



Day care Centre

Database System

A report submitted to the

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In completing the Mini- project for the module EE4202 Database Systems

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Chapter 1 - Requirement Analysis

1.1 Functional Requirements

Functional requirements in a database include data storage, data retrieval, integrity enforcement, security, concurrency control, transaction management, integration capabilities, and user interfaces etc. “Day Care Centre System” was chosen as the topic of the group.

Throughout this project, a database related to the Day care centre will be created. Suitable entities for the day care centre were selected and, the relationships between those entities were included in this database system. In normal databases, the below functions can be seen.

- Create and modify the database
- Retrieve Data
- Ability to supply data with improved performance
- Able to fill in possible data gaps/ missing data
- Update data in the database
- Ability to add comments on data, when the data is missing

Here, the nine entities of the day-care centre which selected to this project, are shown below.

- Employee
- Day care centre
- Toy
- Activity
- Child
- Classroom
- Guardian
- Alternate Contact
- Consumable

1.2 Data requirements

- Strong Entities: Employee, Day care centre, Toy, Activity, Child, Classroom
- Weak Entities : Guardian, Alternate Contact, Consumable

Entity: Employee – Attributes

- Employee ID (Should not be null)
- Employee's Name
- Supervisor ID
- Salary

Entity: Day care Centre – Attributes

- Reg. No (Should not be null)
- Name
- Contact No
- Address

Entity: Toy – Attributes

- Toy no (Should not be null)
- Toy name
- Activity name
- Purchase date
- Supplier

Entity: Activity – Attributes

- Activity no (Should not be null)
- Activity name
- Activity Description
- Employee assigned

Entity: Child – Attributes

- Child ID (Should not be null)
- Name
- DOB
- Gender
- Behaviour
- Napping hours
- Food prefer
- Other updates

Entity: Classroom – Attributes

- Classroom no (Should not be null)
- Class Name
- Age group
- Capacity

Entity: Guardian – Attributes

- Child ID (Should not be null)
- Name
- NIC
- Address
- Whatsapp
- Email
- Phone number
- Relation to the child

Entity: Alternate Contact – Attributes

- Child ID (Should not be null)
- Alternate Contact Name
- Apartment No
- Street
- City
- Phone number
- Relationship

Entity: Consumable – Attributes

- Reg. no (Should not be null)
- Garbage Bags
- Serviette
- Forks
- Cups
- Plates
- Paper
- Pencils
- Finger-paints
- Pastels
- Scissor
- Glue

Multivalued attributes from Employee Table:

Employee_Contact_Details – Attributes

- Employee ID (Should not be null)
- Phone number
- Whatsapp_number
- Email

Employee_Qualifications – Attributes

- Employee ID (Should not be null)
- Secondary_Education
- Higher_Education
- Other_Qualifications

Chapter 2 - Conceptual Design

The Entity - Relationship (ER) diagram of the Day care centre is drawn using Visual Paradigm Online tool.

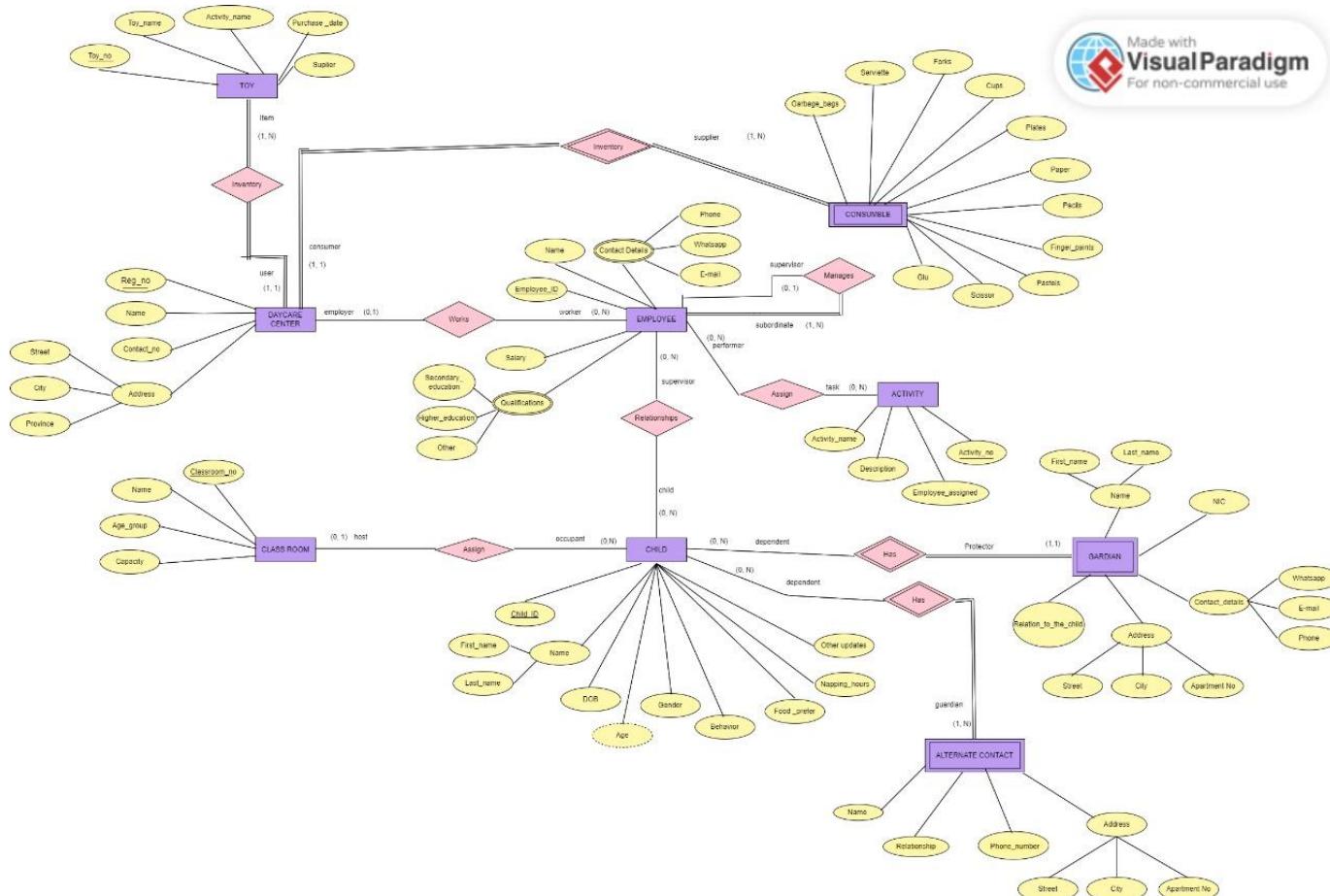


Figure 1 : Entity - Relationship diagram of the day care centre schema

Chapter 3 – Implementation

3.1 Schema creation

```
MySQL 8.0 Command Line Client
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 20
Server version: 8.0.33 MySQL Community Server - GPL

Copyright (c) 2000, 2023, Oracle and/or its affiliates.

Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> show databases;
+-----+
| Database |
+-----+
| employee_directory |
| foe |
| information_schema |
| mysql |
| performance_schema |
| sakila |
| sys |
| world |
+-----+
8 rows in set (0.00 sec)

mysql> create database Day_care_center;
Query OK, 1 row affected (0.06 sec)

mysql> use Day_care_center;
Database changed
mysql> CREATE TABLE Employee(
    -> Employee_ID varchar(10) Not null,
    -> Employee_Name varchar(50),
    -> Supervisor_ID varchar(50),
    -> Salary decimal(15,2),
    -> );

```

3.2 Implementation of tables and creating foreign key constraint

- Employee Table

```
MySQL 8.0 Command Line Cli X + v
ERROR 1064 (42000): 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 'e
mployee' at line 1
mysql> drop table employee;
ERROR 3730 (HY000): Cannot drop table 'employee' referenced by a foreign key constraint 'employee_contact_details_ibfk_1' on table 'employee_contact_details '
.
mysql>
mysql> CREATE DATABASE Day_Care_Center;
Query OK, 1 row affected (0.01 sec)

mysql> USE Day_Care_Center;
Database changed
mysql>
mysql> -- -----
mysql> -- CREATING TABLES
mysql> -- -----
mysql> -- EMPLOYEE TABLE:
mysql> CREATE TABLE Employee(
    -> Employee_ID varchar(10) Not null,
    -> Employee_Name varchar(50),
    -> Supervisor_ID varchar(50),
    -> Salary decimal(15,2),
    -> primary key (Employee_ID)
    -> );
Query OK, 0 rows affected (0.01 sec)

mysql>
mysql> |
```

- Employee Contact Details Table

```
MySQL 8.0 Command Line Cli  +  x
-> VALUES ('E004', 'Lakshan', 'E005', 45000.00);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee (Employee_ID, Employee_Name, Supervisor_ID, Salary)
-> VALUES ('E005', 'Thilini', 'E006', 60000.00);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee (Employee_ID, Employee_Name, Supervisor_ID, Salary)
-> VALUES ('E006', 'Taniya', 'E001', 65000.00);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee (Employee_ID, Employee_Name, Supervisor_ID, Salary)
-> VALUES ('E007', 'Tharaka', 'E005', 40000.00);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee (Employee_ID, Employee_Name, Supervisor_ID, Salary)
-> VALUES ('E008', 'Mahesh', 'E005', 60000.00);
Query OK, 1 row affected (0.00 sec)

mysql> CREATE TABLE Employee_Contact_Details (
->     Employee_ID varchar(10) NOT NULL,
->     Phone_number int(10),
->     Whatsapp_number int(10),
->     Email varchar(50),
->     FOREIGN KEY (Employee_ID) REFERENCES Employee(Employee_ID)
-> );
Query OK, 0 rows affected, 2 warnings (0.02 sec)

mysql>
mysql>
mysql>
mysql>
mysql>
mysql>
mysql>
mysql>
mysql> |
Upcoming Earnings  Search  b  O  w  1:16 PM  9/11/2023
```

- Employee Qualifications Table

```
MySQL 8.0 Command Line Cli  +  v
mysql> INSERT INTO Employee_Contact_Details (Employee_ID, Phone_number, Whatsapp_number, Email)
-> VALUES ('E008', 746549087, 707864052, 'maheshkumara67@gmail.com');
Query OK, 1 row affected (0.00 sec)

mysql> CREATE TABLE Employee_Qualifications (
->     Employee_ID varchar(10) NOT NULL,
->     Secondary_Education varchar(50),
->     Higher_Education varchar(50),
->     Other_Qualifications varchar(100),
->     FOREIGN KEY (Employee_ID) REFERENCES Employee(Employee_ID)
-> );
Query OK, 0 rows affected (0.01 sec)

mysql>
mysql> |
USD/JPY -1.18%  Search  b  O  w  1:19 PM  9/11/2023
```

- Day care Centre Table

```

MySQL 8.0 Command Line Client

mysql> CREATE TABLE Daycare_Center(
->     Reg_No varchar(25) NOT NULL,
->     Name_ varchar(50),
->     Contact_No varchar(25),
->     Street varchar(25),
->     City varchar(25),
->     Province varchar(25),
->     primary key (Reg_No));
Query OK, 0 rows affected (0.14 sec)

mysql> INSERT INTO Daycare_Center(Reg_No,Name_,Contact_No,Street,City,Province)
-> VALUES ('D1', 'ABC Daycare Center', '0356784531', '123 Main Street', 'Galle', 'Southern');
Query OK, 1 row affected (0.09 sec)

mysql> INSERT INTO Daycare_Center(Reg_No,Name_,Contact_No,Street,City,Province)
-> VALUES ('D2', 'Sunrise Childcare', '0712345678', '456 Ella Street', 'Colombo', 'Western');
Query OK, 1 row affected (0.07 sec)

mysql> INSERT INTO Daycare_Center(Reg_No,Name_,Contact_No,Street,City,Province)
-> VALUES ('D3', 'Little Explorers Preschool', '0777777777', '789 Vishaka Road', 'Kandy', 'Central');
Query OK, 1 row affected (0.06 sec)

mysql> INSERT INTO Daycare_Center(Reg_No,Name_,Contact_No,Street,City,Province)
-> VALUES ('D4', 'Happy Kids Daycare', '0355895155', '321 Grand Lane', 'Jaffna', 'Northern');
Query OK, 1 row affected (0.09 sec)

mysql> INSERT INTO Daycare_Center(Reg_No,Name_,Contact_No,Street,City,Province)
-> VALUES ('D5', 'Tiny Tots Nursery', '0778901234', '555 Central Road', 'Negombo', 'Western');
Query OK, 1 row affected (0.09 sec)

mysql> INSERT INTO Daycare_Center(Reg_No,Name_,Contact_No,Street,City,Province)
-> VALUES ('D6', 'Wonderland Daycare', '0765432109', '987 Maple Street', 'Matara', 'Southern');
Query OK, 1 row affected (0.10 sec)

mysql> INSERT INTO Daycare_Center(Reg_No,Name_,Contact_No,Street,City,Province)
-> VALUES ('D7', 'Sunshine Childrens Center', '0787654321', '222 Wakwella Road', 'Galle', 'Southern');
Query OK, 1 row affected (0.07 sec)

mysql>

```

The screenshot shows the MySQL 8.0 Command Line Client window. The terminal has multiple command-line entries. The first entry creates a table named 'Daycare_Center' with columns: Reg_No (primary key), Name_, Contact_No, Street, City, and Province. Subsequent entries insert data into this table for seven different daycare centers, each with a unique ID (D1-D7), name, contact number, address, city, and province.

- Activity Table

```

MySQL 8.0 Command Line Client

mysql> CREATE TABLE Activity (
->     Activity_no varchar(10) Not Null,
->     Activity_name varchar(25),
->     Activity_Description varchar(250),
->     Employee_assigned varchar(50),
->     primary key (Activity_no));
Query OK, 0 rows affected (0.12 sec)

mysql> INSERT INTO Activity(Activity_no, Activity_name, Activity_Description, Employee_assigned)
-> VALUES ('A001', 'Art and Craft', 'Children will create art using various materials such as paint, crayons, and paper.', 'Kasun Jayasekara');
Query OK, 1 row affected (0.08 sec)

mysql> INSERT INTO Activity(Activity_no, Activity_name, Activity_Description, Employee_assigned)
-> VALUES ('A002', 'Storytime', 'Storytelling session with interactive stories and discussions.', 'Maheshi Silva');
Query OK, 1 row affected (0.06 sec)

mysql> ^C
mysql> INSERT INTO Activity(Activity_no, Activity_name, Activity_Description, Employee_assigned)
-> VALUES ('A003', 'Outdoor Play', 'Children will have supervised outdoor playtime with games and activities.', 'Pradeep Kumara');
Query OK, 1 row affected (0.05 sec)

mysql> INSERT INTO Activity(Activity_no, Activity_name, Activity_Description, Employee_assigned)
-> VALUES ('A004', 'Music and Dance', 'Exploring music through instruments, songs, and dance movements.', 'Lakshan Dissanayake');
Query OK, 1 row affected (0.09 sec)

mysql> INSERT INTO Activity(Activity_no, Activity_name, Activity_Description, Employee_assigned)
-> VALUES ('A005', 'Science Experiments', 'Hands-on science experiments and demonstrations to foster curiosity.', 'Thilini Madhushani');
Query OK, 1 row affected (0.07 sec)

mysql> INSERT INTO Activity(Activity_no, Activity_name, Activity_Description, Employee_assigned)
-> VALUES ('A006', 'Cooking and Baking', 'Simple cooking and baking activities to learn about food and measurements.', 'Taniya Sirwardhana');
Query OK, 1 row affected (0.08 sec)

mysql> INSERT INTO Activity(Activity_no, Activity_name, Activity_Description, Employee_assigned)
-> VALUES ('A007', 'Sensory Play', 'Activities that engage the senses through textures, smells, and tastes.', 'Tharaka Wijesinghe');
Query OK, 1 row affected (0.20 sec)

mysql> INSERT INTO Activity(Activity_no, Activity_name, Activity_Description, Employee_assigned)
-> VALUES ('A008', 'Math and Numbers', 'Basic math concepts through games and puzzles.', 'Mahesh Kumara');
Query OK, 1 row affected (0.05 sec)

mysql> INSERT INTO Activity(Activity_no, Activity_name, Activity_Description, Employee_assigned)
-> VALUES ('A009', 'Physical Education', 'Physical activities and exercises to promote fitness and coordination.', 'Kasun Jayasekara');

mysql>

```

The screenshot shows the MySQL 8.0 Command Line Client window. The terminal has multiple command-line entries. The first entry creates a table named 'Activity' with columns: Activity_no (primary key), Activity_name, Activity_Description, and Employee_assigned. Subsequent entries insert data into this table for nine different activities, each with a unique ID (A001-A009), name, description, and assigned employee.

- Toy Table

```
MySQL 8.0 Command Line Client
mysql> CREATE TABLE Toy(
-> Toy_no int Not Null,
-> Toy_name varchar(25),
-> Activity_name varchar(50),
-> Purchase_date date,
-> Suplier varchar(50),
-> primary key (Toy_no));
Query OK, 0 rows affected (0.11 sec)

mysql> INSERT INTO Toy(Toy_no, Toy_name, Activity_name,Purchase_date,Suplier)
-> VALUES (1, 'Colorful Blocks', 'Building and Stacking', '2023-01-15', 'ToyCo');
Query OK, 1 row affected (0.06 sec)

mysql> INSERT INTO Toy(Toy_no, Toy_name, Activity_name,Purchase_date,Suplier)
-> VALUES (2, 'Plush Teddy Bear', 'Cuddling and Comfort', '2022-11-20', 'ToyWorld');
Query OK, 1 row affected (0.07 sec)

mysql> INSERT INTO Toy(Toy_no, Toy_name, Activity_name,Purchase_date,Suplier)
-> VALUES (3, 'Educational Puzzle', 'Problem Solving', '2023-03-05', 'LearningToys Inc.');
Query OK, 1 row affected (0.08 sec)

mysql> INSERT INTO Toy(Toy_no, Toy_name, Activity_name,Purchase_date,Suplier)
-> VALUES (4, 'Crayon Set', 'Art and Creativity', '2022-12-10', 'ArtSupplies Co.');
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO Toy(Toy_no, Toy_name, Activity_name,Purchase_date,Suplier)
-> VALUES (5, 'Musical Keyboard', 'Music Exploration', '2023-02-18', 'MelodyTunes');
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO Toy(Toy_no, Toy_name, Activity_name,Purchase_date,Suplier)
-> VALUES (6, 'Sensory Balls', 'Tactile Exploration', '2023-01-25', 'SensoryPlay');
Query OK, 1 row affected (0.06 sec)

mysql> INSERT INTO Toy(Toy_no, Toy_name, Activity_name,Purchase_date,Suplier)
-> VALUES (7, 'Building Blocks', 'Creative Play', '2023-04-02', 'BlockCrafters');
Query OK, 1 row affected (0.07 sec)

mysql> INSERT INTO Toy(Toy_no, Toy_name, Activity_name,Purchase_date,Suplier)
-> VALUES (8, 'Storybooks Collection', 'Reading and Imagination', '2022-11-30', 'BookCorner');
Query OK, 1 row affected (0.38 sec)

mysql> INSERT INTO Toy(Toy_no, Toy_name, Activity_name,Purchase_date,Suplier)
-> VALUES (9, 'Play-Doh Set', 'Sculpting and Fine Motor Skills', '2023-02-08', 'DohPlay Inc.');
Query OK, 1 row affected (0.05 sec)
```

- Child Table

```
MySQL 8.0 Command Line Client
mysql> CREATE TABLE Child(
-> Child_ID varchar(25) Not Null,
-> First_name varchar(25),
-> Last_Name varchar(25),
-> DOB date,
-> Gender varchar(10),
-> Behaviour varchar(100),
-> Food_prefer varchar(100),
-> Napping_hours time,
-> Other_updates varchar(100),
-> primary key (Child_ID));
Query OK, 0 rows affected (0.26 sec)

mysql> SELECT *,TIMESTAMPDIFF(YEAR, DOB, NOW()) AS AgeFROM day_care_center.Child;
ERROR 1064 (42000): 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 'day_care_center.Child' at line 1
mysql> SELECT * ,TIMESTAMPDIFF(YEAR, DOB, NOW()) AS AgeFROM day_care_center.Child;
ERROR 1064 (42000): 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 'TIMESTAMPDIFF(YEAR, DOB, NOW()) AS AgeFROM day_care_center.Child' at line 1
mysql> SELECT Child_ID, First_name, Last_Name, DOB,
-> TIMESTAMPDIFF(YEAR, DOB, CURDATE()) AS Age
-> from Child;
Empty set (0.01 sec)

mysql> SELECT Child_ID, First_name, Last_Name, DOB,
-> TIMESTAMPDIFF(YEAR, DOB, CURDATE()) AS Age
-> FROM Day_care_center.Child;
Empty set (0.00 sec)

mysql> ALTER TABLE Child ADD COLUMN Age INT;
Query OK, 0 rows affected (0.10 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> UPDATE Child
-> SET Age = TIMESTAMPDIFF(YEAR, DOB, NOW());
Query OK, 0 rows affected (0.00 sec)
Rows matched: 0  Changed: 0  Warnings: 0

mysql> show create table Child;
+-----+-----+
| Table | Create Table |
+-----+-----+
```

- Classroom Table

```
MySQL 8.0 Command Line Client
mysql> CREATE TABLE Classroom(
    -> Classroom_no varchar(25) Not Null,
    -> Class_Name varchar(25),
    -> Age_group varchar(15),
    -> Capacity int,
    -> primary key (Classroom_no));
Query OK, 0 rows affected (0.42 sec)

mysql> INSERT INTO Classroom (Classroom_no, Class_Name, Age_group, Capacity)
    -> VALUES ('A', 'Full Day Class', '5-12 years', 20);
Query OK, 1 row affected (0.11 sec)

mysql> INSERT INTO Classroom (Classroom_no, Class_Name, Age_group, Capacity)
    -> VALUES ('B', 'Half Day Class', '5-12 years', 10);
Query OK, 1 row affected (0.06 sec)

mysql> INSERT INTO Classroom (Classroom_no, Class_Name, Age_group, Capacity)
    -> VALUES ('C', 'Family Class', '5-12 years', 5);
Query OK, 1 row affected (0.06 sec)

mysql> INSERT INTO Classroom (Classroom_no, Class_Name, Age_group, Capacity)
    -> VALUES ('D', 'Pre-School Class', '0-5 years', 25);
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO Classroom (Classroom_no, Class_Name, Age_group, Capacity)
    -> VALUES ('E', 'After School Class', '5-12 years', 20);
Query OK, 1 row affected (0.07 sec)

mysql> show create table Classroom;
+-----+-----+
| Table | Create Table
+-----+-----+
| Classroom | CREATE TABLE `classroom` (
  `Classroom_no` varchar(25) NOT NULL,
  `Class_Name` varchar(25) DEFAULT NULL,
  `Age_group` varchar(15) DEFAULT NULL,
  `Capacity` int DEFAULT NULL,
  PRIMARY KEY (`Classroom_no`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci |
+-----+-----+

