Student Information System

1. Introduction

1.1 Overview

The Student Information System (SIS) is designed to manage student records, course registrations, grades, and transcript generation for educational institutions. The system aims to provide an efficient and organized way to handle student-related tasks, ensuring accurate and timely information management.

1.2 Objectives

- Create a centralized system for storing and managing student records.
- Allow students to register for courses and view their course schedules.
- Facilitate the recording and management of student grades.
- Generate official transcripts for students upon request.
- Ensure data integrity and security through robust exception handling mechanisms.
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2. System Architecture

2.1 High-level Architecture

The system follows a three-tier architecture, consisting of the presentation layer (User Interface (Console)), application layer (Java JDBC Application), and data layer (Oracle Database). This architecture ensures a clear separation of concerns, making the system modular and scalable.

2.2 Key Components

- Java Application: The core of the system responsible for implementing banking functionalities.
- Oracle Database: A secure and reliable database management system for data storage.
- JDBC: Facilitates seamless connectivity between the Java application and the Oracle Database.

2.3 Technologies Used

- Java 16 SE
- JDBC 4
- Oracle Database 19c

3. Database Design

3.1 Database Schema

Student : To store student details

```
SQL> describe student;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 STUDID                                    NOT NULL NUMBER(38)
 STUDNAME                                  NOT NULL VARCHAR2(50)
 EMAIL                                              NVARCHAR2(50)
 CONTACT                                   NOT NULL VARCHAR2(10)
 DEPT                                      NOT NULL VARCHAR2(20)
 YEAR                                      NOT NULL VARCHAR2(10)
 PASSWORD                                  NOT NULL VARCHAR2(10)
```

Faculty : To store details of faculty

```
SQL> describe faculty;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 FID                                       NOT NULL NUMBER(38)
 FNAME                                     NOT NULL VARCHAR2(50)
 FDEPT                                     NOT NULL VARCHAR2(20)
 PASSWORD                                  NOT NULL VARCHAR2(20)
```

Course: To store course details

```
SQL> describe course;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 STUDID                                             NUMBER(38)
 DEPT                                               VARCHAR2(50)
 SEM                                       NOT NULL NUMBER(38)
 COURSEID                                           NUMBER(38)
 COURSENAME                                NOT NULL VARCHAR2(50)
 TMARKS                                             NUMBER
 OBTMARKS                                           NUMBER
```

4. Features

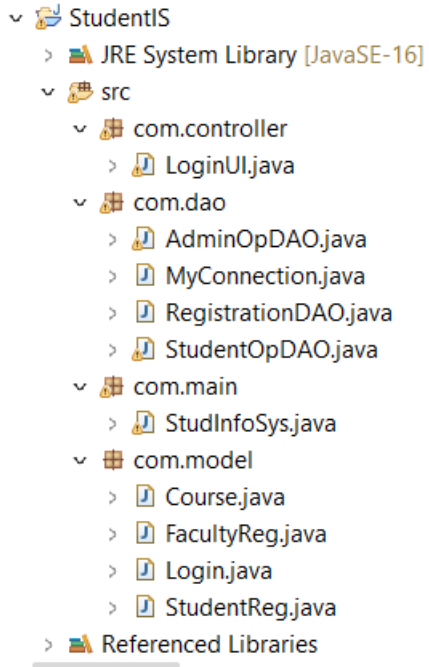
- **Student Management:** The system allows administrators to add, update, and delete student records. It stores information such as student ID, name, contact details, and enrollment status.
- **Course Registration:** Students can register for courses offered by the institution. The system verifies course availability and prerequisites before allowing registration.
- **Grade Management:** Instructors can enter grades for each student enrolled in their courses. The system calculates overall course grades based on predefined grading criteria.
- **Transcript Generation:** Students can request official transcripts, which include their academic history, course details, grades, and GPA.

5. Implementation

5.1 Technology Stack

- Java
- JDBC
- Oracle Database

5.2 Project Structure



5.3 Modules

5.3.1 com.controller

Provides users choices to perform various operations like login , registration , etc.

5.3.2 com.dao

Data access objects for interacting with the database.

5.3.3 com.model

Basic structure of entities .

5.3.4 com.main

It includes class that has main method .

