CS5200 - SEC02
Database Management Systems

Trainly.io

Sanket Mathur
Prasad Tajane
Eric Ropiak
Wei Du

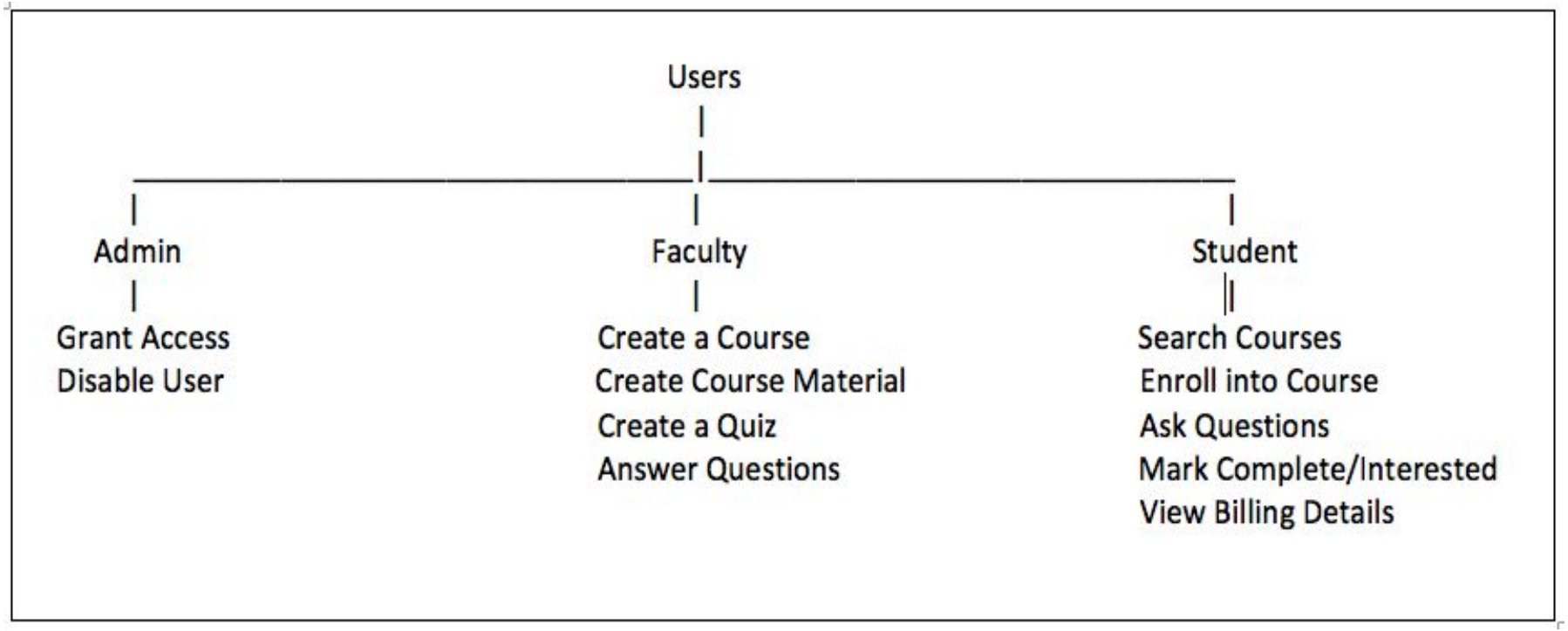
Topics:

- Introduction
- System Description
- System Architecture
- Database Design

Introduction

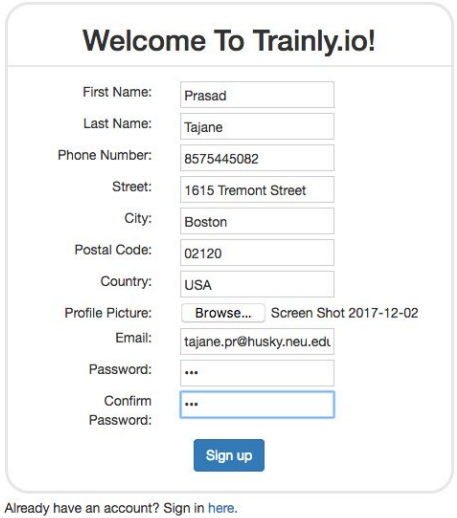
- Training system for students
- Single platform for students to learn and interact with course faculty
- Contains users, courses, course materials and quizzes
- Courses and course materials are managed by faculty
- Students can also post questions related to the course and get them answered by the faculty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

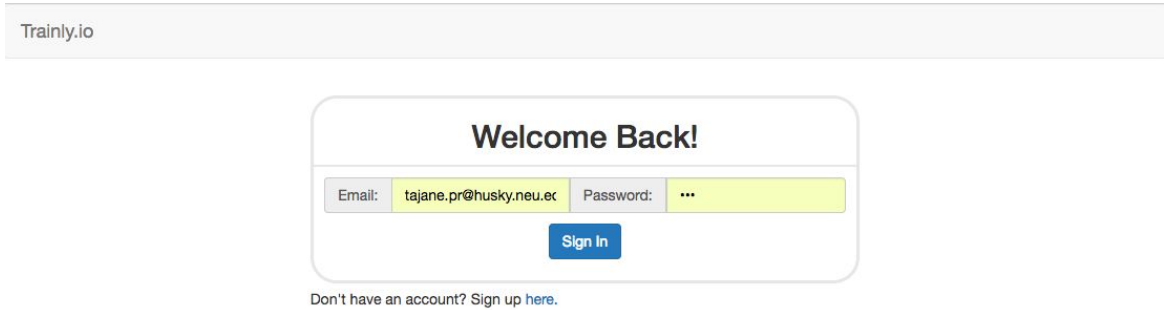
System Description



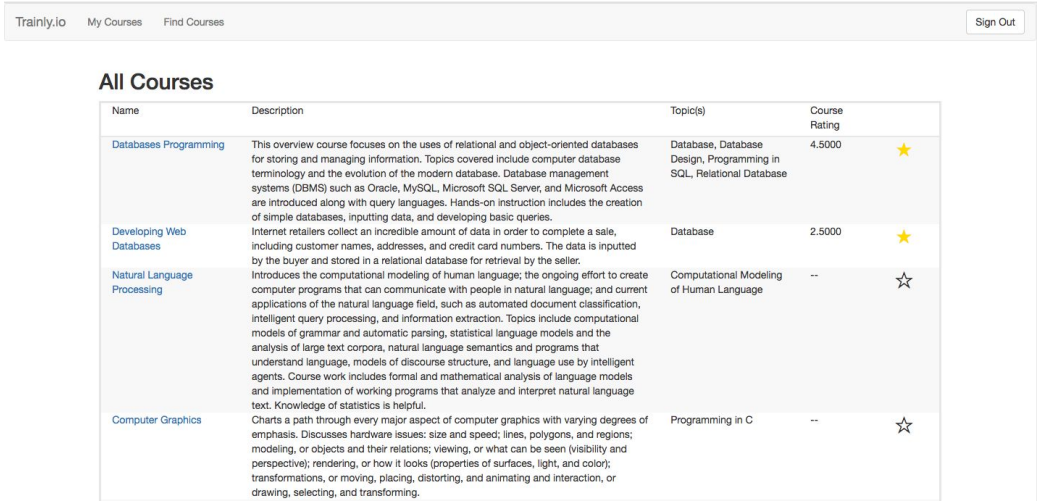
Snippets

1. Sign Up/In to the System

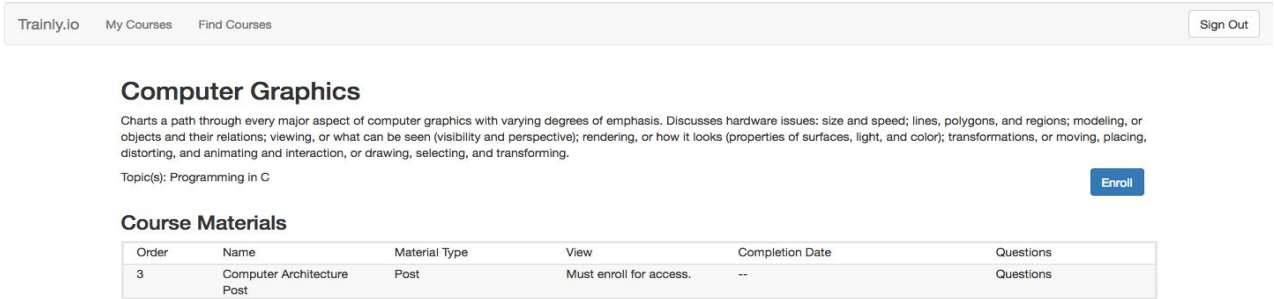




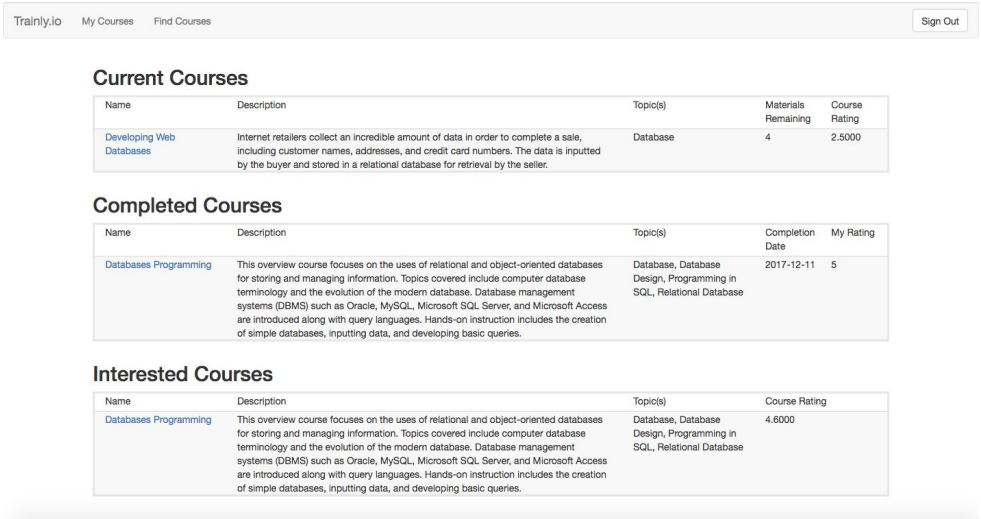
2. Search offered Courses



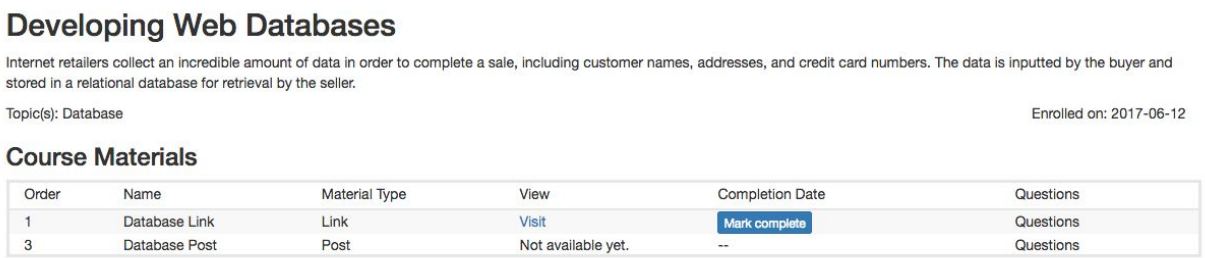
3. Enrol in a course



4. Check Profile



5. Course Status



System Architecture

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)

