



**Department of Computer Science and Engineering**

**BENGALURU, KARNATAKA, INDIA.**

**B. TECH. (CSE)**

**V SEMESTER**

**Aug. – Dec. 2023**

**UE21CS341A – SOFTWARE ENGINEERING**

**PROJECT REPORT**

**ON**

**PLACEMENT CELL DATABASE**

**SUBMITTED BY**

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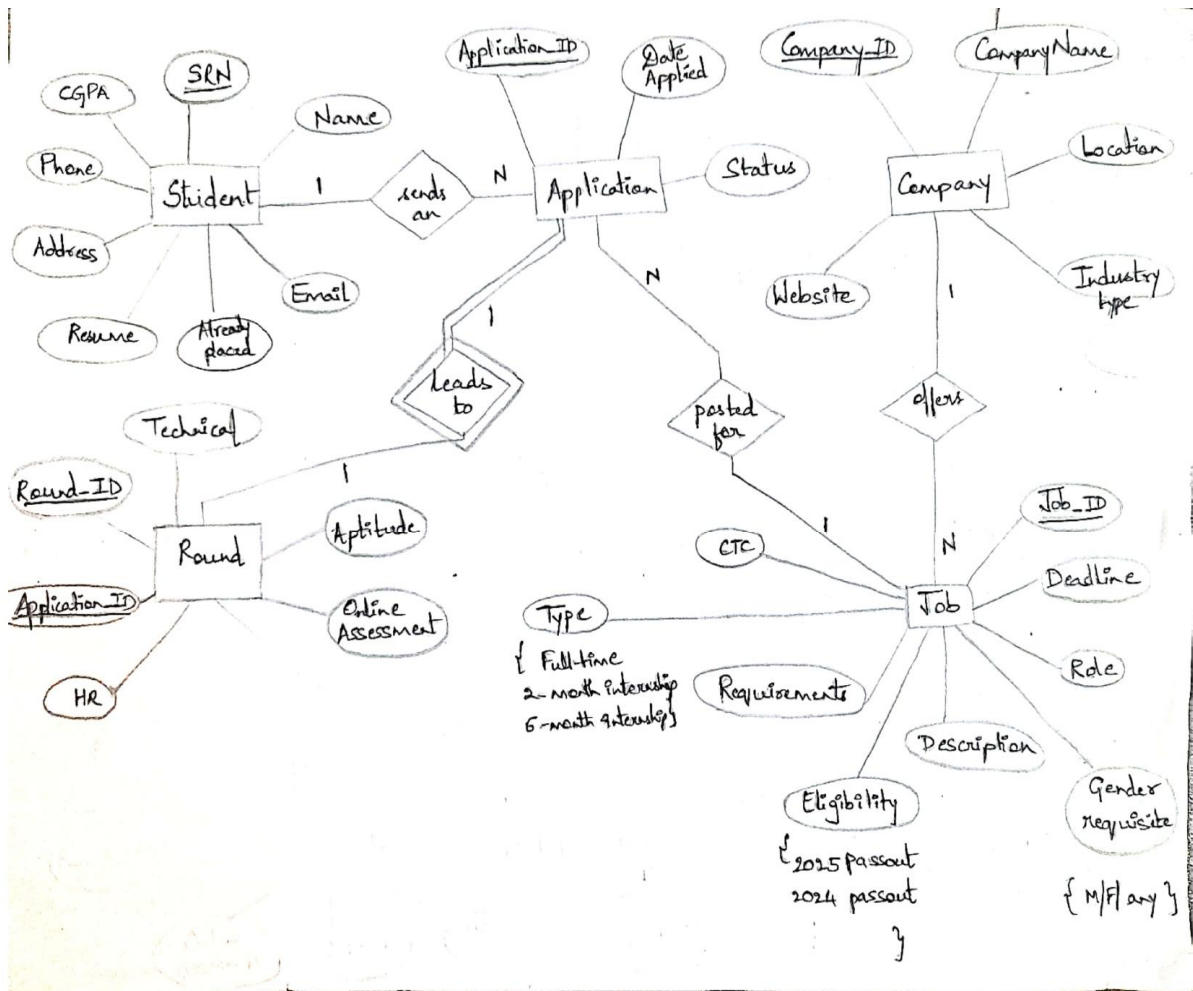
Department of Computer Science and Engineering