```

- Alternate Contact Table

```
MySQL 8.0 Command Line Client
mysql> CREATE TABLE Alternate_Contact(
    -> Child_ID varchar(25) Not Null,
    -> AlternateContact_Name varchar(25),
    -> Apartment_No int,
    -> Street varchar(25),
    -> City varchar(15),
    -> Phone number bigint,
    -> Relationship varchar(50),    primary key (Child_ID));
Query OK, 0 rows affected (0.12 sec)

mysql> INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C001', 'Jane Smith', 302, 'Cedar A venue', 'Cityville', 9876543210, 'Aunt');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C002', 'David Johnson', 201, 'Oak Street', 'Townsville', 8765432109, 'Grandparent');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C003', 'Michael Smith', 401, 'Elm Road', 'Smalltown', 7654321098, 'Cousin');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C004', 'Emily Williams', 202, 'Pine Lane', 'Villagetown', 6543210987, 'Grandparent');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C005', 'William Brown', 303, 'Sunset Drive', 'Countryside', 5432109876, 'Family Friend');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C006', 'Abigail Jones', 404, 'River Road', 'Hometown', 4321098765, 'Aunt');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C007', 'Ella Miller', 505, 'Lakefront Avenue', 'Smalltown', 3210987654, 'Cousin');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C008', 'James Davis', 606, 'Meadow Lane', 'Villagetown', 2109876543, 'Family Friend');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C009', 'Benjamin Garcia', 707, 'Mountain View', 'Countryside', 1098765432, 'Uncle');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C010', 'Sofia Rodriguez', 808, 'Orchard Street', 'Hometown', 0987654321, 'Grandparent');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C011', 'Daniel Wilson', 101, 'Main Road', 'Cityville', 9876543210, 'Aunt');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C012', 'Alexander Martinez', 202, 'Cedar Street', 'Townsville', 8765432109, 'Cousin');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C013', 'Evelyn Anderson', 303, 'Elm Avenue', 'Smalltown', 7654321098, 'Family Friend');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C014', 'Jack Taylor', 404, 'Pine Lane', 'Villagetown', 6543210987, 'Uncle');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C015', 'Harper Thomas', 505, 'Sunset Drive', 'Countryside', 5432109876, 'Grandparent');
Query OK, 1 row affected (0.07 sec)

Query OK, 1 row affected (0.02 sec)

Query OK, 1 row affected (0.02 sec)

Query OK, 1 row affected (0.04 sec)

Query OK, 1 row affected (0.03 sec)

Query OK, 1 row affected (0.03 sec)
```

- Guardian Table

```
MySQL 8.0 Command Line Client
5 rows in set (0.00 sec)

mysql> CREATE TABLE Gardian(
-> Child_ID varchar(25) Not Null,
-> First_name varchar(25),
-> Last_name varchar(25),
-> NIC varchar(15),
-> Apartment_No int,
-> Street varchar(25),
-> City varchar(15),
-> Phone_number bigint,
-> Whatsapp_number bigint,
-> Email varchar(50),
-> Relation_to_the_child varchar(25),
-> primary key (Child_ID);
Query OK, 0 rows affected (0.14 sec)

mysql> INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C001', 'Jane', 'Doe', '987654321V', 201, 'Oak Street', 'Cityville', 2345678901, 9876543210, 'jane@email.com', 'Mother');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C002', 'David', 'Johnson', '123456789V', 302, 'Cedar Avenue', 'Townsville', 3456789012, 8765432109, 'david@email.com', 'Father');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C003', 'Michael', 'Smith', '555555555V', 101, 'Pine Road', 'Smalltown', 4567890123, 7654321098, 'michael@email.com', 'Father');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C004', 'Emily', 'Williams', '111111111V', 202, 'Maple Lane', 'Villagetown', 5678901234, 6543210987, 'emily@email.com', 'Mother');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C005', 'William', 'Brown', '999999999V', 303, 'Rose Street', 'Countryside', 6789012345, 5432109876, 'william@email.com', 'Father');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C006', 'Abigail', 'Jones', '333333333V', 404, 'Tulip Avenue', 'Hometown', 7890123456, 4321098765, 'abigail@email.com', 'Mother');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C007', 'Ella', 'Miller', '777777777V', 505, 'Sunset Drive', 'Smalltown', 8901234567, 3210987654, 'ella@email.com', 'Mother');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C008', 'James', 'Davis', '444444444V', 606, ' Meadow Lane', 'Villagetown', 9012345678, 2109876543, 'james@email.com', 'Father');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C009', 'Benjamin', 'Garcia', '888888888V', 707, 'River Road', 'Countryside', 1234567890, 1098765432, 'benjamin@email.com', 'Father');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C010', 'Sofia', 'Rodriguez', '555555555V', 808, 'Orchard Street', 'Hometown', 2345678901, 0987654321, 'sofia@email.com', 'Mother');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C011', 'Daniel', 'Wilson', '2222222V', 909, 'Park Avenue', 'Smalltown', 3456789012, 9876543210, 'daniel@email.com', 'Father');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C012', 'Alexander', 'Martinez', '999999999V', 1010, 'Garden Lane', 'Villagetown', 4567890123, 8765432109, 'alexander@email.com', 'Father');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C013', 'Evelyn', 'Anderson', '666666666V', 1111, 'Brookside Road', 'Villagetown', 5678901234, 7654321098, 'evelyn@email.com', 'Mother');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C014', 'Jack', 'Taylor', '111111111V', 1212, 'Mountain View', 'Countryside', 6789012345, 6543210987, 'jack@email.com', 'Father');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C015', 'Harper', 'Thomas', '777777777V', 1313, 'Lakefront Avenue', 'Hometown', 7890123456, 5432109876, 'harper@email.com', 'Mother');
Query OK, 1 row affected (0.07 sec)
```

- Consumable Table

```
MySQL 8.0 Command Line Client
Query OK, 0 rows affected (0.14 sec)

mysql> CREATE TABLE Consumable(
-> Reg_no varchar(25) Not Null,
-> Garbage_Bags int,
-> Serviette int,
-> Folaks int,
-> Cups int,
-> Plates int,
-> Paper int,
-> Pencils int,
-> Finger_paints int,
-> Pastels int,
-> Scissor int,
-> Glu int,
-> primary key (Reg_no);
Query OK, 0 rows affected (0.14 sec)

mysql> INSERT INTO Consumable(Reg_no, Garbage_Bags, Serviette, Folaks, Cups, Plates, Paper, Pencils, Finger_paints, Pastels, Scissor, Glu)VALUES ('D1', 100, 200, 50, 30, 0, 150, 500, 400, 100, 200, 50, 10);INSERT INTO Consumable(Reg_no, Garbage_Bags, Serviette, Folaks, Cups, Plates, Paper, Pencils, Finger_paints, Pastels, Scissor, Glu)VALUES ('D2', 80, 150, 40, 250, 120, 450, 350, 90, 180, 40, 8);INSERT INTO Consumable(Reg_no, Garbage_Bags, Serviette, Folaks, Cups, Plates, Paper, Pencils, Finger_paints, Pastels, Scissor, Glu)VALUES ('D3', 90, 180, 45, 270, 135, 550, 420, 105, 210, 45, 9);INSERT INTO Consumable(Reg_no, Garbage_Bags, Serviette, Folaks, Cups, Plates, Paper, Pencils, Finger_paints, Pastels, Scissor, Glu)VALUES ('D4', 70, 140, 35, 230, 110, 400, 320, 80, 160, 35, 7);INSERT INTO Consumable(Reg_no, Garbage_Bags, Serviette, Folaks, Cups, Plates, Paper, Pencils, Finger_paints, Pastels, Scissor, Glu)VALUES ('D5', 85, 160, 42, 260, 130, 490, 380, 95, 190, 42, 8);INSERT INTO Consumable(Reg_no, Garbage_Bags, Serviette, Folaks, Cups, Plates, Paper, Pencils, Finger_paints, Pastels, Scissor, Glu)VALUES ('D6', 95, 190, 48, 290, 145, 600, 450, 115, 230, 48, 10);INSERT INTO Consumable(Reg_no, Garbage_Bags, Serviette, Folaks, Cups, Plates, Paper, Pencils, Finger_paints, Pastels, Scissor, Glu)VALUES ('D7', 75, 155, 38, 245, 125, 430, 360, 88, 175, 38, 7);
Query OK, 1 row affected (0.07 sec)

Query OK, 1 row affected (0.02 sec)

Query OK, 1 row affected (0.04 sec)

Query OK, 1 row affected (0.03 sec)

Query OK, 1 row affected (0.02 sec)

Query OK, 1 row affected (0.03 sec)

Query OK, 1 row affected (0.02 sec)

Query OK, 1 row affected (0.02 sec)

mysql>
```

- Foreign Key Constraints

```
MySQL 8.0 Command Line Client

mysql> ALTER TABLE Alternate_Contact
-> ADD CONSTRAINT FK_alternate_contact
-> FOREIGN KEY (child_ID) REFERENCES Child(Child_ID)
-> ON DELETE CASCADE
-> ON UPDATE CASCADE;
Query OK, 15 rows affected (0.28 sec)
Records: 15  Duplicates: 0  Warnings: 0

mysql> ALTER TABLE ConsumableADD CONSTRAINT FK_consumableFOREIGN KEY (Reg_no) REFERENCES Daycare_Center(Reg_No)ON DELETE CASCADE ON UPDATE CASCADE;
ERROR 1064 (42000): 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 'CONSTRAINT FK_consumableFOREIGN KEY (Reg_no) REFERENCES Daycare_Center(Reg_No)' at line 1
mysql> ALTER TABLE Consumable
-> ADD CONSTRAINT FK_consumable
-> FOREIGN KEY (Reg_no) REFERENCES Daycare_Center(Reg_No)
-> ON DELETE CASCADE
-> ON UPDATE CASCADE;
Query OK, 7 rows affected (0.24 sec)
Records: 7  Duplicates: 0  Warnings: 0

mysql> UPDATE employeeSET Employee_Name = 'Raveen'WHERE Employee_ID = 'E003';
ERROR 1064 (42000): 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 '= 'Raveen'WHE
RE Employee_ID = 'E003'' at line 1
mysql> UPDATE employee
-> SET Employee_Name = 'Raveen'
-> WHERE Employee_ID = 'E003';
Query OK, 1 row affected (0.07 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> DELETE FROM employee WHERE Employee_ID='E007';
Query OK, 1 row affected (0.05 sec)

mysql> _
```

```
MySQL 8.0 Command Line Client

mysql> ALTER TABLE Employee
-> ADD CONSTRAINT FK_Supervisor
-> FOREIGN KEY (Supervisor_ID)
-> REFERENCES Employee(Employee_ID);
Query OK, 7 rows affected (1.41 sec)
Records: 7  Duplicates: 0  Warnings: 0

mysql> ALTER TABLE Gardian
-> ADD CONSTRAINT FK_GuardianOfChild
-> FOREIGN KEY (Child_ID) REFERENCES Child(Child_ID)
-> ON DELETE CASCADE ON UPDATE CASCADE;
Query OK, 13 rows affected (0.30 sec)
Records: 13  Duplicates: 0  Warnings: 0

mysql>
```

3.3 Table definitions

- Employee Table

```
MySQL 8.0 Command Line Cli  +  x
CONSTRRAINT `employee_qualifications_ibfk_1` FOREIGN KEY (`Employee_ID`) REFERENCES `employee` (`Employee_ID`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci |
+-----+
-----+
1 row in set (0.00 sec)

mysql>
mysql>
mysql>
mysql>
mysql>
mysql>
mysql> show create table Employee;
+-----+
| Table      | Create Table
+-----+
| Employee   | CREATE TABLE `employee` (
  `Employee_ID` varchar(10) NOT NULL,
  `Employee_Name` varchar(50) DEFAULT NULL,
  `Supervisor_ID` varchar(50) DEFAULT NULL,
  `Salary` decimal(15,2) DEFAULT NULL,
  PRIMARY KEY (`Employee_ID`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci |
+-----+
1 row in set (0.00 sec)

mysql>
mysql>
mysql>
mysql>
mysql>
mysql> |
8°F  Mostly cloudy  Search  11:55 AM  9/11/2023
```

- Employee_Contact_Details Table

```
MySQL 8.0 Command Line Cli  +  v
mysql> use Day_Care_Center;
Database changed
mysql> show create table Employee_Contact_Details;
+-----+
| Table          | Create Table
+-----+
| Employee_Contact_Details | CREATE TABLE `employee_contact_details` (
  `Employee_ID` varchar(10) NOT NULL,
  `Phone_number` int DEFAULT NULL,
  `Whatsapp_number` int DEFAULT NULL,
  `Email` varchar(50) DEFAULT NULL,
  KEY `Employee_ID` (`Employee_ID`),
  CONSTRAINT `employee_contact_details_ibfk_1` FOREIGN KEY (`Employee_ID`) REFERENCES `employee` (`Employee_ID`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci |
+-----+
1 row in set (0.00 sec)

mysql> |
8°F  Mostly cloudy  Search  11:36 AM  9/11/2023
```

- Employee Qualifications Table

- Day care Centre Table

```
MySQL 8.0 Command Line Client

mysql> show create table Daycare_center;
+-----+-----+
| Table      | Create Table
+-----+-----+
| Daycare_center | CREATE TABLE `daycare_center` (
  `Reg_No` varchar(25) NOT NULL,
  `Name` varchar(50) DEFAULT NULL,
  `Contact_No` varchar(25) DEFAULT NULL,
  `Street` varchar(25) DEFAULT NULL,
  `City` varchar(25) DEFAULT NULL,
  `Province` varchar(25) DEFAULT NULL,
  PRIMARY KEY (`Reg_No`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci |
+-----+-----+
1 row in set (0.02 sec)

mysql>
```

- Activity Table

```
MySQL 8.0 Command Line Client

mysql> show create table Activity;
+-----+-----+
| Table | Create Table
+-----+-----+
| Activity | CREATE TABLE `activity` (
  `Activity_no` varchar(10) NOT NULL,
  `Activity_name` varchar(25) DEFAULT NULL,
  `Activity_Description` varchar(250) DEFAULT NULL,
  `Employee_assigned` varchar(50) DEFAULT NULL,
  PRIMARY KEY (`Activity_no`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci |
+-----+-----+
1 row in set (0.00 sec)

mysql>
```

- Toy Table

```
MySQL 8.0 Command Line Client

mysql> show create table Toy;
+-----+-----+
| Table | Create Table
+-----+-----+
| Toy | CREATE TABLE `toy` (
  `Toy_no` int NOT NULL,
  `Toy_name` varchar(25) DEFAULT NULL,
  `Activity_name` varchar(50) DEFAULT NULL,
  `Purchase_date` date DEFAULT NULL,
  `Supplier` varchar(50) DEFAULT NULL,
  PRIMARY KEY (`Toy_no`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci |
+-----+-----+
1 row in set (0.01 sec)

mysql>
```

- Child Table

```
MySQL 8.0 Command Line Client
mysql>
mysql> show create table Child;
+-----+
| Table | Create Table
+-----+
| Child | CREATE TABLE `child` (
  `Child_ID` varchar(25) NOT NULL,
  `First_name` varchar(25) DEFAULT NULL,
  `Last_Name` varchar(25) DEFAULT NULL,
  `DOB` date DEFAULT NULL,
  `Gender` varchar(10) DEFAULT NULL,
  `Behaviour` varchar(100) DEFAULT NULL,
  `Food_prefer` varchar(100) DEFAULT NULL,
  `Napping_hours` time DEFAULT NULL,
  `Other_updates` varchar(100) DEFAULT NULL,
  `Age` int DEFAULT NULL,
  PRIMARY KEY (`Child_ID`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci |
+-----+
1 row in set (0.01 sec)

mysql>
```



- Classroom Table

```
MySQL 8.0 Command Line Client
mysql> show create table Classroom;
+-----+
| Table | Create Table
+-----+
| Classroom | CREATE TABLE `classroom` (
  `Classroom_no` varchar(25) NOT NULL,
  `Class_Name` varchar(25) DEFAULT NULL,
  `Age_group` varchar(15) DEFAULT NULL,
  `Capacity` int DEFAULT NULL,
  PRIMARY KEY (`Classroom_no`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci |
+-----+
1 row in set (0.01 sec)

mysql>
```



- Alternate Contact Table

```
MySQL 8.0 Command Line Client

mysql> show create table Alternate_contact;
+-----+-----+
| Table | Create Table |
+-----+-----+
| Alternate_contact | CREATE TABLE `alternate_contact` (
  `Child_ID` varchar(25) NOT NULL,
  `AlternateContact_Name` varchar(25) DEFAULT NULL,
  `Apartment_No` int DEFAULT NULL,
  `Street` varchar(25) DEFAULT NULL,
  `City` varchar(15) DEFAULT NULL,
  `Phone_number` bigint DEFAULT NULL,
  `Relationship` varchar(50) DEFAULT NULL,
  PRIMARY KEY (`Child_ID`),
  CONSTRAINT `FK_alternate_contact` FOREIGN KEY (`Child_ID`) REFERENCES `child` (`Child_ID`) ON DELETE CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci |
+-----+-----+
1 row in set (0.04 sec)

mysql>
```

- Guardian Table

```
MySQL 8.0 Command Line Client

mysql> show create table Gardian;
+-----+-----+
| Table | Create Table |
+-----+-----+
| Gardian | CREATE TABLE `gardian` (
  `Child_ID` varchar(25) NOT NULL,
  `First_name` varchar(25) DEFAULT NULL,
  `Last_name` varchar(25) DEFAULT NULL,
  `NIC` varchar(15) DEFAULT NULL,
  `Apartment_No` int DEFAULT NULL,
  `Street` varchar(25) DEFAULT NULL,
  `City` varchar(15) DEFAULT NULL,
  `Phone_number` bigint DEFAULT NULL,
  `Whatsapp_number` bigint DEFAULT NULL,
  `Email` varchar(50) DEFAULT NULL,
  `Relation_to_the_child` varchar(25) DEFAULT NULL,
  PRIMARY KEY (`Child_ID`),
  CONSTRAINT `FK_gardian` FOREIGN KEY (`Child_ID`) REFERENCES `child` (`Child_ID`) ON DELETE CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci |
+-----+-----+
1 row in set (0.02 sec)

mysql>
```

- Consumable Table

```
MySQL 8.0 Command Line Client
mysql> show create table Consumable;
+-----+-----+
| Table | Create Table
+-----+-----+
| Consumable | CREATE TABLE `consumable` (
  `Reg_no` varchar(25) NOT NULL,
  `Garbage_Bags` int DEFAULT NULL,
  `Serviette` int DEFAULT NULL,
  `Tolaks` int DEFAULT NULL,
  `Cups` int DEFAULT NULL,
  `Plates` int DEFAULT NULL,
  `Paper` int DEFAULT NULL,
  `Pencils` int DEFAULT NULL,
  `Finger_paints` int DEFAULT NULL,
  `Pastels` int DEFAULT NULL,
  `Scissor` int DEFAULT NULL,
  `Glu` int DEFAULT NULL,
  PRIMARY KEY (`Reg_no`),
  CONSTRAINT `FK_consumable` FOREIGN KEY (`Reg_no`) REFERENCES `daycare_center` (`Reg_No`) ON DELETE CASCADE ON UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci |
+-----+-----+
1 row in set (0.02 sec)

mysql>
```

3.4 Inserting data for tables

- Employee Table

```
-->
-- primary key (Employee_ID)
-- );
Query OK, 0 rows affected (0.01 sec)

mysql> INSERT INTO Employee (Employee_ID, Employee_Name, Supervisor_ID, Salary)
--> VALUES ('E001', 'Kasun', 'E001', 65000.00);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee (Employee_ID, Employee_Name, Supervisor_ID, Salary)
--> VALUES ('E002', 'Maheshi', 'E005', 50000.00);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee (Employee_ID, Employee_Name, Supervisor_ID, Salary)
--> VALUES ('E003', 'Pradeep', 'E005', 55000.00);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee (Employee_ID, Employee_Name, Supervisor_ID, Salary)
--> VALUES ('E004', 'Lakshan', 'E005', 45000.00);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee (Employee_ID, Employee_Name, Supervisor_ID, Salary)
--> VALUES ('E005', 'Thilini', 'E006', 60000.00);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee (Employee_ID, Employee_Name, Supervisor_ID, Salary)
--> VALUES ('E006', 'Taniya', 'E001', 65000.00);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee (Employee_ID, Employee_Name, Supervisor_ID, Salary)
--> VALUES ('E007', 'Thanaka', 'E005', 40000.00);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee (Employee_ID, Employee_Name, Supervisor_ID, Salary)
--> VALUES ('E008', 'Mahesh', 'E005', 60000.00);
Query OK, 1 row affected (0.00 sec)

mysql> |
```

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9/11/2023

- Employee Contact Details Table

```
-- Insert values into the Contact_Details table
mysql> INSERT INTO Employee_Contact_Details (Employee_ID, Phone_number, Whatsapp_number, Email)
--> VALUES ('E001', 763421254, 743674532, 'kasunjayasekara@gmail.com');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee_Contact_Details (Employee_ID, Phone_number, Whatsapp_number, Email)
--> VALUES ('E002', 763489076, 763489076, 'maheshi345@gmail.com');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee_Contact_Details (Employee_ID, Phone_number, Whatsapp_number, Email)
--> VALUES ('E003', 704296540, 743782145, 'pradeepkumara@gmail.com');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee_Contact_Details (Employee_ID, Phone_number, Whatsapp_number, Email)
--> VALUES ('E004', 776589678, 742980765, 'lakshandissanayake89@gmail.com');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee_Contact_Details (Employee_ID, Phone_number, Whatsapp_number, Email)
--> VALUES ('E005', 765741254, 765741254, 'thilinimadhushani@gmail.com');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee_Contact_Details (Employee_ID, Phone_number, Whatsapp_number, Email)
--> VALUES ('E006', 718905430, 743321698, 'taniyashiriwardhana@gmail.com');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee_Contact_Details (Employee_ID, Phone_number, Whatsapp_number, Email)
--> VALUES ('E007', 784532765, 784532765, 'tharakawijesinghe99@gmail.com');
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Employee_Contact_Details (Employee_ID, Phone_number, Whatsapp_number, Email)
--> VALUES ('E008', 746549087, 707864052, 'maheshkumara67@gmail.com');
Query OK, 1 row affected (0.00 sec)

mysql> S|
```

80°F Mostly cloudy Search 11:17 PM
9/11/2023

- Employee Qualifications Table

```

MySQL>
MySQL>
MySQL> -- Insert values into the Qualifications table
MySQL> INSERT INTO Employee_Qualifications (Employee_ID, Secondary_Education, Higher_Education, Other_Qualifications)
-> VALUES ('E001', 'High School Diploma', 'Bachelor of Science in Computer Science', 'Certified Project Manager');
Query OK, 1 row affected (0.00 sec)

MySQL> INSERT INTO Employee_Qualifications (Employee_ID, Secondary_Education, Higher_Education, Other_Qualifications)
-> VALUES ('E002', 'High School Diploma', 'Bachelor of Arts in English Literature', 'TESOL Certification');
Query OK, 1 row affected (0.00 sec)

MySQL> INSERT INTO Employee_Qualifications (Employee_ID, Secondary_Education, Higher_Education, Other_Qualifications)
-> VALUES ('E003', 'High School Diploma', 'Master of Business Administration', 'Six Sigma Black Belt');
Query OK, 1 row affected (0.00 sec)

MySQL> INSERT INTO Employee_Qualifications (Employee_ID, Secondary_Education, Higher_Education, Other_Qualifications)
-> VALUES ('E004', 'High School Diploma', 'Bachelor of Science in Electrical Engineering', 'Certified ScrumMaster');
Query OK, 1 row affected (0.00 sec)

MySQL> INSERT INTO Employee_Qualifications (Employee_ID, Secondary_Education, Higher_Education, Other_Qualifications)
-> VALUES ('E005', 'High School Diploma', 'Bachelor of Arts in Psychology', 'Licensed Clinical Psychologist');
Query OK, 1 row affected (0.00 sec)

MySQL> INSERT INTO Employee_Qualifications (Employee_ID, Secondary_Education, Higher_Education, Other_Qualifications)
-> VALUES ('E006', 'High School Diploma', 'Master of Science in Nursing', 'Registered Nurse (RN)');
Query OK, 1 row affected (0.00 sec)

MySQL> INSERT INTO Employee_Qualifications (Employee_ID, Secondary_Education, Higher_Education, Other_Qualifications)
-> VALUES ('E007', 'High School Diploma', 'Bachelor of Science in Computer Science', 'Certified Information Systems Security Professional (CISSP)');
Query OK, 1 row affected (0.00 sec)

MySQL> INSERT INTO Employee_Qualifications (Employee_ID, Secondary_Education, Higher_Education, Other_Qualifications)
-> VALUES ('E008', 'High School Diploma', 'Bachelor of Arts in History', 'Archivist Certification');
Query OK, 1 row affected (0.00 sec)

MySQL>
MySQL>
MySQL>
MySQL> |

