



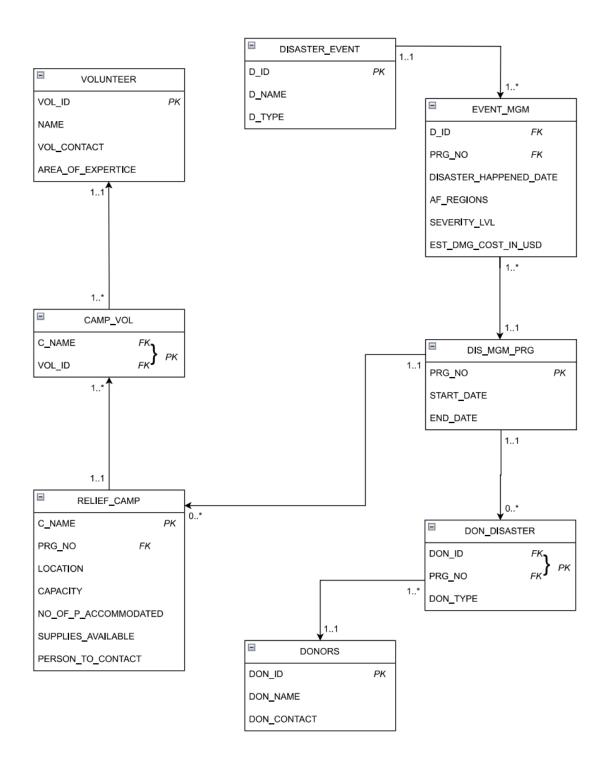
4BUIS015C.1 Database Design and Implementation COURSEWORK

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ER Diagram:



ASSUMPTIONS

- Only 'NATURAL' or 'MAN MADE' value can be added to 'D_TYPE' column in 'DISASTER_EVENT' table.
- Only 'CASH' or 'GOODS' value can be added to 'DON_TYPE' column in 'DON_DISASTER' Stable.
- Only 'MINOR DISASTER' or 'MODERATE DISASTER' or 'MAJOR DISASTER' value can be added to 'SEVERITY_LVL' column in 'EVENT_MGM' table.
- Here 'MINOR DISASTER' means disasters with minor damage to society.
 Here 'MODERATE DISASTER' means disasters with moderate impact to society.
 Here 'MAJOR DISASTER' means disasters with extensive damage to society.
- Here 'EST_DMG_COST_IN_USD' will not have any decimal points.

Entity	Primary Key (PK)	Foreign Key (FK)	Rationale for PK
DISASTER_EVENT	D_ID	N/A	D_ID is unique to each disaster event.
EVENT_MGM	D_ID, PRG_NO	D_ID, PRG_NO	EVENT_MGM is a linking entity of DISASTER_EVENT and DIS_MGM_PRG.
DIS_MGM_PRG	PRG_NO	N/A	PRG_NO is unique to each disaster management program.
DON_DISASTER	DON_ID, PRG_NO	DON_ID, PRG_NO	
DONORS	DON_ID	N/A	DON_ID is unique to each donor.
RELIEF_CAMP	C_NAME	N/A	C_NAME is unique to each relief camp.
CAMP_VOL	C_NAME, VOL_ID	C_NAME, VOL_ID	CAMP_VOL is a linking entity of RELIEF_CAMP and VOLUNTEER.
VOLUNTEER	VOL_ID	N/A	VOL_ID is unique to each volunteer.

