

MANAJEMEN BASIS DATA
STRUCTURED QUERY LANGUAGE

Dibuat untuk memenuhi tagihan tugas untuk mata kuliah Manajemen Basis Data

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1. Create Database:

```
MariaDB [(none)]> CREATE DATABASE SI_2115091030;
Query OK, 1 row affected (0.006 sec)

MariaDB [(none)]> USE SI_2115091030;
Database changed
MariaDB [SI_2115091030]>
```

2. Create Table

a. Tabel Employee

```
MariaDB [SI_2115091030]> CREATE TABLE `employee` (
->   `Fname` varchar(15) NOT NULL,
->   `Minit` char(1) DEFAULT NULL,
->   `Lname` varchar(15) NOT NULL,
->   `Ssn` char(9) NOT NULL,
->   `Bdate` date DEFAULT NULL,
->   `Address` varchar(30) DEFAULT NULL,
->   `Sex` char(1) DEFAULT NULL,
->   `Salary` int(11) DEFAULT NULL,
->   `Super_ssn` char(9) DEFAULT NULL,
->   `Dno` int(11) NOT NULL
-> ) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
Query OK, 0 rows affected (0.098 sec)
```

```
MariaDB [SI_2115091030]> ALTER TABLE `employee`
->   ADD PRIMARY KEY (`Ssn`);
Query OK, 0 rows affected (0.155 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
MariaDB [SI_2115091030]> desc employee;
```

Field	Type	Null	Key	Default	Extra
Fname	varchar(15)	NO		NULL	
Minit	char(1)	YES		NULL	
Lname	varchar(15)	NO		NULL	
Ssn	char(9)	NO	PRI	NULL	
Bdate	date	YES		NULL	
Address	varchar(30)	YES		NULL	
Sex	char(1)	YES		NULL	
Salary	int(11)	YES		NULL	
Super_ssn	char(9)	YES		NULL	
Dno	int(11)	NO		NULL	

10 rows in set (0.042 sec)

b. Tabel Department

```
MariaDB [SI_2115091030]> CREATE TABLE `department` (
->   `Dname` varchar(15) NOT NULL,
->   `Dnumber` int(11) NOT NULL,
->   `Mgr_ssn` char(9) NOT NULL,
->   `Mgr_star_date` date DEFAULT NULL
-> ) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
Query OK, 0 rows affected (0.097 sec)

MariaDB [SI_2115091030]>

MariaDB [SI_2115091030]> ALTER TABLE `department`
->   ADD PRIMARY KEY (`Dnumber`),
->   ADD UNIQUE KEY `Dname` (`Dname`),
->   ADD KEY `Mgr_ssn` (`Mgr_ssn`);
Query OK, 0 rows affected (0.119 sec)
Records: 0 Duplicates: 0 Warnings: 0

MariaDB [SI_2115091030]> ALTER TABLE `department`
->   ADD CONSTRAINT `department_fk_1` FOREIGN KEY (`Mgr_ssn`) REFERENCES `employee` (`Ssn`) ON DELETE CASCADE ON UPDATE CASCADE;
Query OK, 0 rows affected (0.166 sec)
Records: 0 Duplicates: 0 Warnings: 0

MariaDB [SI_2115091030]> desc department;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Dname | varchar(15) | NO | UNI | NULL | |
| Dnumber | int(11) | NO | PRI | NULL | |
| Mgr_ssn | char(9) | NO | MUL | NULL | |
| Mgr_star_date | date | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.057 sec)

MariaDB [SI_2115091030]>
```

c. Tabel Dept_location

```
MariaDB [SI_2115091030]> CREATE TABLE `dept_location` (
->   `Dnumber` int(11) NOT NULL,
->   `Dlocation` varchar(15) NOT NULL,
->   PRIMARY KEY (`Dnumber`,`Dlocation`)
-> );
Query OK, 0 rows affected (0.096 sec)

MariaDB [SI_2115091030]> desc dept_location;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Dnumber | int(11) | NO | PRI | NULL | |
| Dlocation | varchar(15) | NO | PRI | NULL | |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.043 sec)

MariaDB [SI_2115091030]> ALTER TABLE `dept_location`
->   ADD CONSTRAINT `dept_location_fk` FOREIGN KEY (`Dnumber`) REFERENCES `department` (`Dnumber`);
Query OK, 0 rows affected (0.189 sec)
Records: 0 Duplicates: 0 Warnings: 0

MariaDB [SI_2115091030]> desc dept_location;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Dnumber | int(11) | NO | PRI | NULL | |
| Dlocation | varchar(15) | NO | PRI | NULL | |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.048 sec)

MariaDB [SI_2115091030]>
```

d. Tabel Project

```

MariaDB [SI_2115091030]> CREATE TABLE `project` (
  -> `Pname` varchar(15) NOT NULL,
  -> `Pnumber` int(11) NOT NULL PRIMARY KEY,
  -> `Plocation` varchar(15) DEFAULT NULL,
  -> `Dnum` int(11) NOT NULL);
Query OK, 0 rows affected (0.097 sec)

MariaDB [SI_2115091030]> ALTER TABLE `project`
  -> ADD UNIQUE KEY `Pname` (`Pname`),
  -> ADD KEY `Dnum` (`Dnum`);
Query OK, 0 rows affected (0.073 sec)
Records: 0 Duplicates: 0 Warnings: 0

MariaDB [SI_2115091030]> ALTER TABLE `project`
  -> ADD CONSTRAINT `project_ibfk_1` FOREIGN KEY (`Dnum`) REFERENCES `departmen
t` (`Dnumber`);
Query OK, 0 rows affected (0.281 sec)
Records: 0 Duplicates: 0 Warnings: 0

MariaDB [SI_2115091030]> desc project;
+-----+-----+-----+-----+-----+-----+
| Field | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Pname | varchar(15)   | NO   | UNI | NULL    |       |
| Pnumber | int(11)       | NO   | PRI | NULL    |       |
| Plocation | varchar(15) | YES  |     | NULL    |       |
| Dnum  | int(11)       | NO   | MUL | NULL    |       |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.044 sec)

