



CS5200 - SEC02

Database Management Systems

Trainly.io

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Topics:

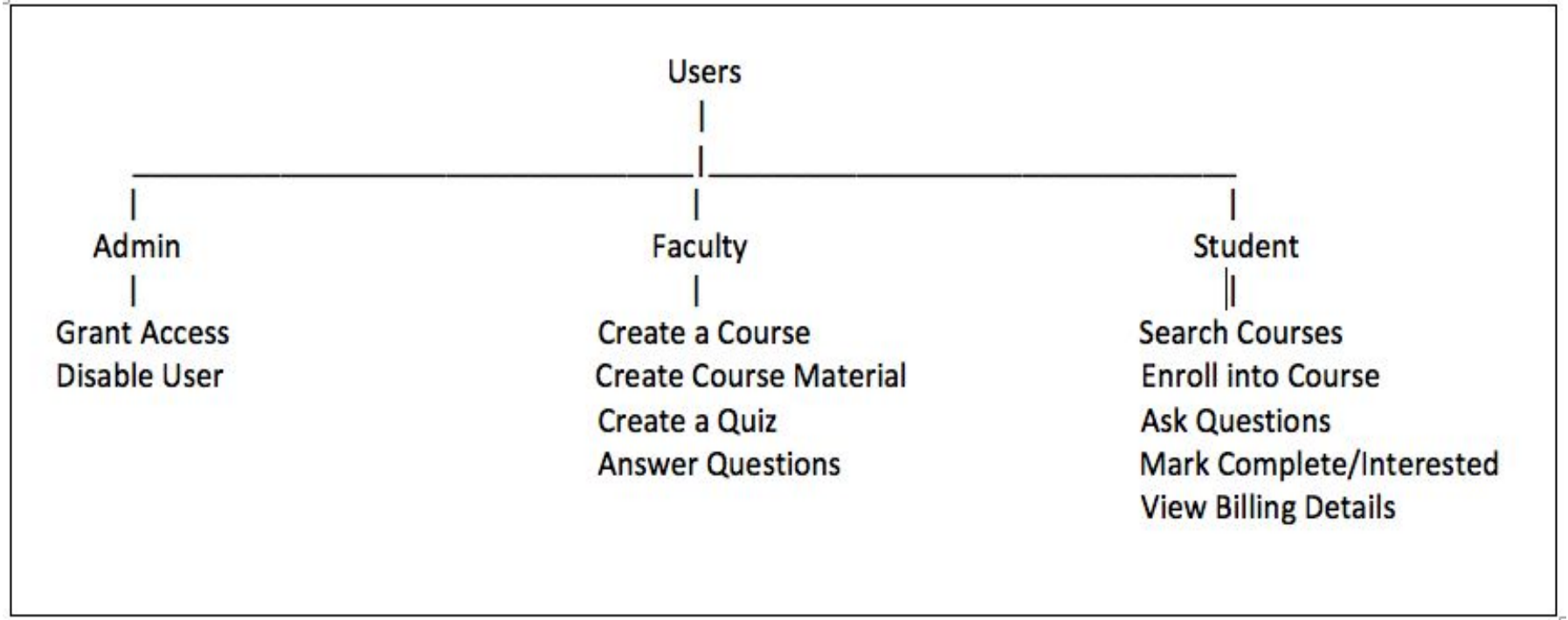
- Introduction
- System Description
- System Architecture
- Database Design

Introduction

- Training system for students
- Single platform for students to learn and interact with course faculty
- Contains users, courses, course materials and quizzes
- Courses and course materials are managed by faculty
- Students can also post questions related to the course and get them answered by the faculty members
- Complete package to train students in the subjects they are interested



System Description



Snippets

1. Sign Up/In to the System

Welcome To Trainly.io!

First Name:	<input type="text" value="Prasad"/>
Last Name:	<input type="text" value="Tajane"/>
Phone Number:	<input type="text" value="8575445082"/>
Street:	<input type="text" value="1615 Tremont Street"/>
City:	<input type="text" value="Boston"/>
Postal Code:	<input type="text" value="02120"/>
Country:	<input type="text" value="USA"/>
Profile Picture:	<input type="button" value="Browse..."/> Screen Shot 2017-12-02
Email:	<input type="text" value="tajane.pr@husky.neu.edu"/>
Password:	<input type="password" value="..."/>
Confirm Password:	<input type="password" value="..."/>

Sign up

Already have an account? Sign in [here](#).

Trainly.io

Welcome Back!

