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This humble endeavor wouldn't have become a success without the constant support, inspiration and blessings from my parents. We express our love and gratitude to all our well-wishers and dear one without whose support and encouragement this work would have never been possible.

Abstract

Centralised OpenCourseWare Portal is an initiative which helps the students across the globe to access the educational contents available freely on the Internet such as from OpenCourseWares (OCW) easily and effectively. We seek to engender a culture of openness in education to allow everyone, everywhere to access the education they desire, while providing a shared body of knowledge and best practices that can be drawn upon for innovative and effective approaches.

OpenCourseWare is the name given to open educational resources that are presented in course format, often including course planning materials, such as syllabi and course calendars, along with thematic content, such as textbooks, lectures, presentations, notes and simulations. Open Educational Resources are materials developed by experienced educators that are available for use, repurposing, and modification (including translation), in whole or in part, by everyone, everywhere in the world.

Open Education is, at its core, about free and open sharing. Free and open sharing increases access to education and knowledge for anyone, anywhere, anytime. It allows people to make changes to materials or to combine resources in new ways to build something new. Open Education incorporates free and open learning communities, educational networks, teaching and learning materials, open textbooks, open data, open scholarship, and on and on. Open Education gives people access to knowledge, provides platforms for sharing, enables innovation, and connects communities of learners and educators around the world.

This aims at bringing together content from OCWs, video tutorials and PDF tutorials being currently offered, categorize and index them in a suitably, bringing them under one umbrella for easy access. It helps new students to search, compare and choose the most suitable resource. The essence of the proposed project lies in connecting and cataloging all the course details, reviews and links under a single portal . The integrated online platform (portal) can suggest the most appropriate courses for the students based on specific requirements and preferences. This way we can ulilize the power of Internet to provide quality education absolutely free of cost.

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1. Introduction

Centralised OpenCourseWare Portal enables the students to access he education contents available freely on the Intenet. OpenCourseWare (OCW) is an educational initiative developed by the Massachusetts Institute of Technology (MIT) to make the core teaching materials for all MIT graduate and undergraduate classes available at no cost to Internet users around the world. MITsreasoning behind OCW was to ”enhance human learning worldwide by the availability of a web of knowledge”.The movement was soon reinforced by the launch of similar projects atYale, the University of Michigan, and the University of California Berkeley.

In India too we can see such movements.The most popular is the National Programme on Technology Enhanced Learning (NPTEL). NPTEL is a Government of India sponsored collaborative educational programme. By developing curriculum-based video and web courses the programme aims to enhance the quality of engineering education in India. It is being jointly carried out by 7 IITs and IISc Bangalore, and is funded by the Ministry of Human Resources Development of the Government of India. Seven IITs and the Indian Institute of Science (IISc) have worked together to develop web and video based material for basic undergraduate science and engineering courses in order to enhance the reach and quality of technical education in India.

OCW has been compared to the open source software movement because course materials on the OCW site will be ”open and freely available worldwide for non-commercial purposes such as research and education, providing an extraordinary resource, free of charge, which others can adapt to their own needs”.OCW is not seen as a substitute for revenue-generating distance education (which requires interaction between teacher and student) but rather as a Web-based resource for teachers and learners around the globe. Beacause it is free and open. Anyone having Internet can have access the courses.

1.1 Need

Majority of the students in the third world countries are not getting access to quality educational content. A large pool of online coursewares is available but a system to determine the best course available for a particular topic however doesnt exist. Hence the need for ranking the various courses available arises. Ranking can be done on surveys, user ratings, etc. Through the process of ranking, the best course in a particular section can be determined.

Our system aims at bringing this large pool of online courseware under a single umbrella for ease of access and to ranking the various courses available.

1.2 Choice of Topic

The essence of the proposed project lies in connecting and cataloging all the course details, reviews and links under a single portal. The integrated online platform (portal) can suggest the most appropriate courses for the students based on specific requirements and preferences. The new site features a user friendly interface and availability of resources at a single point of contact.

The main highlight of the proposed system is a ranking algorithm that ranks the courses offered by different portals on the basis of user rating, reviews etc. The proposed system will also feature a forum to provide a platform for interaction between interested parties. The forum will also feature a mentor program to provide guidance to beginners. The system will be implemented using Python. The system would help in popularizing OpenCourseWares and accelerating the new era of online education in developing countries, where lack of access to learning material is a serious deterrent to many students. The proposed system can empower students lacking proper resources to study advanced topics or simply provide a guideline to student lost amidst the explosion of online education resources.

2. Literature Survey

2.1 Existing System

The existing systems has the following limitations:

- Lack of centralized OpenCourseWare websites.
- No automated course suggestions.
- Lack of comparison between courses offered by different sources.
- Proper feedback based system doesnt exist.

Usually above given features are not integrated together into a single system.

2.2 Proposed System

The aim of proposed system is to develop a system of improved facilities. The proposed system can overcome all the limitations of the existing system. The proposed system is an integrated online platform (portal) which suggests the most appropriate courses for the students based on specific requirements and preferences.

