

```
1 USE master;
2 GO
3
4
5 -- create the database
6 DROP DATABASE IF EXISTS SpeedingTickets;
7 CREATE DATABASE SpeedingTickets;
8 GO
9
10
11 USE SpeedingTickets;
12 GO
13
14
15 -- create the tables
16 DROP TABLE IF EXISTS "User";
17 CREATE TABLE "User"
18 (
19     UserID      INT IDENTITY NOT NULL,
20     FirstName   NVARCHAR(32) NOT NULL,
21     LastName    NVARCHAR(32) NOT NULL,
22     Photo       IMAGE        NULL,
23     PhoneNumber NCHAR(11)   NOT NULL,
24     EmailAddress NVARCHAR(32) NOT NULL,
25     BirthDate   DATE        NOT NULL,
26     Username    NVARCHAR(32) NOT NULL,
27     Password    NVARCHAR(32) NOT NULL,
28     PRIMARY KEY (UserID)
29 );
30
31 DROP TABLE IF EXISTS Staff;
32 CREATE TABLE Staff
33 (
34     StaffID     INT IDENTITY NOT NULL,
35     FirstName   NVARCHAR(32) NOT NULL,
36     LastName    NVARCHAR(32) NOT NULL,
37     Photo       IMAGE        NULL,
38     PhoneNumber NCHAR(11)   NOT NULL,
39     EmailAddress NVARCHAR(32) NOT NULL,
40     BirthDate   DATE        NOT NULL,
41     Username    NVARCHAR(32) NOT NULL,
42     Password    NVARCHAR(32) NOT NULL,
43     PRIMARY KEY (StaffID)
44 );
45
46 DROP TABLE IF EXISTS Hardware;
```

```
47 CREATE TABLE Hardware
48 (
49     HardwareID      INT IDENTITY NOT NULL,
50     Description     NVARCHAR(80) NOT NULL,
51     Category        NVARCHAR(32) NOT NULL,
52     Brand           NVARCHAR(32) NOT NULL,
53     AcquisitionDate DATE          NOT NULL,
54     WarrantyDate    DATE          NOT NULL,
55     SerialCode      NVARCHAR(32) NOT NULL,
56     PRIMARY KEY (HardwareID)
57 );
58
59 DROP TABLE IF EXISTS Category;
60 CREATE TABLE Category
61 (
62     CategoryID     INT IDENTITY NOT NULL,
63     Description     NVARCHAR(32) NOT NULL,
64     SLA             NVARCHAR(32) NOT NULL,
65     PRIMARY KEY (CategoryID)
66 );
67
68 DROP TABLE IF EXISTS Ticket;
69 CREATE TABLE Ticket
70 (
71     TicketID       INT IDENTITY NOT NULL,
72     Title           NVARCHAR(80) NOT NULL,
73     Description     NVARCHAR(255) NOT NULL,
74     StartDate       DATETIME2    NOT NULL,
75     SLA             DATETIME2    NOT NULL,
76     Status          NVARCHAR(32) NOT NULL,
77     EndDate         DATETIME2    NULL,
78     UserID          INT          NULL,
79     CategoryID     INT          NOT NULL,
80     HardwareID     INT          NULL,
81     PRIMARY KEY (TicketID)
82 );
83
84 DROP TABLE IF EXISTS Comment;
85 CREATE TABLE Comment
86 (
87     CommentID      INT IDENTITY NOT NULL,
88     Description     NVARCHAR(255) NOT NULL,
89     Date            DATETIME2    NOT NULL,
90     TicketID       INT          NOT NULL,
91     UserID          INT          NULL,
92     StaffID        INT          NULL,
```

```

93      PRIMARY KEY (CommentID)
94  );
95
96  DROP TABLE IF EXISTS Task;
97  CREATE TABLE Task
98  (
99      TaskID      INT IDENTITY NOT NULL,
100     Description NVARCHAR(255) NOT NULL,
101     TicketID    INT          NOT NULL,
102     StaffID     INT          NULL,
103     PRIMARY KEY (TaskID)
104  );
105
106  DROP TABLE IF EXISTS TicketStaff;
107  CREATE TABLE TicketStaff
108  (
109      StaffID     INT          NOT NULL,
110      TicketID   INT          NOT NULL,
111      AssignedDate DATETIME2  NOT NULL
112  );
113
114
115  -- create relationships
116  ALTER TABLE Ticket
117      DROP CONSTRAINT IF EXISTS FK__User__UserID_T;
118  ALTER TABLE Ticket
119      ADD CONSTRAINT FK__User__UserID_T
120          FOREIGN KEY (UserID) REFERENCES "User" (UserID)
121          ON DELETE SET NULL ON UPDATE CASCADE;
122
123  ALTER TABLE Ticket
124      DROP CONSTRAINT IF EXISTS FK__Category__CategoryID_T;
125  ALTER TABLE Ticket
126      ADD CONSTRAINT FK__Category__CategoryID_T
127          FOREIGN KEY (CategoryID) REFERENCES Category (
128              CategoryID)
129              ON DELETE NO ACTION ON UPDATE CASCADE;
130
131  ALTER TABLE Ticket
132      DROP CONSTRAINT IF EXISTS FK__Hardware__HardwareID_T;
133  ALTER TABLE Ticket
134      ADD CONSTRAINT FK__Hardware__HardwareID_T
135          FOREIGN KEY (HardwareID) REFERENCES Hardware (
136              HardwareID)
137              ON DELETE SET NULL ON UPDATE CASCADE;
138
139