Email:	<input type="text" value="tajane.pr@husky.neu.edu"/>	Password:	<input type="password" value="..."/>
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Sign In

Don't have an account? Sign up [here](#).

2. Search offered Courses

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All Courses

Name	Description	Topic(s)	Course Rating
Databases Programming	This overview course focuses on the uses of relational and object-oriented databases for storing and managing information. Topics covered include computer database terminology and the evolution of the modern database. Database management systems (DBMS) such as Oracle, MySQL, Microsoft SQL Server, and Microsoft Access are introduced along with query languages. Hands-on instruction includes the creation of simple databases, inputting data, and developing basic queries.	Database, Database Design, Programming in SQL, Relational Database	4.5000 ★
Developing Web Databases	Internet retailers collect an incredible amount of data in order to complete a sale, including customer names, addresses, and credit card numbers. The data is inputted by the buyer and stored in a relational database for retrieval by the seller.	Database	2.5000 ★
Natural Language Processing	Introduces the computational modeling of human language; the ongoing effort to create computer programs that can communicate with people in natural language; and current applications of the natural language field, such as automated document classification, intelligent query processing, and information extraction. Topics include computational models of grammar and automatic parsing, statistical language models and the analysis of large text corpora, natural language semantics and programs that understand language, models of discourse structure, and language use by intelligent agents. Course work includes formal and mathematical analysis of language models and implementation of working programs that analyze and interpret natural language text. Knowledge of statistics is helpful.	Computational Modeling of Human Language	-- ☆
Computer Graphics	Charts a path through every major aspect of computer graphics with varying degrees of emphasis. Discusses hardware issues: size and speed; lines, polygons, and regions; modeling, or objects and their relations; viewing, or what can be seen (visibility and perspective); rendering, or how it looks (properties of surfaces, light, and color); transformations, or moving, placing, distorting, and animating and interaction, or drawing, selecting, and transforming.	Programming in C	-- ☆

3. Enrol in a course

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Computer Graphics

Charts a path through every major aspect of computer graphics with varying degrees of emphasis. Discusses hardware issues: size and speed; lines, polygons, and regions; modeling, or objects and their relations; viewing, or what can be seen (visibility and perspective); rendering, or how it looks (properties of surfaces, light, and color); transformations, or moving, placing, distorting, and animating and interaction, or drawing, selecting, and transforming.

Topic(s): Programming in C [Enroll](#)

Course Materials

Order	Name	Material Type	View	Completion Date	Questions
3	Computer Architecture Post	Post	Must enroll for access.	--	Questions

4. Check Profile

Trainly.io My Courses Find Courses Sign Out

Current Courses

Name	Description	Topic(s)	Materials Remaining	Course Rating
Developing Web Databases	Internet retailers collect an incredible amount of data in order to complete a sale, including customer names, addresses, and credit card numbers. The data is inputted by the buyer and stored in a relational database for retrieval by the seller.	Database	4	2.5000

Completed Courses

Name	Description	Topic(s)	Completion Date	My Rating
Databases Programming	This overview course focuses on the uses of relational and object-oriented databases for storing and managing information. Topics covered include computer database terminology and the evolution of the modern database. Database management systems (DBMS) such as Oracle, MySQL, Microsoft SQL Server, and Microsoft Access are introduced along with query languages. Hands-on instruction includes the creation of simple databases, inputting data, and developing basic queries.	Database, Database Design, Programming in SQL, Relational Database	2017-12-11	5

Interested Courses

Name	Description	Topic(s)	Course Rating
Databases Programming	This overview course focuses on the uses of relational and object-oriented databases for storing and managing information. Topics covered include computer database terminology and the evolution of the modern database. Database management systems (DBMS) such as Oracle, MySQL, Microsoft SQL Server, and Microsoft Access are introduced along with query languages. Hands-on instruction includes the creation of simple databases, inputting data, and developing basic queries.	Database, Database Design, Programming in SQL, Relational Database	4.6000

5. Course Status

Developing Web Databases

Internet retailers collect an incredible amount of data in order to complete a sale, including customer names, addresses, and credit card numbers. The data is inputted by the buyer and stored in a relational database for retrieval by the seller.

