

DBMS Assignment 4

1. Order By Clause

Query : select * from employee order by salary ;

Output : Details of employees ordered by salary.

The screenshot shows the MySQL Workbench interface. The query editor contains the query: `select * from employee order by salary;`. The Results tab displays the output as a table with columns: emp_id, first_name, last_name, sex, salary, super_id, branch_id, full_name, birth_day, and Yearly_income. The results are ordered by salary in descending order.

| emp_id | first_name | last_name | sex | salary | super_id | branch_id | full_name | birth_day | Yearly_income |
|--------|------------|-----------|-----|--------|----------|-----------|----------------|---------------------|---------------|
| 102 | Rashi | Mehta | F | 20000 | 103 | 1 | Rashi Mehta | 1994-02-03 05:36:23 | 240000 |
| 104 | Kelly | Kapoor | F | 55000 | 103 | 2 | Kelly Kapoor | 1980-02-05 03:17:13 | 660000 |
| 103 | Angela | Martin | F | 63000 | 103 | 2 | Angela Martin | 1971-06-25 03:13:14 | 756000 |
| 107 | Andy | Bernard | M | 63000 | 301 | 1 | Andy Bernard | 1973-07-22 08:43:21 | 760000 |
| 105 | Stanley | Hudson | M | 69000 | 103 | 2 | Stanley Hudson | 1958-02-19 09:12:17 | 828000 |
| 108 | Jim | Halpert | M | 71000 | 301 | 1 | Jim Halpert | 1978-10-01 10:44:43 | 852000 |
| 106 | Josh | Porter | M | 78000 | 103 | 2 | Josh Porter | 1969-09-05 11:21:21 | 936000 |
| 301 | Alanksha | Jain | F | 150000 | 103 | 1 | Alanksha Jain | 1999-07-23 07:05:52 | 1800000 |

2. Group By and Having :

Query : select * from employee group by sex,salary having salary > (select avg(salary) from employee);

Output : Details of employees grouped by sex and salaries having salary greater than the average.

The screenshot shows the MySQL Workbench interface. The query editor contains the query: `select * from employee group by sex,salary having salary > (select avg(salary) from employee);`. The Results tab displays the output as a table with columns: emp_id, first_name, last_name, sex, salary, super_id, branch_id, full_name, birth_day, and Yearly_income. The results are grouped by sex and salary, and only those with a salary greater than the average are shown.

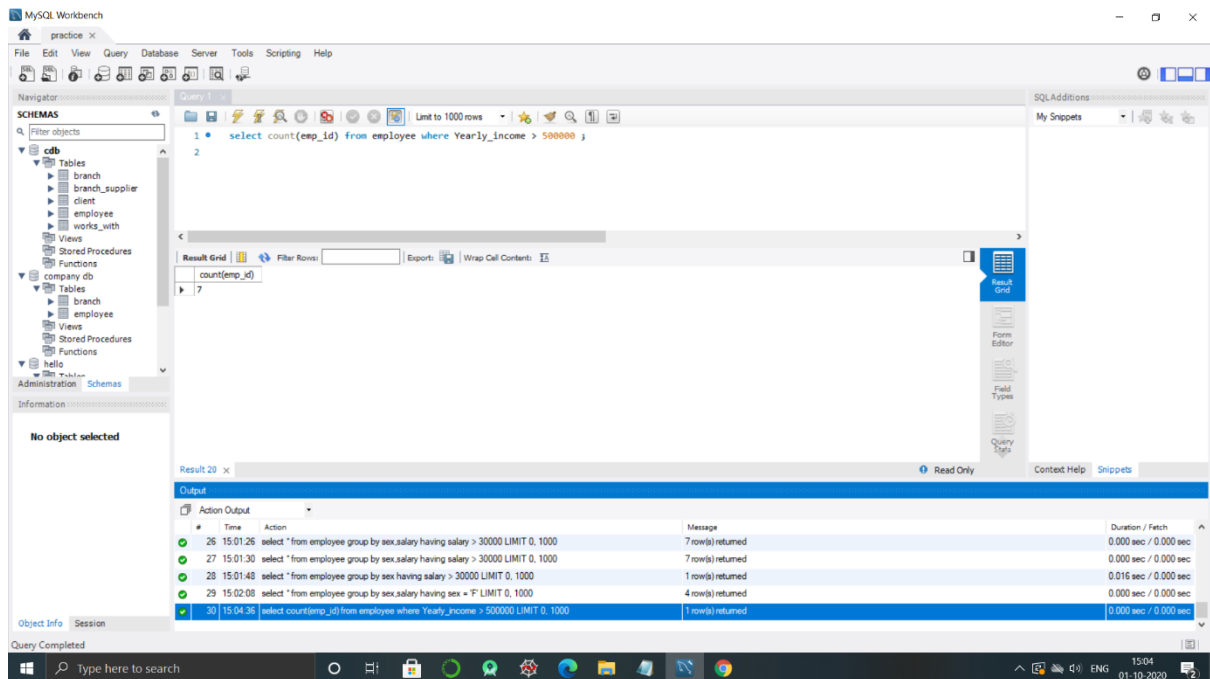
| emp_id | first_name | last_name | sex | salary | super_id | branch_id | full_name | birth_day | Yearly_income |
|--------|------------|-----------|-----|--------|----------|-----------|---------------|---------------------|---------------|
| 106 | Josh | Porter | M | 78000 | 103 | 2 | Josh Porter | 1969-09-05 11:21:21 | 936000 |
| 108 | Jim | Halpert | M | 71000 | 301 | 1 | Jim Halpert | 1978-10-01 10:44:43 | 852000 |
| 301 | Alanksha | Jain | F | 150000 | 103 | 1 | Alanksha Jain | 1999-07-23 07:05:52 | 1800000 |