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# **Short Abstract on Placement Cell Database Project**

This project aims to design and implement a comprehensive database system for managing the activities of a college placement cell. The objective is to streamline the process of student registration, job postings, company profiles, and placement proceedings using a centralized database that can be accessed by students, placement officers, and recruiting companies. The methodology includes the analysis of the current placement process, designing a relational database schema, developing a user-friendly interface, and testing the system with real-time data. The anticipated outcome is to enhance the efficiency of placement activities, provide analytical tools for performance tracking, and facilitate better communication between all stakeholders.

## ER Diagram



## Relational Schema

### Relational Schema

#### Student

<u>SRN</u>	Name	Email	CGPA	Phone	Address	Resume	AlreadyPlaced
------------	------	-------	------	-------	---------	--------	---------------

#### Company

<u>C-Id</u>	C-Name	Location	IndustryType	Website
-------------	--------	----------	--------------	---------

#### Job

<u>Job-Id</u>	CTC	Role	Deadline	Description	Requirements	Job-type
					<u>C-Id</u>	Eligibility GenderRequisite

#### Application

<u>A-Id</u>	Date-applied	Status	<u>SRN</u>	<u>Job-Id</u>
-------------	--------------	--------	------------	---------------

#### Round

<u>R-Id</u>	Online-assessment	Aptitude	Technical	HR	<u>A-Id</u>
-------------	-------------------	----------	-----------	----	-------------

**SCREENSHOTS OF THE TABLES CREATED:**

```
mysql> show tables;
+-----+
| Tables_in_final_placements |
+-----+
| application                 |
| company                     |
| job                         |
| rounds                      |
| students                    |
+-----+
5 rows in set (0.00 sec)
```

```
mysql> desc application;
+-----+-----+-----+-----+-----+
| Field                | Type                                | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| application_id       | int                                | NO   | PRI | NULL    |       |
| date_applied         | date                              | YES  |     | NULL    |       |
| application_status   | enum('accepted','rejected','waiting') | YES  |     | NULL    |       |
| SRN                  | varchar(255)                      | NO   | MUL | NULL    |       |
| job_id               | int                                | NO   | MUL | NULL    |       |
+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

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```
mysql> desc students;
```

Field	Type	Null	Key	Default	Extra
SRN	varchar(13)	NO	PRI	NULL	
first_name	varchar(255)	YES		NULL	
last_name	varchar(255)	YES		NULL	
cgpa	decimal(3,2)	YES		NULL	
email	varchar(255)	YES		NULL	
phone_number	bigint	YES		NULL	
address	text	YES		NULL	
department	varchar(20)	YES		NULL	
placement_status	enum('yes','no')	YES		no	
placedyear	bigint	NO		NULL	
ctc	int	YES		NULL	
password	varchar(255)	YES		NULL	

12 rows in set (0.00 sec)

```
mysql> desc rounds;
```

Field	Type	Null	Key	Default	Extra
round_id	int	NO	PRI	NULL	
application_id	int	NO	PRI	NULL	
pass_value	enum('yes','no')	YES		NULL	

3 rows in set (0.00 sec)

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```
mysql> desc company;
```

Field	Type	Null	Key	Default	Extra
cid	varchar(255)	NO	PRI	NULL	
cname	varchar(255)	NO		NULL	
location	varchar(255)	YES		NULL	
website	varchar(255)	YES		NULL	
industry	varchar(255)	YES		NULL	
students_selected	int	YES		NULL	
cutoff	decimal(3,2)	YES		NULL	
yearvisited	int	YES		NULL	
password	varchar(255)	YES		NULL	