```

```

137
138 ALTER TABLE Comment
139     DROP CONSTRAINT IF EXISTS FK__Ticket__TicketID_C;
140 ALTER TABLE Comment
141     ADD CONSTRAINT FK__Ticket__TicketID_C
142         FOREIGN KEY (TicketID) REFERENCES Ticket (TicketID)
143         ON DELETE CASCADE ON UPDATE CASCADE;
144
145 ALTER TABLE Comment
146     DROP CONSTRAINT IF EXISTS FK__User__UserID_C;
147 ALTER TABLE Comment
148     ADD CONSTRAINT FK__User__UserID_C
149         FOREIGN KEY (UserID) REFERENCES "User" (UserID);
150         --ON DELETE SET NULL ON UPDATE CASCADE; It was  
necessary to comment this line So that the error "multiple  
cascade paths" did not occur but now it is impossible to  
delete a user who has a ticket and comment
151
152 ALTER TABLE Comment
153     DROP CONSTRAINT IF EXISTS FK__Staff__StaffID_C;
154 ALTER TABLE Comment
155     ADD CONSTRAINT FK__Staff__StaffID_C
156         FOREIGN KEY (StaffID) REFERENCES Staff (StaffID)
157         ON DELETE SET NULL ON UPDATE CASCADE;
158
159
160 ALTER TABLE Task
161     DROP CONSTRAINT IF EXISTS FK__Ticket__TicketID_Ta;
162 ALTER TABLE Task
163     ADD CONSTRAINT FK__Ticket__TicketID_Ta
164         FOREIGN KEY (TicketID) REFERENCES Ticket (TicketID)
165         ON DELETE CASCADE ON UPDATE CASCADE;
166
167 ALTER TABLE Task
168     DROP CONSTRAINT IF EXISTS FK__Staff__StaffID_Ta;
169 ALTER TABLE Task
170     ADD CONSTRAINT FK__Staff__StaffID_Ta
171         FOREIGN KEY (StaffID) REFERENCES Staff (StaffID)
172         ON DELETE SET NULL ON UPDATE CASCADE;
173
174
175 -- create composite key in the TicketStaff table
176 ALTER TABLE TicketStaff
177     DROP CONSTRAINT IF EXISTS PK__TicketStaff;
178 ALTER TABLE TicketStaff
179     ADD CONSTRAINT PK__TicketStaff