6. Output

```
1.Student Registration
2.Student Login
3.Faculty Registration
4. Faculty Login
Enter choice:
1
Enter student ID:
1000
Enter student name :
Anjali Arjun Nanaware
Enter email :
nanawareanjali15@gmail.com
Enter contact no. :
8830316445
Enter department :
Computer
Enter year(e.g. 1st,2nd ,3rd,4th)  :
2nd
Enter password :
xyz@123
You have registered successfully
```

```
1.Student Registration
2.Student Login
3.Faculty Registration
4. Faculty Login
Enter choice:
2
Enter User ID:
1000
enter password
xyz@123
You have login Successfully !!!!
-----------------------------------------------------------
                Welcome Student
-----------------------------------------------------------

1.Course Registration
2.Profile Updation
3.See Result
4 Log out
```

```
Enter your choice:
1
Enter department :
Computer
Enter semester:
4
Enter total no. of courses (max=6):
6
Enter course code:
110
Enter course name:
DSA
Enter course code:
120
Enter course name:
Cpp
Enter course code:
130
Enter course name:
Java
Enter course code:
140
Enter course name:
Python
Enter course code:
150
Enter course name:
Android
Enter course code:
160
Enter course name:
Maths
Course registered successfully
```

```
-----------------------------------------------------
                Welcome Student
-----------------------------------------------------

1.Course Registration
2.Profile Updation
3.See Result
4 Log out
Enter your choice:
2
What you want to update 1.Password 2.Personal Info 3. Academic Info
Enter your choice:
2
Enter new email :
anjali.nanaware@nmiet.edu.in
Enter new Contact no.:
8793008554
Profile updated successfully!!!!
```

```
-----------------------------------------------------
               Welcome Student
-----------------------------------------------------

1.Course Registration
2.Profile Updation
3.See Result
4 Log out
Enter your choice:
3
Enter semester:
4
Department       Semester        Course Code     Course Name    Total Marks      Obtained Marks
Computer               4               110             DSA            100.0           89.0
Computer               4               120             Cpp            100.0           90.0
Computer               4               130             Java           100.0           87.0
Computer               4               140             Python         100.0           70.0
Computer               4               150             Android        100.0           99.0
Computer               4               160             Maths          100.0           89.0
-------------------------------------------------------------------------------------------
        Total Percentage: 87.33333333333333
-----------------------------------------------------
```

```
-----------------------------------------------------------
                  Welcome Student
-----------------------------------------------------------

1.Course Registration
2.Profile Updation
3.See Result
4 Log out
Enter your choice:
4
Log out successfully

1.Student Registration
2.Student Login
3.Faculty Registration
4. Faculty Login
Enter choice:
```

Faculty Registration:

```
1.Student Registration
2.Student Login
3.Faculty Registration
4. Faculty Login
Enter choice:
3
Enter Faculty ID:
1200
Enter Name :
Abx cyz
Enter Department:
Computer
Enter password:
abc@123
You have registered successfully
```

```
1.Student Registration
2.Student Login
3.Faculty Registration
4. Faculty Login
Enter choice:
4
Enter User ID:
1200
enter password
abc@123

1. Enter result
2.See students data
3. Log out
Enter your choice:
1
Enter course code:
110
Enter total marks of course:
100
Following are the students that are enrolled for course code: 110
Enter their marks:
Enter marks of student id: 1000:
89
Marks entered successfully
```

```
1. Enter result
2.See students data
3. Log out
Enter your choice:
2
Enter department:
Computer
Enter year(eg 2nd , 3rd) :
2nd
-------------------------------------------------------------------------------------
Stud ID Student Name            Email                          Contact
-------------------------------------------------------------------------------------
1000    Anjali Arjun Nanaware   anjali.nanaware@nmiet.edu.in           8793008554
2       Arti Arjun Nanaware     nanawarearti@gmail.com         9011234554

1. Enter result
2.See students data
3. Log out
Enter your choice:
3
Logout successfully

1.Student Registration
2.Student Login
3.Faculty Registration
4. Faculty Login
```

7. Conclusion

The Student Information System developed for educational institutions provides a robust platform for managing student records, course registrations, grades, and transcript generation. By leveraging Java, JDBC, and MySQL, the system ensures efficient data management and seamless interaction with the database. With proper exception handling mechanisms in place, the system offers reliability and stability, catering to the needs of both administrators and students.