```
9 rows in set (0.00 sec)
```

```
mysql> desc job;
```

Field	Type	Null	Key	Default	Extra
job_id	int	NO	PRI	NULL	
cid	varchar(255)	YES	MUL	NULL	
deadline	date	YES		NULL	
roles	varchar(255)	YES		NULL	
gender_requirement	enum('male', 'female', 'any')	NO		NULL	
descriptions	varchar(255)	YES		NULL	
jtype	varchar(255)	YES		NULL	
requirement	varchar(255)	YES		NULL	

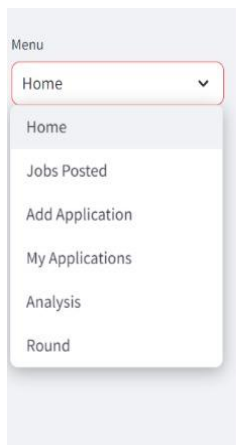
```
8 rows in set (0.00 sec)
```



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## SCREENSHOTS FROM THE FRONTEND:



### Student Dashboard

#### Welcome to PES University Placement Database

Empowering Career Success with Comprehensive Placement Insights

Welcome to the Placement Database, your one-stop resource for comprehensive placement data and insights. Our database empowers students, faculty, and placement officers to make informed decisions regarding career paths, placement opportunities, and recruitment strategies.

Select user type:

- ☒ Admin  
☐ Student  
☐ Company

## Admin Login

Username

admin

Password

...



Login

Menu

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Home

Analysis

Students

Add Student

Companies

Add Company

Round



Admin Dashboard

Welcome to PES University Placement Database

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Welcome to the Placement Database, your one-stop resource for comprehensive placement data and insights. Our database empowers students, faculty, and placement officers to make informed decisions regarding career paths, placement opportunities, and recruitment strategies.

Select user type:

- ☐ Admin
- ☒ Student
- ☐ Company

Student Login

Username

PES1UG21CS002

Password

.....

Login

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Round



Student Dashboard

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Select user type:

- ☐ Admin
- ☐ Student
- ☒ Company

# Company Login

Username

2023Arista

Password

.....

👁

Login

Menu

Home

Home

Students

Post a Job

Modify Application Details



## Company Dashboard

### Welcome to PES University Placement Database

Empowering Career Success with Comprehensive Placement Insights

Welcome to the Placement Database, your one-stop resource for comprehensive placement data and insights. Our database empowers students, faculty, and placement officers to make informed decisions regarding career paths, placement opportunities, and recruitment strategies.



## Company Dashboard

### Modify Application

Enter Application ID for Modification:

3033

Select Attribute to Modify:

Round 1



Enter Round 1 value :

yes

Modify

Application updated successfully