```

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- Day care Centre Table

```

MySQL> CREATE TABLE Daycare_Center(
-> Reg_No varchar(25) NOT NULL,
-> Name_ varchar(50),
-> Contact_No varchar(25),
-> Street varchar(25),
-> City varchar(25),
-> Province varchar(25),
-> primary key (Reg_No));
Query OK, 0 rows affected (0.14 sec)

MySQL> INSERT INTO Daycare_Center(Reg_No,Name_,Contact_No,Street,City,Province)
-> VALUES ('D1', 'ABC Daycare Center', '0356784531', '123 Main Street', 'Galle', 'Southern');
Query OK, 1 row affected (0.09 sec)

MySQL> INSERT INTO Daycare_Center(Reg_No,Name_,Contact_No,Street,City,Province)
-> VALUES ('D2', 'Sunrise Childcare', '0712345678', '456 Ella Street', 'Colombo', 'Western');
Query OK, 1 row affected (0.07 sec)

MySQL> INSERT INTO Daycare_Center(Reg_No,Name_,Contact_No,Street,City,Province)
-> VALUES ('D3', 'little Explorers Preschool', '0777777777', '789 Vishaka Road', 'Kandy', 'Central');
Query OK, 1 row affected (0.06 sec)

MySQL> INSERT INTO Daycare_Center(Reg_No,Name_,Contact_No,Street,City,Province)
-> VALUES ('D4', 'Happy Kids Daycare', '0355895155', '321 Grand Lane', 'Jaffna', 'Northern');
Query OK, 1 row affected (0.09 sec)

MySQL> INSERT INTO Daycare_Center(Reg_No,Name_,Contact_No,Street,City,Province)
-> VALUES ('D5', 'Tiny Tots Nursery', '0778901234', '555 Central Road', 'Negombo', 'Western');
Query OK, 1 row affected (0.09 sec)

MySQL> INSERT INTO Daycare_Center(Reg_No,Name_,Contact_No,Street,City,Province)
-> VALUES ('D6', 'Wonderland Daycare', '0765432109', '987 Maple Street', 'Matara', 'Southern');
Query OK, 1 row affected (0.10 sec)

MySQL> INSERT INTO Daycare_Center(Reg_No,Name_,Contact_No,Street,City,Province)
-> VALUES ('D7', 'Sunshine Childrens Center', '0787654321', '222 Wakwella Road', 'Galle', 'Southern');
Query OK, 1 row affected (0.07 sec)

MySQL>

```

Type here to search File Ex... DELL Mini P... WhatsApp MySQL... MySQL... 25°C 10:37 AM 9/9/2023

- Activity Table

```
MySQL 8.0 Command Line Client

mysql> CREATE TABLE Activity (
->     Activity_no varchar(10) Not Null,
->     Activity_name varchar(25),
->     Activity_Description varchar(250),
->     Employee_assigned varchar(50),
->     primary key (Activity_no);
Query OK, 0 rows affected (0.12 sec)

mysql> INSERT INTO Activity(Activity_no, Activity_name, Activity_Description, Employee_assigned)
-> VALUES ('A001', 'Art and Craft', 'Children will create art using various materials such as paint, crayons, and paper.', 'Kasun Jayasekara');
Query OK, 1 row affected (0.08 sec)

mysql> INSERT INTO Activity(Activity_no, Activity_name, Activity_Description, Employee_assigned)
-> VALUES ('A002', 'Storytime', 'Storytelling session with interactive stories and discussions.', 'Maheshi Silva');
Query OK, 1 row affected (0.06 sec)

mysql> ^
mysql> INSERT INTO Activity(Activity_no, Activity_name, Activity_Description, Employee_assigned)
-> VALUES ('A003', 'Outdoor Play', 'Children will have supervised outdoor playtime with games and activities.', 'Pradeep Kumara');
Query OK, 1 row affected (0.05 sec)

mysql> INSERT INTO Activity(Activity_no, Activity_name, Activity_Description, Employee_assigned)
-> VALUES ('A004', 'Music and Dance', 'Exploring music through instruments, songs, and dance movements.', 'Lakshan Dissanayake');
Query OK, 1 row affected (0.09 sec)

mysql> INSERT INTO Activity(Activity_no, Activity_name, Activity_Description, Employee_assigned)
-> VALUES ('A005', 'Science Experiments', 'Hands-on science experiments and demonstrations to foster curiosity.', 'Thilini Madhushani');
Query OK, 1 row affected (0.07 sec)

mysql> INSERT INTO Activity(Activity_no, Activity_name, Activity_Description, Employee_assigned)
-> VALUES ('A006', 'Cooking and Baking', 'Simple cooking and baking activities to learn about food and measurements.', 'Taniya Sirwardhana');
Query OK, 1 row affected (0.08 sec)

mysql> INSERT INTO Activity(Activity_no, Activity_name, Activity_Description, Employee_assigned)
-> VALUES ('A007', 'Sensory Play', 'Activities that engage the senses through textures, smells, and tastes.', 'Tharaka Wijesinghe');
Query OK, 1 row affected (0.20 sec)

mysql> INSERT INTO Activity(Activity_no, Activity_name, Activity_Description, Employee_assigned)
-> VALUES ('A008', 'Math and Numbers', 'Basic math concepts through games and puzzles.', 'Mahesh Kumara');
Query OK, 1 row affected (0.05 sec)

mysql> INSERT INTO Activity(Activity_no, Activity_name, Activity_Description, Employee_assigned)
-> VALUES ('A009', 'Physical Education', 'Physical activities and exercises to promote fitness and coordination.', 'Kasun Jayasekara');
```

- Toy Table

```
mysql> CREATE TABLE Toy(
    -> Toy_no int Not Null,
    -> Toy_name varchar(25),
    -> Activity_name varchar(50),
    -> Purchase_date date,
    -> Suplier varchar(50),
    -> primary key (Toy_no);
Query OK, 0 rows affected (0.11 sec)

mysql> INSERT INTO Toy(Toy_no, Toy_name, Activity_name,Purchase_date,Suplier)
    -> VALUES (1, 'Colorful Blocks', 'Building and Stacking', '2023-01-15', 'ToyCo');
Query OK, 1 row affected (0.06 sec)

mysql> INSERT INTO Toy(Toy_no, Toy_name, Activity_name,Purchase_date,Suplier)
    -> VALUES (2, 'Plush Teddy Bear', 'Cuddling and Comfort', '2022-11-20', 'ToyWorld');
Query OK, 1 row affected (0.07 sec)

mysql> INSERT INTO Toy(Toy_no, Toy_name, Activity_name,Purchase_date,Suplier)
    -> VALUES (3, 'Educational Puzzle', 'Problem Solving', '2023-03-05', 'LearningToys Inc.');
Query OK, 1 row affected (0.08 sec)

mysql> INSERT INTO Toy(Toy_no, Toy_name, Activity_name,Purchase_date,Suplier)
    -> VALUES (4, 'Crayon Set', 'Art and Creativity', '2022-12-10', 'ArtSupplies Co.');
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO Toy(Toy_no, Toy_name, Activity_name,Purchase_date,Suplier)
    -> VALUES (5, 'Musical Keyboard', 'Music Exploration', '2023-02-18', 'MelodyTunes');
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO Toy(Toy_no, Toy_name, Activity_name,Purchase_date,Suplier)
    -> VALUES (6, 'Sensory Balls', 'Tactile Exploration', '2023-01-25', 'SensoryPlay');
Query OK, 1 row affected (0.06 sec)

mysql> INSERT INTO Toy(Toy_no, Toy_name, Activity_name,Purchase_date,Suplier)
    -> VALUES (7, 'Building Blocks', 'Creative Play', '2023-04-02', 'BlockCrafters');
Query OK, 1 row affected (0.07 sec)

mysql> INSERT INTO Toy(Toy_no, Toy_name, Activity_name,Purchase_date,Suplier)
    -> VALUES (8, 'Storybooks Collection', 'Reading and Imagination', '2022-11-30', 'BookCorner');
Query OK, 1 row affected (0.38 sec)

mysql> INSERT INTO Toy(Toy_no, Toy_name, Activity_name,Purchase_date,Suplier)
    -> VALUES (9, 'Play-Doh Set', 'Sculpting and Fine Motor Skills', '2023-02-08', 'DohPlay Inc.');
Query OK, 1 row affected (0.05 sec)
```

- Child Table

```
MySQL 8.0 Command Line Client
-> SET Age = TIMESTAMPDIFF(YEAR, DOB, NOW());
Query OK, 0 rows affected (0.00 sec)
Rows matched: 0  Changed: 0  Warnings: 0

mysql> show create table Child;
+-----+
| Table | Create Table
+-----+
| Child | CREATE TABLE `child` (
  `Child_ID` varchar(25) NOT NULL,
  `First_name` varchar(25) DEFAULT NULL,
  `Last_Name` varchar(25) DEFAULT NULL,
  `DOB` date DEFAULT NULL,
  `Gender` varchar(10) DEFAULT NULL,
  `Behaviour` varchar(100) DEFAULT NULL,
  `Food_prefer` varchar(100) DEFAULT NULL,
  `Napping_hours` time DEFAULT NULL,
  `Other_updates` varchar(100) DEFAULT NULL,
  `Age` int DEFAULT NULL,
  PRIMARY KEY (`Child_ID`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci |
+-----+
1 row in set (0.00 sec)

mysql> INSERT INTO Child (Child_ID, First_name, Last_Name, DOB, Gender, Behaviour, Food_prefer, Napping_hours, Other_updates)
-> VALUES ('C001', 'John', 'Doe', '2015-06-01', 'Male', 'Calm and friendly', 'Vegetables', '02:00:00', 'Likes drawing');
Query OK, 1 row affected (0.03 sec)

mysql> INSERT INTO Child (Child_ID, First_name, Last_Name, DOB, Gender, Behaviour, Food_prefer, Napping_hours, Other_updates)
-> VALUES ('C002', 'Emma', 'Smith', '2016-08-12', 'Female', 'Active and playful', 'Fruits', '01:30:00', 'Loves storytelling');
Query OK, 1 row affected (0.07 sec)

mysql> INSERT INTO Child (Child_ID, First_name, Last_Name, DOB, Gender, Behaviour, Food_prefer, Napping_hours, Other_updates)
-> VALUES ('C003', 'Oliver', 'Johnson', '2015-10-20', 'Male', 'Quiet and shy', 'Pasta', '02:30:00', 'Enjoys reading');
Query OK, 1 row affected (0.06 sec)

Windows Taskbar: Type here to search, Dell logo, Icons for Down..., Mini..., Google Chrome, What's New, MySQL Workbench, MyS... (disabled), Weather (25°C), Network, Battery, 11:48 AM, 9/9/2023
```

```
MySQL 8.0 Command Line Client
mysql> INSERT INTO Child (Child_ID, First_name, Last_Name, DOB, Gender, Behaviour, Food_prefer, Napping_hours, Other_updates)
-> VALUES ('C004', 'Ava', 'Williams', '2016-01-15', 'Female', 'Energetic and loud', 'Chicken', '01:00:00', 'Likes outdoor games');
Query OK, 1 row affected (0.12 sec)

mysql> INSERT INTO Child (Child_ID, First_name, Last_Name, DOB, Gender, Behaviour, Food_prefer, Napping_hours, Other_updates)
-> VALUES ('C005', 'Sophia', 'Brown', '2015-04-30', 'Female', 'Friendly and helpful', 'Fish', '02:00:00', 'Enjoys painting');
Query OK, 1 row affected (0.05 sec)

mysql> INSERT INTO Child (Child_ID, First_name, Last_Name, DOB, Gender, Behaviour, Food_prefer, Napping_hours, Other_updates)
-> VALUES ('C006', 'Mia', 'Jones', '2016-09-05', 'Female', 'Quiet and reserved', 'Rice', '01:30:00', 'Likes puzzles');
Query OK, 1 row affected (0.05 sec)

mysql> INSERT INTO Child (Child_ID, First_name, Last_Name, DOB, Gender, Behaviour, Food_prefer, Napping_hours, Other_updates)
-> VALUES ('C007', 'Jackson', 'Miller', '2015-07-07', 'Male', 'Active and noisy', 'Bread', '02:00:00', 'Loves sports');
Query OK, 1 row affected (0.07 sec)

mysql> INSERT INTO Child (Child_ID, First_name, Last_Name, DOB, Gender, Behaviour, Food_prefer, Napping_hours, Other_updates)
-> VALUES ('C008', 'Aiden', 'Davis', '2016-02-28', 'Male', 'Calm and observant', 'Eggs', '01:30:00', 'Enjoys music');
Query OK, 1 row affected (0.09 sec)

mysql> INSERT INTO Child (Child_ID, First_name, Last_Name, DOB, Gender, Behaviour, Food_prefer, Napping_hours, Other_updates)
-> VALUES ('C009', 'Lucas', 'Garcia', '2015-11-11', 'Male', 'Friendly and cheerful', 'Soup', '02:00:00', 'Likes dancing');
Query OK, 1 row affected (0.07 sec)

mysql> INSERT INTO Child (Child_ID, First_name, Last_Name, DOB, Gender, Behaviour, Food_prefer, Napping_hours, Other_updates)
-> VALUES ('C010', 'Isabella', 'Rodriguez', '2016-05-15', 'Female', 'Quiet and shy', 'Salad', '01:30:00', 'Enjoys crafts');
Query OK, 1 row affected (0.05 sec)

mysql> INSERT INTO Child (Child_ID, First_name, Last_Name, DOB, Gender, Behaviour, Food_prefer, Napping_hours, Other_updates)
-> VALUES ('C011', 'Liam', 'Wilson', '2015-03-20', 'Male', 'Energetic and loud', 'Beef', '02:00:00', 'Loves running');
Query OK, 1 row affected (0.07 sec)

mysql> INSERT INTO Child (Child_ID, First_name, Last_Name, DOB, Gender, Behaviour, Food_prefer, Napping_hours, Other_updates)
-> VALUES ('C012', 'Noah', 'Martinez', '2016-06-25', 'Male', 'Friendly and helpful', 'Pork', '01:30:00', 'Likes building blocks');
Query OK, 1 row affected (0.05 sec)

mysql> INSERT INTO Child (Child_ID, First_name, Last_Name, DOB, Gender, Behaviour, Food_prefer, Napping_hours, Other_updates)
-> VALUES ('C013', 'Ethan', 'Anderson', '2015-12-12', 'Male', 'Quiet and reserved', 'Vegetables', '02:00:00', 'Enjoys drawing');
Query OK, 1 row affected (0.16 sec)

mysql> INSERT INTO Child (Child_ID, First_name, Last_Name, DOB, Gender, Behaviour, Food_prefer, Napping_hours, Other_updates)
-> VALUES ('C014', 'Mason', 'Taylor', '2016-07-30', 'Male', 'Active and playful', 'Fruits', '01:30:00', 'Loves storytelling');
Query OK, 1 row affected (0.06 sec)

Windows Taskbar: Type here to search, Dell logo, Icons for Down..., Mini..., Google Chrome, What's New, MySQL Workbench, MyS... (disabled), Weather (25°C), Network, Battery, 11:48 AM, 9/9/2023
```

- Classroom Table

```
MySQL 8.0 Command Line Client
mysql> CREATE TABLE Classroom(
    -> Classroom_no varchar(25) Not Null,
    -> Class_Name varchar(25),
    -> Age_group varchar(15),
    -> Capacity int,
    -> primary key (Classroom_no));
Query OK, 0 rows affected (0.42 sec)

mysql> INSERT INTO Classroom (Classroom_no, Class_Name, Age_group, Capacity)
    -> VALUES ('A', 'Full Day Class', '5-12 years', 20);
Query OK, 1 row affected (0.11 sec)

mysql> INSERT INTO Classroom (Classroom_no, Class_Name, Age_group, Capacity)
    -> VALUES ('B', 'Half Day Class', '5-12 years', 10);
Query OK, 1 row affected (0.06 sec)

mysql> INSERT INTO Classroom (Classroom_no, Class_Name, Age_group, Capacity)
    -> VALUES ('C', 'Family Class', '5-12 years', 5);
Query OK, 1 row affected (0.06 sec)

mysql> INSERT INTO Classroom (Classroom_no, Class_Name, Age_group, Capacity)
    -> VALUES ('D', 'Pre-School Class', '0-5 years', 25);
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO Classroom (Classroom_no, Class_Name, Age_group, Capacity)
    -> VALUES ('E', 'After School Class', '5-12 years', 20);
Query OK, 1 row affected (0.07 sec)

mysql> show create table Classroom;
+-----+-----+
| Table | Create Table
+-----+-----+
| Classroom | CREATE TABLE `classroom` (
  `Classroom_no` varchar(25) NOT NULL,
  `Class_Name` varchar(25) DEFAULT NULL,
  `Age_group` varchar(15) DEFAULT NULL,
  `Capacity` int DEFAULT NULL,
  PRIMARY KEY (`Classroom_no`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci |
+-----+-----+
```

- Alternate Contact Table

```
MySQL 8.0 Command Line Client
mysql> CREATE TABLE Alternate_Contact(
    -> Child_ID varchar(25) Not Null,
    -> AlternateContact_Name varchar(25),
    -> Apartment_No int,
    -> Street varchar(25),
    -> City varchar(15),
    -> Phone_number bigint,
    -> Relationship varchar(50),    primary key (Child_ID));
Query OK, 0 rows affected (0.12 sec)

mysql> INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C001', 'Jane Smith', 302, 'Cedar A venue', 'Cityville', 9876543210, 'Aunt');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C002', 'David Johnson', 201, 'Oak Street', 'Townsville', 8765432109, 'Grandparent');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C003', 'Michael Smith', 401, 'Elm Road', 'Smalltown', 7654321098, 'Cousin');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C004', 'Emily Williams', 202, 'Pine Lane', 'Villagetown', 6543210987, 'Grandparent');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C005', 'William Brown', 303, 'Sunset Drive', 'Countryside', 5432109876, 'Family Friend');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C006', 'Abigail Jones', 404, 'River Road', 'Hometown', 4321098765, 'Aunt');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C007', 'Ellie Miller', 505, 'Lakefront Avenue', 'Smalltown', 3210987654, 'Cousin');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C008', 'James Davis', 606, 'Meadow Lane', 'Villagetown', 2109876543, 'Family Friend');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C009', 'Benjamin Garcia', 707, 'Mountain View', 'Countryside', 1098765432, 'Uncle');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C010', 'Sofia Rodriguez', 808, 'Orchard Street', 'Hometown', 0987654321, 'Grandparent');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C011', 'Daniel Wilson', 101, 'Main Road', 'Cityville', 9876543210, 'Aunt');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C012', 'Alexander Martinez', 202, 'Cedar Street', 'Townsville', 8765432109, 'Cousin');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C013', 'Evelyn Anderson', 303, 'Elm Avenue', 'Smalltown', 7654321098, 'Family Friend');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C014', 'Jack Taylor', 404, 'Pine Lane', 'Villagetown', 6543210987, 'Uncle');INSERT INTO Alternate_Contact(Child_ID, AlternateContact_Name, Apartment_No, Street, City, Phone_number, Relationship)VALUES ('C015', 'Harper Thomas', 505, 'Sunset Drive', 'Countryside', 5432109876, 'Grandparent');
Query OK, 1 row affected (0.07 sec)

Query OK, 1 row affected (0.02 sec)

Query OK, 1 row affected (0.02 sec)

Query OK, 1 row affected (0.02 sec)

Query OK, 1 row affected (0.04 sec)

Query OK, 1 row affected (0.03 sec)

Query OK, 1 row affected (0.03 sec)
```

- Guardian Table

```
MySQL 8.0 Command Line Client
5 rows in set (0.00 sec)

mysql> CREATE TABLE Gardian(
    -> Child_ID varchar(25) Not Null,
    -> First_name varchar(25),
    -> Last_name varchar(25),
    -> NIC varchar(15),
    -> Apartment_No int,
    -> Street varchar(25),
    -> City varchar(15),
    -> Phone_number bigint,
    -> Whatsapp_number bigint,
    -> Email varchar(50),
    -> Relation_to_the_child varchar(25),
    -> primary key (Child_ID));
Query OK, 0 rows affected (0.14 sec)

mysql> INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C001', 'Jane', 'Doe', '987654321V', 201, 'Oak Street', 'Cityville', 2345678901, 9876543210, 'jane@email.com', 'Mother');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C002', 'David', 'Johnson', '123456789V', 302, 'Cedar Avenue', 'Townsville', 3456789012, 8765432109, 'david@email.com', 'Father');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C003', 'Michael', 'Smith', '555555555V', 101, 'Pine Road', 'Smalltown', 4567890123, 7654321098, 'michael@email.com', 'Father');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C004', 'Emily', 'Williams', '111111111V', 202, 'Maple Lane', 'Villagetown', 5678901234, 6543210987, 'emily@email.com', 'Mother');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C005', 'William', 'Brown', '999999999V', 303, 'Rose Street', 'Countryside', 6789012345, 5432109876, 'william@email.com', 'Father');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C006', 'Abigail', 'Jones', '333333333V', 404, 'Tulip Avenue', 'Hometown', 7890123456, 4321098765, 'abigail@email.com', 'Mother');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C007', 'Ella', 'Miller', '777777777V', 505, 'Sunset Drive', 'Smalltown', 8901234567, 3210987654, 'ella@email.com', 'Mother');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C008', 'James', 'Davis', '444444444V', 606, 'Meadow Lane', 'Villagetown', 9012345678, 2109876543, 'james@email.com', 'Father');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C009', 'Benjamin', 'Garcia', '888888888V', 707, 'River Road', 'Countryside', 1234567890, 1098765432, 'benjamin@email.com', 'Father');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C010', 'Sofia', 'Rodriguez', '555555555V', 808, 'Orchard Street', 'Hometown', 2345678901, 0987654321, 'sofia@email.com', 'Mother');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C011', 'Daniel', 'Wilson', '2222222V', 909, 'Park Avenue', 'Smalltown', 3456789012, 9876543210, 'daniel@email.com', 'Father');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C012', 'Alexander', 'Martinez', '999999999V', 1010, 'Garden Lane', 'Villagetown', 4567890123, 8765432109, 'alexander@email.com', 'Father');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C013', 'Evelyn', 'Anderson', '666666666V', 1111, 'Brookside Road', 'Villagetown', 5678901234, 6543210987, 'evelyn@email.com', 'Mother');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C014', 'Jack', 'Taylor', '111111111V', 1212, 'Mountain View', 'Countryside', 6789012345, 5432109876, 'jack@email.com', 'Father');INSERT INTO Gardian(Child_ID, First_name, Last_name, NIC, Apartment_No, Street, City, Phone_number, Whatsapp_number, Email, Relation_to_the_child)VALUES ('C015', 'Harper', 'Thomas', '777777777V', 1313, 'Lakefront Avenue', 'Hometown', 7890123456, 4321098765, 'harper@email.com', 'Mother');
Query OK, 1 row affected (0.07 sec)
```



