PES University, Bengaluru

Department of Computer Science & Engineering
Session: Jan - May 2022

UE19CS353 – Object Oriented Analysis and Design with Java

Theory ISA (Mini Project)

Report on

EXAM REGISTRATION SYSTEM

By:

PERURU SHYAM PRASAD – PES1UG19CS327

N VISHNU VARDHAN REDDY – PES1UG19CS295

P VIKRANTH REDDY – PES1UG19CS319
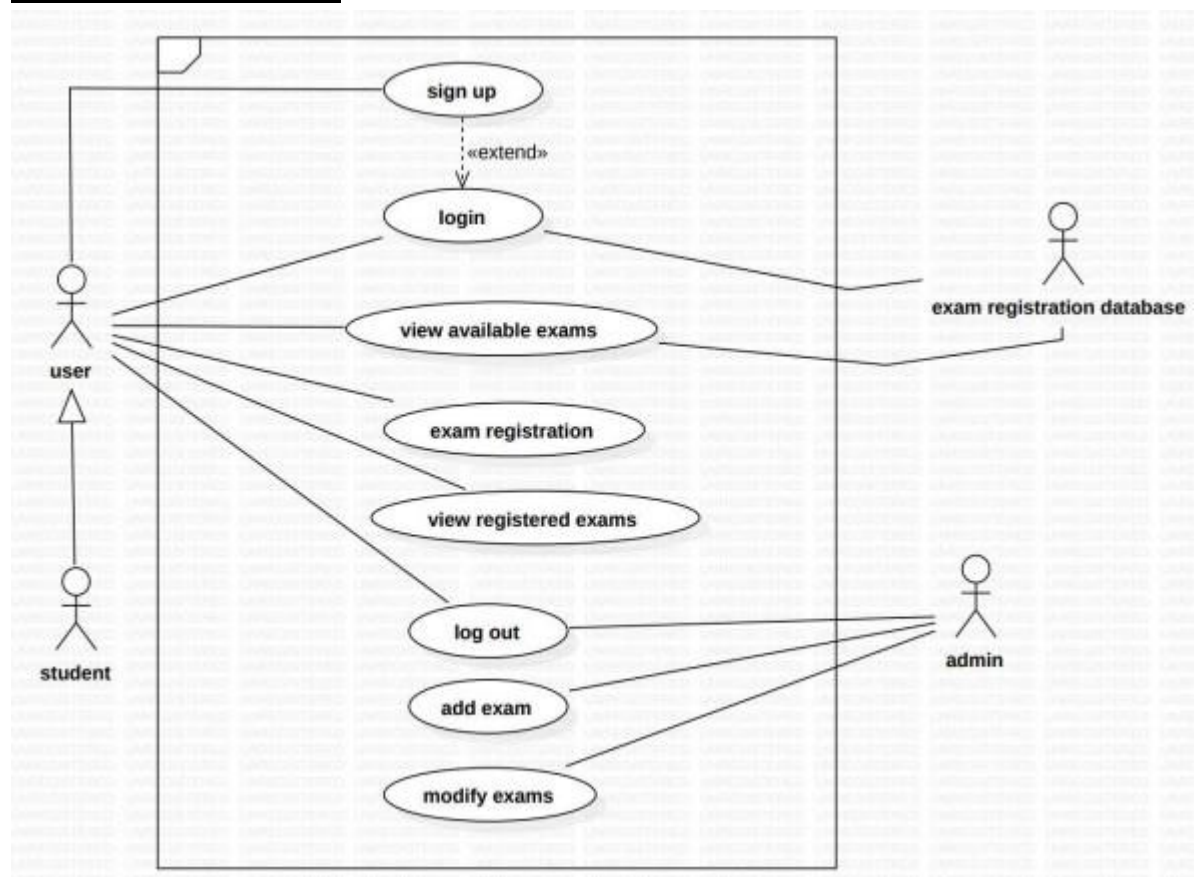
6th Semester E