## Company Dashboard

### Modify Application

Enter Application ID for Modification:

4444

Select Attribute to Modify:

Application Status

Enter Application status value :

accepted

Modify

Cannot update the status of an application to yes as the student is already placed

### All Students Details

	SRN	first_name	last_name	cgpa	email	phone_number	address
0	PES1UG21CS001	SD		1	D@HN.COM	5278765456	ER
1	PES1UG21CS002	ASD	S	7.00	BCA@GMAIL.COM	8988765678	DFFHH
2	PES1UG21CS003	XS	S	7.80	A@GMAIL.COM	6566787898	FGHB
3	PES1UG21CS299	B	JH	8.11	J@YAHOO.COM	8765432345	JH
4	PES1UG21CS654	Sara	Jane	6.00	sara@gmail.com	9876854323	Mysore
5	PES1UG21CS666	NAME	S	7.00	svismaya20@gmail.com	5744848483	JG
6	PES2UG21CS700	ANI		8.99	ani@gmail.com	8987654321	mysore



## Student Dashboard

# My Applications

Enter your SRN:

PES1UG21CS721

Application ID: 987

Date Applied: 2023-11-07

Application Status: accepted

Job ID: 1234

Round 1: yes

Round 2: yes

Round 3: yes

Application ID: 1001

Date Applied: 2023-11-07

## Delete Student

SRN:

PES1UG21CS721

Delete

Student deleted successfully!



## Student Dashboard

### Jobs open

Jobs Open:

Job ID: 5678

Job Title: kj

Company ID: 2023jkl

Deadline: 2023-11-25

Gender Requirement: male

Description: aSDF

Job Type: Internship

Requirement: DV

## Admin Dashboard

### Analysis

Select Year:

2000



Total number of students in 2000: 0

Total number of students placed: 0

Total number of companies visited: 1

Highest CTC: None

Median CTC: 0

Mean CTC: 0

Total number of students with CTC > 1000000: 0



## Admin Dashboard

### Add New Student

Enter SRN:

Enter First Name:

Enter Last Name:

Enter CGPA:

Enter Email:

Enter Phone Number:

Enter Address:

Enter your branch:

Placement Status:(Yes/No)

Year of placement:

Enter the ctc:

Add





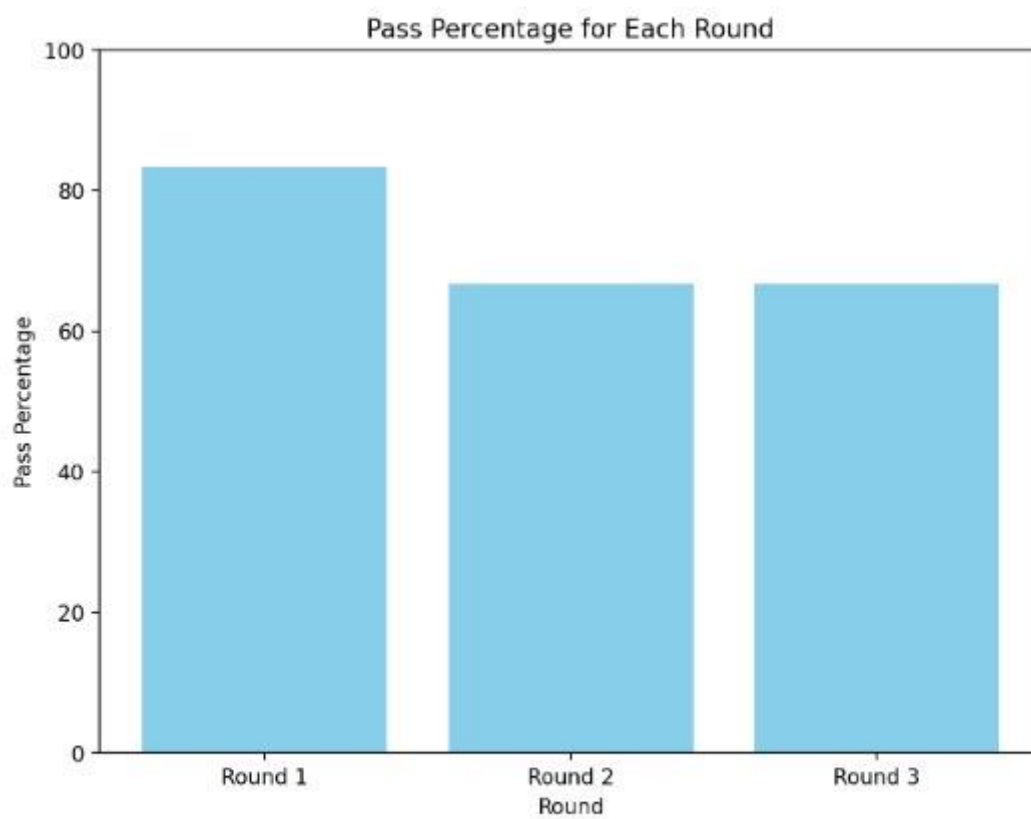
## Admin Dashboard

### Round

Round 1 pass percentage: 83.33333%

Round 2 pass percentage: 66.66667%

Round 3 pass percentage: 66.66667%



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## Student Dashboard

### Add Application Details

Enter Application ID:

Enter SRN:

Enter Job ID:

Enter the date applied:

Add

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## Admin Dashboard

### Search Students by SRN

Enter SRN:

### All Students Details

	SRN	first_name	last_name	cgpa	email	phone_number	address
0	PES1UG21CS001	SD		1	D@HN.COM	5278765456	ER
1	PES1UG21CS002	ASD	S	7.00	BCA@GMAIL.COM	8988765678	DFFHI
2	PES1UG21CS003	XS	S	7.80	A@GMAIL.COM	6566787898	FGHB
3	PES1UG21CS299	B	JH	8.11	J@YAHOO.COM	8765432345	JH
4	PES1UG21CS654	Sara	Jane	6.00	sara@gmail.com	9876854323	Mysor
5	PES1UG21CS666	NAME	S	7.00	svismaya20@gmail.com	5744848483	JG