- Consumable Table

```
MySQL 8.0 Command Line Client
Query OK, 0 rows affected (0.14 sec)

mysql> CREATE TABLE Consumable(
    -> Reg_no varchar(25) Not Null,
    -> Garbage_Bags int,
    -> Serviette int,
    -> Folaks int,
    -> Cups int,
    -> Plates int,
    -> Paper int,
    -> Pencils int,
    -> Finger_paints int,
    -> Pastels int,
    -> Scissor int,
    -> Glu int,
    -> primary key (Reg_no));
Query OK, 0 rows affected (0.14 sec)

mysql> INSERT INTO Consumable(Reg_no, Garbage_Bags, Serviette, Folaks, Cups, Plates, Paper, Pencils, Finger_paints, Pastels, Scissor, Glu)VALUES ('D1', 100, 200, 50, 30, 0, 150, 400, 100, 200, 50, 10);INSERT INTO Consumable(Reg_no, Garbage_Bags, Serviette, Folaks, Cups, Plates, Paper, Pencils, Finger_paints, Pastels, Scissor, Glu)VALUES ('D2', 80, 150, 40, 250, 120, 450, 350, 90, 180, 40, 8);INSERT INTO Consumable(Reg_no, Garbage_Bags, Serviette, Folaks, Cups, Plates, Paper, Pencils, Finger_paints, Pastels, Scissor, Glu)VALUES ('D3', 90, 180, 45, 270, 135, 550, 420, 105, 210, 45, 9);INSERT INTO Consumable(Reg_no, Garbage_Bags, Serviette, Folaks, Cups, Plates, Paper, Pencils, Finger_paints, Pastels, Scissor, Glu)VALUES ('D4', 70, 140, 35, 230, 110, 400, 320, 80, 160, 35, 7);INSERT INTO Consumable(Reg_no, Garbage_Bags, Serviette, Folaks, Cups, Plates, Paper, Pencils, Finger_paints, Pastels, Scissor, Glu)VALUES ('D5', 85, 160, 42, 260, 130, 480, 380, 95, 190, 42, 8);INSERT INTO Consumable(Reg_no, Garbage_Bags, Serviette, Folaks, Cups, Plates, Paper, Pencils, Finger_paints, Pastels, Scissor, Glu)VALUES ('D6', 95, 190, 48, 290, 145, 600, 450, 115, 230, 48, 10);INSERT INTO Consumable(Reg_no, Garbage_Bags, Serviette, Folaks, Cups, Plates, Paper, Pencils, Finger_paints, Pastels, Scissor, Glu)VALUES ('D7', 75, 155, 38, 245, 125, 430, 360, 88, 175, 38, 7);
Query OK, 1 row affected (0.07 sec)

Query OK, 1 row affected (0.02 sec)

Query OK, 1 row affected (0.04 sec)

Query OK, 1 row affected (0.03 sec)

Query OK, 1 row affected (0.02 sec)

Query OK, 1 row affected (0.03 sec)

Query OK, 1 row affected (0.02 sec)

Query OK, 1 row affected (0.02 sec)

mysql>
```



3.5 Updating and deleting from tables

UPDATING AND DELETING DATA

- Employee Table

```
MySQL 8.0 Command Line Cli + X

mysql> UPDATE employee
-> SET Employee_Name = 'Praveen'
-> WHERE Employee_ID = 'E003';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> UPDATE employee
-> SET Employee_Name = 'Bathiya'
-> WHERE Employee_ID = 'E004';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql>
mysql>
mysql> -- First, delete the related records in the employee_contact_details table
mysql> DELETE FROM employee_contact_details WHERE Employee_ID = 'E007';
Query OK, 1 row affected (0.00 sec)

mysql>
mysql> -- First, delete the related records in the employee_qualifications table
mysql> DELETE FROM employee_qualifications WHERE Employee_ID = 'E007';
Query OK, 1 row affected (0.00 sec)

mysql>
mysql> -- Now, you can delete the record from the employee table
mysql> DELETE FROM employee WHERE Employee_ID = 'E007';
Query OK, 1 row affected (0.00 sec)

mysql> select* from Employee;
+-----+-----+-----+-----+
| Employee_ID | Employee_Name | Supervisor_ID | Salary |
+-----+-----+-----+-----+
| E001 | Kasun | E001 | 65000.00 |
| E002 | Maheshi | E005 | 50000.00 |
| E003 | Praveen | E005 | 55000.00 |
| E004 | Bathiya | E005 | 45000.00 |
| E005 | Thilini | E006 | 60000.00 |
| E006 | Taniya | E001 | 65000.00 |
| E008 | Mahesh | E005 | 60000.00 |
+-----+-----+-----+-----+
8 rows in set (0.00 sec)

80°F Mostly cloudy  Search  b  d  o  f  w  n  s  e  g  h  1:28 PM  9/11/2023
```

- Day care Centre Table

```
MySQL 8.0 Command Line Client - X

mysql>
mysql> UPDATE Daycare_Center
-> SET Contact_No = '0354568097'
-> WHERE Reg_no = 'D3';
Query OK, 0 rows affected (0.00 sec)
Rows matched: 1 Changed: 0 Warnings: 0

mysql> UPDATE Daycare_Center
-> SET Contact_No = '03214568097'
-> WHERE Reg_no = 'D5';
Query OK, 0 rows affected (0.00 sec)
Rows matched: 0 Changed: 0 Warnings: 0

mysql> DELETE FROM Daycare_Center WHERE Reg_no='D5';
Query OK, 0 rows affected (0.00 sec)

mysql> select * from Daycare_Center;
+-----+-----+-----+-----+
| Reg_No | Name_ | Contact_No | Street | City | Province |
+-----+-----+-----+-----+
| D1 | ABC Daycare Center | 0356784531 | 123 Main Street | Galle | Southern |
| D2 | Sunrise Childcare | 0712345678 | 456 Ella Street | Colombo | Western |
| D3 | Little Explorers Preschool | 0354568097 | 789 Vishaka Road | Kandy | Central |
| D4 | Happy Kids Daycare | 0355895155 | 321 Grand Lane | Daffna | Northern |
| D6 | Wonderland Daycare | 0765432109 | 987 Maple Street | Matara | Southern |
| D7 | Sunshine Childrens Center | 0787654321 | 222 Wakwella Road | Galle | Southern |
+-----+-----+-----+-----+
6 rows in set (0.00 sec)

mysql>
```

- Activity Table

```
MySQL 8.0 Command Line Client
mysql> use day_care_center;
Database changed
mysql> UPDATE Activity
    -> SET Employee_assigned = 'Mahesi Silva'
    -> WHERE Activity_no = 'A009';
Query OK, 0 rows affected (0.11 sec)
Rows matched: 1 Changed: 0 Warnings: 0

mysql> UPDATE Activity
    -> SET Employee_assigned = 'Tharindu Silva'
    -> WHERE Activity_no = 'A007';
Query OK, 1 row affected (0.41 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> DELETE FROM activity WHERE Activity_no = 'A006';
Query OK, 0 rows affected (0.00 sec)

mysql> select * from Activity;
+-----+-----+-----+-----+
| Activity_no | Activity_name | Activity_Description | Employee_assigned |
+-----+-----+-----+-----+
| A001 | Art and Craft | Children will create art using various materials such as paint, crayons, and paper. | Kasun Jayasekara |
| A002 | Storytime | Storytelling session with interactive stories and discussions. | Maheshl Silva |
| A003 | Outdoor Play | Children will have supervised outdoor playtime with games and activities. | Pradeep Kumara |
| A004 | Music and Dance | Exploring music through instruments, songs, and dance movements. | Lakshan Dissanayake |
| A005 | Science Experiments | Hands-on science experiments and demonstrations to foster curiosity. | Thilini Madhushani |
| A007 | Sensory Play | Activities that engage the senses through textures, smells, and tastes. | Tharindu Silva |
| A008 | Math and Numbers | Basic math concepts through games and puzzles. | Mahesh Kumara |
| A009 | Physical Education | Physical activities and exercises to promote fitness and coordination. | Mahesi Silva |
| A010 | Dramatic Play | Imaginative role-playing and creative storytelling. | Lakshan Dissanayake |
+-----+-----+-----+-----+
9 rows in set (0.00 sec)

mysql>
```

- Toy Table

```
MySQL 8.0 Command Line Client
mysql> UPDATE Toy
    -> SET Suplier = 'Toycenter'
    -> WHERE Toy_no = 1;
Query OK, 0 rows affected (0.00 sec)
Rows matched: 1 Changed: 0 Warnings: 0

mysql> UPDATE Toy
    -> SET Suplier = 'Toycenter'
    -> WHERE Toy_no = 3;
Query OK, 1 row affected (0.04 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> DELETE FROM Toy WHERE Toy_no= 11;
Query OK, 1 row affected (0.05 sec)

mysql> select * from Toy;
+-----+-----+-----+-----+
| Toy_no | Toy_name | Activity_name | Purchase_date | Suplier |
+-----+-----+-----+-----+
| 1 | Colorful Blocks | Building and Stacking | 2023-01-15 | Toycenter |
| 2 | Plush Teddy Bear | Cuddling and Comfort | 2022-11-20 | ToyWorld |
| 3 | Educational Puzzle | Problem Solving | 2023-03-05 | Toycenter |
| 4 | Crayon Set | Art and Creativity | 2022-12-10 | ArtSupplies Co. |
| 5 | Musical Keyboard | Music Exploration | 2023-02-18 | MelodyTunes |
| 6 | Sensory Balls | Tactile Exploration | 2023-01-25 | SensoryPlay |
| 7 | Building Blocks | Creative Play | 2023-04-02 | BlockCrafters |
| 8 | Storybooks Collection | Reading and Imagination | 2022-11-30 | BookCorner |
| 9 | Play-Doh Set | Sculpting and Fine Motor Skills | 2023-02-08 | DohPlay Inc. |
| 10 | Puppet Theater | Imaginative Play | 2023-03-12 | PuppetWorld |
| 13 | Bouncing Balls | Active Play | 2023-01-10 | ActiveFun |
| 14 | Building Blocks | Construction and Engineering | 2023-02-28 | Builders Inc. |
| 15 | Outdoor Play Equipment | Physical Activity | 2023-04-15 | PlaygroundSupplies |
+-----+-----+-----+-----+
13 rows in set (0.00 sec)

mysql>
```

- Child Table

```
MySQL 8.0 Command Line Client

mysql> UPDATE Child
    -> SET First_name = 'Joshep'
    -> WHERE Child_ID = 'C008';
Query OK, 1 row affected (0.32 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE Child
    -> SET First_name = 'Jhon'
    -> WHERE Child_ID = 'C006';
Query OK, 1 row affected (0.12 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> DELETE FROM child WHERE Child_ID = 'C009';
Query OK, 1 row affected (0.14 sec)

mysql> select * from Child;
+----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Child_ID | First_name | Last_Name | DOB | Gender | Behaviour | Food_prefer | Napping_hours | Other_updates | Age |
+----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| C001 | John | Doe | 2015-06-01 | Male | Calm and friendly | Vegetables | 02:00:00 | Likes drawing | NULL |
| C002 | Emma | Smith | 2016-08-12 | Female | Active and playful | Fruits | 01:30:00 | Loves storytelling | NULL |
| C003 | Oliver | Johnson | 2015-10-20 | Male | Quiet and shy | Pasta | 02:30:00 | Enjoys reading | NULL |
| C004 | Ava | Williams | 2016-01-15 | Female | Energetic and loud | Chicken | 01:00:00 | Likes outdoor games | NULL |
| C005 | Sophia | Brown | 2015-04-30 | Female | Friendly and helpful | Fish | 02:00:00 | Enjoys painting | NULL |
| C006 | Jhon | Jones | 2016-09-05 | Female | Quiet and reserved | Rice | 01:30:00 | Likes puzzles | NULL |
| C007 | Jackson | Miller | 2015-07-07 | Male | Active and noisy | Bread | 02:00:00 | Loves sports | NULL |
| C008 | Joshep | Davis | 2016-02-28 | Male | Calm and observant | Eggs | 01:30:00 | Enjoys music | NULL |
| C010 | Isabella | Rodriguez | 2016-05-15 | Female | Quiet and shy | Salad | 01:30:00 | Enjoys crafts | NULL |
| C011 | Liam | Wilson | 2015-03-20 | Male | Energetic and loud | Beef | 02:00:00 | Loves running | NULL |
| C012 | Noah | Martinez | 2016-06-25 | Male | Friendly and helpful | Pork | 01:30:00 | Likes building blocks | NULL |
| C013 | Ethan | Anderson | 2015-12-12 | Male | Quiet and reserved | Vegetables | 02:00:00 | Enjoys drawing | NULL |
| C014 | Mason | Taylor | 2016-07-30 | Male | Active and playful | Fruits | 01:30:00 | Loves storytelling | NULL |
| C015 | Logan | Thomas | 2015-05-05 | Male | Calm and friendly | Pasta | 02:00:00 | Enjoys reading | NULL |
+----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
14 rows in set (0.00 sec)

mysql>
```

- Classroom Table

```
MySQL 8.0 Command Line Client

14 rows in set (0.00 sec)

mysql> UPDATE Classroom
    -> SET Age_group = '0-5 years'
    -> WHERE Classroom_no = 'B';
Query OK, 1 row affected (0.28 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE Classroom
    -> SET Age_group = '0-5 years'
    -> WHERE Classroom_no = 'C';
Query OK, 1 row affected (0.06 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> DELETE FROM classroom WHERE Classroom_no= 'D';
Query OK, 1 row affected (0.12 sec)

mysql> select * from Classroom;
+-----+-----+-----+-----+
| Classroom_no | Class_Name | Age_group | Capacity |
+-----+-----+-----+-----+
| A | Full Day Class | 5-12 years | 20 |
| B | Half Day Class | 0-5 years | 10 |
| C | Family Class | 0-5 years | 5 |
| E | After School Class | 5-12 years | 20 |
+-----+-----+-----+-----+
4 rows in set (0.00 sec)

mysql>
```

- Alternate Contact Table

```
MySQL> UPDATE Alternate_contact
-> SET Relationship = 'Cousin'
-> WHERE Child_ID = 'C004';
Query OK, 1 row affected (0.08 sec)
Rows matched: 1 Changed: 1 Warnings: 0

MySQL> UPDATE Alternate_contact
-> SET Relationship = 'Grandparent'
-> WHERE Child_ID = 'C012';
Query OK, 1 row affected (0.05 sec)
Rows matched: 1 Changed: 1 Warnings: 0

MySQL> DELETE FROM alternate_contact WHERE Child_ID= 'C007';
Query OK, 1 row affected (0.07 sec)

MySQL> select * from Alternate_contact;
+-----+-----+-----+-----+-----+-----+-----+
| Child_ID | AlternateContact_Name | Apartment_No | Street | City | Phone_number | Relationship |
+-----+-----+-----+-----+-----+-----+-----+
| C001 | Jane Smith | 302 | Cedar Avenue | Cityville | 9876543210 | Aunt
| C002 | David Johnson | 201 | Oak Street | Townsville | 8765432109 | Grandparent
| C003 | Michael Smith | 401 | Elm Road | Smalltown | 7654321098 | Cousin
| C004 | Emily Williams | 202 | Pine Lane | Villagetown | 6543210987 | Cousin
| C005 | William Brown | 303 | Sunset Drive | Countryside | 5432109876 | Family Friend
| C006 | Abigail Jones | 404 | River Road | Hometown | 4321098765 | Aunt
| C008 | James Davis | 606 | Meadow Lane | Villagetown | 2109876543 | Family Friend
| C010 | Sofia Rodriguez | 808 | Orchard Street | Hometown | 9876543211 | Grandparent
| C011 | Daniel Wilson | 101 | Main Road | Cityville | 9876543210 | Aunt
| C012 | Alexander Martinez | 202 | Cedar Street | Townsville | 8765432109 | Grandparent
| C013 | Evelyn Anderson | 303 | Elm Avenue | Smalltown | 7654321098 | Family Friend
| C014 | Jack Taylor | 404 | Pine Lane | Villagetown | 6543210987 | Uncle
| C015 | Harper Thomas | 505 | Sunset Drive | Countryside | 5432109876 | Grandparent
+-----+-----+-----+-----+-----+-----+-----+
13 rows in set (0.00 sec)

MySQL>
```

- Guardian Table

```
MySQL>
MySQL> UPDATE Guardian
-> SET City = 'Colombo'
-> WHERE Child_ID='C005';
Query OK, 1 row affected (0.12 sec)
Rows matched: 1 Changed: 1 Warnings: 0

MySQL> UPDATE Guardian
-> SET City = 'Kelaniya'
-> WHERE Child_ID='C007';
Query OK, 1 row affected (0.09 sec)
Rows matched: 1 Changed: 1 Warnings: 0

MySQL> DELETE FROM guardian WHERE Child_ID = 'C011';
Query OK, 1 row affected (0.06 sec)

MySQL> select * from Guardian;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Child_ID | First_name | Last_name | NIC | Apartment_No | Street | City | Phone_number | Whatsapp_number | Email | Relation_to_th
e_child |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| C001 | Jane | Doe | 987654321V | 201 | Oak Street | Cityville | 2345678901 | 9876543210 | jane@email.com | Mother
| C002 | David | Johnson | 123456789V | 302 | Cedar Avenue | Townsville | 3456789012 | 8765432109 | david@email.com | Father
| C003 | Michael | Smith | 555555555V | 101 | Pine Road | Smalltown | 4567890123 | 7654321098 | michael@email.com | Father
| C004 | Emily | Williams | 111111111V | 202 | Maple Lane | Villagetown | 5678901234 | 6543210987 | emily@email.com | Mother
| C005 | William | Brown | 999999999V | 303 | Rose Street | Colombo | 6789012345 | 5432109876 | william@email.com | Father
| C006 | Abigail | Jones | 333333333V | 404 | Tulip Avenue | Hometown | 7890123456 | 4321098765 | abigail@email.com | Mother
| C007 | Ella | Miller | 777777777V | 505 | Sunset Drive | Kelaniya | 8901234567 | 3210987654 | ella@email.com | Mother
| C008 | James | Davis | 444444444V | 606 | Meadow Lane | Villagetown | 9012345678 | 2109876543 | james@email.com | Father
| C010 | Sofia | Rodriguez | 555555555V | 808 | Orchard Street | Hometown | 2345678901 | 9876543211 | sofia@email.com | Mother
| C012 | Alexander | Martinez | 999999999V | 1010 | Garden Lane | Villagetown | 4567890123 | 8765432109 | alexander@email.com | Father
| C013 | Evelyn | Anderson | 666666666V | 1111 | Brookside Road | Villagetown | 5678901234 | 7654321098 | evelyn@email.com | Mother
| C014 | Jack | Taylor | 111111111V | 1212 | Mountain View | Countryside | 6789012345 | 6543210987 | jack@email.com | Father
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
```

- Consumable Table

```
MySQL 8.0 Command Line Client

mysql> UPDATE Consumable
-> SET Folaks = 30
-> WHERE Reg_no = 'D6';
Query OK, 1 row affected (0.10 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> UPDATE Consumable
-> SET Plates = 650
-> WHERE Reg_no = 'D4';
Query OK, 1 row affected (0.07 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql>
mysql>
mysql> DELETE FROM consumable WHERE Reg_no = 'D2';
Query OK, 1 row affected (0.06 sec)

mysql> select * from Consumable;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Reg_no | Garbage_Bags | Serviette | Folaks | Cups | Plates | Paper | Pencils | Finger_paints | Pastels | Scissor | Glu |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| D1    |      100   |     200   |     50   |   300 |    150 |    500 |    400 |       100  |    200 |     50 |    10 |
| D3    |      99    |     180   |     45   |   270 |    135 |    550 |    420 |      195   |    210 |     45 |     9 |
| D4    |      78    |     140   |     35   |   230 |    650 |    400 |    320 |      80    |    160 |     35 |     7 |
| D6    |      95    |     190   |     30   |   290 |    145 |    600 |    450 |      115   |    230 |     48 |    10 |
| D7    |      75    |     155   |     38   |   245 |    125 |    430 |    360 |      88    |    175 |     38 |     7 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)

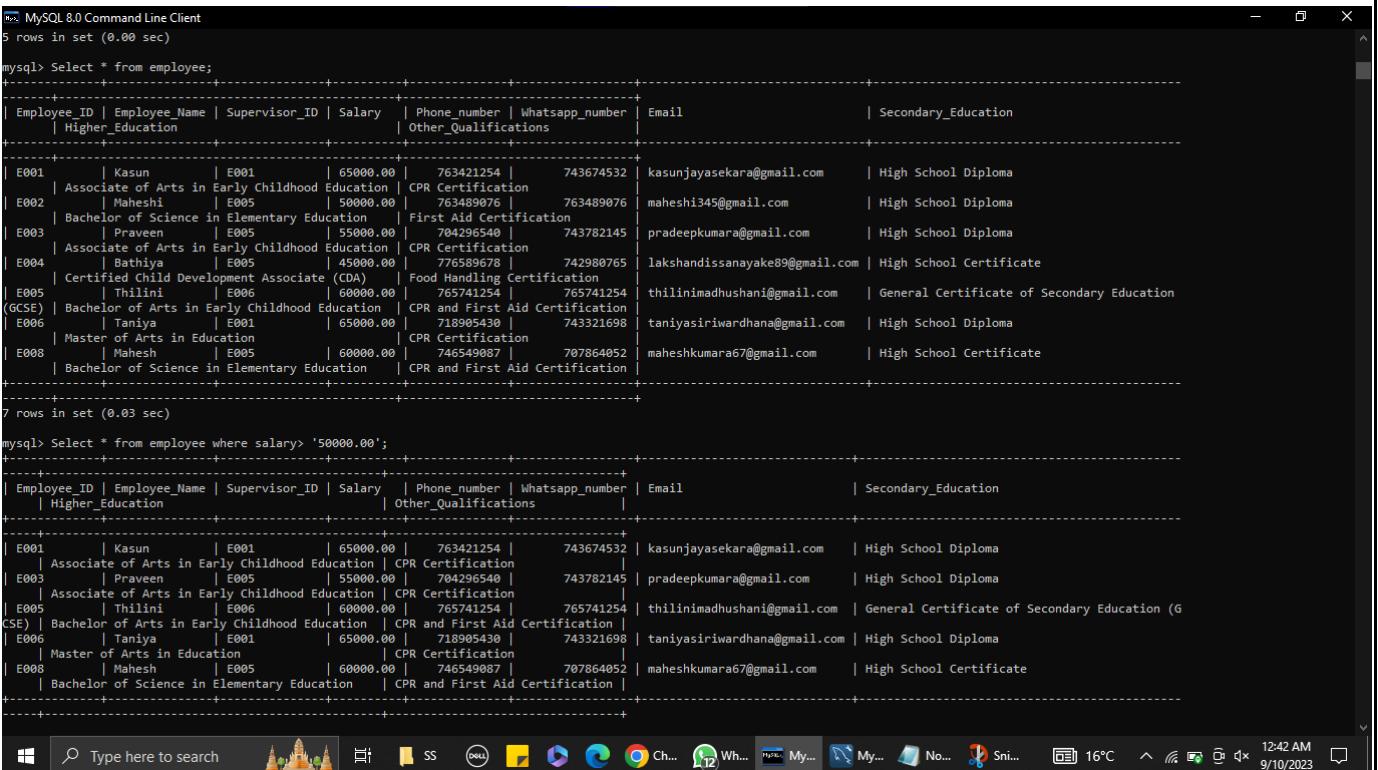
mysql>
```

Chapter 4 – Transactions

Seven simple queries and thirteen complex queries are operated. Select Operation, Project Operation, Cartesian Product Operation, creating a User View, Renaming Operation, Aggregation Function, and Using LIKE Keyword are the seven simple queries. And, screenshots of complex queries are also given below.