2.2.1 Advantages of Proposed System

The system is very simple in design and easy to implement. The system requires very low system resources and the system will work in all platforms. It has got following features

- Automated course suggestions based on user profile.
- Utilizes a ranking algorithm which gives the best course available.
- Cross browser support
- Greater efficiency and swift in response.
- Better user-experience.
- User friendliness and interactiveness

3. Software Requirement Specification

3.1 Non-Functional Requirements

3.1.1 Software Requirements

- Operating system : Linux, Windows
- Language : Python
- Framework : Django
- Front-End : HTML5, CSS3

Python

- Simple

  Python is a simple and minimalistic language. Reading a good Python program feels almost like reading English, although very strict English! This pseudo-code nature of Python is one of its greatest strengths. It allows you to concentrate on the solution to the problem rather than the language itself.

- Easy to Learn

  As you will see, Python is extremely easy to get started with. Python has an extraordinarily simple syntax, as already mentioned.

- Free and Open Source

  Python is an example of FLOSS (Free/Libra and Open Source Software). In simple terms, you can freely distribute copies of this software, read its source code, make changes to it, use pieces of it in new free programs, and that you know you can do these things. FLOSS is based on the concept of a community which shares knowledge. This is one of the reasons why Python is so good - it has been created and is constantly improved by a community who just want to see a better Python.

- High Level Language

  When you write programs in Python, you never need to bother about the low-level details such as managing the memory used by your program, etc.

- Portable

  Due to its open-source nature, Python has been ported (i.e. changed to make it work on) to many platforms. All your Python programs can work on any of these platforms without requiring any changes at all if you are careful enough to avoid any system-dependent features. You can use Python on Linux, Windows, FreeBSD, Macintosh, Solaris, OS/2, Amiga, AROS, AS/400, BeOS, OS/390, z/OS, Palm OS, QNX, VMS, Psion, Acorn RISC OS, VxWorks, PlayStation, Sharp Zaurus, Windows CE and even PocketPC.

- Interpreted

  A program written in a compiled language like C or C++ is converted from the source language i.e. C or C++ into a language that is spoken by your computer (binary code i.e. 0s and 1s) using a compiler with various flags and options. When you run the program, the linker/loader software copies the program from hard disk to memory and starts running it.

  Python, on the other hand, does not need compilation to binary. You just run the program directly from the source code. Internally, Python converts the source code into an intermediate form called bytecodes and then translates this into the native language of your computer and then runs it. All this, actually, makes using Python much easier since you don't have to worry about compiling the program, making sure that the proper libraries are linked and loaded, etc, etc. This also makes your Python programs much more portable, since you can just copy your Python program onto another computer and it just works!

- Object Oriented

  Python supports procedure-oriented programming as well as object-oriented programming. In procedure-oriented languages, the program is built around procedures or functions which are nothing but reusable pieces of programs. In object-oriented languages, the program is built around objects which combine data and functionality. Python has a very powerful but simplistic way of doing OOP, especially when compared to big languages like C++ or Java.

- Extensible

  If you need a critical piece of code to run very fast or want to have some piece of algorithm not to be open, you can code that part of your program in C or C++ and then use them from your Python program.

- Embeddable

  You can embed Python within your C/C++ programs to give 'scripting' capabilities for your program's users.

- Extensive Libraries

  The Python Standard Library is huge indeed. It can help you do various things involving regular expressions, documentation generation, unit testing, threading, databases, web browsers, CGI, ftp, email, XML, XML-RPC, HTML, WAV files, cryptography, GUI (graphical user interfaces), Tk, and other system-dependent stuff. Remember, all this is always available wherever Python is installed. This is called the 'Batteries Included' philosophy of Python.

  Besides, the standard library, there are various other high-quality libraries such as wxPython, Twisted, Python Imaging Library and many more.

Django

Django is a free and open source web application framework, written in Python, which follows the modelviewcontroller architectural pattern. It is maintained by the Django Software Foundation (DSF), an independent organization established as a 501(c)(3) non-profit.

Django's primary goal is to ease the creation of complex, database-driven websites. Django emphasizes reusability and ”pluggability” of components, rapid development, and the principle of don't repeat yourself. Python is used throughout, even for settings, files, and data models. Django also provides an optional administrative create, read, update and delete interface that is generated dynamically through introspection and configured via admin models.

Features of Django The core Django MVC framework consists of an object-relational mapper which mediates between data models (defined as Python classes) and a relational database (”Model”); a system for processing requests with a web templating system (”View”) and a regular-expression-based URL dispatcher (”Controller”). Also included in the core framework are:

- A lightweight, standalone web server for development and testing.
- A form serialization and validation system which can translate between HTML forms and values suitable for storage in the database.
- A template system that utilizes the concept of inheritance borrowed from object-oriented programming
- A caching framework which can use any of several cache methods.
- Support for middleware classes which can intervene at various stages of request processing and carry out custom functions.
- An internal dispatcher system which allows components of an application to communicate events to each other via pre-defined signals.
- An internationalization system, including translations of Django's own components into a variety of languages.
- A serialization system which can produce and read XML and/or JSON representations of Django model instances.

- A system for extending the capabilities of the template engine.
- An interface to Python's built in unit test framework.