3. Aggregate Functions :

A . Count :

Query : `select count(emp_id) from employee where Yearly_income > 500000;`

Output : number of employees whose salary is greater than 500000



The screenshot shows the MySQL Workbench interface. The Query window contains the following SQL query:

```
1 select count(emp_id) from employee where Yearly_income > 500000 ;
```

The Result Grid shows the output of the query:

| count(emp_id) |
|---------------|
| 7 |

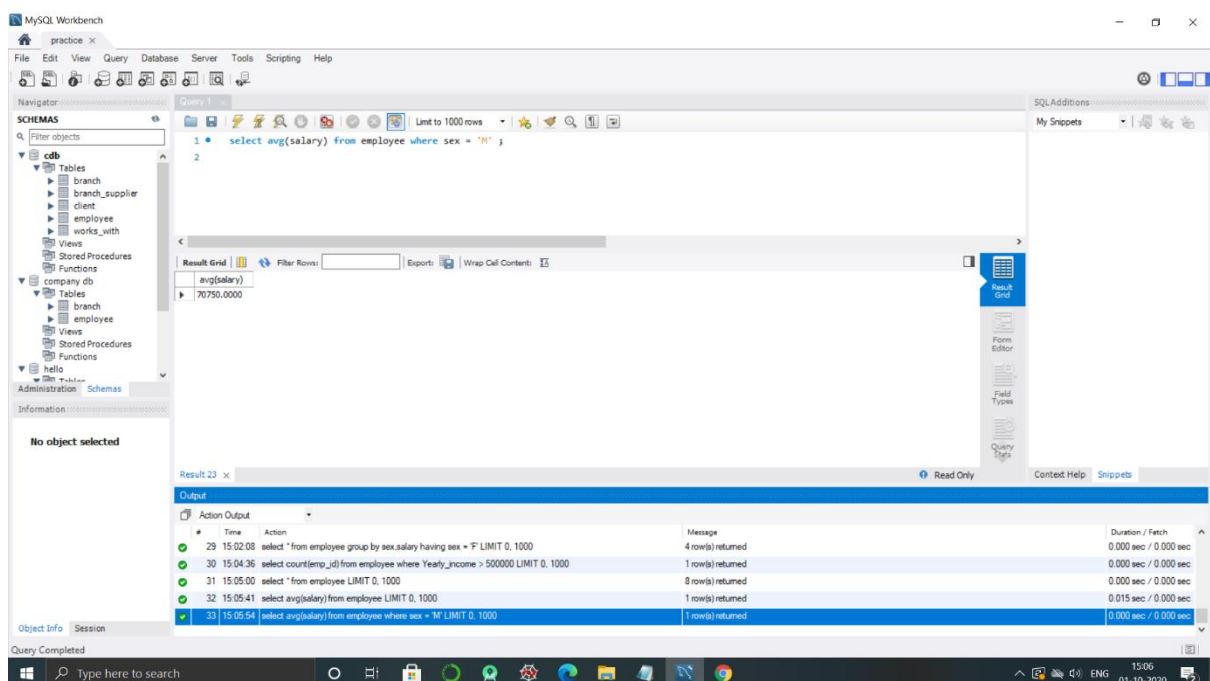
The Output window shows the execution log with the following entry for the query:

| # | Time | Action | Message | Duration / Fetch |
|----|----------|---|-------------------|-----------------------|
| 30 | 15:04:36 | select count(emp_id) from employee where Yearly_income > 500000 LIMIT 0, 1000 | 1 row(s) returned | 0.000 sec / 0.000 sec |

B . Average :

Query : `select avg(salary) from employee where sex = 'F' ;`

Output : average salary of female employees



The screenshot shows the MySQL Workbench interface. The Query window contains the following SQL query:

```
1 select avg(salary) from employee where sex = 'F' ;
```

The Result Grid shows the output of the query:

| avg(salary) |
|-------------|
| 70750.0000 |

The Output window shows the execution log with the following entry for the query:

| # | Time | Action | Message | Duration / Fetch |
|----|----------|--|-------------------|-----------------------|
| 33 | 15:05:54 | select avg(salary) from employee where sex = 'F' LIMIT 0, 1000 | 1 row(s) returned | 0.000 sec / 0.000 sec |

C. Sum :

Query : `select sum(Yearly_income) from employee;`

Output : Total money spent by company in giving salaries to employees.

The screenshot shows the MySQL Workbench interface. The query editor contains the following SQL query:

```
1 select sum(Yearly_income) from employee;
```

The output is displayed in the 'Result Grid' tab, showing a single row with the value 6852000.

The 'Output' tab shows the execution log with the following details:

| # | Time | Action | Message | Duration / Fetch |
|----|----------|--|-------------------|-----------------------|
| 33 | 15.05.54 | select avg(salary) from employee where sex = 'M' LIMIT 0, 1000 | 1 row(s) returned | 0.000 sec / 0.000 sec |
| 34 | 15.06.39 | EXPLAIN select avg(salary) from employee where sex = 'M' | OK | 0.000 sec |
| 35 | 15.06.39 | EXPLAIN FORMAT=JSON select avg(salary) from employee where sex = 'M' | OK | 0.000 sec |
| 36 | 15.07.29 | select * from employee LIMIT 0, 1000 | 8 row(s) returned | 0.000 sec / 0.000 sec |
| 37 | 15.08.03 | select sum(Yearly_income) from employee LIMIT 0, 1000 | 1 row(s) returned | 0.016 sec / 0.000 sec |

4. Logical operators especially with LIKE :

A. % operator :

Query : `select * from employee where birth_day like '1980%' or emp_id = 102 ;`

Output : Details of employees who were born in 1980 or having employee id 102.

The screenshot shows the MySQL Workbench interface. The query editor contains the following SQL query:

```
1 select * from employee where birth_day like '1980%' or emp_id = 102 ;
```

The output is displayed in the 'Result Grid' tab, showing the following data:

| emp_id | first_name | last_name | sex | salary | super_id | branch_id | full_name | birth_day | Yearly_income |
|--------|------------|-----------|-----|--------|----------|-----------|---------------|---------------------|---------------|
| 102 | Rashi | Mehra | F | 20000 | 103 | 1 | Rashi Mehra | 1994-02-03 05:36:23 | 240000 |
| 104 | Kelly | Kapoor | F | 55000 | 103 | 2 | Kelly Kapoor | 1980-02-05 03:17:13 | 660000 |
| 200 | Robert | Downey | M | 65000 | 301 | 1 | Robert Downey | 1980-06-23 11:17:19 | 780000 |