4.1 Simple queries

- Select operation



```
MySQL 8.0 Command Line Client
5 rows in set (0.00 sec)

mysql> Select * from employee;
+-----+-----+-----+-----+-----+-----+-----+
| Employee_ID | Employee_Name | Supervisor_ID | Salary | Phone_number | Whatsapp_number | Email | Secondary_Education |
| Higher_Education | Other_Qualifications |
+-----+-----+-----+-----+-----+-----+-----+
| E001 | Kasun | E001 | 65000.00 | 763421254 | 743674532 | kasunjayasekara@gmail.com | High School Diploma
| Associate of Arts in Early Childhood Education | CPR Certification |
| E002 | Maheshi | E005 | 50000.00 | 763489076 | 763489076 | maheshi345@gmail.com | High School Diploma
| Bachelor of Science in Elementary Education | First Aid Certification |
| E003 | Praveen | E005 | 55000.00 | 704296540 | 743782145 | pradeepkumara@gmail.com | High School Diploma
| Associate of Arts in Early Childhood Education | CPR Certification |
| E004 | Bathiya | E005 | 45000.00 | 776589678 | 7429880765 | lakshandissanayake89@gmail.com | High School Certificate
| Certified Child Development Associate (CDA) | Food Handling Certification |
| E005 | Thilini | E006 | 60000.00 | 765741254 | 765741254 | thilinimadhushani@gmail.com | General Certificate of Secondary Education
(GCSE) | Bachelor of Arts in Early Childhood Education | CPR and First Aid Certification |
| E006 | Taniya | E001 | 65000.00 | 718905430 | 743321698 | taniyasirirwardhana@gmail.com | High School Diploma
| Master of Arts in Education | CPR Certification |
| E008 | Mahesh | E005 | 60000.00 | 746549087 | 707864052 | maheshkumara67@gmail.com | High School Certificate
| Bachelor of Science in Elementary Education | CPR and First Aid Certification |
+-----+-----+-----+-----+-----+-----+-----+
7 rows in set (0.03 sec)

mysql> Select * from employee where salary > '50000.00';
+-----+-----+-----+-----+-----+-----+-----+
| Employee_ID | Employee_Name | Supervisor_ID | Salary | Phone_number | Whatsapp_number | Email | Secondary_Education |
| Higher_Education | Other_Qualifications |
+-----+-----+-----+-----+-----+-----+-----+
| E001 | Kasun | E001 | 65000.00 | 763421254 | 743674532 | kasunjayasekara@gmail.com | High School Diploma
| Associate of Arts in Early Childhood Education | CPR Certification |
| E003 | Praveen | E005 | 55000.00 | 704296540 | 743782145 | pradeepkumara@gmail.com | High School Diploma
| Associate of Arts in Early Childhood Education | CPR Certification |
| E005 | Thilini | E006 | 60000.00 | 765741254 | 765741254 | thilinimadhushani@gmail.com | General Certificate of Secondary Education (G
CSE) | Bachelor of Arts in Early Childhood Education | CPR and First Aid Certification |
| E006 | Taniya | E001 | 65000.00 | 718905430 | 743321698 | taniyasirirwardhana@gmail.com | High School Diploma
| Master of Arts in Education | CPR Certification |
| E008 | Mahesh | E005 | 60000.00 | 746549087 | 707864052 | maheshkumara67@gmail.com | High School Certificate
| Bachelor of Science in Elementary Education | CPR and First Aid Certification |
+-----+-----+-----+-----+-----+-----+-----+

```

- Project operation

```
MySQL 8.0 Command Line Client
mysql> Select * from child;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Child_ID | First_name | Last_Name | DOB | Gender | Behaviour | Food_prefer | Napping_hours | Other_updates | Age |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| C001 | John | Doe | 2015-06-01 | Male | Calm and friendly | Vegetables | 02:00:00 | Likes drawing | NULL |
| C002 | Emma | Smith | 2016-08-12 | Female | Active and playful | Fruits | 01:30:00 | Loves storytelling | NULL |
| C003 | Oliver | Johnson | 2015-10-20 | Male | Quiet and shy | Pasta | 02:30:00 | Enjoys reading | NULL |
| C004 | Ava | Williams | 2016-01-15 | Female | Energetic and loud | Chicken | 01:00:00 | Likes outdoor games | NULL |
| C005 | Sophia | Brown | 2015-04-30 | Female | Friendly and helpful | Fish | 02:00:00 | Enjoys painting | NULL |
| C006 | Jhon | Jones | 2016-09-05 | Female | Quiet and reserved | Rice | 01:30:00 | Likes puzzles | NULL |
| C007 | Jackson | Miller | 2015-07-07 | Male | Active and noisy | Bread | 02:00:00 | Loves sports | NULL |
| C008 | Joshep | Davis | 2016-02-28 | Male | Calm and observant | Eggs | 01:30:00 | Enjoys music | NULL |
| C010 | Isabella | Rodriguez | 2016-05-15 | Female | Quiet and shy | Salad | 01:30:00 | Enjoys crafts | NULL |
| C011 | Liam | Wilson | 2015-03-20 | Male | Energetic and loud | Beef | 02:00:00 | Loves running | NULL |
| C012 | Noah | Martinez | 2016-06-25 | Male | Friendly and helpful | Pork | 01:30:00 | Likes building blocks | NULL |
| C013 | Ethan | Anderson | 2015-12-12 | Male | Quiet and reserved | Vegetables | 02:00:00 | Enjoys drawing | NULL |
| C014 | Mason | Taylor | 2016-07-30 | Male | Active and playful | Fruits | 01:30:00 | Loves storytelling | NULL |
| C015 | Logan | Thomas | 2015-05-05 | Male | Calm and friendly | Pasta | 02:00:00 | Enjoys reading | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
14 rows in set (0.00 sec)

mysql> Select Child_ID,DOB from child where Gender='Male';
+-----+-----+
| Child_ID | DOB |
+-----+-----+
| C001 | 2015-06-01 |
| C003 | 2015-10-20 |
| C007 | 2015-07-07 |
| C008 | 2016-02-28 |
| C011 | 2015-03-20 |
| C012 | 2016-06-25 |
| C013 | 2015-12-12 |
| C014 | 2016-07-30 |
| C015 | 2015-05-05 |
+-----+-----+
9 rows in set (0.00 sec)

mysql>
```

- Cartesian product operation

```
MySQL 8.0 Command Line Client

mysql> select * from gardian cross join child;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Child_ID | First_name | Last_name | NIC | Apartment_No | Street | City | Phone_number | Whatsapp_number | Email | Relation_to_th |
| e_child | Child_ID | First_name | Last_Name | DOB | Gender | Behaviour | Food_prefer | Napping_hours | Other_updates | Age | |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| C015 | Harper | Thomas | 777777777V | 1313 | Lakefront Avenue | Hometown | 7890123456 | 5432109876 | harper@email.com | Mother |
| C001 | John | Doe | 2015-06-01 | Male | Calm and friendly | Vegetables | 02:00:00 | Likes drawing | NULL | |
| C014 | Jack | Taylor | 111111111V | 1212 | Mountain View | Countryside | 6789012345 | 6543210987 | jack@email.com | Father |
| C001 | John | Doe | 2015-06-01 | Male | Calm and friendly | Vegetables | 02:00:00 | Likes drawing | NULL | |
| C013 | Evelyn | Anderson | 666666666V | 1111 | Brookside Road | Villagetown | 5678901234 | 7654321098 | evelyn@email.com | Mother |
| C001 | John | Doe | 2015-06-01 | Male | Calm and friendly | Vegetables | 02:00:00 | Likes drawing | NULL | |
| C012 | Alexander | Martinez | 999999999V | 1010 | Garden Lane | Villagetown | 4567890123 | 8765432109 | alexander@email.com | Father |
| C001 | John | Doe | 2015-06-01 | Male | Calm and friendly | Vegetables | 02:00:00 | Likes drawing | NULL | |
| C010 | Sofia | Rodriguez | 555555555V | 808 | Orchard Street | Hometown | 2345678901 | 987654321 | sofia@email.com | Mother |
| C001 | John | Doe | 2015-06-01 | Male | Calm and friendly | Vegetables | 02:00:00 | Likes drawing | NULL | |
| C008 | James | Davis | 444444444V | 606 | Meadow Lane | Villagetown | 9012345678 | 2109876543 | james@email.com | Father |
| C001 | John | Doe | 2015-06-01 | Male | Calm and friendly | Vegetables | 02:00:00 | Likes drawing | NULL | |
| C007 | Ella | Miller | 777777777V | 505 | Sunset Drive | Kelaniya | 8981234567 | 3210987654 | ella@email.com | Mother |
| C001 | John | Doe | 2015-06-01 | Male | Calm and friendly | Vegetables | 02:00:00 | Likes drawing | NULL | |
| C006 | Abigail | Jones | 333333333V | 404 | Tulip Avenue | Hometown | 7890123456 | 4321098765 | abigail@email.com | Mother |
| C001 | John | Doe | 2015-06-01 | Male | Calm and friendly | Vegetables | 02:00:00 | Likes drawing | NULL | |
| C005 | William | Brown | 999999999V | 303 | Rose Street | Colombo | 6789012345 | 5432109876 | william@email.com | Father |
| C001 | John | Doe | 2015-06-01 | Male | Calm and friendly | Vegetables | 02:00:00 | Likes drawing | NULL | |
| C004 | Emily | Williams | 111111111V | 202 | Maple Lane | Villagetown | 5678901234 | 6543210987 | emily@email.com | Mother |
| C001 | John | Doe | 2015-06-01 | Male | Calm and friendly | Vegetables | 02:00:00 | Likes drawing | NULL | |
| C003 | Michael | Smith | 555555555V | 101 | Pine Road | Smalltown | 4567890123 | 7654321098 | michael@email.com | Father |
| C001 | John | Doe | 2015-06-01 | Male | Calm and friendly | Vegetables | 02:00:00 | Likes drawing | NULL | |
| C002 | David | Johnson | 123456789V | 302 | Cedar Avenue | Townsville | 3456789012 | 8765432109 | david@email.com | Father |
| C001 | John | Doe | 2015-06-01 | Male | Calm and friendly | Vegetables | 02:00:00 | Likes drawing | NULL | |
| C001 | Jane | Doe | 987654321V | 201 | Oak Street | Cityville | 2345678901 | 9876543210 | jane@email.com | Mother |
| C001 | John | Doe | 2015-06-01 | Male | Calm and friendly | Vegetables | 02:00:00 | Likes drawing | NULL | |
| C015 | Harper | Thomas | 777777777V | 1313 | Lakefront Avenue | Hometown | 7890123456 | 5432109876 | harper@email.com | Mother |
| C002 | Emma | Smith | 2016-08-12 | Female | Active and playful | Fruits | 01:30:00 | Loves storytelling | NULL | |
| C014 | Jack | Taylor | 111111111V | 1212 | Mountain View | Countryside | 6789012345 | 6543210987 | jack@email.com | Father |
| C002 | Emma | Smith | 2016-08-12 | Female | Active and playful | Fruits | 01:30:00 | Loves storytelling | NULL | |
| C013 | Evelyn | Anderson | 666666666V | 1111 | Brookside Road | Villagetown | 5678901234 | 7654321098 | evelyn@email.com | Mother |
| C002 | Emma | Smith | 2016-08-12 | Female | Active and playful | Fruits | 01:30:00 | Loves storytelling | NULL | |
| C012 | Alexander | Martinez | 999999999V | 1010 | Garden Lane | Villagetown | 4567890123 | 8765432109 | alexander@email.com | Father |
| C002 | Emma | Smith | 2016-08-12 | Female | Active and playful | Fruits | 01:30:00 | Loves storytelling | NULL | |
| C010 | Sofia | Rodriguez | 555555555V | 808 | Orchard Street | Hometown | 2345678901 | 987654321 | sofia@email.com | Mother |
| C002 | Emma | Smith | 2016-08-12 | Female | Active and playful | Fruits | 01:30:00 | Loves storytelling | NULL | 
```

- Creating a user view

```
MySQL 8.0 Command Line Client
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| C015 | Logan | Thomas | 2015-05-05 | Male | Calm and friendly | Pasta | 02:00:00 | Enjoys reading | NULL |
| C001 | Jane  | Doe   | 987654321V | 201 | Oak Street      | Cityville | 2345678901 | 9876543210 | jane@email.com | Mother
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
182 rows in set (0.05 sec)

mysql> create view UV1 as select C.Child_ID,C.DOB from child as C inner join Alternate_Contact as A on C.Child_ID = A.Child_ID
-> where A.City = 'Cityville' ;
Query OK, 0 rows affected (0.12 sec)

mysql> select *from UV1;
+-----+-----+
| Child_ID | DOB
+-----+-----+
| C001     | 2015-06-01 |
| C011     | 2015-03-20 |
+-----+-----+
2 rows in set (0.02 sec)

mysql>
```

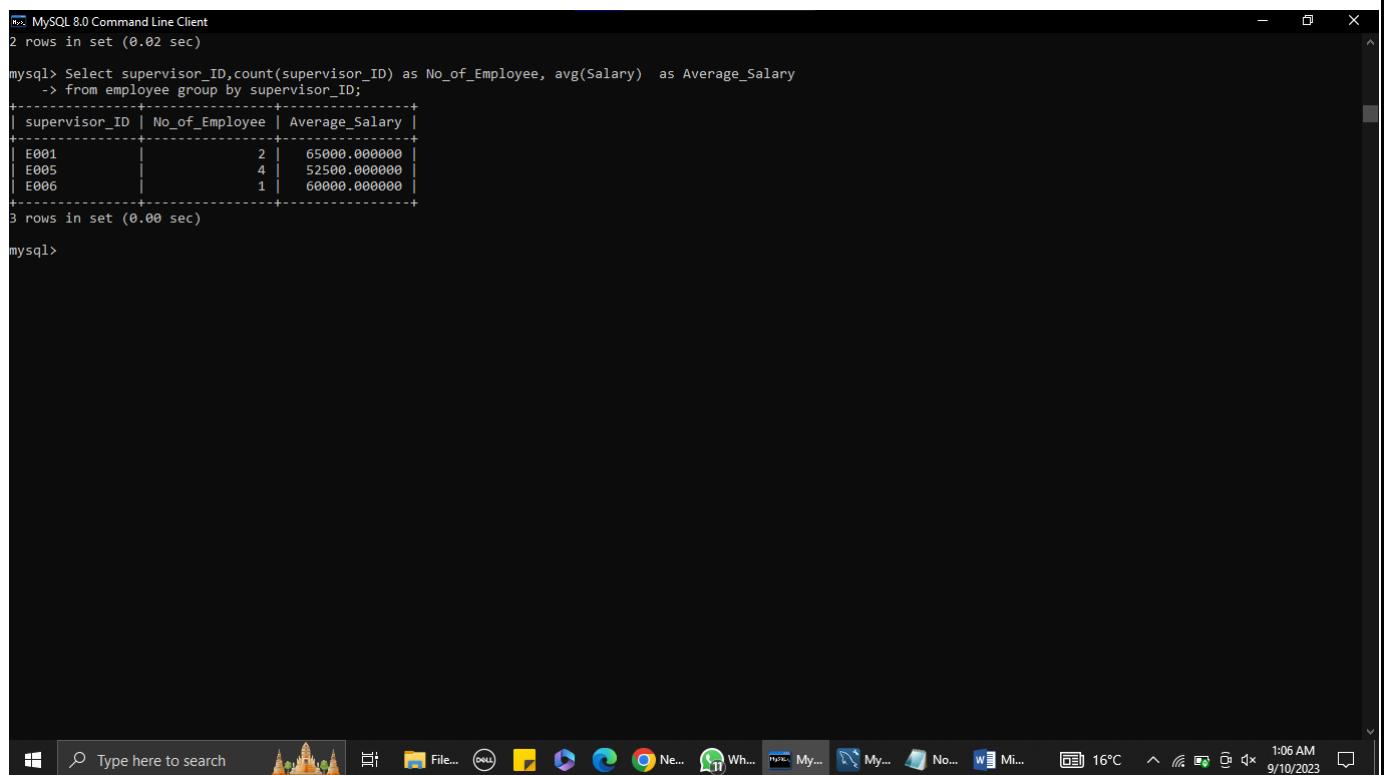
- Rename operation

```
MySQL 8.0 Command Line Client
mysql> rename table activity to exercise;
Query OK, 0 rows affected (0.26 sec)

mysql> select * from exercise;
+-----+-----+-----+-----+
| Activity_no | Activity_name | Activity_Description | Employee_assigned |
+-----+-----+-----+-----+
| A001 | Art and Craft | Children will create art using various materials such as paint, crayons, and paper. | Kasun Jayasekara |
| A002 | Storytime | Storytelling session with interactive stories and discussions. | Maheshi Silva |
| A003 | Outdoor Play | Children will have supervised outdoor playtime with games and activities. | Pradeep Kumara |
| A004 | Music and Dance | Exploring music through instruments, songs, and dance movements. | Lakshan Dissanayake |
| A005 | Science Experiments | Hands-on science experiments and demonstrations to foster curiosity. | Thilini Madushani |
| A007 | Sensory Play | Activities that engage the senses through textures, smells, and tastes. | Tharindu Silva |
| A008 | Math and Numbers | Basic math concepts through games and puzzles. | Mahesh Kumara |
| A009 | Physical Education | Physical activities and exercises to promote fitness and coordination. | Mahesi Silva |
| A010 | Dramatic Play | Imaginative role-playing and creative storytelling. | Lakshan Dissanayake |
+-----+-----+-----+-----+
9 rows in set (0.05 sec)

mysql>
```

- Demonstrating the use of an aggregation function (Average function)

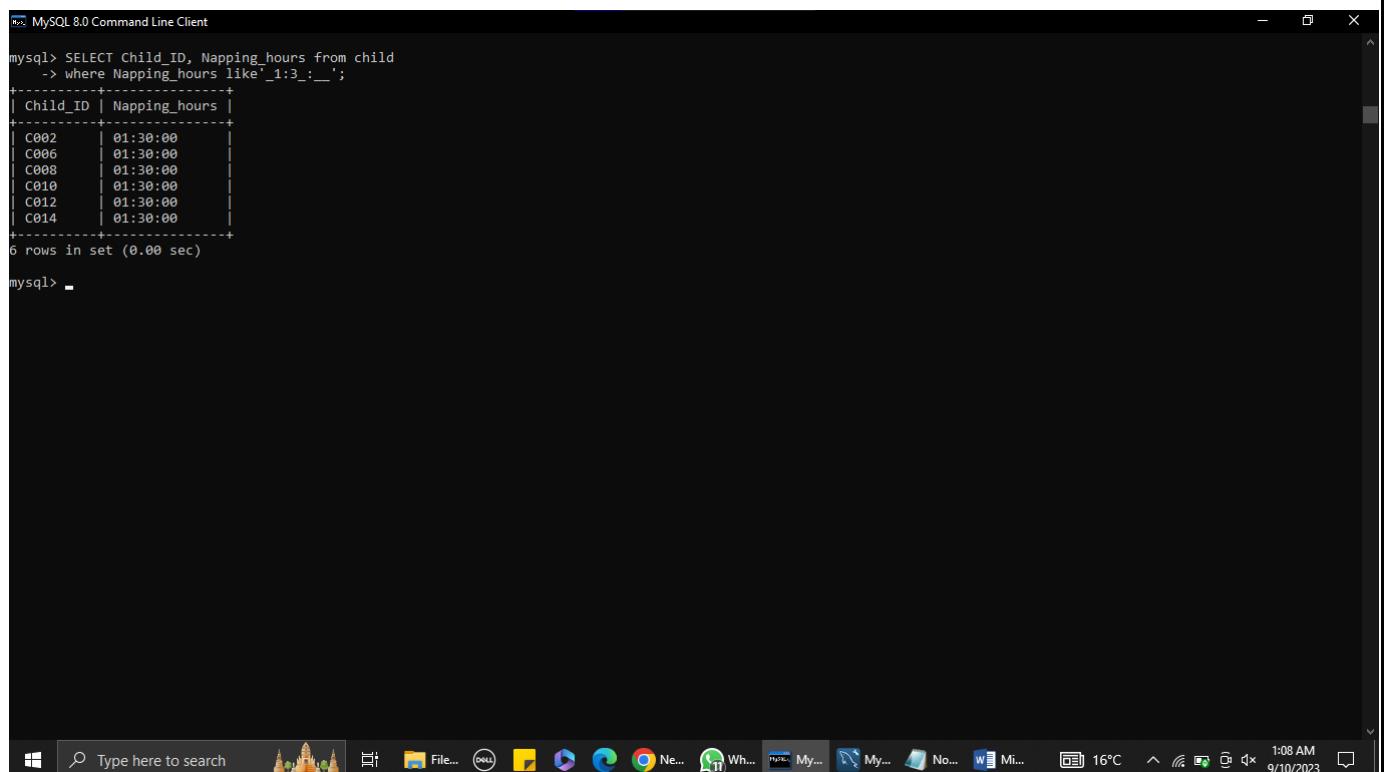


```
MySQL 8.0 Command Line Client
2 rows in set (0.02 sec)

mysql> Select supervisor_ID,count(supervisor_ID) as No_of_Employee, avg(Salary) as Average_Salary
-> from employee group by supervisor_ID;
+-----+-----+-----+
| supervisor_ID | No_of_Employee | Average_Salary |
+-----+-----+-----+
| E001           |          2 |      65000.000000 |
| E005           |          4 |      52500.000000 |
| E006           |          1 |      60000.000000 |
+-----+-----+-----+
3 rows in set (0.00 sec)

mysql>
```

- Demonstrating the use of LIKE keyword



```
MySQL 8.0 Command Line Client
mysql> SELECT Child_ID, Napping_hours from child
-> where Napping_hours like'_1:3:_';
+-----+-----+
| Child_ID | Napping_hours |
+-----+-----+
| C002     | 01:30:00 |
| C006     | 01:30:00 |
| C008     | 01:30:00 |
| C010     | 01:30:00 |
| C012     | 01:30:00 |
| C014     | 01:30:00 |
+-----+-----+
6 rows in set (0.00 sec)

mysql>
```

4.2 Complex queries

Demonstration of basic set operations (union, intersection, set difference, division) without user views are shown below with aliasing.