Bundled applications The main Django distribution also bundles a number of applications in its ”contrib” package, including:

- An extensible authentication system.
- The dynamic administrative interface.
- Tools for generating RSS and Atom syndication feeds.
- A flexible commenting system.
- A sites framework that allows one Django installation to run multiple websites, each with their own content and applications.
- Tools for generating Google Sitemaps.
- Built-in mitigation for cross-site request forgery, cross-site scripting, SQL injection, password cracking and other typical web attacks, most of them turned on by default.
- A framework for creating GIS applications.

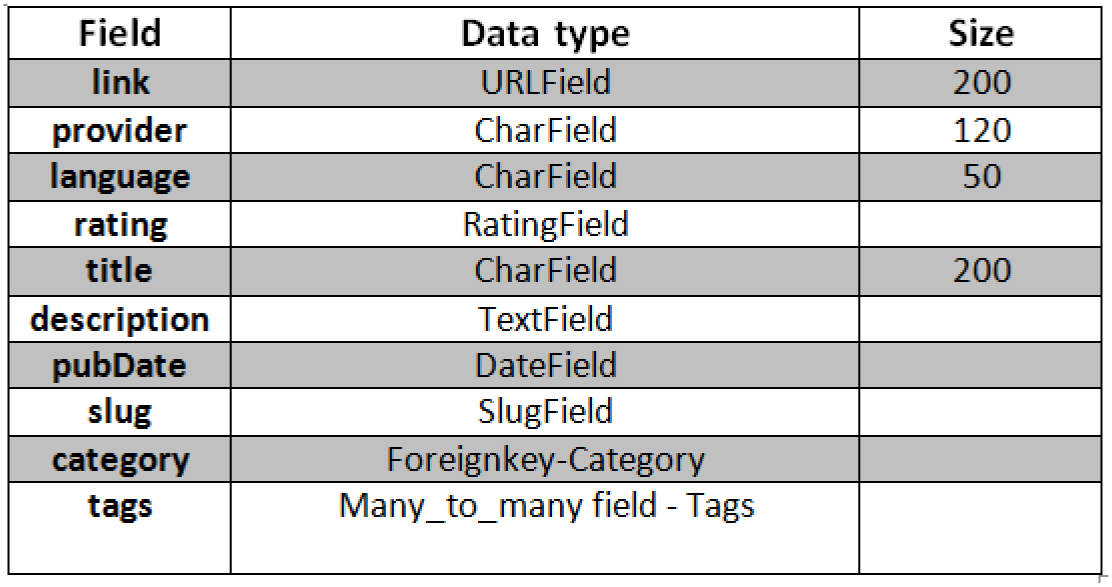
3.1.2 Hardware Requirements

- Memory minimum of 1 GB RAM
- Hard disk of 40 GB
- Monitor
- Mouse
- Keyboard

3.2 Functional Requirements

3.2.1 Database tables

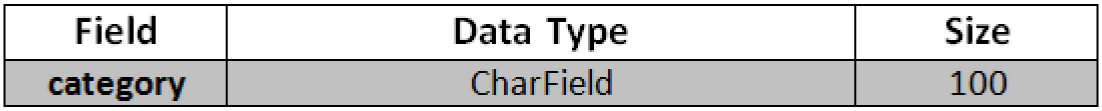
Database table:OpenCourse



Field	Data type	Size
link	URLField	200
provider	CharField	120
language	CharField	50
rating	RatingField	
title	CharField	200
description	TextField	
pubDate	DateField	
slug	SlugField	
category	Foreignkey-Category	
tags	Many_to_many field - Tags	