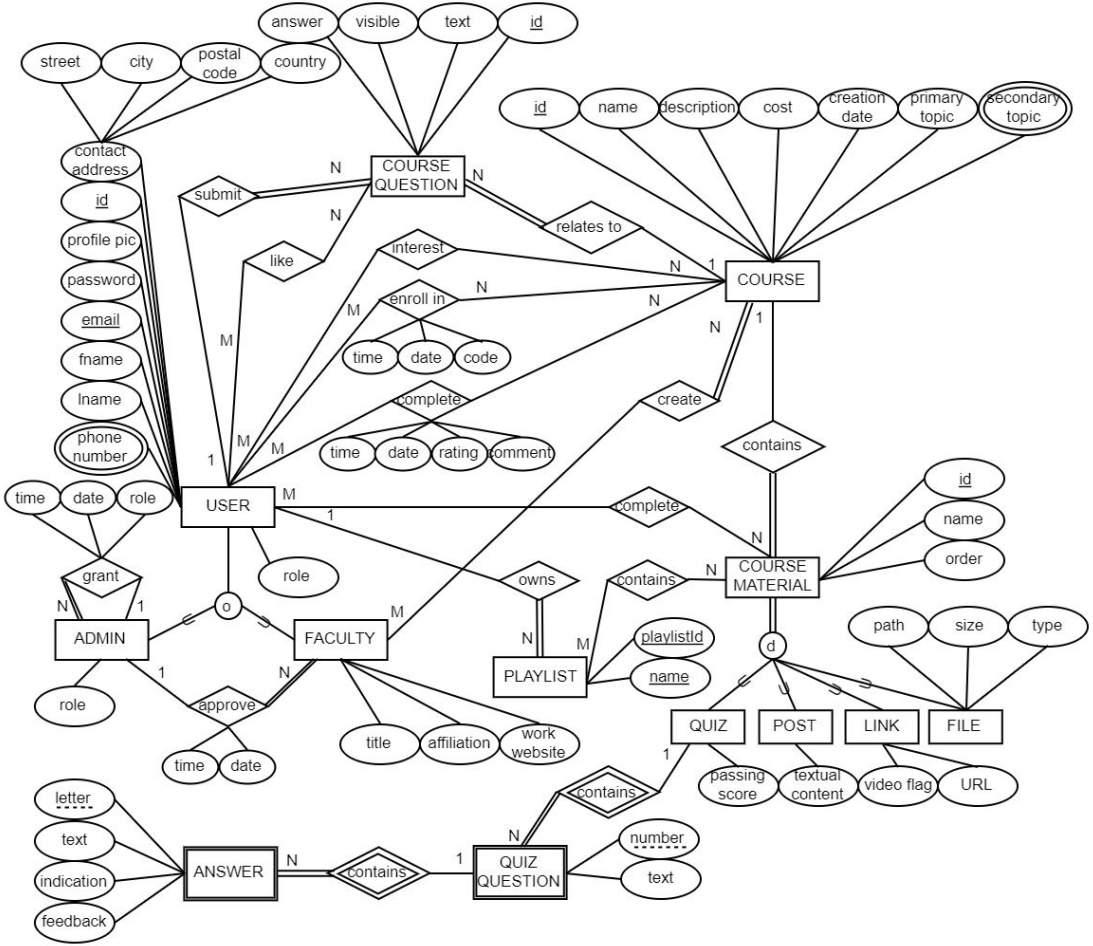
```
salt = get_salt()
salt_plus_password = salt + form.password.data
hash_object = hashlib.sha256(salt_plus_password)
salted_password = hash_object.hexdigest()
```

```
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


answer
visible
text
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street
city
postal code
country
id
name
description
cost
creation date
primary topic
secondary topic
contact address
COURSE QUESTION
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relates to
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profile pic
password
email
fname
lname
phone number
like
interest
enroll in
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video flag
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ANSWER
contains
QUIZ QUESTION
number
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Relational Model