Sample SQL script file:

```
DROP TABLE IF EXISTS EVENT MGM;
DROP TABLE IF EXISTS DON_DISASTER;
DROP TABLE IF EXISTS CAMP VOL;
DROP TABLE IF EXISTS DONORS;
DROP TABLE IF EXISTS RELIEF CAMP;
DROP TABLE IF EXISTS DISASTER EVENT;
DROP TABLE IF EXISTS DIS MGM PRG;
DROP TABLE IF EXISTS VOLUNTEER;
CREATE TABLE DISASTER EVENT (D ID INT(3), D NAME CHAR(25), D TYPE CHAR(10));
CREATE TABLE EVENT MGM (D ID INT(3), PRG NO INT(8), DISASTER HAPPENED DATE DATE,
                         AF_REGIONS CHAR(25), SEVERITY_LVL CHAR(20),
                         EST DMG COST IN USD INT);
CREATE TABLE DIS MGM PRG (PRG NO INT(8), START DATE DATE, END DATE DATE);
CREATE TABLE DON DISASTER (DON ID INT(5), PRG NO INT(8), DON TYPE CHAR(5));
CREATE TABLE DONORS (DON ID INT(5), DON NAME CHAR(25), DON CONTACT CHAR(11));
CREATE TABLE RELIEF CAMP (C NAME CHAR(25), PRG NO INT(8), LOCATION CHAR(25),
                         CAPACITY INT, NO_OF_P_ACCOMMODATED INT,
                   SUPPLIES_AVAILABLE CHAR(25), PERSON_TO_CONTACT CHAR(25));
CREATE TABLE CAMP VOL (C NAME CHAR(25), VOL ID INT(8));
```

```
CREATE TABLE VOLUNTEER (VOL_ID INT(8), NAME CHAR(25), VOL_CONTACT CHAR(11),

AREA OF EXPERTICE CHAR(25));
```

/* Set primary keys for all tables */ ALTER TABLE DISASTER EVENT ADD CONSTRAINT pk D ID PRIMARY KEY (D ID); ALTER TABLE EVENT MGM ADD CONSTRAINT pk D ID PRG NO PRIMARY KEY (D ID, PRG NO); ALTER TABLE DIS MGM PRG ADD CONSTRAINT pk PRG NO PRIMARY KEY (PRG NO); ALTER TABLE DON DISASTER ADD CONSTRAINT pk DON ID PRG NO PRIMARY KEY (DON ID, PRG NO); ALTER TABLE DONORS ADD CONSTRAINT pk DON ID PRIMARY KEY (DON ID); ALTER TABLE RELIEF CAMP ADD CONSTRAINT pk C NAME PRIMARY KEY (C NAME); ALTER TABLE CAMP VOL ADD CONSTRAINT pk C NAME VOL ID PRIMARY KEY (C NAME, VOL ID); ALTER TABLE VOLUNTEER ADD CONSTRAINT pk VOL ID PRIMARY KEY (VOL ID); /* Set foreign keys for ALL LINK tables */ ALTER TABLE EVENT MGM ADD CONSTRAINT fk EVENT MGM D ID FOREIGN KEY (D ID) REFERENCES DISASTER EVENT(D ID); ALTER TABLE EVENT MGM ADD CONSTRAINT fk EVENT MGM PRG NO FOREIGN KEY (PRG NO) REFERENCES DIS MGM PRG(PRG NO); ALTER TABLE DON DISASTER ADD CONSTRAINT fk DON DISASTER DON ID FOREIGN KEY (DON ID) REFERENCES DONORS(DON ID);