```

```

180      PRIMARY KEY (StaffID, TicketID);
181
182 ALTER TABLE TicketStaff
183     DROP CONSTRAINT IF EXISTS FK__Staff_StaffID_TS;
184 ALTER TABLE TicketStaff
185     ADD CONSTRAINT FK__Staff_StaffID_TS
186     FOREIGN KEY (StaffID) REFERENCES Staff (StaffID)
187     ON DELETE CASCADE ON UPDATE CASCADE;
188
189 ALTER TABLE TicketStaff
190     DROP CONSTRAINT IF EXISTS FK__Ticket_TicketID_TS;
191 ALTER TABLE TicketStaff
192     ADD CONSTRAINT FK__Ticket_TicketID_TS
193     FOREIGN KEY (TicketID) REFERENCES Ticket (TicketID)
194     ON DELETE CASCADE ON UPDATE CASCADE;
195
196
197 -- create check constraint
198 ALTER TABLE "User"
199     DROP CONSTRAINT IF EXISTS CK__User__EmailAddress;
200 ALTER TABLE "User"
201     ADD CONSTRAINT CK__User__EmailAddress CHECK (
202     EmailAddress LIKE '%@%.%');
203
204 ALTER TABLE "User"
205     DROP CONSTRAINT IF EXISTS CK__User__Password;
206 ALTER TABLE "User"
207     ADD CONSTRAINT CK__User__Password CHECK (Password LIKE
208     '[A-Z][A-Z][A-Z][A-Z][A-Z][A-Z][0-9][0-9]');
209
210 ALTER TABLE Staff
211     DROP CONSTRAINT IF EXISTS CK__Staff__EmailAddress;
212 ALTER TABLE Staff
213     ADD CONSTRAINT CK__Staff__EmailAddress CHECK (
214     EmailAddress LIKE '%@%.%');
215
216 ALTER TABLE Staff
217     DROP CONSTRAINT IF EXISTS CK__Staff__Password;
218 ALTER TABLE Staff
219     ADD CONSTRAINT CK__Staff__Password CHECK (Password
220     LIKE '[A-Z][A-Z][A-Z][A-Z][A-Z][A-Z][0-9][0-9]');
221
222 -- create unique constraint
223 ALTER TABLE "User"

```

```
222      DROP CONSTRAINT IF EXISTS UQ__User__Username;
223  ALTER TABLE "User"
224      ADD CONSTRAINT UQ__User__Username UNIQUE (Username);
225
226  ALTER TABLE Staff
227      DROP CONSTRAINT IF EXISTS UQ__Staff__Username;
228  ALTER TABLE Staff
229      ADD CONSTRAINT UQ__Staff__Username UNIQUE (Username);
230
231
232 -- create default constraint
233  ALTER TABLE "User"
234      DROP CONSTRAINT IF EXISTS DF__User__Password;
235  ALTER TABLE "User"
236      ADD CONSTRAINT DF__User__Password DEFAULT ('ABCDEF12'
237          ) FOR Password;
238
239  ALTER TABLE Staff
240      DROP CONSTRAINT IF EXISTS DF__Staff__Password;
241  ALTER TABLE Staff
242      ADD CONSTRAINT DF__Staff__Password DEFAULT ('ABCDEF12'
243          ) FOR Password;
244
245  ALTER TABLE Hardware
246      DROP CONSTRAINT IF EXISTS
247          DF__Hardware__AcquisitionDate;
248  ALTER TABLE Hardware
249      ADD CONSTRAINT DF__Hardware__AcquisitionDate DEFAULT (
250          GetDate()) FOR AcquisitionDate;
251
252  ALTER TABLE Ticket
253      DROP CONSTRAINT IF EXISTS DF__Ticket__StartDate;
254  ALTER TABLE Ticket
255      ADD CONSTRAINT DF__Ticket__StartDate DEFAULT (GetDate(
256          )) FOR StartDate;
257
258  ALTER TABLE Ticket
259      DROP CONSTRAINT IF EXISTS DF__Ticket__Status;
260  ALTER TABLE Ticket
261      ADD CONSTRAINT DF__Ticket__Status DEFAULT ('New') FOR
Status;
```

```

262 ALTER TABLE Comment
263     DROP CONSTRAINT IF EXISTS DF__Comment__Date;
264 ALTER TABLE Comment
265     ADD CONSTRAINT DF__Comment__Date DEFAULT (GetDate())
266     FOR Date;
267
268 ALTER TABLE TicketStaff
269     DROP CONSTRAINT IF EXISTS
270     DF__TicketStaff__AssignedDate;
271 ALTER TABLE TicketStaff
272     ADD CONSTRAINT DF__TicketStaff__AssignedDate DEFAULT (
273         GetDate()) FOR AssignedDate;
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292 GO
293
294
295
296
297
298
299
300
301