The 'Output' tab shows the execution log with the following details:

| # | Time | Action | Message | Duration / Fetch |
|-----|----------|---|---|-----------------------|
| 124 | 16.49.12 | select * from employee where emp_id like '1_' LIMIT 0, 1000 | 7 row(s) returned | 0.000 sec / 0.000 sec |
| 125 | 16.49.34 | select * from employee where emp_id like '1_' and salary > 60000 LIMIT 0, 1000 | 5 row(s) returned | 0.000 sec / 0.000 sec |
| 126 | 16.51.18 | select * from employee where birth_day like '1980%' or birth_day like '1979%' | Error Code: 1064. You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near '1979%' at line 1 | 0.000 sec |
| 127 | 16.52.25 | select * from employee LIMIT 0, 1000 | 9 row(s) returned | 0.000 sec / 0.000 sec |
| 128 | 16.52.38 | select * from employee where birth_day like '1980%' or emp_id = 102 LIMIT 0, 1000 | 3 row(s) returned | 0.000 sec / 0.000 sec |

B. '_' operator :

Query : select * from employee where emp_id like '1__' and salary > 60000 ;

Output : Details of employees whose employee id starts with 1.

The screenshot shows the MySQL Workbench interface. The query editor contains the following SQL query:

```
1 select * from employee where emp_id like '1__' and salary > 60000;
```

The Results tab displays the following data:

| emp_id | first_name | last_name | sex | salary | super_id | branch_id | full_name | birth_day | Yearly_income |
|--------|------------|-----------|-----|--------|----------|-----------|----------------|---------------------|---------------|
| 103 | Angela | Martin | F | 63000 | 103 | 2 | Angela Martin | 1971-06-25 02:13:14 | 756000 |
| 105 | Stanley | Hudson | M | 69000 | 103 | 2 | Stanley Hudson | 1958-02-19 09:12:17 | 828000 |
| 106 | Josh | Porter | M | 78000 | 103 | 2 | Josh Porter | 1969-09-05 11:21:21 | 936000 |
| 107 | Andy | Bernard | M | 65000 | 301 | 1 | Andy Bernard | 1973-07-22 08:43:21 | 780000 |
| 108 | Jim | Holpert | M | 71000 | 301 | 1 | Jim Holpert | 1978-10-01 10:44:43 | 852000 |

The Output tab shows the execution log:

| # | Time | Action | Message | Duration / Fetch |
|-----|----------|---|--|-----------------------|
| 121 | 16:48:34 | select * from employee where emp_id like '1__' LIMIT 0, 1000 | Error Code: 1054. Unknown column '1__' in 'where clause' | 0.000 sec |
| 122 | 16:48:46 | use cdb | 0 row(s) affected | 0.000 sec |
| 123 | 16:48:55 | select * from employee LIMIT 0, 1000 | 9 row(s) returned | 0.000 sec / 0.000 sec |
| 124 | 16:49:12 | select * from employee where emp_id like '1__' LIMIT 0, 1000 | 7 row(s) returned | 0.000 sec / 0.000 sec |
| 125 | 16:49:34 | select * from employee where emp_id like '1__' and salary > 60000 LIMIT 0, 1000 | 5 row(s) returned | 0.000 sec / 0.000 sec |

5. Nested Queries :

5.1. Simple Subquery :

Query : select branch_name from branch where branch_id = (select branch_id from branch where branch_city = 'Delhi ';

Output : branch_name of the branch located in Delhi using branch_id.

The screenshot shows the MySQL Workbench interface. The query editor contains the following SQL query:

```
1 select branch_name from branch where branch_id = (select branch_id from branch where branch_city = 'Delhi ' ;
```

The Results tab displays the following data:

| branch_name |
|-------------|
| DHR 1 |

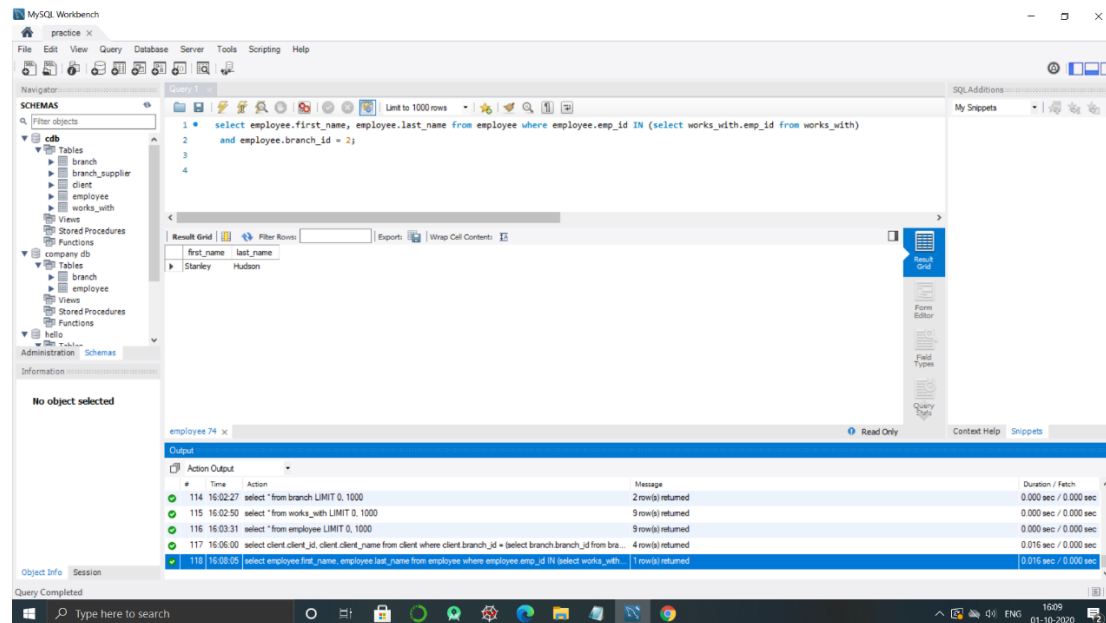
The Output tab shows the execution log:

| # | Time | Action | Message | Duration / Fetch |
|----|----------|---|---|-----------------------|
| 67 | 15:30:39 | select * from employee where first_name like 'a%'; LIMIT 0, 1000 | 0 row(s) returned | 0.000 sec / 0.000 sec |
| 68 | 15:30:51 | select * from employee where first_name like 'a%'; LIMIT 0, 1000 | 0 row(s) returned | 0.000 sec / 0.000 sec |
| 69 | 15:34:45 | select branch_id from branch where select * from branch | Error Code: 1064. You have an error in your SQL syntax; check the manual that corresponds to your MySQL se... | 0.000 sec |
| 70 | 15:34:59 | select * from branch LIMIT 0, 1000 | 2 row(s) returned | 0.000 sec / 0.000 sec |
| 71 | 15:36:24 | select branch_name from branch where branch_id = (select branch_id from branch where branch_city = 'Delhi ' ; | 1 row(s) returned | 0.000 sec / 0.000 sec |

5.2. Simple Subquery :

Query : select employee.first_name , employee.last_name from employee where employee.emp_id
in (select works_with.emp_id from works_with) and employee.branch_id = 2 ;

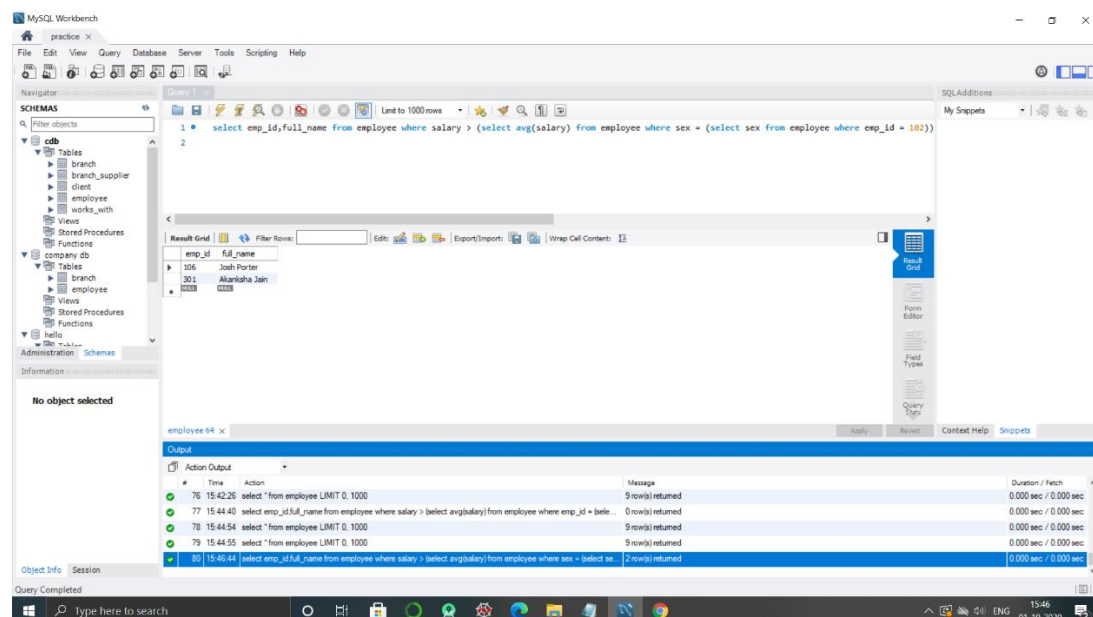
Output : Names of employees who works with clients handled by branch 2.