6	PES2UG21CS700	ANI		8.99	ani@gmail.com	8987654321	mysor

### Modify Student Details

Enter SRN for Modification:

Select Attribute to Modify:

first\_name



Enter New First\_name:

Modify

### Delete Student

SRN:

Delete

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## Admin Dashboard

### Search Company by CompanyID

Enter Company ID:

### View Companies

	cid	cname	location	website	industry	students_selected	cutc
0	2023AMAZON	AMAZON	MYSORE	WWW.AMAZON.COM	SOFTWARE	1	6.00
1	2023Arista	Arista	B	www.arista.com	software	2	7.00
2	2023fidelity	fidelity	bengaluru	www.fidelity.com	finance	2	7.50
3	2023jkl	jkl	dsf	lh	sdfas	1	7.99
4	2023morgan	morgan	chennai	www.morgan.com	finance	0	7.98
5	2023ORACLE	ORACLE	D	SDF	SD	0	7.00
6	2023UPI	UPI	D	SDF	SD	0	8.00
7	COMP123	COMPANY	MYSORE	www.company.com	SOFTWARE	2	7.50
8	esrdt	aef	wdc	we	weac	0	9.00
9	gsf	svda	efa	adfs	sv	0	1
10	jh	aB	JH	we	HV	0	9.00
11	JN	M	AKJL	XJI	MH	0	8.01
12	LLLL	SDKBH	AJH	AS	DC	0	7.99
13	MNB	MJBH	J NBV	NB	MNB	0	1

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### Company Dashboard

#### Search Students by SRN

Enter SRN:

#### All Students Details

	SRN	first_name	last_name	cgpa	email	phone_number	addre
0	PES1UG21CS001	SD		1	D@HN.COM	5278765456	ER
1	PES1UG21CS002	ASD	S	7.00	BCA@GMAIL.COM	8988765678	DFFHI
2	PES1UG21CS003	XS	S	7.80	A@GMAIL.COM	6566787898	FGHB
3	PES1UG21CS299	B	JH	8.11	J@YAHOO.COM	8765432345	JH
4	PES1UG21CS654	Sara	Jane	6.00	sara@gmail.com	9876854323	Mysor
5	PES1UG21CS666	NAME	S	7.00	svismaya20@gmail.com	5744848483	JG
6	PES2UG21CS700	ANI		8.99	ani@gmail.com	8987654321	mysor

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## Company Dashboard

### Post a job

Enter Company ID:

Enter Job ID:

Select Deadline Date:

Enter Role:

Select Gender Requirement:

Enter Job Description:

Enter Job Type:

Enter job requirement:

Add



## Company Dashboard

### Modify Application

Enter Application ID for Modification:

Select Attribute to Modify:

Round 1 ▼

Enter Round 1 value :

Modify



## Admin Dashboard

### Analysis

Select Year:

2000 ▼

Total number of students in 2000: 0

Total number of students placed: 0

Total number of companies visited: 1

Highest CTC: None

Median CTC: 0

Mean CTC: 0

Total number of students with CTC > 1000000: 0



## Student Dashboard

# My Applications

Enter your SRN:

PES1UG21CS002

Application ID: 3033

Date Applied: 2023-11-22

Application Status: waiting

Job ID: 20202

Round 1: yes

Round 2: no

Round 3: no

---

Application ID: 77777

Date Applied: 2023-11-22

Application Status: waiting

Job ID: 20202

Round 1: no

Round 2: no

Round 3: no

---



## FUNCTIONALITIES INCLUDED:

```
DELIMITER //
```

```
CREATE PROCEDURE GetPlacedStudentsByYear(IN selected_year INT, OUT total_placed INT)
```

```
BEGIN
```

```
    DECLARE placed_count INT;
```

```
    SELECT COUNT(*) INTO placed_count FROM students WHERE  
    placedyear = selected_year AND placement_status = 'yes';
```

```
    SET total_placed = placed_count;
```

```
END;
```

```
//
```

```
DELIMITER ;
```

```
DELIMITER $$
```

```
CREATE TRIGGER IncrementStudentsSelected
```

```
AFTER UPDATE ON application
```

```
FOR EACH ROW
```

```
BEGIN
```

```
    IF NEW.application_status = 'accepted' AND  
    (OLD.application_status IS NULL OR OLD.application_status != 'accepted')
```

```
    THEN UPDATE company INNER JOIN job ON company.cid = job.cid
```

```
        SET company.students_selected = IFNULL(company.students_selected, 0) + 1 WHERE job.job_id = NEW.job_id;
```

```
    END IF;
```

```
END$$
```

```
DELIMITER ;
```

```
DROP TRIGGER IF EXISTS after_update_application;
```

```
DELIMITER $$
```

## SCREENSHOTS FROM THE PYTHON CODE:

Includes:

- Nested query
- Join statement
- Aggregate function
- Procedure call

```
elif attribute_to_modify == "Application Status":
    valid = ['accepted', 'rejected', 'waiting']
    if new_value in valid:
        try:
            check_query = "SELECT (SELECT s.placement_status FROM students s WHERE s.srn = a.srn) AS placement_status FROM application a WHERE a.application_id = %s"

            cursor.execute(check_query, (id_input,))
            result = cursor.fetchone()

            if result and result[0] == 'no':

                update_query = f"UPDATE application SET application_status = %s WHERE application_id = %s"

                cursor.execute(update_query, (new_value, id_input))
                connection.commit()
                st.success('Application updated successfully')

            else:
                st.warning('Cannot update the status of an application to yes as the student is already placed')
        except mysql.connector.Error as err:
            st.error("Invalid input %s" %err)
        except Exception as e:
            st.error("Invalid input %s" %e)
    else:
        st.error("Invalid Input")
```

```
elif attribute_to_modify == "Application Status":
    valid = ['accepted', 'rejected', 'waiting']
    if new_value in valid:
        try:
            check_query = "SELECT (SELECT s.placement_status FROM students s WHERE s.srn = a.srn) AS placement_status FROM application a WHERE a.application_id = %s"

            cursor.execute(check_query, (id_input,))
            result = cursor.fetchone()

            if result and result[0] == 'no':

                update_query = f"UPDATE application SET application_status = %s WHERE application_id = %s"

                cursor.execute(update_query, (new_value, id_input))
                connection.commit()
                st.success('Application updated successfully')

            else:
                st.warning('Cannot update the status of an application to yes as the student is already placed')
        except mysql.connector.Error as err:
            st.error("Invalid input %s" %err)
        except Exception as e:
            st.error("Invalid input %s" %e)
    else:
        st.error("Invalid Input")
```