- Union operation

```
MySQL 8.0 Command Line Client
9 rows in set (0.05 sec)

mysql> -- 1) union
mysql> select * from Child;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Child_ID | First_name | Last_Name | DOB | Gender | Behaviour | Food_prefer | Napping_hours | Other_updates | Age |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| C001 | John | Doe | 2015-06-01 | Male | Calm and friendly | Vegetables | 02:00:00 | Likes drawing | NULL |
| C002 | Emma | Smith | 2016-08-12 | Female | Active and playful | Fruits | 01:30:00 | Loves storytelling | NULL |
| C003 | Oliver | Johnson | 2015-10-20 | Male | Quiet and shy | Pasta | 02:30:00 | Enjoys reading | NULL |
| C004 | Ava | Williams | 2016-01-15 | Female | Energetic and loud | Chicken | 01:00:00 | Likes outdoor games | NULL |
| C005 | Sophia | Brown | 2015-04-30 | Female | Friendly and helpful | Fish | 02:00:00 | Enjoys painting | NULL |
| C006 | Jhon | Jones | 2016-09-05 | Female | Quiet and reserved | Rice | 01:30:00 | Likes puzzles | NULL |
| C007 | Jackson | Miller | 2015-07-07 | Male | Active and noisy | Bread | 02:00:00 | Loves sports | NULL |
| C008 | Joshep | Davis | 2016-02-28 | Male | Calm and observant | Eggs | 01:30:00 | Enjoys music | NULL |
| C010 | Isabella | Rodriguez | 2016-05-15 | Female | Quiet and shy | Salad | 01:30:00 | Enjoys crafts | NULL |
| C011 | Liam | Wilson | 2015-03-20 | Male | Energetic and loud | Beef | 02:00:00 | Loves running | NULL |
| C012 | Noah | Martinez | 2016-06-25 | Male | Friendly and helpful | Pork | 01:30:00 | Likes building blocks | NULL |
| C013 | Ethan | Anderson | 2015-12-12 | Male | Quiet and reserved | Vegetables | 02:00:00 | Enjoys drawing | NULL |
| C014 | Mason | Taylor | 2016-07-30 | Male | Active and playful | Fruits | 01:30:00 | Loves storytelling | NULL |
| C015 | Logan | Thomas | 2015-05-05 | Male | Calm and friendly | Pasta | 02:00:00 | Enjoys reading | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
14 rows in set (0.00 sec)

mysql> (select First_name as Child_Name , Behaviour as Characteristics from Child where Food_prefer = 'Vegetables')
-> UNION
-> (select First_name as Child_Name , Behaviour as Characteristics from Child where Food_prefer = 'Fruits');
+-----+-----+
| Child_Name | Characteristics |
+-----+-----+
| John | Calm and friendly |
| Ethan | Quiet and reserved |
| Emma | Active and playful |
| Mason | Active and playful |
+-----+-----+
4 rows in set (0.00 sec)

mysql>
```

- Intersection operation – Here the intersect operation does not allow to our MYSQL version. So, another query is used as below.

```
MySQL 8.0 Command Line Client

mysql> -- 2) Intersection
mysql> select * from Classroom;
+-----+-----+-----+-----+
| Classroom_no | Class_Name | Age_group | Capacity |
+-----+-----+-----+-----+
| A           | Full Day Class | 5-12 years | 20 |
| B           | Half Day Class | 0-5 years   | 10 |
| C           | Family Class   | 0-5 years   | 5  |
| E           | After School Class | 5-12 years | 20 |
+-----+-----+-----+-----+
4 rows in set (0.00 sec)

mysql> (select Classroom_no as Class_ID , Class_Name as Acticity_Hall from Classroom where Capacity>10)
-> INTERSECT
-> (select Classroom_no as Class_ID , Class_Name as Acticity_Hall from Classroom where Age_group='5-12 years');
+-----+-----+
| Class_ID | Acticity_Hall |
+-----+-----+
| A       | Full Day Class |
| E       | After School Class |
+-----+-----+
2 rows in set (0.00 sec)

mysql>
```

- Set difference operation

```
MySQL 8.0 Command Line Client

mysql> -- 3) Set Difference Operation
mysql> SELECT * FROM Exercise;
+-----+-----+-----+-----+
| Activity_no | Activity_name | Activity_Description | Employee_assigned |
+-----+-----+-----+-----+
| A001        | Art and Craft | Children will create art using various materials such as paint, crayons, and paper. | Kasun Jayasekara |
| A002        | Storytime     | Storytelling session with interactive stories and discussions. | Maheshi Silva   |
| A003        | Outdoor Play  | Children will have supervised outdoor playtime with games and activities. | Pradeep Kumara  |
| A004        | Music and Dance | Exploring music through instruments, songs, and dance movements. | Lakshan Dissanayake |
| A005        | Science Experiments | Hands-on science experiments and demonstrations to foster curiosity. | Thilini Madhushani |
| A007        | Sensory Play   | Activities that engage the senses through textures, smells, and tastes. | Tharindu Silva   |
| A008        | Math and Numbers | Basic math concepts through games and puzzles. | Mahesh Kumarra  |
| A009        | Physical Education | Physical activities and exercises to promote fitness and coordination. | Mahesi Silva    |
| A010        | Dramatic Play  | Imaginative role-playing and creative storytelling. | Lakshan Dissanayake |
+-----+-----+-----+-----+
9 rows in set (0.00 sec)

mysql> (select Activity_no as Task_No , Activity_name as Task from Exercise)
-> except
-> (select Activity_no as Task_No , Activity_name as Task from Exercise where Employee_assigned = 'Maheshi Silva');
+-----+-----+
| Task_No | Task      |
+-----+-----+
| A001    | Art and Craft |
| A003    | Outdoor Play  |
| A004    | Music and Dance |
| A005    | Science Experiments |
| A007    | Sensory Play   |
| A008    | Math and Numbers |
| A009    | Physical Education |
| A010    | Dramatic Play  |
+-----+-----+
8 rows in set (0.00 sec)

mysql>
```

- Division operation

$$R = R1 / R2$$

```
MySQL 8.0 Command Line Client
mysql> Select * from daycare_center;
+-----+-----+-----+-----+-----+
| Reg_No | Name_ | Contact_No | Street | City | Province |
+-----+-----+-----+-----+-----+
| D1    | ABC Daycare Center | 0356784531 | 123 Main Street | Galle | Southern |
| D2    | Sunrise Childcare | 0712345678 | 456 Ella Street | Colombo | Western |
| D3    | Little Explorers Preschool | 0354568097 | 789 Vishaka Road | Kandy | Central |
| D4    | Happy Kids Daycare | 0355895155 | 321 Grand Lane | Jaffna | Northern |
| D6    | Wonderland Daycare | 0765432189 | 987 Maple Street | Matara | Southern |
| D7    | Sunshine Childrens Center | 0787654321 | 222 Wakwella Road | Galle | Southern |
+-----+-----+-----+-----+-----+
6 rows in set (0.03 sec)

mysql> select distinct Reg_No from daycare_center where Reg_No = 'D1' or Reg_No = 'D7';
+-----+
| Reg_No |
+-----+
| D1    |
| D7    |
+-----+
2 rows in set (0.00 sec)

mysql> select distinct City from daycare_center as C1
    -> where not exists ((select distinct Reg_No from daycare_center where Reg_No = 'D1' or Reg_No = 'D7')
    -> Except
    -> (Select C2.Reg_No from daycare_center as C2 where C1.city=C2.city));
+-----+
| City  |
+-----+
| Galle |
+-----+
1 row in set (0.04 sec)

mysql>
```

Windows taskbar at the bottom:

- Type here to search
- Downloads
- Dell
- File Explorer
- Google Chrome
- www.google.com
- WhatsApp
- MySQL ...
- division...
- Recycle Bin
- Network
- Power
- Volume
- 10:02 AM
- 9/11/2023

- Inner join operation

```
MySQL> Select MySQL 8.0 Command Line Client
mysql> select *from UvE1;
+-----+-----+-----+-----+
| child_ID | First_name | Last_name | Gender |
+-----+-----+-----+-----+
| C001 | John | Doe | Male |
| C002 | Emma | Smith | Female |
| C003 | Oliver | Johnson | Male |
| C004 | Ava | Williams | Female |
| C005 | Sophia | Brown | Female |
| C006 | Jhon | Jones | Female |
| C007 | Jackson | Miller | Male |
| C008 | Joshep | Davis | Male |
| C010 | Isabella | Rodriguez | Female |
| C011 | Liam | Wilson | Male |
| C012 | Noah | Martinez | Male |
| C013 | Ethan | Anderson | Male |
| C014 | Mason | Taylor | Male |
| C015 | Logan | Thomas | Male |
+-----+-----+-----+-----+
14 rows in set (0.00 sec)

mysql> create view UvE2 as ( select child_ID,First_name,Relation_to_the_child,NIC,Phone_number from gardian );
Query OK, 0 rows affected (0.12 sec)

mysql> select *from UvE2;
+-----+-----+-----+-----+-----+
| child_ID | First_name | Relation_to_the_child | NIC | Phone_number |
+-----+-----+-----+-----+-----+
| C001 | Jane | Mother | 987654321V | 2345678901 |
| C002 | David | Father | 1234567890V | 3456789012 |
| C003 | Michael | Father | 555555555V | 4567890123 |
| C004 | Eric | Mother | 111111111V | 5678901234 |
| C005 | William | Father | 999999999V | 6789012345 |
| C006 | Abigail | Mother | 333333333V | 7890123456 |
| C007 | Ella | Mother | 777777777V | 8901234567 |
| C008 | James | Father | 444444444V | 9012345678 |
| C010 | Sofia | Mother | 555555555V | 2345678901 |
| C012 | Alexander | Father | 999999999V | 4567890123 |
| C013 | Evelyn | Mother | 666666666V | 5678901234 |
| C014 | Leo | Father | 111111111V | 6789012345 |
| C015 | Harper | Mother | 777777777V | 7890123456 |
+-----+-----+-----+-----+
13 rows in set (0.00 sec)

mysql> select *from UvE1 AS Uview1 Inner join UvE2 As Uview2 on Uview1.child_ID=Uview2.child_ID where Relation_to_the_child ='Mother';
+-----+-----+-----+-----+-----+-----+-----+
| child_ID | First_name | Last_name | child_ID | First_name | Relation_to_the_child | NIC | Phone_number |
+-----+-----+-----+-----+-----+-----+-----+
| C001 | John | Doe | C001 | Jane | Mother | 987654321V | 2345678901 |
| C004 | Ava | Williams | C004 | Emily | Mother | 111111111V | 5678901234 |
| C006 | Jhon | Jones | C006 | Abigail | Mother | 333333333V | 7890123456 |
| C007 | Jackson | Miller | C007 | Ella | Mother | 777777777V | 8901234567 |
| C010 | Isabella | Rodriguez | C010 | Evelyn | Mother | 666666666V | 5678901234 |
| C013 | Ethan | Anderson | C013 | Evelyn | Mother | 555555555V | 2345678901 |
| C015 | Logan | Thomas | C015 | Harper | Mother | 777777777V | 7890123456 |
+-----+-----+-----+-----+-----+-----+-----+
7 rows in set (0.00 sec)
```

- Natural join operation

```
MySQL> Select MySQL 8.0 Command Line Client
mysql> create view UvE3 as( select child_ID,First_name,Last_name from child );
Query OK, 0 rows affected (0.13 sec)

mysql> select *from UvE3;
+-----+-----+-----+
| child_ID | First_name | Last_name |
+-----+-----+-----+
| C001 | John | Doe |
| C002 | Emma | Smith |
| C003 | Oliver | Johnson |
| C004 | Ava | Williams |
| C005 | Sophia | Brown |
| C006 | Jhon | Jones |
| C007 | Jackson | Miller |
| C008 | Joshep | Davis |
| C010 | Isabella | Rodriguez |
| C011 | Liam | Wilson |
| C012 | Noah | Martinez |
| C013 | Ethan | Anderson |
| C014 | Mason | Taylor |
| C015 | Logan | Thomas |
+-----+-----+-----+
14 rows in set (0.00 sec)

mysql> create view UvE4 as ( select child_ID,AlternateContact_Name,Relationship from alternate_contact );
Query OK, 0 rows affected (0.08 sec)

mysql> select *from UvE4;
+-----+-----+-----+
| child_ID | AlternateContact_Name | Relationship |
+-----+-----+-----+
| C001 | Jane Smith | Aunt |
| C002 | David Johnson | Grandparent |
| C003 | Michael Smith | Cousin |
| C004 | Emily Williams | Cousin |
| C005 | William Brown | Family Friend |
| C006 | Abigail Jones | Aunt |
| C008 | James Davis | Family Friend |
| C010 | Sofia Rodriguez | Grandparent |
| C011 | Daniel Wilson | Aunt |
| C012 | Alexander Martinez | Grandparent |
| C013 | Evelyn Anderson | Family Friend |
+-----+-----+-----+
```

```

MySQL 8.0 Command Line Client

mysql> create view UVe4 as ( select child_ID,AlternateContact_Name,Relationship from alternate_contact ) ;
Query OK, 0 rows affected (0.08 sec)

mysql> select *from UVe4;
+-----+-----+-----+
| child_ID | AlternateContact_Name | Relationship |
+-----+-----+-----+
| C001 | Jane Smith | Aunt |
| C002 | David Johnson | Grandparent |
| C003 | Michael Smith | Cousin |
| C004 | Emily Williams | Cousin |
| C005 | William Brown | Family Friend |
| C006 | Abigail Jones | Aunt |
| C008 | James Davis | Family Friend |
| C010 | Sofia Rodriguez | Grandparent |
| C011 | Daniel Wilson | Aunt |
| C012 | Alexander Martinez | Grandparent |
| C013 | Evelyn Anderson | Family Friend |
| C014 | Jack Taylor | Uncle |
| C015 | Harper Thomas | Grandparent |
+-----+-----+-----+
13 rows in set (0.00 sec)

mysql> select *from UVe4 AS Uview3 natural join UVe4 As Uview4 where Relationship='Cousin' ;
+-----+-----+-----+-----+
| child_ID | First_name | Last_name | AlternateContact_Name | Relationship |
+-----+-----+-----+-----+
| C003 | Oliver | Johnson | Michael Smith | Cousin |
| C004 | Ava | Williams | Emily Williams | Cousin |
+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql>
mysql>
```

- Right outer join operation

```

MySQL 8.0 Command Line Client

mysql>
mysql> -- left outer join
mysql>
mysql> create view UVe7 as( select child_ID,First_name,Last_name ,city from gardian );
Query OK, 0 rows affected (0.09 sec)

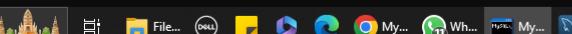
mysql> select *from UVe7;
+-----+-----+-----+-----+
| child_ID | First_name | Last_name | city |
+-----+-----+-----+-----+
| C001 | Jane | Doe | Cityville |
| C002 | David | Johnson | Townsville |
| C003 | Michael | Smith | Smalltown |
| C004 | Emily | Williams | Villagetown |
| C005 | William | Brown | Colombo |
| C006 | Abigail | Jones | Hometown |
| C007 | Ella | Miller | Kelaniya |
| C008 | James | Davis | Villagetown |
| C010 | Sofia | Rodriguez | Hometown |
| C012 | Alexander | Martinez | Villagetown |
| C013 | Evelyn | Anderson | Villagetown |
| C014 | Jack | Taylor | Countryside |
| C015 | Harper | Thomas | Hometown |
+-----+-----+-----+-----+
13 rows in set (0.00 sec)

mysql> create view UVe8 as ( select AlternateContact_Name,City,Apartment_No from Alternate_contact ) ;
Query OK, 0 rows affected (0.15 sec)

mysql> select *from UVe8;
+-----+-----+-----+
| AlternateContact_Name | City | Apartment_No |
+-----+-----+-----+
| Jane Smith | Cityville | 302 |
| David Johnson | Townsville | 201 |
| Michael Smith | Smalltown | 401 |
| Emily Williams | Villagetown | 202 |
| William Brown | Countryside | 303 |
| Abigail Jones | Hometown | 404 |
| James Davis | Villagetown | 606 |
+-----+-----+-----+
13 rows in set (0.00 sec)
```

```
MySQL 8.0 Command Line Client
mysql> -- Right outer join
mysql> SELECT *
-> FROM Uvew7 AS Uview7
-> RIGHT OUTER JOIN Uvew8 AS Uview8 ON Uview7.City = Uview8.City
-> WHERE Uview8.Apartments_No > 400;
+-----+-----+-----+-----+-----+-----+
| child_ID | First_name | Last_name | city | AlternateContact_Name | City | Apartments_No |
+-----+-----+-----+-----+-----+-----+
| C003 | Michael | Smith | Smalltown | Michael Smith | Smalltown | 401 |
| C015 | Harper | Thomas | Hometown | Abigail Jones | Hometown | 404 |
| C010 | Sofia | Rodriguez | Hometown | Abigail Jones | Hometown | 404 |
| C006 | Abigail | Jones | Hometown | Abigail Jones | Hometown | 404 |
| C013 | Evelyn | Anderson | Villagetown | James Davis | Villagetown | 606 |
| C012 | Alexander | Martinez | Villagetown | James Davis | Villagetown | 606 |
| C008 | James | Davis | Villagetown | James Davis | Villagetown | 606 |
| C004 | Emily | Williams | Villagetown | James Davis | Villagetown | 606 |
| C015 | Harper | Thomas | Hometown | Sofia Rodriguez | Hometown | 808 |
| C010 | Sofia | Rodriguez | Hometown | Sofia Rodriguez | Hometown | 808 |
| C006 | Abigail | Jones | Hometown | Sofia Rodriguez | Hometown | 808 |
| C013 | Evelyn | Anderson | Villagetown | Jack Taylor | Villagetown | 404 |
| C012 | Alexander | Martinez | Villagetown | Jack Taylor | Villagetown | 404 |
| C008 | James | Davis | Villagetown | Jack Taylor | Villagetown | 404 |
| C004 | Emily | Williams | Villagetown | Jack Taylor | Villagetown | 404 |
| C014 | Jack | Taylor | Countryside | Harper Thomas | Countryside | 505 |
+-----+-----+-----+-----+-----+-----+
16 rows in set (0.00 sec)
```

```
mysql>
```

16 rows in set (0.00 sec)  16°C 1:55 AM 9/10/2023

- Left outer join operation

```
MySQL 8.0 Command Line Client
mysql> -- left outer join
mysql>
mysql> create view Uvew7 as( select child_ID,First_name,Last_name ,city from gardian );
Query OK, 0 rows affected (0.09 sec)

mysql> select *from Uvew7;
+-----+-----+-----+-----+
| child_ID | First_name | Last_name | city |
+-----+-----+-----+-----+
| C001 | Jane | Doe | Cityville |
| C002 | David | Johnson | Townsville |
| C003 | Michael | Smith | Smalltown |
| C004 | Emily | Williams | Villagetown |
| C005 | William | Brown | Colombo |
| C006 | Abigail | Jones | Hometown |
| C007 | Ella | Miller | Kelaniya |
| C008 | James | Davis | Villagetown |
| C010 | Sofia | Rodriguez | Hometown |
| C012 | Alexander | Martinez | Villagetown |
| C013 | Evelyn | Anderson | Villagetown |
| C014 | Jack | Taylor | Countryside |
| C015 | Harper | Thomas | Hometown |
+-----+-----+-----+-----+
13 rows in set (0.00 sec)
```

```
mysql> create view Uvew8 as ( select AlternateContact_Name,City,Apartments_No from Alternate_contact ) ;
Query OK, 0 rows affected (0.15 sec)
```

```
mysql> select *from Uvew8;
+-----+-----+-----+
| AlternateContact_Name | City | Apartments_No |
+-----+-----+-----+
| Jane Smith | Cityville | 302 |
| David Johnson | Townsville | 201 |
| Michael Smith | Smalltown | 401 |
| Emily Williams | Villagetown | 202 |
| William Brown | Countryside | 303 |
| Abigail Jones | Hometown | 404 |
| James Davis | Villagetown | 606 |
+-----+-----+-----+
```

16 rows in set (0.00 sec)  16°C 1:53 AM 9/10/2023

```

MySQL 8.0 Command Line Client
mysql> select *from UVe8;
+-----+-----+-----+
| AlternateContact_Name | City      | Apartment_No |
+-----+-----+-----+
| Jane Smith           | Cityville | 302        |
| David Johnson         | Townsville | 201        |
| Michael Smith         | Smalltown | 401        |
| Emily Williams        | Villagetown | 202        |
| William Brown         | Countryside | 303        |
| Abigail Jones         | Hometown | 404        |
| James Davis            | Villagetown | 606        |
| Sofia Rodriguez       | Hometown | 808        |
| Daniel Wilson          | Cityville | 101        |
| Alexander Martinez    | Townsville | 202        |
| Evelyn Anderson       | Smalltown | 303        |
| Jack Taylor             | Villagetown | 404        |
| Harper Thomas          | Countryside | 505        |
+-----+-----+-----+
13 rows in set (0.01 sec)

mysql> select *from UVe7 AS Uview7 left outer join UVe8 As Uview8 on Uview7.City=Uview8.City where Uview8.Apartm...nt_No>400;
+-----+-----+-----+-----+-----+-----+
| child_ID | First_name | Last_name | city      | AlternateContact_Name | City      | Apartment_No |
+-----+-----+-----+-----+-----+-----+
| C003     | Michael    | Smith     | Smalltown | Michael Smith       | Smalltown | 401        |
| C004     | Emily      | Williams  | Villagetown | Jack Taylor       | Villagetown | 404        |
| C004     | Emily      | Williams  | Villagetown | James Davis       | Villagetown | 606        |
| C006     | Abigail   | Jones     | Hometown | Sofia Rodriguez  | Hometown | 808        |
| C006     | Abigail   | Jones     | Hometown | Abigail Jones    | Hometown | 404        |
| C008     | James      | Davis     | Villagetown | Jack Taylor       | Villagetown | 404        |
| C008     | James      | Davis     | Villagetown | James Davis       | Villagetown | 606        |
| C010     | Sofia      | Rodriguez | Hometown | Sofia Rodriguez  | Hometown | 808        |
| C010     | Sofia      | Rodriguez | Hometown | Abigail Jones    | Hometown | 404        |
| C012     | Alexander | Martinez | Villagetown | Jack Taylor       | Villagetown | 404        |
| C012     | Alexander | Martinez | Villagetown | James Davis       | Villagetown | 606        |
| C013     | Evelyn    | Anderson | Villagetown | Jack Taylor       | Villagetown | 404        |
| C013     | Evelyn    | Anderson | Villagetown | James Davis       | Villagetown | 606        |
| C014     | Jack       | Taylor    | Countryside | Harper Thomas    | Countryside | 505        |
| C015     | Harper    | Thomas   | Hometown | Sofia Rodriguez  | Hometown | 808        |
| C015     | Harper    | Thomas   | Hometown | Abigail Jones    | Hometown | 404        |
+-----+-----+-----+-----+-----+-----+
15 rows in set (0.00 sec)