Table 1: *OpenCourse*

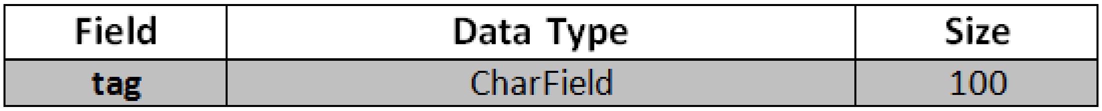
Database table:Category



Field	Data Type	Size
category	CharField	100

Table 2: *Category*

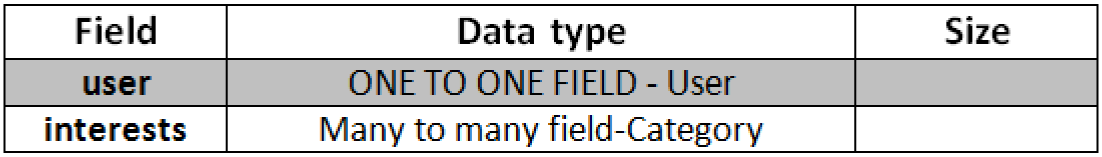
Database table:Tags



Field	Data Type	Size
tag	CharField	100

Table 3: *Tags*

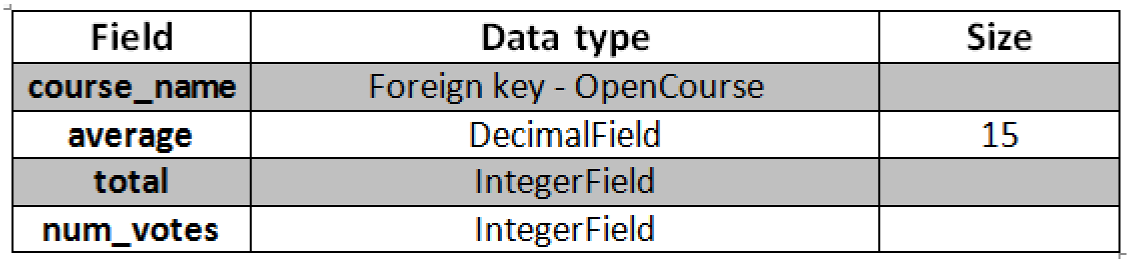
Database table:Users



Field	Data type	Size
user	ONE TO ONE FIELD - User	
interests	Many to many field-Category	

Table 4: *Users*

Database table:Score



Field	Data type	Size
course_name	Foreign key - OpenCourse	
average	DecimalField	15
total	IntegerField	
num_votes	IntegerField	

Table 5: *Score*

4. Detailed Design Diagram

4.1 Use-Case Diagram

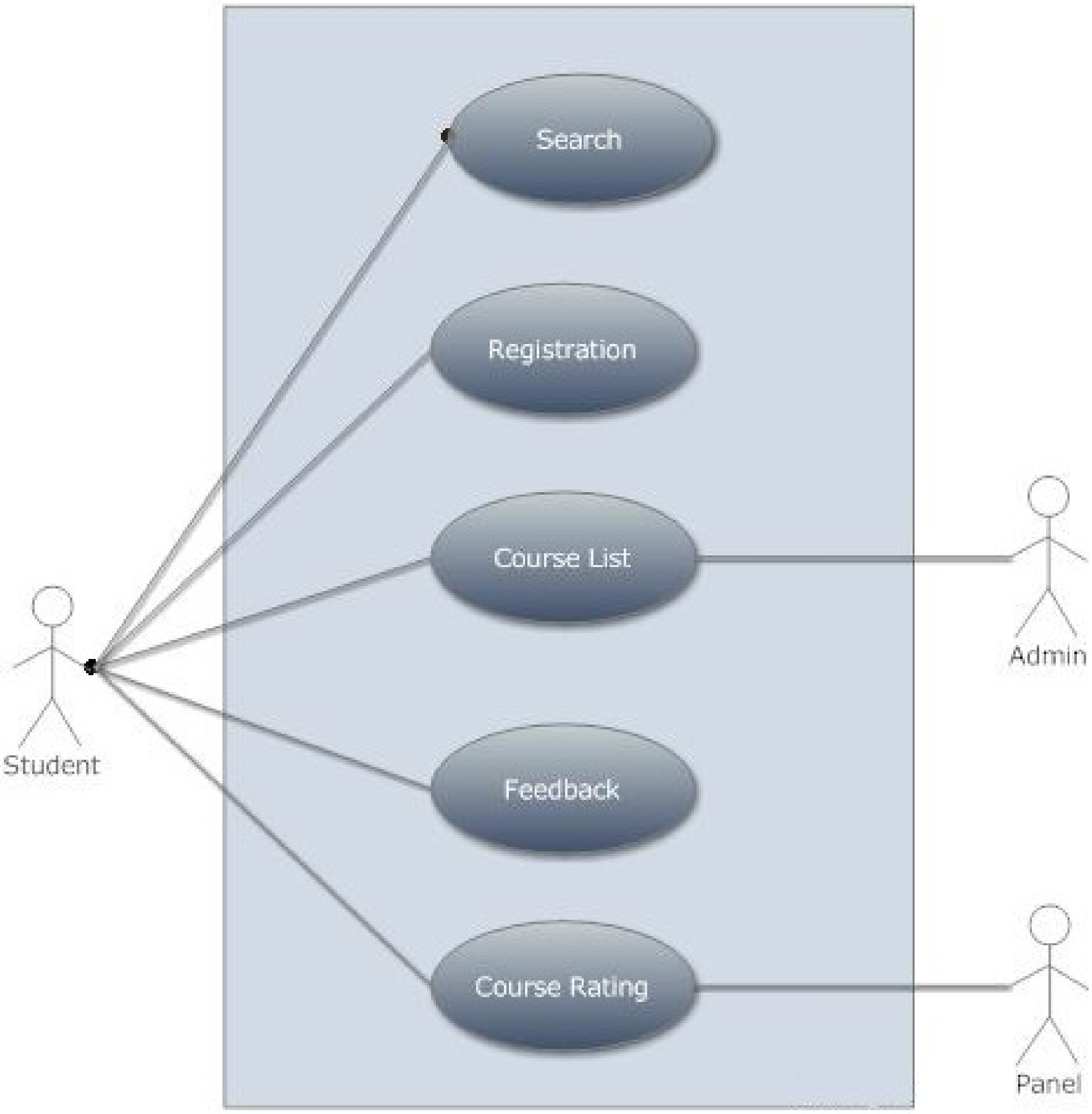


Figure 1: *Use-Case Diagram for the System*

In the above use case diagram we can see 3 actors who can interact with the system.They are student, admin and panel.