```

-- create indexes to non-key fields used for Searching records

**CREATE INDEX** IX\_\_User\_\_FirstNameLastName  
ON "User" (FirstName, LastName **DESC**);

**CREATE INDEX** IX\_\_User\_\_Username  
ON "User" (Username);

**CREATE INDEX** IX\_\_Staff\_\_FirstNameLastName  
ON Staff (FirstName, LastName **DESC**);

**CREATE INDEX** IX\_\_Staff\_\_Username  
ON Staff (Username);

**CREATE INDEX** IX\_\_Hardware\_\_SerialCode  
ON Hardware (SerialCode);

**SET IDENTITY\_INSERT** "User" **ON**; --allows a record to contain a value in the identity field during an insert

**INSERT INTO** "User"  
(UserID, FirstName, LastName, Photo, PhoneNumber,  
EmailAddress, BirthDate, Username, **Password**)

**VALUES**  
(1 , 'Joao', 'Machado', NULL, '17828821111', '

```

301 joao.machado@speed.com', '1982-12-31', 'joaomachado'
      , 'ABCDEF12'),
302 (2, 'Paulo', 'Oliveira', NULL, '17828512525', '
paulo.oliveira@speed.com', '1988-05-15', '
paulooliveira', 'ABCDEF12'),
303 (3, 'Caio', 'Vieira', NULL, '17826665555', '
caio.vieira@speed.com', '1992-01-11', 'caiovieira'
      , 'ABCDEF12'),
304 (4, 'Pedro', 'Silva', NULL, '17821239876', '
pedro.silva@speed.com', '1995-03-09', 'pedrosilva'
      , 'ABCDEF12'),
305 (5, 'Gustavo', 'Almeida', NULL, '17829875463', '
gustavo.almeida@speed.com', '1979-12-21', '
gustavoalmeida', 'ABCDEF12'),
306 (6, 'Carlos', 'Porto', NULL, '17829996666', '
carlos.porto@speed.com', '1990-11-19', 'carlosporto'
      , 'ABCDEF12'),
307 (7, 'Maria', 'Aparecida', NULL, '17823215656', '
maria.aparecida@speed.com', '1991-10-31', '
mariaaparecida', 'ABCDEF12'),
308 (8, 'Fernanda', 'Goncalves', NULL, '17827771515', '
fernanda.goncalves@speed.com', '1987-07-06', '
fernandagoncalves', 'ABCDEF12'),
309 (9, 'Daniel', 'Dalago', NULL, '17826563232', '
daniel.dalago@speed.com', '1992-10-31', 'danieldalago'
      , 'ABCDEF12'),
310 (10, 'Cristiane', 'Pereira', NULL, '17825552211', '
cristiane.pereira@speed.com', '1996-04-12', '
cristianepereira', 'ABCDEF12');
311 SET IDENTITY_INSERT "User" OFF;
312
313 SET IDENTITY_INSERT Staff ON;
314 INSERT INTO Staff
315   (StaffID, FirstName, LastName, Photo, PhoneNumber,
    EmailAddress, BirthDate, Username, Password)
316 VALUES
317 (1, 'Gabriel', 'Azevedo', NULL, '17828821111', '
gabriel.azevedo@speed.com', '1982-12-31', '
gabrielazevedo', 'ABCDEF12'),
318 (2, 'Juliana', 'Ferreira', NULL, '17828512525', '
juliana.ferreira@speed.com', '1988-05-15', '
julianaferreira', 'ABCDEF12'),
319 (3, 'Alexandre', 'Porto', NULL, '17826665555', '
alexandre.porto@speed.com', '1992-01-11', '
alexandreporto', 'ABCDEF12'),
320 (4, 'Edson', 'Cechet', NULL, '17821239876', '