ALTER TABLE DON DISASTER ADD CONSTRAINT fk DON DISASTER PRG NO FOREIGN KEY

(PRG NO) REFERENCES DIS MGM PRG(PRG NO);

```
(PRG NO) REFERENCES DIS MGM PRG(PRG NO);
ALTER TABLE CAMP_VOL ADD CONSTRAINT fk_CAMP_VOL_C_NAME FOREIGN KEY (C_NAME)
REFERENCES RELIEF_CAMP(C_NAME);
ALTER TABLE CAMP VOL ADD CONSTRAINT fk CAMP VOL VOL ID FOREIGN KEY (VOL ID)
REFERENCES VOLUNTEER(VOL_ID);
/*
Inserting Data
*/
/*
DISASTER EVENT:
*/
insert into DISASTER EVENT (D ID, D NAME, D TYPE) values ('001', 'FLOOD', 'NATURAL');
insert into DISASTER_EVENT (D_ID, D_NAME, D_TYPE) values ('002', 'LANDSLIDE', 'NATURAL');
insert into DISASTER EVENT (D ID, D NAME, D TYPE) values ('003', 'CYCLONE', 'NATURAL');
insert into DISASTER EVENT (D ID, D NAME, D TYPE) values ('004', 'DROUGHT', 'NATURAL');
insert into DISASTER EVENT (D ID, D NAME, D TYPE) values ('005', 'WILD FIRE', 'MAN MADE');
insert into DISASTER EVENT (D ID, D NAME, D TYPE) values ('006', 'COVID VIRUS', 'MAN
MADE');
/*
DIS MGM PRG:
*/
insert into DIS_MGM_PRG (PRG_NO, START_DATE, END_DATE)
values ('20230101', STR TO DATE("05/01/2023", '%d/%m/%Y'),
STR TO DATE("06/01/2023", '%d/%m/%Y'));
insert into DIS MGM PRG (PRG NO, START DATE, END DATE)
```