1. Project Description

Exam registration system allows the users to register for their exams through online. each user has to register when using the system for first time, and login from next time. Student searches for the subject he wants to apply for test. System allows the user to view specific details of each test and provides an interface for the student to register for test.
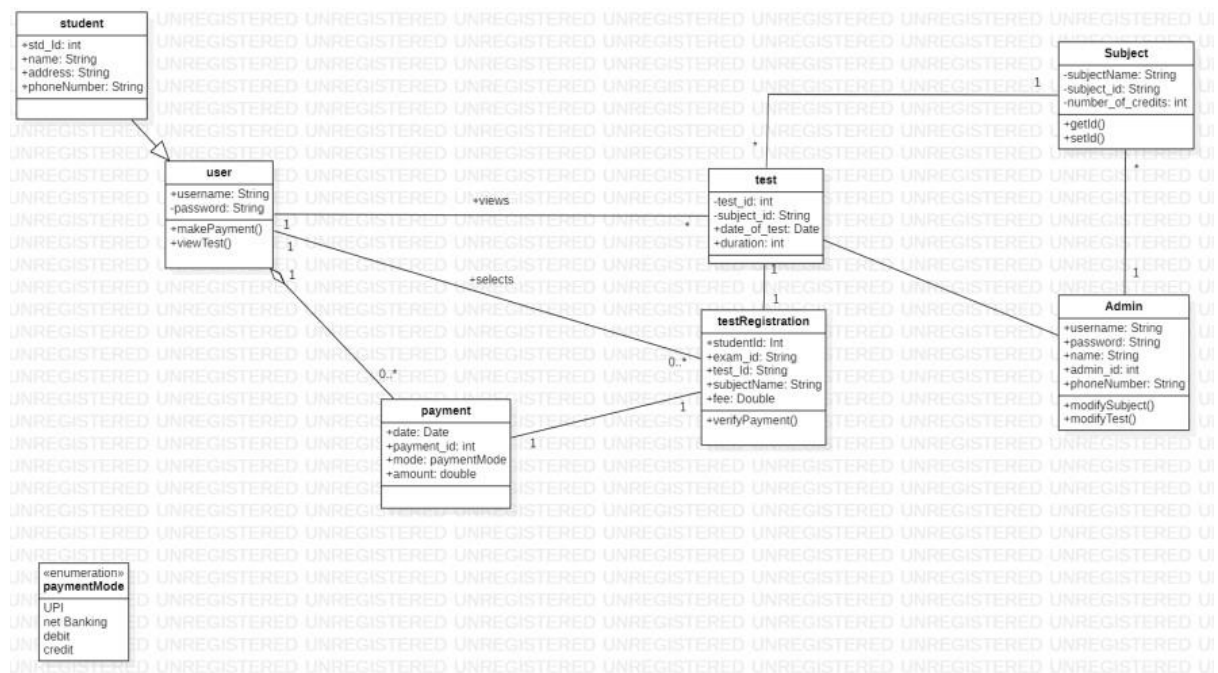
a. Link to GitHub repository

