Thesis Repository Portal App

Description:

Bernoulli Centre for Research is looking to digitizing the Thesis and Dissertation documents stored in the Library of the Centre and making it available to the Research students for quick and anytime reference. They intend to do away with the current system where the Students will have to manually search for the books, which are not indexed or marked.

University wants this application to be developed in .NET technology with MSSQL database. This would include HTML, CSS and javascript if needed as a front end.

Objective:

The main objective of this application is to provide the Research Student of the Bernoulli Centre for Research, access to the thesis and dissertation documents, currently stored in the Library, round the clock and quick access. The University, therefore proposes to create a web based application for the same. The application **Thesis IT** in this way will also help to save students a lot of time, by eliminating the travel to the University library.

*Background***:**

Bernoulli Centre for Research runs a program one of its kind in the province, where it offers research projects for the final year students of the Engineering colleges in the province. The Research Students would of course require references to previous studies, which may include theses and dissertations. The Centre has only one Library where these reference materials are available. All the students enrolling for Research will need to use the reference material available in this library.

Limitations of the existing system:

- The university librarian does not have a master list of all the available thesis books, which can be found in the library. If a student searches for a thesis, which may be related to "Study on Start Ups", he/she must manually search the whole library for relevant content.

- The Centre is also situated at a remote location from the rest of the Colleges /Institutes which makes the travel for the Students from their colleges difficult. Moreover, transportation can possibly be a problem for other students.

- Thesis and dissertation books are not archived properly; they are stocked on the library shelves in a disorderly manner

- Students have to manually browse through the pages of the books until they find what they were looking for. Space in the library is also limited forcing to the Students to stand and read the books.

- The books are also not stored in the Library according to the discipline of study – e.g. Computer Science, Electrical, Mechanical, etc.

- Moreover, the books are not specified as to what college, course, or department they belong to. For

example, thesis books about computer science are mixed with thesis books about hotel and restaurant management.

Expectations from the Proposed System:

- The proposed system is expected to be a website which should have student login capabilities, viewing of thesis / dissertation documents, and account management as well. A back-end website layer is expected to be made for the administrator side, the university librarian.

- In addition to these expected outcomes, the system must also be secured, that ONLY bonafide and /or students of enrolled with Bernoulli Research Centre can access the system.

- Students' access to thesis documents is limited to viewing. They cannot alter or delete the file.

Functional Requirement:

The website must have the following functional requirements:

1. **Administrator**

    a. The Admin must be able to add, edit, delete and search through students' personal and account information in the database through a separate website. A back-end website layer is required for management of student and other data.

       Note: When an admin adds a student information, the server must automatically add a student account in a table named `accounts`. The credentials that will be added are the following:

       UserID : StudentID of the student

       Password : Digits of student's birthday (i.e. 10281995)

    b. The Admin must be able to upload thesis files and add corresponding information like title, description, category, college etc. in the server. These thesis files will be, of course, the ones that be used to serve the students' research needs. Thesis files which are in **.doc** or **.docx** format should be converted to **PDF**. If the files are already in PDF format, they must be simply uploaded. The whole set of information is specified at the end of the document.

    c. The system must be able to generate reports for the Administrator. Reports generation may be sorted and filtered per student, thesis document or per course and college. Also, it can be also in a weekly/monthly basis.

    d. An auto-update of thesis document status must be enforced to the system. There will be two thesis status that can be implemented:

       - **Suitable** – this is a status for theses which are published 5 years less the current date. (e.g. Today is year 2016, and suitable books are those published from 2011-2016)

       - **Obsolete** - this is a status for theses which are published more than 5 years less than the current date. (e.g. Today is year 2016, and obsolete books are those published from 2010 – 2000)

       - This information is important so researchers will know the references that can still be used for their current field of study.

2. **Client**

a. The student must be able to log in the system, and must be given the privilege of viewing of thesis for his/her chosen field of research project. (You can use a third-party API for this one)

b. The student must be able to **search** thesis by anything they may be comfortable with; they must be able to search by **keywords** (i.e. computer, web, etc), **authors, category, college, course, rating, views** and **title**. This must be made to provide a usable searching capability for all kinds of student.

c. The students must be able to **rate** viewed thesis documents so other students can know that they are reliable and relevant sources of content.

d. The website must provide the students a tracking of the thesis they recently viewed, so they do not have to go back to the landing page every time they want to search a possible thesis reference.

e. Constraints are the **suitable** and **obsolete** statuses, which are mentioned above.

Non-functional Requirement:

These requirements are very important characteristics of the system. For example attributes such as Reliability, performance, security, usability, compatibility etc.

Scalability – The system must be scalable; it must still be functionally used even when the university will have more branches and have more thesis archived.

Availability – The database must be hosted online, so that students can access the repository anytime, anywhere regardless of their schedule.

Performance – The website must be optimized in performance. Unnecessary resources must not be allocated, and fetching of data must be asynchronous

Usability – The system must be optimized for all browsers. Responsive design must be attained for students who use tablets and mobile phones.

Security requirement - Only bonafide ECU students are authorized to access the system to avoid guest access. ECU students must login using their **Student ID** and the digits of their **birthday**.

Validations – ensure that there will not be a data redundancy and duplicate in the database.

Information set that needs to be added for a thesis document:

1. Title

2. Description (brief summary)

3. File Upload

4. College to where it belongs to

5. Category to where it is categorized to (e.g. Computer Engineering, Web Development, etc.)

6. Keywords

7. Authors (can be either listed as comma separated names, or be associated to several students)