The success schenario is:

- Admin generate the course list
- Panel can rate the courses
- Student perfoms serach for courses
- Student can register their details to open an account
- Student can view the course lists
- Student can submit Feedback
- Student can rate the courses

4.2 Data Flow Diagram

A data-flow diagram (DFD) is a graphical representation of the ”flow” of data through an information system. DFDs can also be used for the visualization of data processing (structured design). A DFD provides no information about the timing or ordering of processes, or about whether processes will operate in sequence or in parallel. Data-flow diagrams can be used to provide the end user with a physical idea of where the data they input ultimately has an effect upon the structure of the whole system from order to dispatch to report. How any system is developed can be determined through a data-flow diagram. The circle or bubble represents a transformation process and the label inside the bubble describes the process, using an active verb .Data flows are directed lines that identify the input data flows and output data flows at each process bubble .Data storage is represented by an open-ended rectangle with a label that identifies the data store or file. The square is labeled to identify an external entity that is a source or destination of a data flow. Data flow diagrams is used to define the flow of the system and its resources such as informations .DFD are a way of expressing system requirements in a graphical manner.DFD represents one of the most ingenious tools used for structured analysis.

Level 0

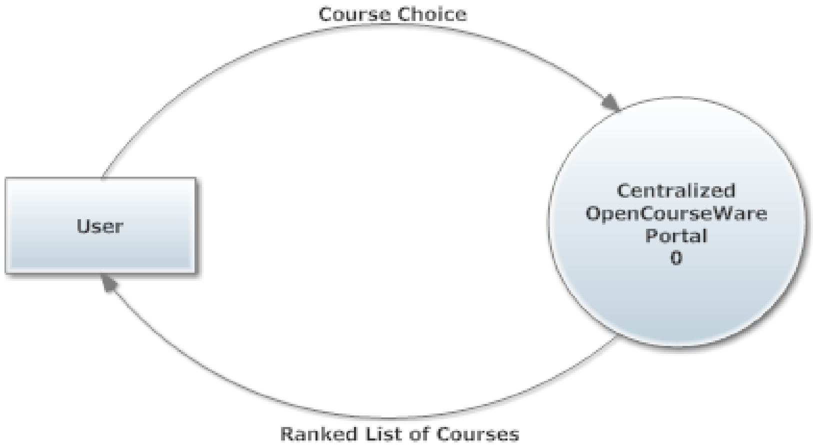


Figure 2: *Level 0*

Level 1

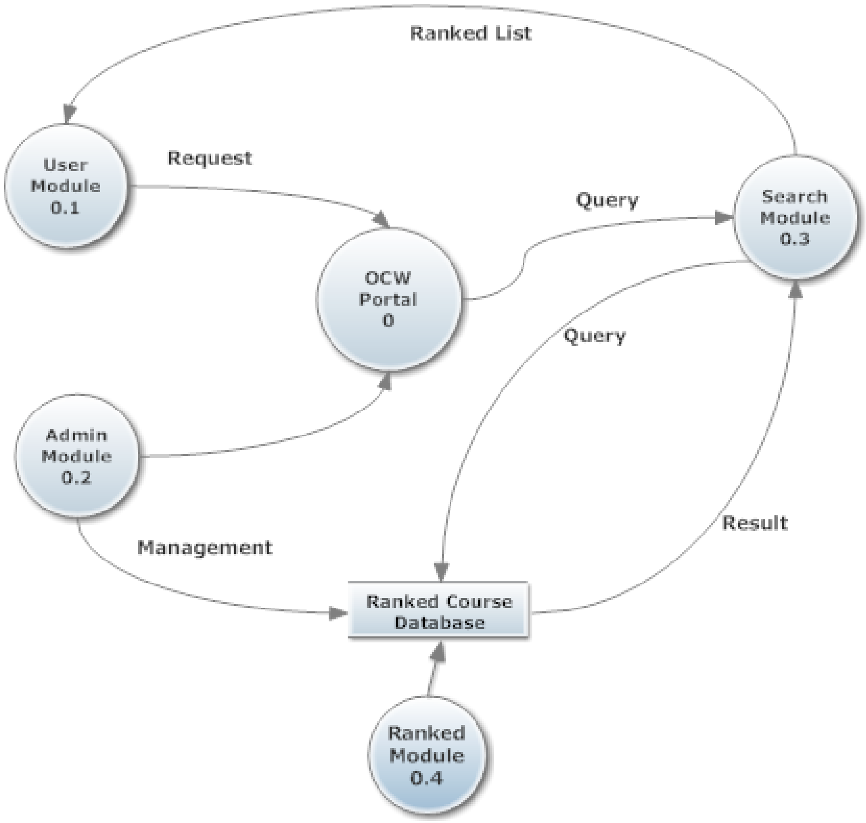


Figure 3: *Level 1*

Level 2

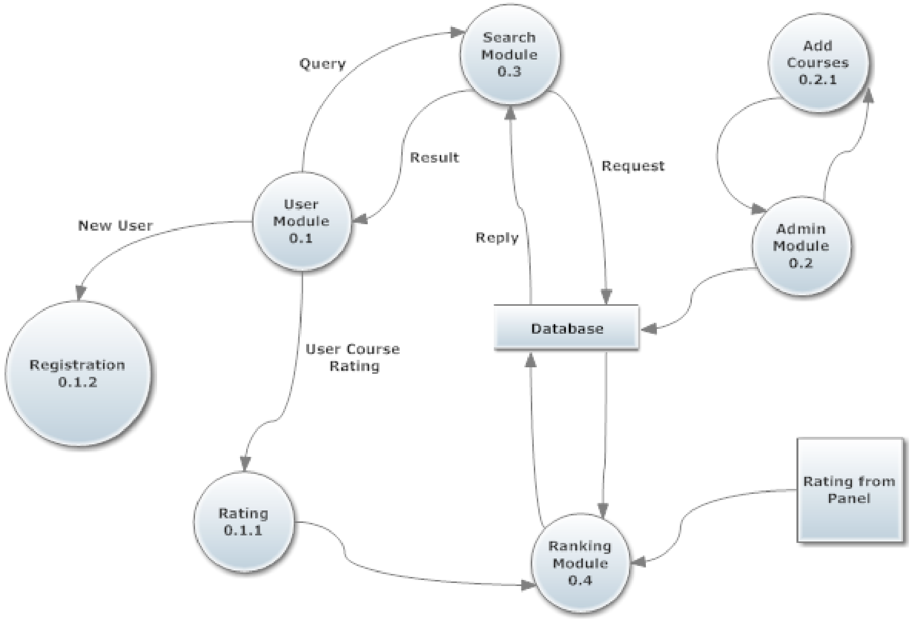


Figure 4: *Level 2*

5. Implementation

5.1 Algorithms:

The ranking algorithm used is discussed below. We need atmost 3 ratings or scores as per the availability.We need to express the ratings as percentages and these ratings are the input to the algorithm.
The ratings or scores needed are:

1. Mother site rating fetched from source site.
2. Panel score which is given by the expert panel as a score out of 10.
3. User score is given by users as rating out of 5.

At first we initialize the mRating, pRating and uRating values to 0. Then we have to convert these ratings/scores to percentages. The source site rating is fetched as percentage. Other ratings/scores are converted to percentage.

Calculating percentages

1. Panel Rating, pRating=panel score*10
2. User Rating, uRating=((total no of stars) / (total no of votes * 5))*100

Score Calculating Algorithm

Input: Mother site rating, Panel rating, User rating in percentages
Output: Rating as a score out of 5

1. Initialize i=0.
2. Get mRating, if present increment i
3. Get pRating, if present increment i
4. Get uRating, if present increment i
5. Score=((mRating+pRating+uRating)/(i*100))*5

We use a variable i to found whether a rating is available or not. If rating is available then we increment i.

6. Results and Discussions

6.1 Screenshots

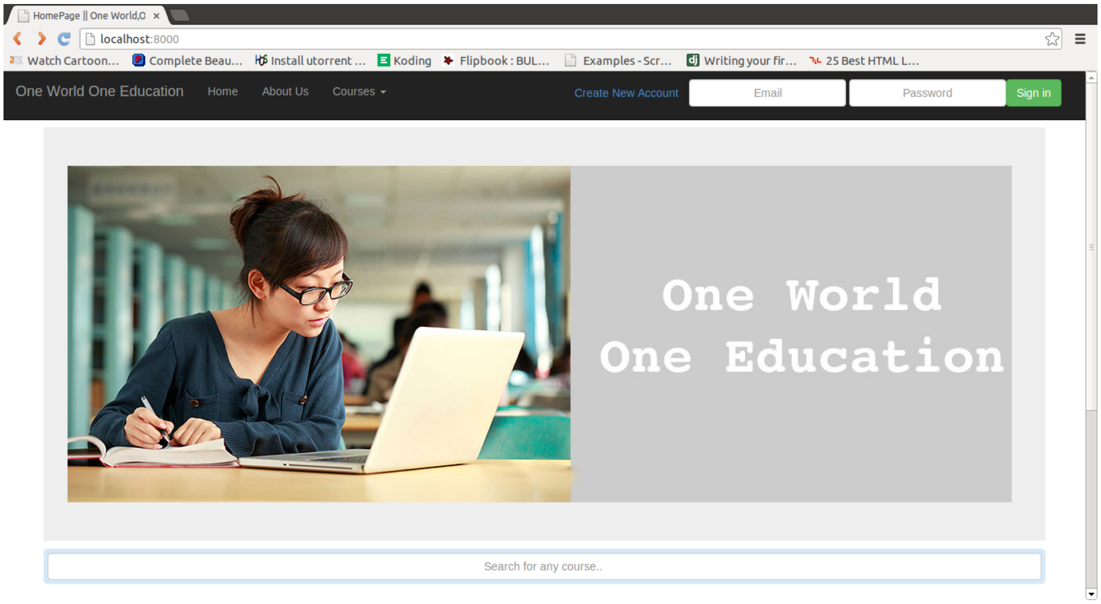
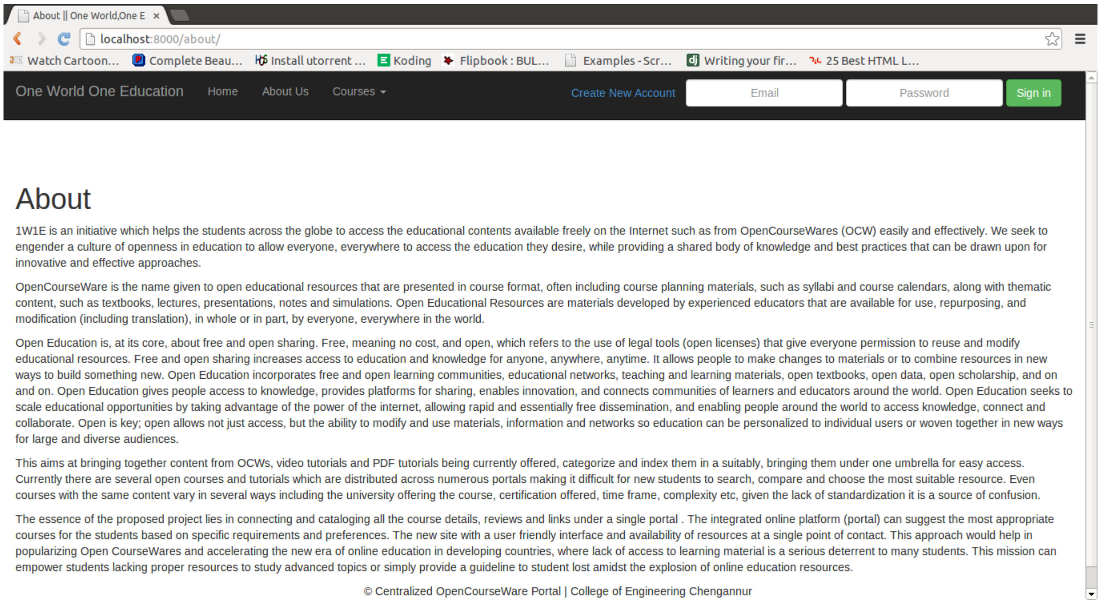