ALTER TABLE RELIEF CAMP ADD CONSTRAINT fk RELIEF CAMP PRG NO FOREIGN KEY

```
values ('20230102', STR TO DATE("08/01/2023", '%d/%m/%Y'),
STR TO DATE("31/01/2023", '%d/%m/%Y'));
insert into DIS_MGM_PRG (PRG_NO, START_DATE, END_DATE)
values ('20230201', STR TO DATE("10/02/2023", '%d/%m/%Y'),
STR TO DATE("03/03/2023", '%d/%m/%Y'));
insert into DIS_MGM_PRG (PRG_NO, START_DATE, END_DATE)
values ('20230301', STR TO DATE("15/03/2023", '%d/%m/%Y'),
STR TO DATE("25/03/2023", '%d/%m/%Y'));
insert into DIS_MGM_PRG (PRG_NO, START_DATE, END_DATE)
values ('20230302', STR TO DATE("20/03/2023", '%d/%m/%Y'),
STR_TO_DATE("28/10/2023",'%d/%m/%Y'));
insert into DIS_MGM_PRG (PRG_NO, START_DATE, END_DATE)
values ('20230501', STR TO DATE("11/05/2023", '%d/%m/%Y'),
STR TO_DATE("30/06/2023",'%d/%m/%Y'));
/*
EVENT MGM:
*/
/*
EVENT MGM1:
*/
insert into EVENT_MGM (D_ID, PRG_NO, DISASTER_HAPPENED_DATE, AF_REGIONS,
SEVERITY_LVL, EST_DMG_COST_IN_USD)
values ('001', '20230101', STR TO DATE("05/01/2023", '%d/%m/%Y'), 'CENTRAL PROVINCE',
'MINOR DISASTER', '100');
```

```
/*
EVENT MGM2:
*/
insert into EVENT_MGM (D_ID, PRG_NO, DISASTER_HAPPENED_DATE, AF_REGIONS,
SEVERITY LVL, EST DMG COST IN USD)
values ('001', '20230102', STR TO DATE("08/01/2023", '%d/%m/%Y'), 'EAST PROVINCE',
'MODERATE DISASTER', '1500');
insert into EVENT MGM (D ID, PRG NO, DISASTER HAPPENED DATE, AF REGIONS,
SEVERITY LVL, EST DMG COST IN USD)
values ('002', '20230102', STR_TO_DATE("08/01/2023", '%d/%m/%Y'), 'EAST PROVINCE',
'MODERATE DISASTER', '1000');
/*
EVENT_MGM3:
*/
insert into EVENT MGM (D ID, PRG NO, DISASTER HAPPENED DATE, AF REGIONS,
SEVERITY LVL, EST DMG COST IN USD)
values ('003', '20230201', STR TO DATE("10/02/2023", '%d/%m/%Y'), 'SOUTH PROVINCE',
'MODERATE DISASTER', '1000');
/*
EVENT MGM4:
*/
insert into EVENT MGM (D ID, PRG NO, DISASTER HAPPENED DATE, AF REGIONS,
SEVERITY LVL, EST DMG COST IN USD)
values ('005', '20230301', STR TO DATE("15/03/2023", '%d/%m/%Y'), 'WEST PROVINCE',
'MODERATE DISASTER', '800');
```

```
/*
EVENT MGM5:
*/
insert into EVENT_MGM (D_ID, PRG_NO, DISASTER_HAPPENED_DATE, AF_REGIONS,
SEVERITY LVL, EST DMG COST IN USD)
values ('006', '20230302', STR TO DATE("20/03/2023", '%d/%m/%Y'), 'ALL PROVINCES', 'MAJOR
DISASTER', '5000');
/*
EVENT MGM6:
*/
insert into EVENT MGM (D ID, PRG NO, DISASTER HAPPENED DATE, AF REGIONS,
SEVERITY LVL, EST DMG COST IN USD)
values ('004', '20230501', STR TO DATE("11/05/2023", '%d/%m/%Y'), 'CENTRAL PROVINCE',
'MODERATE DISASTER', '1300');
/*
DONORS:
*/
insert into DONORS (DON ID, DON NAME, DON CONTACT) values ('00100', 'RON', '071-
2673456');
insert into DONORS (DON ID, DON NAME, DON CONTACT) values ('00101', 'MARK', '073-
1176554');
insert into DONORS (DON ID, DON NAME, DON CONTACT) values ('00102', 'ROSE', '074-
1622334');
insert into DONORS (DON ID, DON NAME, DON CONTACT) values ('00103', 'JACK', '070-
9876543');
insert into DONORS (DON ID, DON NAME, DON CONTACT) values ('00104', 'BOLE', '077-
5454542');
```

```
insert into DONORS (DON ID, DON NAME, DON CONTACT) values ('00105', 'LISA', '076-
2345678');
insert into DONORS (DON ID, DON NAME, DON CONTACT) values ('00106', 'JANE', '078-
4455667');
insert into DONORS (DON ID, DON NAME, DON CONTACT) values ('00107', 'SIRA', '071-
4224189');
insert into DONORS (DON ID, DON NAME, DON CONTACT) values ('00108', 'FRED', '076-
7644529');
insert into DONORS (DON ID, DON NAME, DON CONTACT) values ('00109', 'DREK', '070-
5473905');
/*
DON DISASTER:
*/
/*
DON DISASTER2:
*/
insert into DON DISASTER (DON ID, PRG NO, DON TYPE) values ('00100', '20230102',
'GOODS');
insert into DON DISASTER (DON ID, PRG NO, DON TYPE) values ('00101', '20230102', 'CASH');
insert into DON DISASTER (DON ID, PRG NO, DON TYPE) values ('00102', '20230102',
'GOODS');
/*
DON DISASTER3:
*/
insert into DON DISASTER (DON ID, PRG NO, DON TYPE) values ('00103', '20230201',
'GOODS');
insert into DON DISASTER (DON ID, PRG NO, DON TYPE) values ('00101', '20230201', 'CASH');
insert into DON DISASTER (DON ID, PRG NO, DON TYPE) values ('00102', '20230201', 'CASH');
```

```
/*
DON DISASTER4:
*/
insert into DON DISASTER (DON ID, PRG NO, DON TYPE) values ('00101', '20230301', 'CASH');
insert into DON DISASTER (DON ID, PRG NO, DON TYPE) values ('00103', '20230301',
'GOODS');
/*
DON DISASTER5:
*/
insert into DON DISASTER (DON ID, PRG NO, DON TYPE) values ('00102', '20230302', 'CASH');
insert into DON DISASTER (DON ID, PRG NO, DON TYPE) values ('00104', '20230302', 'CASH');
insert into DON DISASTER (DON ID, PRG NO, DON TYPE) values ('00105', '20230302', 'CASH');
insert into DON DISASTER (DON ID, PRG NO, DON TYPE) values ('00106', '20230302',
'GOODS');
insert into DON DISASTER (DON ID, PRG NO, DON TYPE) values ('00107', '20230302',
'GOODS');
insert into DON DISASTER (DON ID, PRG NO, DON TYPE) values ('00108', '20230302', 'CASH');
/*
DON DISASTER6:
*/
insert into DON DISASTER (DON ID, PRG NO, DON TYPE) values ('00100', '20230501',
'GOODS');
insert into DON DISASTER (DON ID, PRG NO, DON TYPE) values ('00109', '20230501',
'GOODS');
insert into DON DISASTER (DON ID, PRG NO, DON TYPE) values ('00105', '20230501',
'GOODS');
```

```
/*
RELIEF CAMP:
*/
insert into RELIEF CAMP (C NAME, PRG NO, LOCATION, CAPACITY,
NO OF P ACCOMMODATED, SUPPLIES AVAILABLE, PERSON TO CONTACT)
values ('UNITY SHELTER', '20230102', 'DOLAHENA JUNCTON', '10000', '8745', '2 DAYS', 'DR.
EMMA');
insert into RELIEF CAMP (C NAME, PRG NO, LOCATION, CAPACITY,
NO OF P ACCOMMODATED, SUPPLIES AVAILABLE, PERSON TO CONTACT)
values ('AID OASIS', '20230201', 'DOLAHENA JUNCTON', '1000', '885', 'NONE', 'DR. MAHI');
insert into RELIEF CAMP (C NAME, PRG NO, LOCATION, CAPACITY,
NO OF P ACCOMMODATED, SUPPLIES AVAILABLE, PERSON TO CONTACT)
values ('SAFE HEAVEN', '20230301', 'NANU KALE', '3000', '1500', '3 DAYS', 'DR. KONG');
insert into RELIEF CAMP (C NAME, PRG NO, LOCATION, CAPACITY,
NO OF P ACCOMMODATED, SUPPLIES AVAILABLE, PERSON TO CONTACT)
values ('COVID SHELTER', '20230302', 'CENTRAL HOSPITAL', '10000', '8500', '22 DAYS', 'DR.
EMMA');
insert into RELIEF CAMP (C NAME, PRG NO, LOCATION, CAPACITY,
NO OF P ACCOMMODATED, SUPPLIES AVAILABLE, PERSON TO CONTACT)
values ('DROUGHT RESPONSE HUB', '20230501', 'CENTRAL STREET', '3000', '1500', 'NONE', 'MR.
JOHN');
/*
VOLUNTEER:
*/
```