```

```

320 edson.cechet@speed.com', '1995-03-09', 'edsoncechet'
      , 'ABCDEF12'),
321 (5, 'Vanessa', 'Almeida', NULL, '17829875463',
      vanessa.almeida@speed.com', '1979-12-21',
      vanessaalmeida', 'ABCDEF12'),
322 (6, 'Luciane', 'Ody', NULL, '17829996666',
      luciane.ody@speed.com', '1990-11-19', 'lucianeody'
      , 'ABCDEF12'),
323 (7, 'Bruno', 'Fischer', NULL, '17823215656',
      bruno.fischer@speed.com', '1991-10-31', 'brunofischer'
      , 'ABCDEF12'),
324 (8, 'Patricia', 'Goncalves', NULL, '17827771515',
      patricia.goncalves@speed.com', '1987-07-06',
      patriciagoncalves', 'ABCDEF12'),
325 (9, 'Rodrigo', 'Dalago', NULL, '17826563232',
      rodrigo.dalago@speed.com', '1992-10-31',
      rodrigodalago', 'ABCDEF12'),
326 (10, 'Marcel', 'Pereira', NULL, '17825552211',
      marcel.pereira@speed.com', '1996-04-12',
      marcelpereira', 'ABCDEF12');
327 SET IDENTITY_INSERT Staff OFF;
328
329 SET IDENTITY_INSERT Hardware ON;
330 INSERT INTO Hardware
331     (HardwareID, Description, Category, Brand,
      AcquisitionDate, WarrantyDate, SerialCode)
332 VALUES
333 (1, 'Desktop Dell i5 16GB RAM 1TB', 'Desktop', 'Dell'
      , '2018-12-05', '2020-12-05', 'D016R1HDI500001'),
334 (2, 'Desktop Dell i5 16GB RAM 1TB', 'Desktop', 'Dell'
      , '2018-12-05', '2020-12-05', 'D016R1HDI500002'),
335 (3, 'Desktop Dell i5 16GB RAM 1TB', 'Desktop', 'Dell'
      , '2018-12-05', '2020-12-05', 'D016R1HDI500003'),
336 (4, 'Desktop Dell i5 16GB RAM 1TB', 'Desktop', 'Dell'
      , '2018-12-05', '2020-12-05', 'D016R1HDI500004'),
337 (5, 'Desktop Dell i5 16GB RAM 1TB', 'Desktop', 'Dell'
      , '2018-12-05', '2020-12-05', 'D016R1HDI500005'),
338 (6, 'Desktop Dell i5 16GB RAM 1TB', 'Desktop', 'Dell'
      , '2018-12-05', '2020-12-05', 'D016R1HDI500006'),
339 (7, 'Desktop Dell i5 16GB RAM 1TB', 'Desktop', 'Dell'
      , '2018-12-05', '2020-12-05', 'D016R1HDI500007'),
340 (8, 'Mouse Microsoft 5000bpi', 'Mouse',
      Microsoft', '2017-06-01', '2021-06-01', 'M0U53MS5000B001'
      ),
341 (9, 'Mouse Microsoft 5000bpi', 'Mouse',
      Microsoft', '2017-06-01', '2021-06-01', 'M0U53MS5000B002'
      )