Figure 5: *Home Screen-Part*



About

1W1E is an initiative which helps the students across the globe to access the educational contents available freely on the Internet such as from OpenCourseWares (OCW) easily and effectively. We seek to engender a culture of openness in education to allow everyone, everywhere to access the education they desire, while providing a shared body of knowledge and best practices that can be drawn upon for innovative and effective approaches.

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This aims at bringing together content from OCWs, video tutorials and PDF tutorials being currently offered, categorize and index them in a suitably, bringing them under one umbrella for easy access. Currently there are several open courses and tutorials which are distributed across numerous portals making it difficult for new students to search, compare and choose the most suitable resource. Even courses with the same content vary in several ways including the university offering the course, certification offered, time frame, complexity etc, given the lack of standardization it is a source of confusion.

The essence of the proposed project lies in connecting and cataloging all the course details, reviews and links under a single portal . The integrated online platform (portal) can suggest the most appropriate courses for the students based on specific requirements and preferences. The new site with a user friendly interface and availability of resources at a single point of contact. This approach would help in popularizing Open CourseWares and accelerating the new era of online education in developing countries, where lack of access to learning material is a serious deterrent to many students. This mission can empower students lacking proper resources to study advanced topics or simply provide a guideline to student lost amidst the explosion of online education resources.

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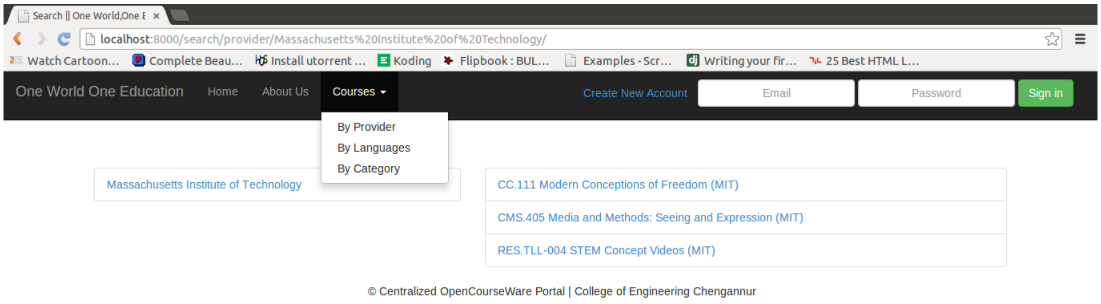
Figure 6: *About Page*



Massachusetts Institute of Technology

CC.111 Modern Conceptions of Freedom (MIT)

CMS.405 Media and Methods: Seeing and Expression (MIT)

RES.TLL-004 STEM Concept Videos (MIT)