insert into VOLUNTEER (VOL_ID, NAME, VOL_CONTACT, AREA_OF_EXPERTICE) values ('20000434', 'KIRA', '071-4274555', 'LOGISTIC');

insert into VOLUNTEER (VOL_ID, NAME, VOL_CONTACT, AREA_OF_EXPERTICE) values ('20000435', 'SIRA', '071-4224189', 'LOGISTIC');

insert into VOLUNTEER (VOL_ID, NAME, VOL_CONTACT, AREA_OF_EXPERTICE) values ('20000436', 'SARA', '071-4535455', 'HEALTH');

insert into VOLUNTEER (VOL_ID, NAME, VOL_CONTACT, AREA_OF_EXPERTICE) values ('20000437', 'MIKE', '075-1122334', 'HEALTH');

insert into VOLUNTEER (VOL_ID, NAME, VOL_CONTACT, AREA_OF_EXPERTICE) values ('20000438', 'JANE', '078-4455667', 'FOOD DISTRIBUTION');

insert into VOLUNTEER (VOL_ID, NAME, VOL_CONTACT, AREA_OF_EXPERTICE) values ('20000439', 'ROSE', '074-1622334', 'HEALTH');

insert into VOLUNTEER (VOL_ID, NAME, VOL_CONTACT, AREA_OF_EXPERTICE) values ('20000440', 'NICK', '072-2175464', 'LOGISTIC');