```

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341 ),
342     (10, 'Keyboard Microsoft',           'Keyboard',   '
Microsoft', '2019-05-20', '2022-05-20', 'K3YB0MS0FT00001'
);
343 SET IDENTITY_INSERT Hardware OFF;
344
345 SET IDENTITY_INSERT Category ON;
346 INSERT INTO Category
347     (CategoryID, Description, SLA)
348 VALUES
349     (1, 'Hardware Peripheral',    '7 days'),
350     (2, 'Hardware Desktop',      '2 days'),
351     (3, 'Microsoft Office',     '3 days'),
352     (4, 'SAP',                  '1 day'),
353     (5, 'Oracle Database',       '6 hours'),
354     (6, 'Access Problem',        '6 hours'),
355     (7, 'Internet Problem',      '1 day'),
356     (8, 'Software Installation', '2 days'),
357     (9, 'Hardware Monitor',      '4 days'),
358     (10, 'Other Software',       '3 days');
359 SET IDENTITY_INSERT Category OFF;
360
361 SET IDENTITY_INSERT Ticket ON;
362 INSERT INTO Ticket
363     (TicketID, Title, Description, StartDate, SLA, Status
, EndDate, UserID, CategoryID, HardwareID)
364 VALUES
365     (1, 'Computer does not work', 'Computer does not
Start when the power button is pressed.', '2020-03-08 14:
15:10', '2020-03-10 14:15:10', 'New',    NULL
,          1,      2,  2),
366     (2, 'SAP issue',             'SAP does not work.'
,                           '2020-03-08 14:15
:10', '2020-03-10 14:15:10', 'Open',    NULL
,          4,      4,  NULL),
367     (3, 'MS Word issue',         'Microsoft Word does
not work.',                      '2020-03-02 14:15:
10', '2020-03-10 14:15:10', 'Closed',   '2020-03-09 14:15:10
', 4,      3,  NULL),
368     (4, 'Mouse issue',           'Broken mouse.'
,                           '2020-03-03
14:15:10', '2020-03-10 14:15:10', 'Open',    NULL
,          NULL, 1,  9),
369     (5, 'Oracle DB issue',       'Oracle database is
unavailable.',                      '2020-03-08 14:15
:10', '2020-03-10 14:15:10', 'Open ',   NULL

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369 , NULL, 5, NULL),
370 (6, 'MS Excel issue', 'Microsoft Excel does
not work.', '2020-03-08 14:15:
10', '2020-03-10 14:15:10', 'New', NULL
, 7, 3, NULL),
371 (7, 'Computer does not work', 'Computer does not
Start when the power button is pressed.', '2020-03-08 14:
15:10', '2020-03-10 14:15:10', 'Open', NULL
, 7, 1, 3),
372 (8, 'Internet issue', 'Computer without
internet access.', '2020-03-08 14:
15:10', '2020-03-10 14:15:10', 'Closed', '2020-03-09 14:15
:10', 9, 1, 4),
373 (9, 'Computer does not work', 'Computer does not
Start when the power button is pressed.', '2020-03-08 14:
15:10', '2020-03-10 14:15:10', 'Open', NULL
, 8, 1, 6),
374 (10, 'Computer does not work', 'Computer does not
Start when the power button is pressed.', '2020-03-08 14:
15:10', '2020-03-10 14:15:10', 'New', NULL
, 6, 1, 6);
375 SET IDENTITY_INSERT Ticket OFF;
376
377 SET IDENTITY_INSERT Comment ON;
378 INSERT INTO Comment
379 (CommentID, Description, Date, TicketID, UserID,
StaffID)
380 VALUES
381 (1, 'First attempt to contact by phone but user did
not answer.', '2020-03-08 15:15:10', 1, NULL, 2),
382 (2, 'First attempt to contact by phone but user did
not answer.', '2020-03-08 15:15:10', 2, NULL, 3),
383 (3, 'First attempt to contact by phone but user did
not answer.', '2020-03-08 15:15:10', 3, NULL, 4),
384 (4, 'First attempt to contact by phone but initial
comment.', '2020-03-08 15:15:10', 4, NULL, 1),
385 (5, 'First attempt to contact by phone but user did
not answer.', '2020-03-08 15:15:10', 1, NULL, 2),
386 (6, 'First attempt to contact by phone but user did
not answer.', '2020-03-08 15:15:10', 2, NULL, 3),
387 (7, 'First attempt to contact by phone but user did
not answer.', '2020-03-08 15:15:10', 3, NULL, 4),
388 (8, 'First attempt to contact by phone but user did
not answer.', '2020-03-08 15:15:10', 4, NULL, 1),
389 (9, 'I am Sorry. Could you phone me now? I am at my
desk now.', '2020-03-08 15:15:10', 1, 2, NULL),

