A CS814 Course Project Report

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1. Introduction

This project is aimed at developing an online application for the Training and Placement Dept. of the college. The system is an online application that can be accessed throughout the organization and outside as well with proper login provided. This system can be used as an application for the TPO of the college to manage the student information with regards to placement. Students logging should be able to upload their information in the form of a CV. Visitors/Company representatives logging in may also access/search any information put up by Students and select students according to the criteria.

1.1 Objective:

Our project provides the facility of maintaining the details of the students and gets the requested list of candidates for the companies who would like to recruit the students based on the eligibility criteria provided by the companies.

1.2 Scope:

Our project has a big scope to do. We can store information of all the students. CV's are categorized according to various streams. Various companies can access the information. Students can maintain their information and can update it. Notifications are sent to students about the companies. Students can access previous information about placement.

1.3 Technology Used:

1.3.1 Front End:

HTML, CSS & Boot Strap are primarily used in designing the front end of webpages.

HTML or Hyper Text Mark-up language is used for specifying the layout of webpages. Web browsers receive HTML documents from a webserver or from local storage and render them into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

CSS stands for Cascading Style Sheets is a style sheet language used for describing the presentation of a document written in a mark-up language.

Bootstrap is an open source front-end web framework used for designing websites and web applications. It contains HTML- and CSS-based design templates for typography, forms, buttons, navigation and other interface components, as well as optional JavaScript extensions.

1.3.2 Back End:

PHP, JAVASCRIPT, MYSQL and JQUERY are the technologies used at the backend of our project. Numerous scripts are written in PHP which stores data in the database created with the help of MYSQL. JavaScript and jQuery are used for performing various validations that are required during fetching and storing of data.

JavaScript is a high-level, dynamic, untyped, and interpreted programming language it is one of the three core technologies of World Wide Web content production; the majority of websites employ it and it is supported by all modern Web browsers without plug-ins. JavaScript allows you to create highly responsive interfaces that improve the user experience and provide dynamic functionality, without having to wait for the server to react and show another page.

MySQL is an open-source relational database management system (RDBMS) used for creating and managing database. It uses complex data structures in the background to store and retrieve data effectively and efficiently.

JQUERY is a cross-platform JavaScript library designed to simplify the client-side scripting of HTML. jQuery's syntax is designed to make it easier to navigate a document, select DOM elements, create animations and to handle events. jQuery also provides capabilities for developers to create plug-ins on top of the JavaScript library. This enables developers to create abstractions for low-level interaction and animation, advanced effects and high-level, theme able widgets. The modular approach to the jQuery library allows the creation of powerful dynamic web pages and Web applications.

1.4 System Requirements

1.4.1 Hardware Requirements:

Intel Pentium 4 or above/ AMD Athlon 2.4 GHz or above

512 MB RAM or above

DirectX 9.0c compatible graphics card or above

Standard keyboard and mouse

Network card

1.4.2 Software Requirements:

For PC Windows Vista or above OSX or Linux for running XAMPP for server windows server 2008 or above, Unix or Linux server

Internet explorer 8 or above, Google Chrome ver. 32 or above or similar browser

XAMPP/ WAMP

1.5 Types of Users:

There are four types of users in our project: Student, Event Co-ordinator, Placement Co-ordinator and admin.

Student: can only view the data that are present on the website.

Event Co-ordinator: can add and delete news feed.

Placement Co-ordinator: can add and delete interview related information.

Admin: has every right i.e., he can both manage news and interview related information.

2. Authorization

2.1 Need of RBAC based authorization:

Role-based access control (RBAC) restricts network access based on a person's role within an organization and has become one of the main methods for advanced access control. The roles in RBAC refer to the levels of access that employees have to the network.

Employees are only allowed to access the information necessary to effectively perform their job duties. Access can be based on several factors, such as authority, responsibility, and job competency. In addition, access to computer resources can be limited to specific tasks such as the ability to view, create, or modify a file.

As a result, lower-level employees usually do not have access to sensitive data if they do not need it to fulfil their responsibilities. This is especially helpful if we have many employees and use third-parties and contractors that make it difficult to closely monitor network access. Using RBAC will help in securing our website's sensitive data and important applications.

2.2 Components of RBAC present in our application:

User

It consists of users that are registered to our website. We have various information related to user such as their name, address, email id, etc.

Role

It consists of roles that are available at our website. Four roles are available in our current implementation: Student, Event Co-ordinator, Placement Co-ordinator and admin.

Permissions

It consists of the permissions associated with roles. Such as admin has all the permissions, student do not have any permission of modification, and other roles have restricted permissions.

2.3 Implementation of authorization:

The authorization has been implemented by the help of five relations in database:

i. student_reg
ii. role
iii. permission
iv. user_role
v. role_permission

The structure of relations is as follows:

i. student_reg

Field Name	Data Type	Constraint
StudentId	Int (11)	Primary key, NOT NULL, Auto_Increment
StudentName	Varchar (100)	NOT NULL
Email	Varchar (100)	NOT NULL
Password	Varchar (100)	NOT NULL
Address	Varchar (100)	NOT NULL

ii. role

Field Name	Data Type	Constraint
RoleId	Int (11)	Primary key, NOT NULL, Auto_Increment
Role	Varchar (100)	NOT NULL

iii. permission

Field Name	Data Type	Constraint
PermissionId	Int (11)	Primary key, NOT NULL, Auto_Increment
Permission	Varchar (100)	NOT NULL

iv. user_role

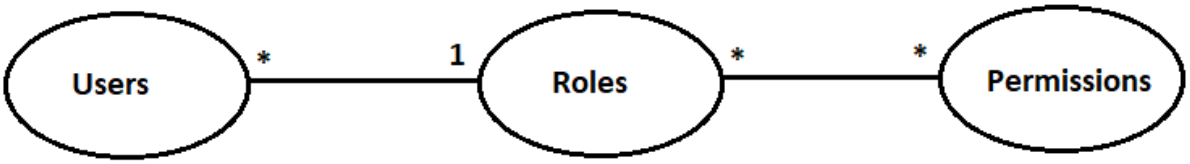
Field Name	Data Type	Constraint
StudentId	Int (11)	Foreign key, NOT NULL
RoleId	Int (11)	Foreign key, NOT NULL

v. role_permission

Field Name	Data Type	Constraint
RoleId	Int (11)	Foreign key, NOT NULL
PermissionId	Int (11)	Foreign key, NOT NULL

The relations user_role and role_permission shows the relationship between (student_reg and role) and (role and permission).

ER diagram of our implementation is as follows:



3. Conclusion

In making of this application, we have learnt various web developing languages and as we got more familiar with them and various technologies, it became easier to work with them.

This application is a cost-effective solution to all the manual work that was earlier required.

This application is made for all the users so that user can see the required information at the website also in his/her own hand. So, the main goal of portability and mobility gets achieved by this application.

Further, this application is made using php and MySQL which is a leading web development application programming technology. Hence, this application is also economic solution for the user.

Now, this is a user-friendly website so, any student can use this website to search job easily. Therefore, this application provides collaborative interface to the users.

4. References

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6. www.digitalguardian.com