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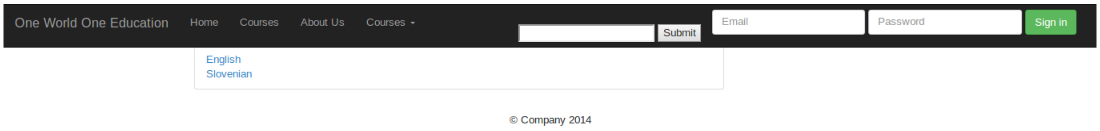
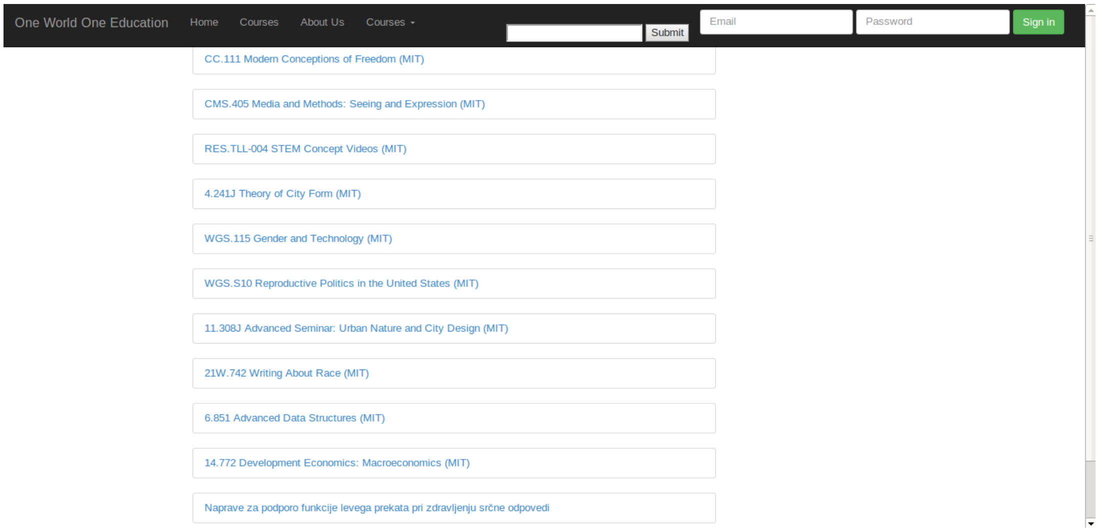
Figure 7: *List of Courses*



English
Slovenian

© Company 2014

Figure 8: *Language List*



CC.111 Modern Conceptions of Freedom (MIT)

CMS.405 Media and Methods: Seeing and Expression (MIT)

RES.TLL-004 STEM Concept Videos (MIT)

4.241J Theory of City Form (MIT)

WGS.115 Gender and Technology (MIT)

WGS.S10 Reproductive Politics in the United States (MIT)

11.308J Advanced Seminar: Urban Nature and City Design (MIT)

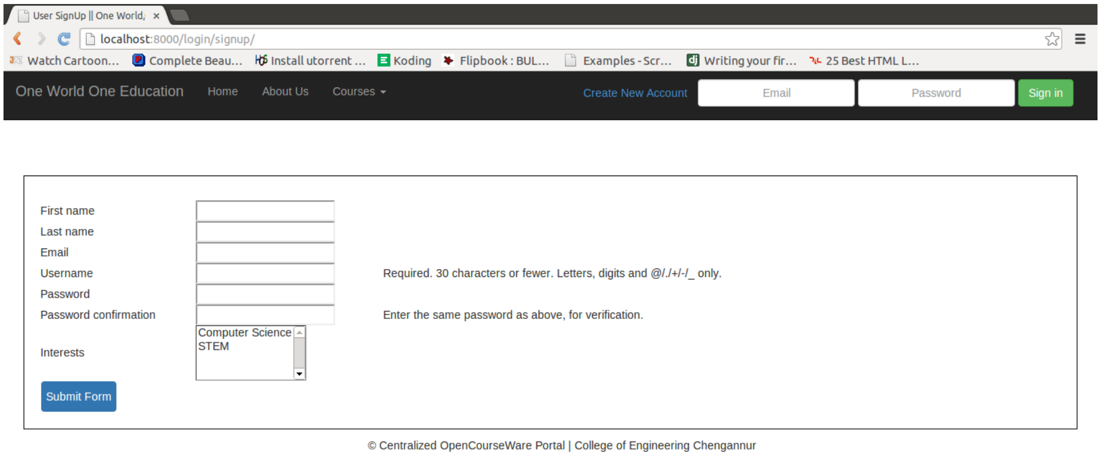
21W.742 Writing About Race (MIT)

6.851 Advanced Data Structures (MIT)

14.772 Development Economics: Macroeconomics (MIT)

Naprave za podporo funkcije levega prekata pri zdravljenju srčne odpovedi

Figure 9: *Course List*



First name

Last name

Email

Username — Required. 30 characters or fewer. Letters, digits and @/./+/-/_ only.

Password

Password confirmation — Enter the same password as above, for verification.

Interests — Computer Science, STEM

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Figure 10: *Sign Up*

7. Conclusions and Future Scope

The main highlight of the proposed system is a ranking algorithm that ranks the courses offered by different portals on the basis of user rating, reviews etc.

The system would help in popularizing OpenCourseWares and accelerating the new era of online education in developing countries, where lack of access to learning material is a serious deterrent to many students.

The proposed system can empower students lacking proper resources to study advanced topics or simply provide a guideline to student lost amidst the explosion of online education resources.

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