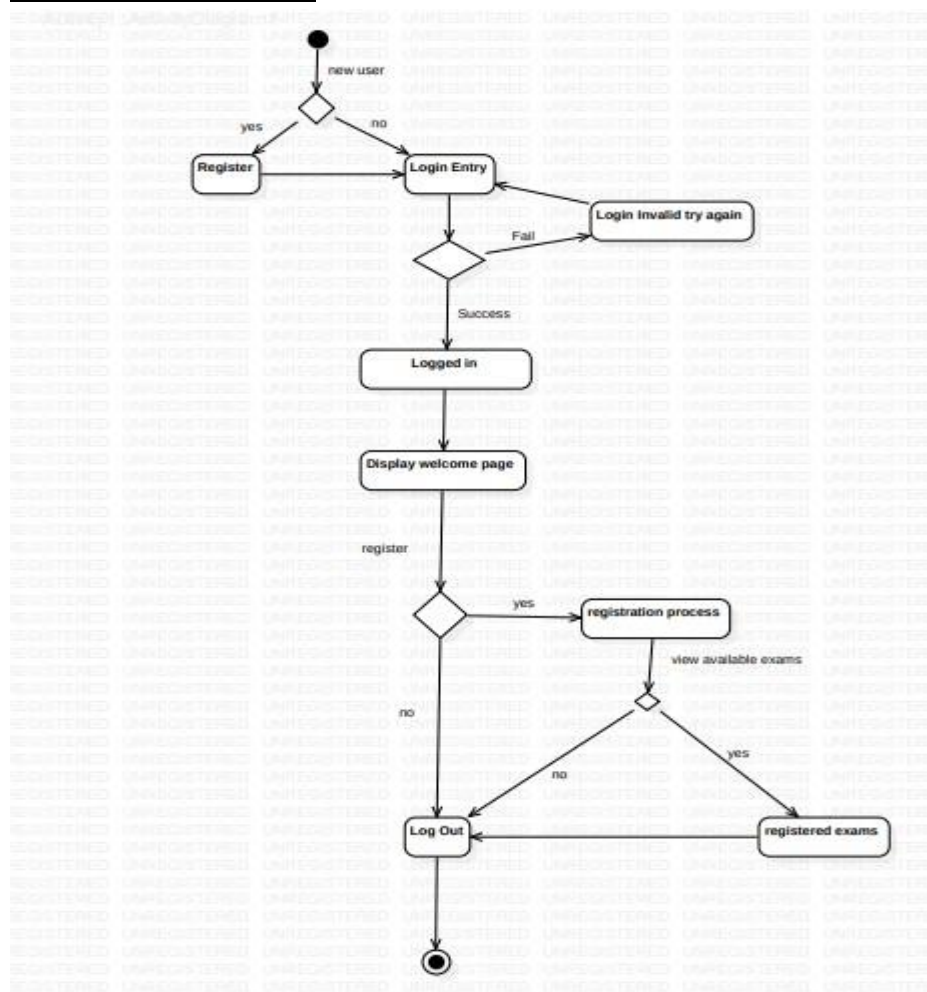https://github.com/PVikranthReddy/Exam-Registration-System

2. Analysis and Design Models

Use Case Diagram:

Class Diagram:

student
- +std_Id: int
- +name: String
- +address: String
- +phoneNumber: String

user
- +username: String
- -password: String
- +makePayment()
- +viewTest()

test
- -test_id: int
- -subject_id: String
- +date_of_test: Date
- +duration: int

Subject
- -subjectName: String
- -subject_id: String
- -number_of_credits: int
- +getId()
- +setId()

testRegistration
- +studentId: Int
- +exam_id: String
- +test_id: String
- +subjectName: String
- +fee: Double
- +verifyPayment()

Admin
- +username: String
- +password: String
- +name: String
- +admin_id: int
- +phoneNumber: String
- +modifySubject()
- +modifyTest()

payment
- +date: Date
- +payment_id: int
- +mode: paymentMode
- +amount: double

«enumeration»
paymentMode
- UPI
- net Banking
- debit
- credit

+views   +selects

1 1 1 0..* 0..* 1 * * 1 1 1

Activity Diagram:

new user

yes → Register

no → Login Entry

Login Invalid try again

Fail

Success → Logged in → Display welcome page

register

yes → registration process → view available exams

yes → registered exams

no → Log Out

no → Log Out

3. Tools and Frameworks Used

For building this application swing framework is used ,java swing is GUI framework that contains a set of classes to provide more flexible GUI components .swing provides the look and feel of the modern java GUI .
FRONT-END: swing
DATABASE: MongoDB
BACK-END: Java
TOOLS: Maven, eclipse

4. Design Principles and Design Patterns Applied

DESIGN PRINCIPLE:

i)Single Responsibility: The single-responsibility principle (SRP) is a computer-programming principle that states that every module, class or function in a computer program should have responsibility over a single part of that program's functionality, and it should encapsulate that part. The user class in our program uses the single responsibility principle

ii) Open Closed Principle: In object-oriented programming, the open–closed principle states "software entities should be open for extension, but closed for modification"; that is, such an entity can allow its behaviour to be extended without modifying its source code. The exam class (Can add different type of exams such as entrance exams, university exams) follows open closed principle where it is open for extension but closed for modification.

