**Higher Diploma in Information Technology**

**Database Management Systems**

**Year 1 Semester 2 – 2021**

**Worksheet 07**

**Section A:**

Consider the following relational schemas.

Manager (MgrID: Integer, MgrName: varchar (20), Experience: integer)

Project (ProjNo: varchar (5), MgrID: integer Budget: float, StartDate: date, Country: varchar (20))

1. Create the above two relations Manager and Project using suitable data types with the following constraints.
   * Primary key constraints
   * Foreign key constraint
   * Project relation MgrID default value must be 1.
2. Insert following data into tables.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ProjNo** | **MgrID** | **Budget** | **StartDate** | **Country** |
| P9 | 3 | 420 000.40 | 12-Jul-2019 | USA |
| P6 | 4 | 650 000.50 | 2-Jan-2018 | USA |
| P4 | 1 | 230 000.20 | 6-Aug-2017 | UK |
| P5 | 3 | 790 000.50 | 6-Sep-2019 | Australia |
| P2 | 6 | 520 000.40 | 23-Jan-2017 | Australia |
| P1 | 1 | 420 000.40 | 23-Feb-2017 | UK |
| P3 | 4 | 820 000.40 | 21-Mar-2018 | USA |

**Manager Projects**

|  |  |  |
| --- | --- | --- |
| **MgrID** | **MgrName** | **Experience** |
| 3 | Sapumal | 8 |
| 4 | Ravi | 4 |
| 1 | Nethmi | 4 |
| 6 | Sarah | 6 |
| 8 | Janith | 5 |

1. Delete the manager with ID 8. Observe and explain the result.
2. Delete the manager with ID 3. Observe and explain the result.

**Section B: Working with Options: ON DELETE CASCADE**

**Step 01:** Alter the table and drop the foreign key constraint on Project table.

ALTER TABLE Project

drop constraint manager\_fk

**Step 02:** Now try to Delete the manager with ID 3. *Observe and explain the result.*

**Step 03:** Delete all the records from Project table.

**Step 04:** Add the foreign key with ON DELETE CASCADE option.

ALTER TABLE Project

ADD CONSTRAINT manager\_fk FOREIGN KEY (MgrID) REFERENCES Manager (MgrID) ON DELETE CASCADE

**Step 05:** Insert data into Manager table **(The manager record with ID =3 and ID=8)** and Project Table.

**Step 06:** Now delete the Manager with ID 3. Then select all data from both tables. *Observe and explain the result.*

**Step 07:** Inset the Manager record with ID is 3.

**Section C: Working with Options: ON DELETE SET NULL**

**Step 01:** Alter the table and drop the foreign key constraint on Project table.

ALTER TABLE Project

drop constraint manager\_fk

**Step 02:** Now try to Delete the manager with ID 3. *Observe and explain the result.*

**Step 03:** Delete all the records from Project table.

**Step 04:** Add the foreign key with ON DELETE SET NULL option.

ALTER TABLE Project

ADD CONSTRAINT manager\_fk FOREIGN KEY (MgrID) REFERENCES Manager (MgrID) ON DELETE SET NULL

**Step 05:** Insert data into Manager table **(The manager record with ID =3)** and Project Table.

**Step 06:** Now delete the Manager with ID 3. Then select all data from both tables. *Observe and explain the result.*

**Step 07:** Inset the Manager record with ID is 3.

**Section D: Working with Options: ON DELETE SET DEFAULT**

**Step 01:** Alter the table and drop the foreign key constraint on Project table.

ALTER TABLE Project

drop constraint manager\_fk

**Step 02:** Now try to Delete the manager with ID 3. *Observe and explain the result.*

**Step 03:** Delete all the records from Project table.

**Step 04:** Add the foreign key with ON DELETE SET DEFAULT option.

ALTER TABLE Project

ADD CONSTRAINT manager\_fk FOREIGN KEY (MgrID) REFERENCES Manager (MgrID) ON DELETE SET DEFAULT

**Step 05:** Insert data into Manager table **(The manager record with ID =3)** and Project Table.

**Step 06:** Now delete the Manager with ID 3. Then select all data from both tables. *Observe and explain the result.*

**Step 07:** Inset the Manager record with ID is 3.

**Section E: Working with Options: ON UPDATE CASCADE**

**Step 01:** Alter the table and drop the foreign key constraint on Project table.

ALTER TABLE Project

drop constraint manager\_fk

**Step 02:** Delete all the records from Project table.

**Step 03:** Add the foreign key with ON UPDATE CASCADE option.

ALTER TABLE Project

ADD CONSTRAINT manager\_fk FOREIGN KEY (MgrID) REFERENCES Manager (MgrID) ON UPDATE CASCADE

**Step 04:** Insert data into Project Table.

**Step 05:** Now update the Manager with ID 3 with 10. Then select all data from both tables. *Observe and explain the result.*

**Section F: Working with Options: ON UPDATE SET NULL**

**Step 01:** Alter the table and drop the foreign key constraint on Project table.

ALTER TABLE Project

drop constraint manager\_fk

**Step 02:** Delete all the records from Project table.

**Step 03:** Update the Manager with ID 10 with 3.

**Step 04:** Add the foreign key with ON UPDATE SET NULL option.

ALTER TABLE Project

ADD CONSTRAINT manager\_fk FOREIGN KEY (MgrID) REFERENCES Manager (MgrID) ON UPDATE SET NULL

**Step 05:** Insert data into Project Table.

**Step 06:** Now update the Manager with ID 3 with 10. Then select all data from both tables. *Observe and explain the result.*

**Section G: Working with Options: ON UPDATE SET DEFAULT**

**Step 01:** Alter the table and drop the foreign key constraint on Project table.

ALTER TABLE Project

drop constraint manager\_fk

**Step 02:** Delete all the records from Project table.

**Step 03:** Update the Manager with ID 10 with 3.

**Step 04:** Add the foreign key with ON UPDATE SET DEFAULT option.

ALTER TABLE Project

ADD CONSTRAINT manager\_fk FOREIGN KEY (MgrID) REFERENCES Manager (MgrID) ON UPDATE SET DEFAULT

**Step 05:** Insert data into Project Table.

**Step 06:** Now update the Manager with ID 3 with 10. Then select all data from both tables. *Observe and explain the result.*