insert into VOLUNTEER (VOL_ID, NAME, VOL_CONTACT, AREA_OF_EXPERTICE) values ('20000441', 'MARK', '073-1176554', 'HEALTH');

insert into VOLUNTEER (VOL_ID, NAME, VOL_CONTACT, AREA_OF_EXPERTICE) values ('20000442', 'SACK', '074-1426534', 'HEALTH');

insert into VOLUNTEER (VOL_ID, NAME, VOL_CONTACT, AREA_OF_EXPERTICE) values ('20000443', 'FRED', '076-7644529', 'HEALTH');

```
/*
CAMP_VOL:

*/
/*

CAMP_VOL2:

*/
insert into CAMP_VOL (C_NAME, VOL_ID) values ('UNITY SHELTER', '20000434');
insert into CAMP_VOL (C_NAME, VOL_ID) values ('UNITY SHELTER', '20000435');
insert into CAMP_VOL (C_NAME, VOL_ID) values ('UNITY SHELTER', '20000436');
```

```
/*
CAMP_VOL3:
*/
insert into CAMP_VOL (C_NAME, VOL_ID) values ('AID OASIS', '20000437');
insert into CAMP_VOL (C_NAME, VOL_ID) values ('AID OASIS', '20000434');
insert into CAMP VOL (C NAME, VOL ID) values ('AID OASIS', '20000438');
/*
CAMP VOL4:
*/
insert into CAMP VOL (C NAME, VOL ID) values ('SAFE HEAVEN', '20000437');
insert into CAMP VOL (C NAME, VOL ID) values ('SAFE HEAVEN', '20000438');
insert into CAMP VOL (C NAME, VOL ID) values ('SAFE HEAVEN', '20000434');
insert into CAMP_VOL (C_NAME, VOL_ID) values ('SAFE HEAVEN', '20000439');
/*
CAMP_VOL5:
*/
insert into CAMP VOL (C NAME, VOL ID) values ('COVID SHELTER', '20000441');
insert into CAMP VOL (C NAME, VOL ID) values ('COVID SHELTER', '20000442');
insert into CAMP VOL (C NAME, VOL ID) values ('COVID SHELTER', '20000443');
insert into CAMP_VOL (C_NAME, VOL_ID) values ('COVID SHELTER', '20000437');
insert into CAMP VOL (C NAME, VOL ID) values ('COVID SHELTER', '20000439');
```

```
/*
CAMP_VOL6:

*/
insert into CAMP_VOL (C_NAME, VOL_ID) values ('DROUGHT RESPONSE HUB', '20000435');
insert into CAMP_VOL (C_NAME, VOL_ID) values ('DROUGHT RESPONSE HUB', '20000440');
insert into CAMP_VOL (C_NAME, VOL_ID) values ('DROUGHT RESPONSE HUB', '20000443');
```

Ten SQL query scripts:

Quer y No	Purpose	Tables involved	SQL	Correct Execution					
1	To find the disaster with highest estimated damage cost.	EVENT_MGM	SELECT D_NAME, MAX(EST_DMG_COST_IN_USD) AS Max_Damage_Cost FROM EVENT_MGM JOIN DISASTER_EVENT ON EVENT_MGM.D_ID = DISASTER_EVENT.D_ID;	Yes					
	SELECT D_NAME, MAX(EST_DMG_COST_IN_USD) AS Max_Damage_Cost FROM EVENT_MGM JOIN DISASTER_EVENT ON EVENT_MGM.D_ID = DISASTER_EVENT.D_ID; Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]								
	☐ Show all Number of rows: 25 ∨ Filter rows: Search this table								
	D_NAME Max_Damage_Cost FLOODS 5000								
	Show all Number of rows: 25 v Filter rows: Search this table								
2			SELECT DON_NAME, DON_TYPE						
	To find all the donations made by 'ROSE'.	DONORS DON_DISASTER	FROM DONORS JOIN DON_DISASTER ON DONORS.DON_ID = DON_DISASTER.DON_ID WHERE DON_NAME = 'ROSE';	Yes					