DESIGN PATTERN:

SINGLETON DESIGN PATTERN: The singleton pattern is a design pattern that restricts the instantiation of a class to one object. The singleton pattern is one of the simplest design patterns. Sometimes we need to have only one instance of our class for example a single DB connection shared by multiple objects as creating a separate DB connection for every object may be costly. Similarly, there can be a single configuration manager or error manager in an application that handles all problems instead of creating multiple managers

5. Application Screenshots (3-4 important pages)

User Home Page:

Sign up Page:

REGISTRATION FOR EXAM:

Login Page:

View Registered Exams:
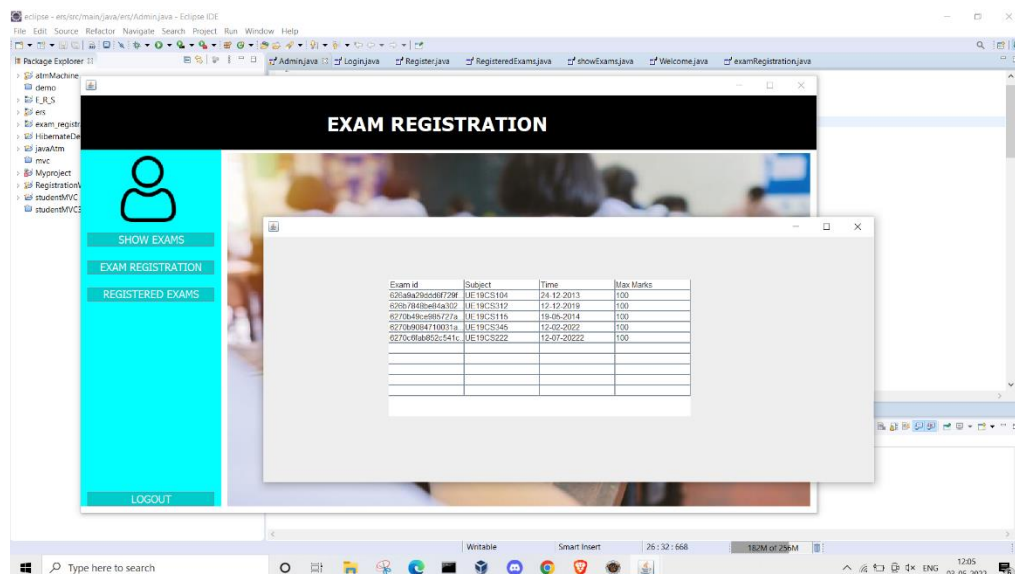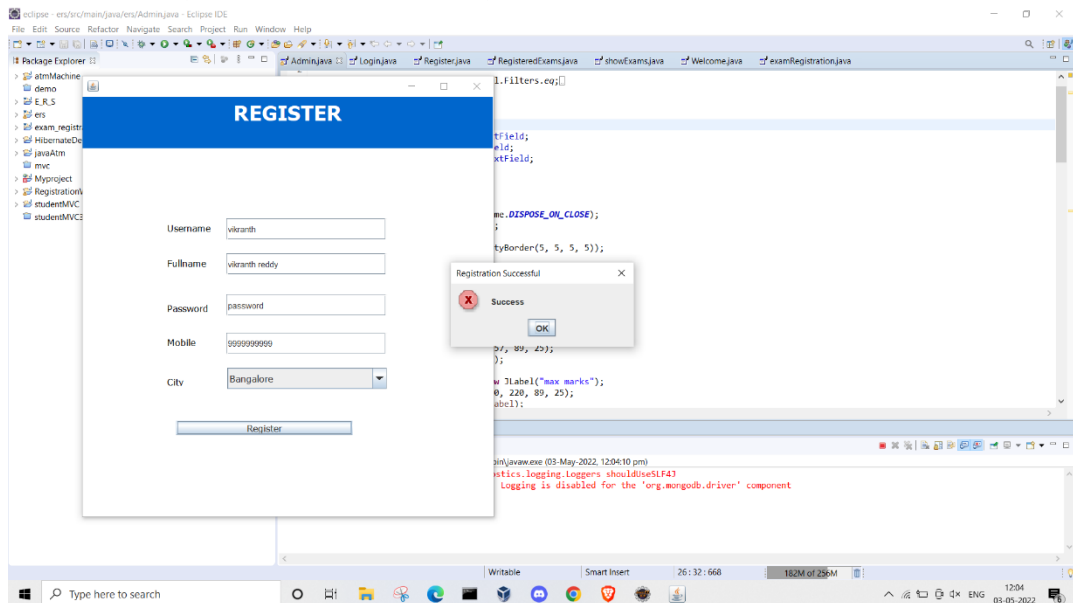
Registration Successful:
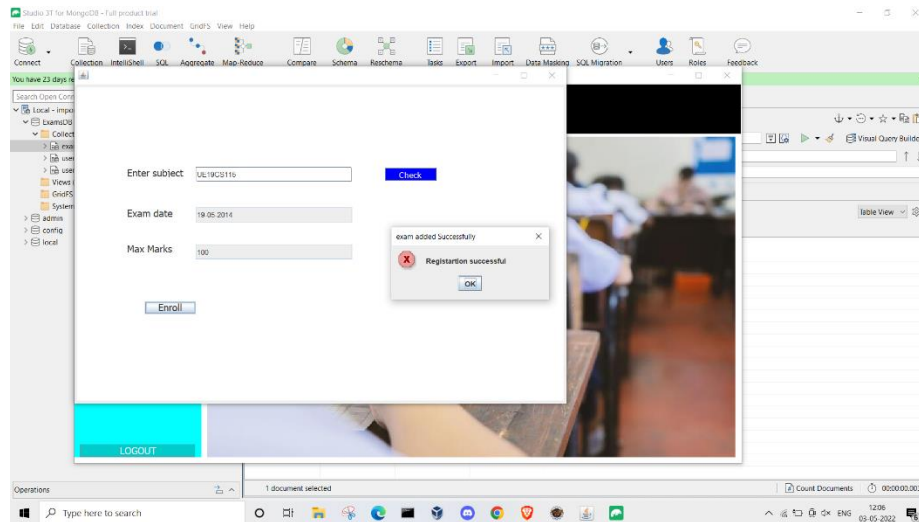
Add Exam to Database:
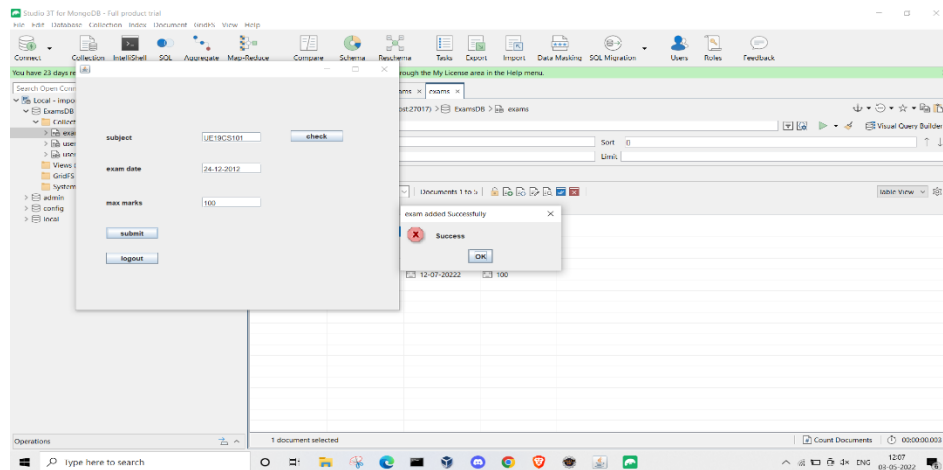
List of Exams in Database:

Student Registered Successfully:

Team member contributions

PERURU SHYAM PRASAD	Use Case Diagram, Exam registration, View available exams & View registered exams
N VISHNU VARDHAN REDDY	Activity Diagram, Register and Application's welcome page
P VIKRANTH REDDY	Class Diagram, State Diagram, Admin & Login Page