```

def my_applications():
    connection = get_db_connection()
    cursor = connection.cursor()

    st.title("My Applications")

    my_srn = st.text_input("Enter your SRN: ")

    if my_srn:
        if not is_valid_srn(my_srn):
            st.error("SRN is invalid.")
        else:
            try:
                connection = get_db_connection()
                cursor = connection.cursor()

                # Modified query using GROUP_CONCAT to concatenate pass values for each round
                query = """
                SELECT a.application_id, a.date_applied, a.application_status, a.job_id,
                GROUP_CONCAT(r.pass_value ORDER BY r.round_id) AS pass_values
                FROM application a
                LEFT JOIN rounds r ON a.application_id = r.application_id
                WHERE a.SRN = %s
                GROUP BY a.application_id, a.date_applied, a.application_status, a.job_id
                """
                cursor.execute(query, (my_srn,))
                results = cursor.fetchall()

                if results:
                    # Display application details and individual pass values for each round
                    for result in results:
                        application_id, date_applied, application_status, job_id, pass_values = result
                        st.write(f"Application ID: {application_id}")
                        st.write(f>Date Applied: {date_applied}")
                        st.write(f"Application Status: {application_status}")
                        st.write(f"Job ID: {job_id}")

```

```

cursor.execute("SELECT MAX(ctc) FROM students WHERE placedyear = %s", yeart)
highest_ctc_result = cursor.fetchone()
highest_ctc = highest_ctc_result[0] if highest_ctc_result else 0

print("Highest CTC:", highest_ctc)
median_ctc = sorted(ctcs)[len(ctcs) // 2] if ctcs else 0

```

```
if attribute_to_modify == "Round 1" or attribute_to_modify == "Round 2" or attribute_to_modify == "Round 3":
    yn = ['yes', 'no']

    if new_value in yn:
        try:
            update_query = f"UPDATE rounds SET pass_value = %s WHERE application_id = %s and round_id = %s"
            cursor.execute(update_query, (new_value, id_input, round_no))
            connection.commit()
            st.success('Application updated successfully')
        except mysql.connector.Error as err:
            st.error("Invalid input %s" % err)
        except Exception as e:
            st.error("Invalid input : %s" % e)
    else:
        st.error("Invalid input")
```

```
def delete_student():
    connection = get_db_connection()
    cursor = connection.cursor()

    st.subheader("Delete Student")
    student_id = st.text_input("SRN: ")

    check_query = "SELECT COUNT(*) FROM students WHERE SRN = %s"
    cursor.execute(check_query, (student_id,))
    count = cursor.fetchone()[0]

    if st.button("Delete"):
        try:
            if is_valid_srn(student_id):
                if count > 0:
                    cursor.execute("DELETE FROM students WHERE SRN=%s", (student_id,))
                    connection.commit()
                    st.success("Student deleted successfully!")
                else:
                    st.error("Student not found.")
            else:
                st.error("SRN is invalid.")
        except Exception as e:
            st.error(f"Error deleting student: {e}")

    cursor.close()
    connection.close()
```



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```
st.subheader("All Students Details")
cursor.execute("SELECT SRN, first_name, last_name, cgpa, email, phone_number, address, department,
placement_status, placedyear, ctc FROM students")
students_data = cursor.fetchall()

# Fetch the column names excluding the last column ("password")
column_names = [i[0] for i in cursor.description]

# Exclude the last column ("password") from the DataFrame
df = pd.DataFrame(students_data, columns=column_names)
st.table(df.to_records(index=False))
```

```
def filter_data_by_year(year):
    connection = get_db_connection()
    cursor = connection.cursor()
    print(type(year))
    yeart=(year,)
    print(type(yeart))
    cursor.execute("SELECT * FROM students WHERE placedyear = %s",yeart)
    rows = cursor.fetchall()
    total_students = len(rows)
    args = [year, 0]

    result_args = cursor.callproc('GetPlacedStudentsByYear', args)
    total_placed = result_args[1]
    print("This")
    print(result_args[1])
```

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