5.3. Multiple Subqueries :

Query : select emp_id,full_name from employee where salary > (select avg(salary) from employee
where sex = (select sex from employee where emp_id = 102));

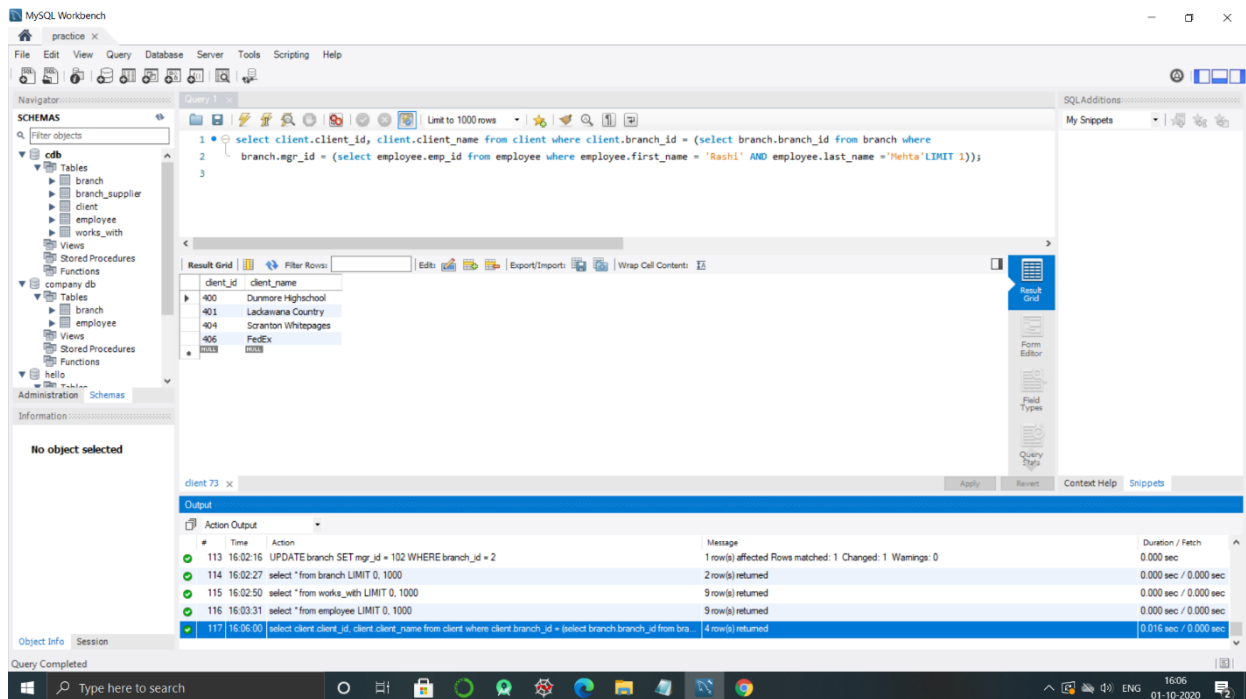
Output : Details of employees whose salaries are greater than the average salary of employees
having same gender as that of employee with employee id 102.



5.4. Multiple Subqueries :

Query : select client.client_id, client.client_name from client where client.branch_id =
(select branch.branch_id from branch where branch.mgr_id = (select employee.emp_id
from employee where employee.first_name = 'Rashi' and employee.last_name = 'Mehta'
LIMIT 1));

Output : all clients who are handled by the branch that Rashi Mehta manages.



- By Sumith Sai Budde ,18bcs101
- Syed Sufyan Ahmed , 18bcs103
- Sampath , 18bcs087
- Bharath MP , 18bcs057
- Jagan Mohan Reddy, 18bcs029
- Trishul KS, 18bcs104