```

- Full outer join operation

Union of the previously created right outer and left outer joins are used to demonstrate full outer join in the below screenshot.

```
MySQL 8.0 Command Line Client
mysql> -- full outer join
mysql>
mysql> SELECT *
-> FROM UView7 AS Uview7
-> LEFT OUTER JOIN UView8 AS Uview8
-> ON UView7.City = Uview8.City
-> WHERE Uview8.Apartments_No > 400
->
-> UNION ALL
-> SELECT *
-> FROM UView7 AS Uview7
-> RIGHT OUTER JOIN UView8 AS Uview8
-> ON UView7.City = Uview8.City
-> WHERE Uview8.Apartments_No >400;
+-----+-----+-----+-----+-----+-----+
| child_ID | First_name | Last_name | city | AlternateContact_Name | City | Apartments_No |
+-----+-----+-----+-----+-----+-----+
| C003 | Michael | Smith | Smalltown | Michael Smith | Smalltown | 401 |
| C004 | Emily | Williams | Villagetown | Jack Taylor | Villagetown | 404 |
| C004 | Emily | Williams | Villagetown | James Davis | Villagetown | 606 |
| C006 | Abigail | Jones | Hometown | Sofia Rodriguez | Hometown | 808 |
| C006 | Abigail | Jones | Hometown | Abigail Jones | Hometown | 404 |
| C008 | James | Davis | Villagetown | Jack Taylor | Villagetown | 404 |
| C008 | James | Davis | Villagetown | James Davis | Villagetown | 606 |
| C010 | Sofia | Rodriguez | Hometown | Sofia Rodriguez | Hometown | 808 |
| C010 | Sofia | Rodriguez | Hometown | Abigail Jones | Hometown | 404 |
| C012 | Alexander | Martinez | Villagetown | Jack Taylor | Villagetown | 404 |
| C012 | Alexander | Martinez | Villagetown | James Davis | Villagetown | 606 |
| C013 | Evelyn | Anderson | Villagetown | Jack Taylor | Villagetown | 404 |
| C013 | Evelyn | Anderson | Villagetown | James Davis | Villagetown | 606 |
| C014 | Jack | Taylor | Countryside | Harper Thomas | Countryside | 505 |
| C015 | Harper | Thomas | Hometown | Sofia Rodriguez | Hometown | 808 |
| C015 | Harper | Thomas | Hometown | Abigail Jones | Hometown | 404 |
| C003 | Michael | Smith | Smalltown | Michael Smith | Smalltown | 401 |
| C015 | Harper | Thomas | Hometown | Abigail Jones | Hometown | 404 |
| C016 | Sofia | Rodriguez | Hometown | Abigail Jones | Hometown | 404 |
| C006 | Abigail | Jones | Hometown | Abigail Jones | Hometown | 404 |
| C013 | Evelyn | Anderson | Villagetown | James Davis | Villagetown | 606 |
| C012 | Alexander | Martinez | Villagetown | James Davis | Villagetown | 606 |
| C008 | James | Davis | Villagetown | James Davis | Villagetown | 606 |
| C004 | Emily | Williams | Villagetown | James Davis | Villagetown | 606 |
| C015 | Harper | Thomas | Hometown | Sofia Rodriguez | Hometown | 808 |
| C010 | Sofia | Rodriguez | Hometown | Sofia Rodriguez | Hometown | 808 |
| C006 | Abigail | Jones | Hometown | Sofia Rodriguez | Hometown | 808 |
| C013 | Evelyn | Anderson | Villagetown | Jack Taylor | Villagetown | 404 |
| C012 | Alexander | Martinez | Villagetown | Jack Taylor | Villagetown | 404 |
| C008 | James | Davis | Villagetown | Jack Taylor | Villagetown | 404 |
| C004 | Emily | Williams | Villagetown | Jack Taylor | Villagetown | 404 |
| C014 | Jack | Taylor | Countryside | Harper Thomas | Countryside | 505 |
+-----+-----+-----+-----+-----+-----+
```

- Outer union operation

```
MySQL 8.0 Command Line Client
mysql> -- outer union
mysql>
mysql> SELECT *
-> FROM UView7 AS Uview7
-> LEFT OUTER JOIN UView8 AS Uview8
-> ON UView7.city = Uview8.City
-> WHERE Uview8.Apartments_No > 400
->
-> UNION ALL
->
-> SELECT *
-> FROM UView7 AS Uview7
-> RIGHT OUTER JOIN UView8 AS Uview8
-> ON UView7.city = Uview8.City
-> WHERE Uview8.Apartments_No < 400;
+-----+-----+-----+-----+-----+-----+
| child_ID | First_name | Last_name | city | AlternateContact_Name | City | Apartments_No |
+-----+-----+-----+-----+-----+-----+
| C003 | Michael | Smith | Smalltown | Michael Smith | Smalltown | 401 |
| C004 | Emily | Williams | Villagetown | Jack Taylor | Villagetown | 404 |
| C004 | Emily | Williams | Villagetown | James Davis | Villagetown | 606 |
| C006 | Abigail | Jones | Hometown | Sofia Rodriguez | Hometown | 808 |
| C006 | Abigail | Jones | Hometown | Abigail Jones | Hometown | 404 |
| C008 | James | Davis | Villagetown | Jack Taylor | Villagetown | 404 |
| C008 | James | Davis | Villagetown | James Davis | Villagetown | 606 |
| C010 | Sofia | Rodriguez | Hometown | Sofia Rodriguez | Hometown | 808 |
| C010 | Sofia | Rodriguez | Hometown | Abigail Jones | Hometown | 404 |
| C012 | Alexander | Martinez | Villagetown | Jack Taylor | Villagetown | 404 |
| C012 | Alexander | Martinez | Villagetown | James Davis | Villagetown | 606 |
| C013 | Evelyn | Anderson | Villagetown | Jack Taylor | Villagetown | 404 |
| C013 | Evelyn | Anderson | Villagetown | James Davis | Villagetown | 606 |
| C014 | Jack | Taylor | Countryside | Harper Thomas | Countryside | 505 |
| C015 | Harper | Thomas | Hometown | Sofia Rodriguez | Hometown | 808 |
| C015 | Harper | Thomas | Hometown | Abigail Jones | Hometown | 404 |
| C003 | Michael | Smith | Smalltown | Michael Smith | Smalltown | 401 |
| C015 | Harper | Thomas | Hometown | Abigail Jones | Hometown | 404 |
| C016 | Sofia | Rodriguez | Hometown | Abigail Jones | Hometown | 404 |
| C006 | Abigail | Jones | Hometown | Abigail Jones | Hometown | 404 |
| C013 | Evelyn | Anderson | Villagetown | James Davis | Villagetown | 606 |
| C012 | Alexander | Martinez | Villagetown | James Davis | Villagetown | 606 |
| C008 | James | Davis | Villagetown | James Davis | Villagetown | 606 |
| C004 | Emily | Williams | Villagetown | James Davis | Villagetown | 606 |
| C015 | Harper | Thomas | Hometown | Sofia Rodriguez | Hometown | 808 |
| C010 | Sofia | Rodriguez | Hometown | Sofia Rodriguez | Hometown | 808 |
| C006 | Abigail | Jones | Hometown | Sofia Rodriguez | Hometown | 808 |
| C013 | Evelyn | Anderson | Villagetown | Jack Taylor | Villagetown | 404 |
| C012 | Alexander | Martinez | Villagetown | Jack Taylor | Villagetown | 404 |
| C008 | James | Davis | Villagetown | Jack Taylor | Villagetown | 404 |
| C004 | Emily | Williams | Villagetown | Jack Taylor | Villagetown | 404 |
| C014 | Jack | Taylor | Countryside | Harper Thomas | Countryside | 505 |
+-----+-----+-----+-----+-----+-----+
26 rows in set (0.00 sec)
```

Nested queries in combination with any other relational algebraic operation are demonstrated below with aliasing.

- Nested query 1

```
MySQL 8.0 Command Line Client
mysql> -- NESTED QUERY
mysql>
mysql> SELECT supervisor_ID, AVG(salary) AS avg_salary
    -> FROM employee
    -> WHERE supervisor_ID IS NOT NULL
    -> GROUP BY supervisor_ID
    -> HAVING AVG(salary) > (
    ->     SELECT AVG(salary)
    ->     FROM employee
    -> );
+-----+-----+
| supervisor_ID | avg_salary |
+-----+-----+
| E001          | 65000.000000 |
| E006          | 60000.000000 |
+-----+-----+
2 rows in set (0.04 sec)

mysql>
```

- Nested query 2

```
MySQL 8.0 Command Line Client
mysql>
mysql> SELECT C.First_name AS Child_FirstName, C.Last_name AS Child_LastName, G.First_name AS Guardian_FirstName, G.Last_name AS Guardian_LastName
    -> FROM child AS C
    -> INNER JOIN (
    ->     SELECT child_ID, First_name, Last_name
    ->     FROM guardian
    ->     WHERE Relation_to_the_child = 'Father'
    -> ) AS G
    -> ON C.child_ID = G.child_ID;
+-----+-----+-----+-----+
| Child_FirstName | Child_LastName | Guardian_FirstName | Guardian_LastName |
+-----+-----+-----+-----+
| Emma            | Smith          | David             | Johnson           |
| Oliver          | Johnson        | Michael           | Smith             |
| Sophia          | Brown          | William           | Brown             |
| Josnep          | Davis          | James             | Davis             |
| Noah            | Martinez       | Alexander         | Martinez          |
| Mason           | Taylor          | Jack              | Taylor            |
+-----+-----+-----+-----+
6 rows in set (0.00 sec)

mysql>
```

- Nested query 3

```
MySQL 8.0 Command Line Client

mysql> SELECT Child_ID, Napping_hours
-> FROM child
-> WHERE EXISTS (
->   SELECT *
->   FROM child AS C
->   WHERE C.Child_ID = child.Child_ID
->   AND (C.Napping_hours like'_2:3:_' or C.Napping_hours like'_1:3:_'))
-> );
+-----+-----+
| Child_ID | Napping_hours |
+-----+-----+
| C002     | 01:30:00      |
| C003     | 02:30:00      |
| C006     | 01:30:00      |
| C008     | 01:30:00      |
| C010     | 01:30:00      |
| C012     | 01:30:00      |
| C014     | 01:30:00      |
+-----+-----+
7 rows in set (0.03 sec)

mysql>
```

Chapter 5 - Database Tuning

Tuning of 10 selected complex queries that have written in chapter 5 is tuned using indexing technique. Following steps are taken in query tuning for each complex query in order to provide a clear understanding.

- Drop existing indexes that are externally created in used tables
- Show indexes of table before creating suitable index (using SHOW INDEX command)
- Show number of accessed rows before creating suitable index (using EXPLAIN command)
- Create suitable index in order to tune the query
- Show indexes of table after creating suitable index (using SHOW INDEX command)
- Show number of accessed rows after creating suitable index (using EXPLAIN command)

Tuning of a query is shown by comparing number of accessed rows in explain table, before creating suitable index and after creating that index. If there is a decrement of accessed rows after creating index, we can say that the query is tuned properly. In all screenshots that are included below satisfy that requirement.

- Tuning of Union operation

```
MySQL 8.0 Command Line Client
1 row in set (0.00 sec)

mysql> -- Database Tuning
mysql> -- 1) Tuning of Union operation
mysql> show index from child;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | key_name | Seq_in_Index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | comment | Index_comment | Visible | Expression |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| child |          0 | PRIMARY |          1 | Child_ID |      A |          14 |       NULL |     NULL |    BTREE |           | YES |        NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

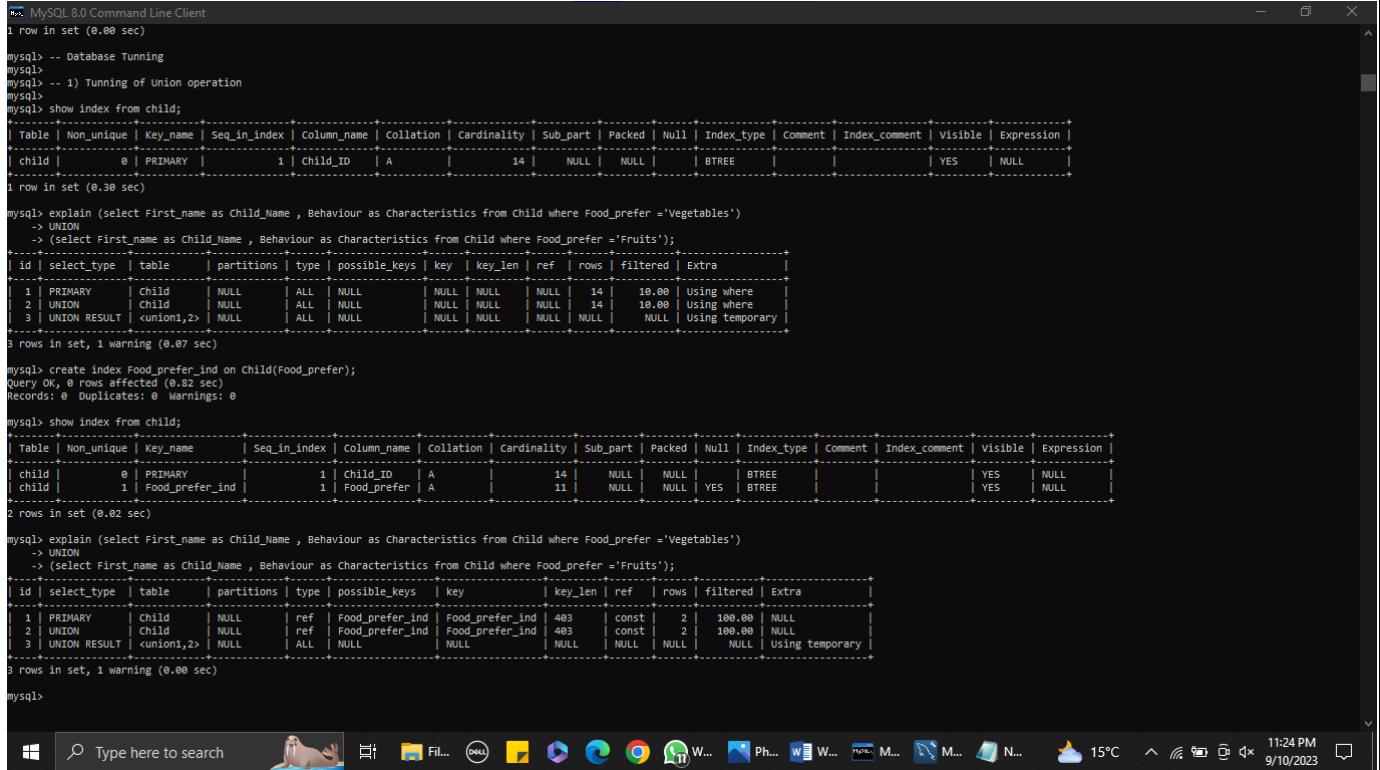
mysql> explain (select First_name as Child_Name , Behaviour as Characteristics from Child where Food_prefer ='Vegetables'
-> UNION
-> (select First_name as Child_Name , Behaviour as Characteristics from Child where Food_prefer ='Fruits');
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| id | select_type | table   | partitions | type | possible_keys | key | key_len | ref | rows | filtered | Extra |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | PRIMARY     | Child    |          1 | ALL    |      NULL |    NULL |    NULL |    14 |    10.00 | Using where | |
| 2 | UNION        | Child    |          1 | ALL    |      NULL |    NULL |    NULL |    14 |    10.00 | Using where |
| 3 | UNION RESULT | <union1,2> |          1 | ALL    |      NULL |    NULL |    NULL |    NULL |    NULL |    NULL | Using temporary |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
3 rows in set, 1 warning (0.07 sec)

mysql> create index Food_prefer_idx on Child(Food_prefer);
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> show index from child;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | key_name | Seq_in_Index | column_name | collation | Cardinality | sub_part | Packed | Null | Index_type | comment | Index_comment | Visible | Expression |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| child |          0 | PRIMARY |          1 | Child_ID |      A |          14 |       NULL |     NULL |    BTREE |           | YES |        NULL |
| child |          1 | Food_prefer_idx |          1 | Food_prefer |      A |          11 |       NULL |     NULL |    YES |    BTREE |           | YES |        NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.02 sec)

mysql> explain (select First_name as Child_Name , Behaviour as Characteristics from Child where Food_prefer ='Vegetables'
-> UNION
-> (select First_name as Child_Name , Behaviour as Characteristics from Child where Food.prefer ='Fruits');
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| id | select_type | table   | partitions | type | possible_keys | key | key_len | ref | rows | filtered | Extra |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | PRIMARY     | Child    |          1 | NULL   | Food_prefer_idx | Food_prefer_idx | 403 | const  |    2 | 100.00 | NULL |
| 2 | UNION        | Child    |          1 | NULL   | Food_prefer_idx | Food_prefer_idx | 403 | const  |    2 | 100.00 | NULL |
| 3 | UNION RESULT | <union1,2> |          1 | ALL    |      NULL |           NULL |    NULL |    NULL |    NULL |    NULL | Using temporary |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
3 rows in set, 1 warning (0.00 sec)

mysql>
```



- Tuning of Intersect operation

```
MySQL 8.0 Command Line Client
mysql> -- 2) Tunning of Intersection
mysql>
mysql> show index from Classroom;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| classroom | 0 | PRIMARY | 1 | Classroom_no | A | 4 | NULL | NULL | BTREE | | YES | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.07 sec)

mysql> Explain(select Classroom_no as Class_ID , Class_Name as Acticity_Hall from Classroom where Capacity>10)
   > INTERSECT
   > (select Classroom_no as Class_ID , Class_Name as Acticity_Hall from Classroom where Age_group='5-12 years');
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| id | select_type | table | partitions | type | possible_keys | key | key_len | ref | rows | filtered | Extra |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | PRIMARY | Classroom | NULL | ALL | NULL | NULL | NULL | 4 | 33.33 | Using where | |
| 2 | INTERSECT | Classroom | NULL | ALL | NULL | NULL | NULL | 4 | 25.00 | Using where |
| 3 | INTERSECT RESULT | <intersect1,2> | NULL | ALL | NULL | NULL | NULL | NULL | NULL | NULL | Using temporary |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
3 rows in set, 1 warning (0.00 sec)

mysql> create index Capacity_ind on Classroom(Capacity);
Query OK, 0 rows affected (0.29 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> show index from classroom;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| classroom | 0 | PRIMARY | 1 | Classroom_no | A | 4 | NULL | NULL | BTREE | | YES | NULL |
| classroom | 1 | Capacity_ind | 1 | Capacity | A | 3 | NULL | NULL | YES | BTREE | | YES | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.01 sec)

mysql> Explain(select Classroom_no as Class_ID , Class_Name as Acticity_Hall from Classroom where Capacity>10)
   > INTERSECT
   > (select Classroom_no as Class_ID , Class_Name as Acticity_Hall from Classroom where Age_group='5-12 years');
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| id | select_type | table | partitions | type | possible_keys | key | key_len | ref | rows | filtered | Extra |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | PRIMARY | Classroom | NULL | range | Capacity_ind | Capacity_ind | 5 | NULL | 2 | 100.00 | Using index condition |
| 2 | INTERSECT | Classroom | NULL | ALL | NULL | NULL | NULL | 4 | 25.00 | Using where |
| 3 | INTERSECT RESULT | <intersect1,2> | NULL | ALL | NULL | NULL | NULL | NULL | NULL | NULL | Using temporary |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
3 rows in set, 1 warning (0.00 sec)
```

- Tuning of Set difference operation

```
MySQL 8.0 Command Line Client
mysql> -- 3) Tunning of set difference operation
mysql>
mysql> show index from Exercise;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| exercise | 0 | PRIMARY | 1 | Activity_no | A | 9 | NULL | NULL | BTREE | | YES | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.03 sec)

mysql> explain(select Activity_no as Task_No , Activity_name as Task from Exercise)
   > except
   > (select Activity_no as Task_No , Activity_name as Task from Exercise where Employee_assigned = 'Maheshi Silva');
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| id | select_type | table | partitions | type | possible_keys | key | key_len | ref | rows | filtered | Extra |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | PRIMARY | Exercise | NULL | ALL | NULL | NULL | NULL | 9 | 100.00 | NULL | |
| 2 | EXCEPT | Exercise | NULL | ALL | NULL | NULL | NULL | 9 | 11.11 | Using where |
| 3 | EXCEPT RESULT | <except1,2> | NULL | ALL | NULL | NULL | NULL | NULL | NULL | NULL | Using temporary |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
3 rows in set, 1 warning (0.02 sec)

mysql> create index Employee_assign_ind on Exercise(Employee_assigned);
Query OK, 0 rows affected (0.24 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> show index from Exercise;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| exercise | 0 | PRIMARY | 1 | Activity_no | A | 9 | NULL | NULL | BTREE | | YES | NULL |
| exercise | 1 | Employee_assign_ind | 1 | Employee_assigned | A | 8 | NULL | NULL | YES | BTREE | | YES | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.01 sec)

mysql> explain(select Activity_no as Task_No , Activity_name as Task from Exercise)
   > except
   > (select Activity_no as Task_No , Activity_name as Task from Exercise where Employee_assigned = 'Maheshi Silva');
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| id | select_type | table | partitions | type | possible_keys | key | key_len | ref | rows | filtered | Extra |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | PRIMARY | Exercise | NULL | ALL | NULL | NULL | NULL | 9 | 100.00 | NULL | |
| 2 | EXCEPT | Exercise | NULL | ref | Employee_assign_ind | Employee_assign_ind | 203 | const | 1 | 100.00 | NULL |
| 3 | EXCEPT RESULT | <except1,2> | NULL | ALL | NULL | NULL | NULL | NULL | NULL | NULL | Using temporary |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
3 rows in set, 1 warning (0.00 sec)
```

- Tuning of Natural join operation

```
MySQL 8.0 Command Line Client

mysql> explain(select Activity_no as Task_No , Activity_name as Task from Exercise)
   > -- select Activity_no as Task_No , Activity_name as Task from Exercise where Employee_assigned ='Maheshi Silva';
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| id | select_type | table | partitions | type | possible_keys | key | key_len | ref | rows | filtered | Extra |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | PRIMARY | Exercise | NULL | ALL | NULL | NULL | NULL | NULL | 9 | 100.00 | NULL |
| 2 | EXCEPT | Exercise | NULL | ref | Employee_assign_Ind | Employee_assign_Ind | 203 | const | 1 | 100.00 | NULL |
| 3 | EXCEPT RESULT | <except1,2> | NULL | ALL | NULL | NULL | NULL | NULL | NULL | NULL | Using temporary |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
3 rows in set, 1 warning (0.00 sec)

mysql> -- 4) Tuning of Natural join operation
mysql> show index from Child;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| child | 0 | PRIMARY | 1 | Child_ID | A | 14 | NULL | NULL | YES | BTREE | | | YES | NULL |
| child | 1 | Food_prefer_Ind | 1 | Food_prefer | A | 11 | NULL | NULL | YES | BTREE | | | YES | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.01 sec)

mysql> show index from alternate_contact;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| alternate_contact | 0 | PRIMARY | 1 | Child_ID | A | 15 | NULL | NULL | YES | BTREE | | | YES | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.03 sec)

mysql> explain(select *from Uvew3 AS Uvew3 natural join Uvew4 As Uvew4 where Relationship='Cousin') ;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| id | select_type | table | partitions | type | possible_keys | key | key_len | ref | rows | filtered | Extra |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | SIMPLE | alternate_contact | NULL | ALL | PRIMARY | NULL | NULL | NULL | 15 | 10.00 | Using where |
| 1 | SIMPLE | child | NULL | eq_ref | PRIMARY | PRIMARY | 102 | day_care_center.alternate_contact.Child_ID | 1 | 100.00 | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set, 1 warning (0.07 sec)

mysql> create index Relationship_Ind on alternate_contact(Relationship);
Query OK, 0 rows affected (0.38 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> show index from alternate_contact;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| alternate_contact | 0 | PRIMARY | 1 | Child_ID | A | 15 | NULL | NULL | YES | BTREE | | | YES | NULL |
| alternate_contact | 1 | Relationship_Ind | 1 | Relationship | A | 5 | NULL | NULL | YES | BTREE | | | YES | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.03 sec)

mysql> explain(select *from Uvew3 AS Uvew3 natural join Uvew4 As Uvew4 where Relationship='Cousin') ;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| id | select_type | table | partitions | type | possible_keys | key | key_len | ref | rows | filtered | Extra |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | SIMPLE | alternate_contact | NULL | ref | PRIMARY,Relationship_Ind | Relationship_Ind | 203 | const | 2 | 100.00 | NULL |
| 1 | SIMPLE | child | NULL | eq_ref | PRIMARY | PRIMARY | 102 | day_care_center.alternate_contact.Child_ID | 1 | 100.00 | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set, 1 warning (0.00 sec)

mysql>
```

