textbox is tested and verified.

Test Plan (Unit Module/Test Integration)

Test plan for EFFECTIVE COLLABORATION WITH INFORMATION SHARING IN VIRTUAL UNIVERSITIES.

Unit ID: LOGIN.

Test Case ID: Login Page.

Test Type: Unit Case.

Form Name: LOGIN.

Base Table: Registration.

PURPOSE:

Registration table is used for store the details of registered members details and along with their Username and Password. By using these details the administrator can perform the operations.

TEST CASE DESCRIPTION:

USERNAME varchar (52), PRIMARY KEY

Test Data

SNO	INPUT SPECIFICATION	EXPECTED RESULT/OUTPUT
1.	Column Name: User Id Valid Input: If the User id valid along with password then the form will be navigated to allotted page. Invalid Input: If the User Name should be re-entered.	Valid Output: If the User Name and Password are correct then form navigation to home page. Invalid Output: If the User Name is incorrect error message is displayed as "User Invalid" and it will ask for enter of User Id and Password.

TEST COMPLETION CRITERIA:

When expected results match the actual results performing the test, the test is considered to be completed.

VALIDATION TESTING:

Validation succeeds when system functions in a manner that can be reasonably by the end-user. This is achieved through a series of black-test that demonstrate with requirements.

There are two tests for system conduction for the system validation:

- Alpha Testing.

  A customer conducts it at the developer's site. The software is used in a nature setting with the developer "looking over the shoulder" of the user and recording errors and usage problems.

- Beta Testing

  This test is conducted at one or more users sited by the end user of the software. Here the developer generally not presents. Therefore, the beta test in a "line" application of the software in an environment that can't be controlled by the developer.

System Testing:

Once the software product is developed, it is thoroughly tested and it is delivered to the users. Now, it has to be tested by developing it on the system i.e., to what the given software is comfortable to the environment. The software engineer should consider these issues during early stages of software development to release himself from the problems which are encountered after completion of the software. Hence, the tests conducted to ensure that the software is comfortable with the system, where it is deployed is referred as “System Testing”.

- Recovery Testing

  It is often a nature fact that certain errors may corrupt the system or may make the system not to function properly to a stipulated period of time. Hence, recovery testing is the process which given software id exposed to failures and it is tested to see its recovery capabilities.

Usually the recovery can be of two types:

- Automatic through human intervention.
- Recovery through human intervention.

  During automatic recovery the software itself recovered. Sometimes requires certain addition support like system restart, reutilization, data recovery, etc., for tis normal execution when the system requires human intervention in order to recover from such recovery is referred as recovery through human intervention. Here, mean-time-to-repair is a value which is calculated to ensure that the software gets recovered within acceptable span of time.

- Security testing:

  Security plays a major role especially in that software. Which are made to deal with highly confidence data. For these systems, often several hackers try to break the security of the system and acquire the confidential data for their foolish requirements. Hence, for these systems, security measures should be given vital importance. For this purpose, the testers themselves disguise into hackers and perform series of attempts to breaks the security of the given software can be truly judged.

- Stress Testing

  Stress testing is usually performance to check the limits of the system i.e., to what extend the system can resists the abnormal conditions. Hence, the system is tested by providing abnormal resources in different proportions. During stress testing a system can be.

- Providing the excess values of data in different proportions to check its memory management capabilities i.e., how efficiently the system manages the data which is more than its capability.

- Exposed to certain programs demanding large memory and resources not available with the current system.
- Providing too many interrupts during a specific period of time.
- Providing with too many inputs through it can survive only few inputs etc.

- Performance testing

Performance testing is essential to ensure the given software performance to the execution when it is implemented on the system. Hence, in this case it is only the software considered but also the hardware in which it is deployed. Here, the performance testing is combined with the stress testing cases to check the internal aspects such as resources utilization and various other instances.