Topic(s): Database

Enrolled on: 2017-06-12

Course Materials

Order	Name	Material Type	View	Completion Date	Questions
1	Database Link	Link	Visit	Mark complete	Questions
3	Database Post	Post	Not available yet.	--	Questions

System Architecture



Bootstrap



PyMySQL

```
def get_db_connection():  
    return pymysql.connect(host='localhost',  
                           user='root',  
                           password='',  
                           db='Trainly',  
                           charset='utf8',  
                           cursorclass=pymysql.cursors.DictCursor)
```

```
connection = get_db_connection()  
with connection.cursor() as cursor:  
    sql = ('SELECT * FROM Course '  
          'JOIN CourseCompleted ON CourseCompleted.courseId = Course.id '  
          'JOIN User ON CourseCompleted.userId = User.userId '  
          'WHERE User.userId = %s '  
          'ORDER BY CourseCompleted.rating DESC;')  
    cursor.execute(sql, (g.user['userId']))  
    completed_courses = cursor.fetchall()
```

Hashlib (SHA256)

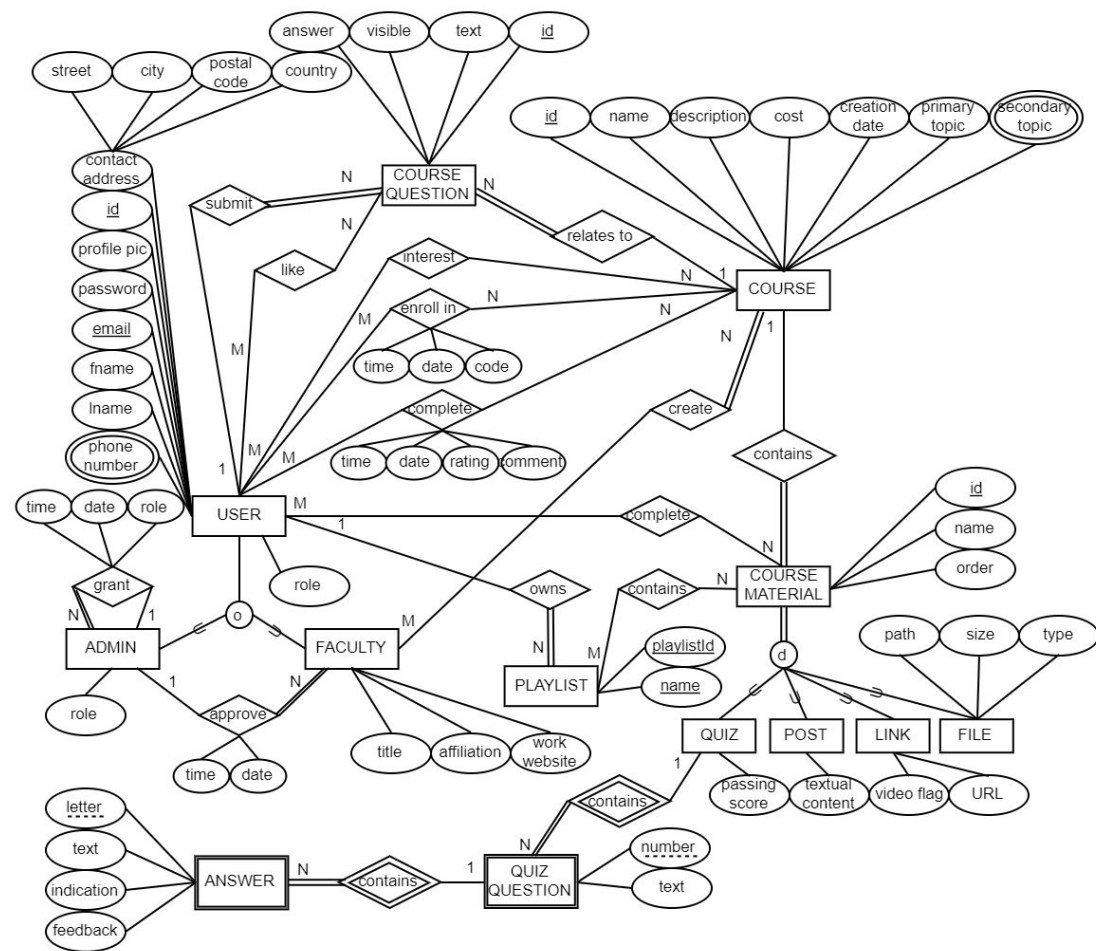
```
salt = get_salt()
salt_plus_password = salt + form.password.data
hash_object = hashlib.sha256(salt_plus_password)
salted_password = hash_object.hexdigest()
```

```
salt_plus_password = user['salt'] + password
hash_object = hashlib.sha256(salt_plus_password)
salted_password = hash_object.hexdigest()
```

Database Design

- ERD
- Relational Model
- Physical Design

ERD



Relational Model