- Tuning of Right outer join operation

```
MySQL 8.0 Command Line Client

mysql> -- 5) Tuning of Right outer join operation
mysql> show index from gardian;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| gardian | 0 | PRIMARY | 1 | Child_ID | A | 13 | NULL | NULL | YES | BTREE | | | YES | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.04 sec)

mysql> show index from alternate_contact;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| alternate_contact | 0 | PRIMARY | 1 | Child_ID | A | 15 | NULL | NULL | YES | BTREE | | | YES | NULL |
| alternate_contact | 1 | Relationship_Ind | 1 | Relationship | A | 5 | NULL | NULL | YES | BTREE | | | YES | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.01 sec)

mysql> explain(select *from Uvew7 AS Uvew7 right outer join Uvew8 As Uvew8 on Uvew7.City=Uvew8.City where Uvew8.Apartmnet_No>400);
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| id | select_type | table | partitions | type | possible_keys | key | key_len | ref | rows | filtered | Extra |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | SIMPLE | alternate_contact | NULL | ALL | NULL | NULL | NULL | NULL | 15 | 33.33 | Using where |
| 1 | SIMPLE | gardian | NULL | ALL | NULL | NULL | NULL | NULL | 13 | 100.00 | Using where; Using join buffer (hash join) |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set, 1 warning (0.03 sec)

mysql> create index Apartment_no_Ind on alternate_contact(Apartment_No);
Query OK, 0 rows affected (0.23 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> show index from alternate_contact;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| alternate_contact | 0 | PRIMARY | 1 | Child_ID | A | 15 | NULL | NULL | YES | BTREE | | | YES | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.01 sec)
```

```

MySQL> explain(select *from UvE7 AS Uview7 right outer join UvE8 As Uview8 on Uview7.City=Uview8.City where Uview8.Apartm...
+-----+
| id | select_type | table      | partitions | type   | possible_keys | key    | key_len | ref   | rows  | filtered | Extra
+-----+
| 1 | SIMPLE     | alternate_contact | NULL      | ALL    | NULL        | NULL   | NULL    | NULL   | 15    | 33.33    | Using where
| 1 | SIMPLE     | gardian      | NULL      | ALL    | NULL        | NULL   | NULL    | NULL   | 13    | 100.00    | Using where; Using join buffer (hash join)
+-----+
2 rows in set, 1 warning (0.03 sec)

mysql> create index Apartment_no_ind on alternate_contact(Apartment_No);
Query OK, 0 rows affected (0.23 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> show index from alternate_contact;
+-----+
| Table      | Non_unique | Key_name      | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |
+-----+
| alternate_contact | 0 | PRIMARY      | 1 | Child_ID    | A          | 15          | NULL    | NULL    | BTREE   | | YES | NULL
| alternate_contact | 1 | Relationship_ind | 1 | Relationship | A          | 5           | NULL    | NULL    | BTREE   | | YES | NULL
| alternate_contact | 1 | Apartment_no_ind | 1 | Apartment_No | A          | 10          | NULL    | NULL    | BTREE   | | YES | NULL
+-----+
3 rows in set (0.01 sec)

mysql> explain(select *from UvE7 AS Uview7 right outer join UvE8 As Uview8 on Uview7.City=Uview8.City where Uview8.Apartm...
+-----+
| id | select_type | table      | partitions | type   | possible_keys | key    | key_len | ref   | rows  | filtered | Extra
+-----+
| 1 | SIMPLE     | alternate_contact | NULL      | range  | Apartment_no_ind | Apartment_no_ind | 5       | NULL   | 6     | 100.00    | Using index condition
| 1 | SIMPLE     | gardian      | NULL      | ALL    | NULL        | NULL   | NULL    | NULL   | 13    | 100.00    | Using where; Using join buffer (hash join)
+-----+
2 rows in set, 1 warning (0.00 sec)

mysql>

```

- Tuning of Left outer join operation

```

MySQL> -- 6) Tuning of Left outer join operation
mysql>
mysql> show index from gardian;
+-----+
| Table      | Non_unique | Key_name      | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |
+-----+
| gardian | 0 | PRIMARY      | 1 | Child_ID    | A          | 13          | NULL    | NULL    | BTREE   | | YES | NULL
+-----+
1 row in set (0.00 sec)

mysql> show index from alternate_contact;
+-----+
| Table      | Non_unique | Key_name      | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |
+-----+
| alternate_contact | 0 | PRIMARY      | 1 | Child_ID    | A          | 15          | NULL    | NULL    | BTREE   | | YES | NULL
| alternate_contact | 1 | Relationship_ind | 1 | Relationship | A          | 5           | NULL    | NULL    | BTREE   | | YES | NULL
| alternate_contact | 1 | Apartment_no_ind | 1 | Apartment_No | A          | 10          | NULL    | NULL    | BTREE   | | YES | NULL
+-----+
3 rows in set (0.03 sec)

mysql> explain(select *from UvE7 AS Uview7 left outer join UvE8 As Uview8 on Uview7.City=Uview8.City where Uview8.Apartm...
+-----+
| id | select_type | table      | partitions | type   | possible_keys | key    | key_len | ref   | rows  | filtered | Extra
+-----+
| 1 | SIMPLE     | alternate_contact | NULL      | range  | Apartment_no_ind | Apartment_no_ind | 5       | NULL   | 6     | 100.00    | Using index condition
| 1 | SIMPLE     | gardian      | NULL      | ALL    | NULL        | NULL   | NULL    | NULL   | 13    | 10.00     | Using where; Using join buffer (hash join)
+-----+
2 rows in set, 1 warning (0.00 sec)

mysql> create index Apartment_no_ind on alternate_contact(Apartment_No);
Query OK, 0 rows affected, 1 warning (0.27 sec)
Records: 0 Duplicates: 0 Warnings: 1

mysql> show index from alternate_contact;
+-----+
| Table      | Non_unique | Key_name      | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |
+-----+
| alternate_contact | 0 | PRIMARY      | 1 | Child_ID    | A          | 15          | NULL    | NULL    | BTREE   | | YES | NULL
| alternate_contact | 1 | Relationship_ind | 1 | Relationship | A          | 5           | NULL    | NULL    | BTREE   | | YES | NULL
| alternate_contact | 1 | Apartment_no_ind | 1 | Apartment_No | A          | 10          | NULL    | NULL    | BTREE   | | YES | NULL
+-----+

```

```

MySQL 8.0 Command Line Client

mysql> show index from alternate_contact;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Express |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| alternate_contact | 0 | PRIMARY | 1 | Child_ID | A | 15 | NULL | NULL | BTREE | | | YES | NULL | |
| alternate_contact | 1 | Relationship_ind | 1 | Relationship | A | 5 | NULL | NULL | YES | BTREE | | | YES | NULL |
| alternate_contact | 1 | Apartment_no_ind | 1 | Apartment_No | A | 10 | NULL | NULL | YES | BTREE | | | YES | NULL |
| alternate_contact | 1 | Apartment_ind | 1 | Apartment_No | A | 10 | NULL | NULL | YES | BTREE | | | YES | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
4 rows in set (0.01 sec)

mysql> explain(select *from UVe7 AS Uview7 left outer join UVe8 AS Uview8 on Uview7.City=Uview8.City where Uview8.Apartm...
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| id | select_type | table | partitions | type | possible_keys | key | key_len | ref | rows | filtered | Extra |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | SIMPLE | alternate_contact | NULL | range | Apartment_no_ind,Apartment_ind | Apartment_no_ind | 5 | NULL | 6 | 100.00 | Using index condition |
| 1 | SIMPLE | gardian | NULL | ALL | NULL | NULL | NULL | NULL | 13 | 10.00 | Using where; Using join buffer (hash join) |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set, 1 warning (0.00 sec)

mysql> -

```

- Tuning of Full outer join operation

```

MySQL 8.0 Command Line Client
-- 7) Tuning of Full outer join operation
mysql>
mysql> show index from gardian;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| gardian | 0 | PRIMARY | 1 | Child_ID | A | 13 | NULL | NULL | BTREE | | | YES | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql> show index from alternate_contact;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Express |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| alternate_contact | 0 | PRIMARY | 1 | Child_ID | A | 15 | NULL | NULL | BTREE | | | YES | NULL | |
| alternate_contact | 1 | Relationship_ind | 1 | Relationship | A | 5 | NULL | NULL | YES | BTREE | | | YES | NULL |
| alternate_contact | 1 | Apartment_no_ind | 1 | Apartment_No | A | 10 | NULL | NULL | YES | BTREE | | | YES | NULL |
| alternate_contact | 1 | Apartment_ind | 1 | Apartment_No | A | 10 | NULL | NULL | YES | BTREE | | | YES | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)

mysql> explain(Select * from UVe7 AS Uview7
-> left outer join UVe8 AS Uview8
-> on Uview7.City = Uview8.City
-> where Uview8.Apartm...
-> union all
-> SELECT *
-> FROM UVe7 AS Uview7
-> RIGHT OUTER JOIN UVe8 AS Uview8
-> ON Uview7.City = Uview8.City
-> WHERE Uview8.Apartm...
-> >400);
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| id | select_type | table | partitions | type | possible_keys | key | key_len | ref | rows | filtered | Extra |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | PRIMARY | alternate_contact | NULL | range | Apartment_no_ind,Apartment_ind | Apartment_no_ind | 5 | NULL | 6 | 100.00 | Using index condition |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+

```

```

MySQL 8.0 Command Line Client
--> WHERE Uview8.Apartment_No >400;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| id | select_type | table      | partitions | type   | possible_keys | key          | key_len | ref    | rows   | filtered | Extra
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | PRIMARY     | alternate_contact | NULL      | range   | Apartment_no_ind,Apartment_ind | Apartment_no_ind | 5       | NULL    | 6      | 100.00  | Using index condition
| 1 | PRIMARY     | gardian        | NULL      | ALL     | NULL           | NULL          | NULL    | NULL    | 13     | 10.00   | Using where; Using join buffer (hash join)
| 2 | UNION        | alternate_contact | NULL      | range   | Apartment_no_ind,Apartment_ind | Apartment_no_ind | 5       | NULL    | 6      | 100.00  | Using index condition
| 2 | UNION        | gardian        | NULL      | ALL     | NULL           | NULL          | NULL    | NULL    | 13     | 100.00  | Using where; Using join buffer (hash join)
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
4 rows in set, 1 warning (0.00 sec)

mysql> create index Apartment1_ind on alternate_contact(Apartment_No);
Query OK, 0 rows affected, 1 warning (0.28 sec)
Records: 0  Duplicates: 0  Warnings: 1

mysql> show index from alternate_contact;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table      | Non_unique | Key_name      | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Express
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| alternate_contact | 0 | PRIMARY | 1 | Child_ID | A | 15 | NULL | NULL | BTREE | | | YES | NULL
| alternate_contact | 1 | Relationship_ind | 1 | Relationship | A | 5 | NULL | NULL | YES | BTREE | | | YES | NULL
| alternate_contact | 1 | Apartment_no_ind | 1 | Apartment_No | A | 10 | NULL | NULL | YES | BTREE | | | YES | NULL
| alternate_contact | 1 | Apartment_ind | 1 | Apartment_No | A | 10 | NULL | NULL | YES | BTREE | | | YES | NULL
| alternate_contact | 1 | Apartmentnet1_ind | 1 | Apartment_No | A | 10 | NULL | NULL | YES | BTREE | | | YES | NULL
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)

mysql> explain(Select * from UVe7 AS Uview7
--> left outer join UVe8 AS Uview8
--> on Uview7.City = Uview8.City

```

```

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Select MySQL 8.0 Command Line Client
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)

mysql> explain(Select * from UVe7 AS Uview7
--> left outer join UVe8 AS Uview8
--> on Uview7.City = Uview8.City
--> where Uview8.Apartment_No > 400
--> union all
--> SELECT *
--> FROM UVe7 AS Uview7
--> RIGHT OUTER JOIN Uve8 AS Uview8
--> ON Uview7.City = Uview8.City
--> WHERE Uview8.Apartment_No >400);
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| id | select_type | table      | partitions | type   | possible_keys | key          | key_len | ref    | rows   | filtered | Extra
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | PRIMARY     | alternate_contact | NULL      | range   | Apartment_no_ind,Apartment_ind,Apartmnet1_ind | Apartment_no_ind | 5       | NULL    | 6      | 100.00  | Using index condition
| 1 | PRIMARY     | gardian        | NULL      | ALL     | NULL           | NULL          | NULL    | NULL    | 13     | 10.00   | Using where; Using join buffer (hash join)
| 2 | UNION        | alternate_contact | NULL      | range   | Apartment_no_ind,Apartment_ind,Apartmnet1_ind | Apartment_no_ind | 5       | NULL    | 6      | 100.00  | Using index condition
| 2 | UNION        | gardian        | NULL      | ALL     | NULL           | NULL          | NULL    | NULL    | 13     | 100.00  | Using where; Using join buffer (hash join)
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
4 rows in set, 1 warning (0.00 sec)

mysql>
```

- Tuning nested query 2

```
MySQL 8.0 Command Line Client

mysql> -- 8) Tuning of nested query 2
mysql> show index from child;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null |
| child |          0 | PRIMARY |            1 | Child_ID | A           |        14 |       NULL |    BTREE | YES   |
| child |          1 | Food_prefer_ind |        1 | Food_prefer | A           |        11 |       NULL |    BTREE | YES   |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.01 sec)

mysql> show index from gardian;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null |
| gardian |          0 | PRIMARY |            1 | Child_ID | A           |        13 |       NULL |    BTREE | YES   |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql> explain(SELECT C.First_name AS Child_FirstName, C.Last_name AS Child_LastName, G.First_name AS Guardian_FirstName, G.Last_name AS Guardian_LastName
  -> FROM child AS C
  -> INNER JOIN (
  ->   -> SELECT child_ID, First_name, Last_name
  ->   -> FROM gardian
  ->   -> WHERE Relation_to_the_child = 'Father'
  -> ) AS G
  -> ON C.child_ID = G.child_ID);
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Id | select_type | table | partitions | type | possible_keys | key | key_len | ref |
| 1  | SIMPLE     | gardian |          1 | NULL  | PRIMARY      | NULL |    102  | day_care_center.gardian.Child_ID |
| 1  | SIMPLE     | C       |          1 | NULL  | eq_ref       | PRIMARY |    102  | day_care_center.gardian.Child_ID |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set, 1 warning (0.00 sec)

mysql> create index Realation_ind on gardian(Relation_to_the_child);
Query OK, 0 rows affected (0.19 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> show index from gardian;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| gardian |          0 | PRIMARY |            1 | Child_ID | A           |        13 |       NULL |    BTREE | YES   |
| gardian |          1 | Realation_ind |        1 | Relation_to_the_child | A           |        2 |       NULL |    BTREE | YES   |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)

Windows Taskbar: Type here to search, File..., Dell, My..., WhatsApp, Wo..., My..., My..., My..., My..., No..., 15°C, 12:32 AM, 9/11/2023
```

```
MySQL 8.0 Command Line Client

mysql> show index from gardian;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| gardian |          0 | PRIMARY |            1 | Child_ID | A           |        13 |       NULL |    BTREE | YES   |
| gardian |          1 | Realation_ind |        1 | Relation_to_the_child | A           |        2 |       NULL |    BTREE | YES   |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql> explain(SELECT C.First_name AS Child_FirstName, C.Last_name AS Child_LastName, G.First_name AS Guardian_FirstName, G.Last_name AS Guardian_LastName
  -> FROM child AS C
  -> INNER JOIN (
  ->   -> SELECT child_ID, First_name, Last_name
  ->   -> FROM gardian
  ->   -> WHERE Relation_to_the_child = 'Father'
  -> ) AS G
  -> ON C.child_ID = G.child_ID);
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Id | select_type | table | partitions | type | possible_keys | key | key_len | ref |
| 1  | SIMPLE     | gardian |          1 | NULL  | PRIMARY,Realation_ind | Realation_ind |    103  | const  |
| 1  | SIMPLE     | C       |          1 | NULL  | eq_ref       | PRIMARY   |    102  | day_care_center.gardian.Child_ID |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set, 1 warning (0.00 sec)

mysql>
```

Windows Taskbar: Type here to search, File..., Dell, My..., WhatsApp, Wo..., My..., My..., My..., My..., No..., 15°C, 12:33 AM, 9/11/2023

- Tuning nested query 3

```
MySQL 8.0 Command Line Client

mysql> -- 9) Tuning of nested query 3
mysql>
mysql> show index from child;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| child | 0 | PRIMARY | 1 | Child_ID | A | 14 | NULL | NULL | BTREE | | YES | NULL |
| child | 1 | Food_prefer_ind | 1 | Food_prefer | A | 11 | NULL | NULL | YES | BTREE | | YES | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.01 sec)

mysql> explain(SELECT Child_ID, Napping_hours
    -> FROM child
    -> WHERE EXISTS (
    ->     SELECT *
    ->     FROM child AS C
    ->     WHERE C.Child_ID = child.Child_ID
    ->     AND (C.Napping_hours like'_2:3:_'or C.Napping_hours like'_1:3:_')
    -> ));
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| id | select_type | table | partitions | type | possible_keys | key | key_len | ref | rows | filtered | Extra |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | SIMPLE | C | NULL | ALL | PRIMARY | NULL | NULL | NULL | 14 | 20.99 | Using where |
| 1 | SIMPLE | child | NULL | eq_ref | PRIMARY | PRIMARY | 102 | day_care_center.C.Child_ID | 1 | 100.00 | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set, 2 warnings (0.00 sec)

mysql> create index Napping_ho_Ind on child(Napping_hours);
Query OK, 0 rows affected (0.28 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> show index from child;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| child | 0 | PRIMARY | 1 | Child_ID | A | 14 | NULL | NULL | BTREE | | YES | NULL | |
| child | 1 | Food_prefer_ind | 1 | Food_prefer | A | 11 | NULL | NULL | YES | BTREE | | YES | NULL |
| child | 1 | Napping_ho_Ind | 1 | Napping_hours | A | 4 | NULL | NULL | YES | BTREE | | YES | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> explain(SELECT Child_ID, Napping_hours
    -> FROM child
    -> WHERE EXISTS (
    ->     SELECT *
    ->     FROM child AS C
    ->     WHERE C.Child_ID = child.Child_ID
    ->     AND (C.Napping_hours like'_2:3:_'or C.Napping_hours like'_1:3:_')
    -> ));
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| id | select_type | table | partitions | type | possible_keys | key | key_len | ref | rows | filtered | Extra |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | SIMPLE | C | NULL | index | PRIMARY | Napping_ho_Ind | 4 | NULL | 14 | 20.99 | Using where; Using index |
| 1 | SIMPLE | child | NULL | eq_ref | PRIMARY | PRIMARY | 102 | day_care_center.C.Child_ID | 1 | 100.00 | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set, 2 warnings (0.00 sec)
```

```
MySQL 8.0 Command Line Client

mysql> explain(SELECT Child_ID, Napping_hours
    -> FROM child
    -> WHERE EXISTS (
    ->     SELECT *
    ->     FROM child AS C
    ->     WHERE C.Child_ID = child.Child_ID
    ->     AND (C.Napping_hours like'_2:3:_'or C.Napping_hours like'_1:3:_')
    -> ));
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| id | select_type | table | partitions | type | possible_keys | key | key_len | ref | rows | filtered | Extra |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | SIMPLE | C | NULL | index | PRIMARY | Napping_ho_Ind | 4 | NULL | 14 | 20.99 | Using where; Using index |
| 1 | SIMPLE | child | NULL | eq_ref | PRIMARY | PRIMARY | 102 | day_care_center.C.Child_ID | 1 | 100.00 | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set, 2 warnings (0.00 sec)

mysql>
```

- Tuning inner join

```
MySQL 8.0 Command Line Client
mysql> -- 10) Tuning of Inner join operation
mysql>
mysql> show index from child;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| child | 0 | PRIMARY | 1 | Child_ID | A | 14 | NULL | NULL | BTREE | YES | NULL | |
| child | 1 | Food_prefer_ind | 1 | Food_prefer | A | 11 | NULL | NULL | YES | BTREE | YES | NULL |
| child | 1 | Napping_ho_Ind | 1 | Napping_hours | A | 4 | NULL | NULL | YES | BTREE | YES | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
3 rows in set (0.01 sec)

mysql> show index from gardian;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| gardian | 0 | PRIMARY | 1 | Child_ID | A | 13 | NULL | NULL | BTREE | YES | NULL |
| gardian | 1 | Realation_ind | 1 | Relation_to_the_child | A | 2 | NULL | NULL | YES | BTREE | YES | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql> explain(select *from Uvew1 AS Uview1 Inner join Uvew2 As Uview2 on Uview1.child_ID=Uview2.child_ID where Relation_to_the_child ='Mother');
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| id | select_type | table | partitions | type | possible_keys | key | key_len | ref | rows | filtered | Extra |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | SIMPLE | gardian | NULL | ref | PRIMARY,Realation_ind | Realation_ind | 103 | const | 100.00 | NULL |
| 1 | SIMPLE | child | NULL | eq_ref | PRIMARY | PRIMARY | 102 | day_care_center.gardian.Child_ID | 1 | 100.00 | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set, 1 warning (0.03 sec)

mysql> show index from gardian;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| gardian | 0 | PRIMARY | 1 | Child_ID | A | 13 | NULL | NULL | BTREE | YES | NULL |
| gardian | 1 | Realation_ind | 1 | Relation_to_the_child | A | 2 | NULL | NULL | YES | BTREE | YES | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set, 1 warning (0.00 sec)

Windows PowerShell
Type here to search 12 15°C 12:43 AM 9/11/2023
```

```
MySQL 8.0 Command Line Client
mysql> show index from gardian;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Table | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality | Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| gardian | 0 | PRIMARY | 1 | Child_ID | A | 13 | NULL | NULL | BTREE | YES | NULL |
| gardian | 1 | Realation_ind | 1 | Relation_to_the_child | A | 2 | NULL | NULL | YES | BTREE | YES | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql> explain(select *from Uvew1 AS Uview1 Inner join Uvew2 As Uview2 on Uview1.child_ID=Uview2.child_ID where Relation_to_the_child ='Mother');
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| id | select_type | table | partitions | type | possible_keys | key | key_len | ref | rows | filtered | Extra |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | SIMPLE | gardian | NULL | ref | PRIMARY,Realation_ind | Realation_ind | 103 | const | 100.00 | NULL |
| 1 | SIMPLE | child | NULL | eq_ref | PRIMARY | PRIMARY | 102 | day_care_center.gardian.Child_ID | 1 | 100.00 | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set, 1 warning (0.00 sec)

mysql> ^C
mysql>
```