```

e. Tabel Works_on

```

MariaDB [SI_2115091030]> CREATE TABLE `works_on` (
  -> `Essn` char(9) NOT NULL,
  -> `Pno` int(11) NOT NULL,
  -> `Hours` decimal(3,1) NOT NULL
  -> ) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
Query OK, 0 rows affected (0.168 sec)

MariaDB [SI_2115091030]> ALTER TABLE `works_on`
  -> ADD PRIMARY KEY (`Essn`,`Pno`);
Query OK, 0 rows affected (0.122 sec)
Records: 0 Duplicates: 0 Warnings: 0

MariaDB [SI_2115091030]> ALTER TABLE `works_on`
  -> ADD CONSTRAINT `works_on_fk_1` FOREIGN KEY (`Essn`) REFERENCES `employee`
(`Ssn`);
  -> ;
Query OK, 0 rows affected (0.173 sec)
Records: 0 Duplicates: 0 Warnings: 0

MariaDB [SI_2115091030]> ALTER TABLE works_on ADD CONSTRAINT `works_on_fk_2` FOREI
GN KEY (`Pno`) REFERENCES `project` (`Pnumber`);
Query OK, 0 rows affected (0.191 sec)
Records: 0 Duplicates: 0 Warnings: 0

MariaDB [SI_2115091030]> desc works_on;
+-----+-----+-----+-----+-----+-----+
| Field | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Essn  | char(9)       | NO   | PRI | NULL    |       |
| Pno   | int(11)       | NO   | PRI | NULL    |       |
| Hours | decimal(3,1)  | NO   |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.040 sec)

```

f. Tabel Dependent

```
MariaDB [SI_2115091030]> CREATE TABLE `dependent` (
  -> `Essn` char(9) NOT NULL,
  -> `Dependent_name` varchar(15) NOT NULL,
  -> `Sex` char(1) DEFAULT NULL,
  -> `Bdate` date DEFAULT NULL,
  -> `Relationship` varchar(8) DEFAULT NULL
  -> ) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
Query OK, 0 rows affected (0.072 sec)

MariaDB [SI_2115091030]> ALTER TABLE `dependent`
  -> ADD CONSTRAINT `dependent_ibfk_1` FOREIGN KEY (`Essn`) REFERENCES `employee` (`Ssn`);
Query OK, 0 rows affected (0.204 sec)
Records: 0 Duplicates: 0 Warnings: 0

MariaDB [SI_2115091030]> ALTER TABLE `dependent`
  -> ADD PRIMARY KEY (`Essn`,`Dependent_name`);
Query OK, 0 rows affected (0.141 sec)
Records: 0 Duplicates: 0 Warnings: 0

MariaDB [SI_2115091030]> desc dependent;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Essn | char(9) | NO | PRI | NULL | |
| Dependent_name | varchar(15) | NO | PRI | NULL | |
| Sex | char(1) | YES | | NULL | |
| Bdate | date | YES | | NULL | |
| Relationship | varchar(8) | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.036 sec)

MariaDB [SI_2115091030]>
```

- Jadikan field “Super_ssn” dan “Dno” foreign key pada tabel “employee”. Referensi kedua foreign key tersebut berdasarkan gambar Relasi Antar Tabel yang telah diberikan sebelumnya.

```
MariaDB [SI_2115091030]> ALTER TABLE employee ADD CONSTRAINT `fk_super_ssn` FOREIGN KEY(super_ssn) REFERENCES employee(SSN);
Query OK, 0 rows affected (0.137 sec)
Records: 0 Duplicates: 0 Warnings: 0

MariaDB [SI_2115091030]> ALTER TABLE employee ADD CONSTRAINT `fk_super_dno` FOREIGN KEY(Dno) REFERENCES department(Dnumber);
Query OK, 0 rows affected (0.141 sec)
Records: 0 Duplicates: 0 Warnings: 0

MariaDB [SI_2115091030]> desc employee;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Fname | varchar(15) | NO | | NULL | |
| Minit | char(1) | YES | | NULL | |
| Lname | varchar(15) | NO | | NULL | |
| Ssn | char(9) | NO | PRI | NULL | |
| Bdate | date | YES | | NULL | |
| Address | varchar(30) | YES | | NULL | |
| Sex | char(1) | YES | | NULL | |
| Salary | int(11) | YES | | NULL | |
| Super_ssn | char(9) | YES | MUL | NULL | |
| Dno | int(11) | NO | MUL | NULL | |
+-----+-----+-----+-----+-----+-----+
10 rows in set (0.038 sec)

MariaDB [SI_2115091030]>
```

4. Cantumkan Relasi Antar Tabel yang dihasilkan dari PHPMYADMIN