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390      (10, 'I am Sorry. Could you phone me now? initial
comment.', '2020-03-08 15:15:10', 2, 4, NULL);
391 SET IDENTITY_INSERT Comment OFF;
392
393 SET IDENTITY_INSERT Task ON;
394 INSERT INTO Task
395     (TaskID, Description, TicketID, StaffID)
396 VALUES
397     (1, 'Install Software', 1, 1 ),
398     (2, 'Install a new power Supply', 2, 2 ),
399     (3, 'Install Software', 3, 3 ),
400     (4, 'Install a new power Supply', 4, 4 ),
401     (5, 'Install Software', 5, 5 ),
402     (6, 'Install a new power Supply', 6, 1 ),
403     (7, 'Install Software', 10, null),
404     (8, 'Install a new power Supply', 8, 1 ),
405     (9, 'Install Software', 10, 1 ),
406     (10, 'Install a new power Supply', 10, null);
407 SET IDENTITY_INSERT Task OFF;
408
409 INSERT INTO TicketStaff
410     (StaffID, TicketID, AssignedDate)
411 VALUES
412     (1, 1, '2020-03-08 15:15:10'),
413     (2, 2, '2020-03-09 15:15:10'),
414     (3, 3, '2020-03-09 16:15:10'),
415     (4, 4, '2020-03-08 19:15:10'),
416     (5, 5, '2020-03-09 10:15:10'),
417     (6, 6, '2020-03-08 12:15:10'),
418     (7, 7, '2020-03-10 15:15:10'),
419     (1, 8, '2020-03-09 09:15:10'),
420     (2, 1, '2020-03-09 18:15:10'),
421     (3, 1, '2020-03-08 11:15:10');
422
423 GO
424
425
426 -- DELETE Statements
427 -- A. Delete an user that has created a ticket
428 DELETE FROM "User"
429 WHERE UserID = 1;
430 GO
431
432 -- B. Delete a Support Staff member that is currently
        assigned to a ticket
433 DELETE FROM Staff

```

```
434 WHERE StaffID = 1;
435 GO
436
437 -- C. Delete a ticket that has a task and a comment
438 DELETE FROM Ticket
439 WHERE TicketID = 1;
440 GO
441
442 -- D. Delete a hardware that has more than one ticket
443 DELETE FROM Hardware
444 WHERE HardwareID = 6;
445 GO
446
447
448 -- UPDATE Statements
449 -- A. Assign a Staff member to a ticket
450 UPDATE TicketStaff
451 SET StaffID = 2
452 WHERE StaffID = 7 AND TicketID = 7;
453 GO
454
455 -- B. Change the Status of a ticket to completed (or the
456 -- like)
456 UPDATE Ticket
457 SET Status = 'Closed', EndDate = GetDate()
458 WHERE TicketID = 9;
459 GO
460
461 -- C. Change the user id (primary key), for a user that
461 -- has created tickets, to a new value
462 ALTER TABLE "User" DROP CONSTRAINT IF EXISTS
462 UQ_User_Username;
463
464 SET IDENTITY_INSERT "User" ON;
465 INSERT INTO "User"
465     (UserID, FirstName, LastName, Photo, PhoneNumber,
465      EmailAddress, BirthDate, Username, Password)
467 SELECT 11, FirstName, LastName, Photo, PhoneNumber,
467 EmailAddress, BirthDate, Username, Password
468 FROM "User"
469 WHERE UserID = 9;
470 SET IDENTITY_INSERT "User" OFF;
471
472 UPDATE Ticket
473 SET UserID = 11
474 WHERE UserID = 9;
```

```
475
476 UPDATE Comment
477 SET UserID = 11
478 WHERE UserID = 9;
479
480 DELETE FROM "User"
481 WHERE UserID = 9;
482
483 ALTER TABLE "User" ADD CONSTRAINT UQ__User__Username
    UNIQUE (Username);
484 GO
485
486
487 -- SELECT Statements
488 -- A. Retrieve a list of all open tickets
489 SELECT * FROM Ticket
490 WHERE EndDate IS NULL -- WHERE Status LIKE 'Open'
491 ORDER BY TicketID;
492 GO
493
494 -- B. Retrieve a list of tickets reported after Mar. 1,
        2020 at 4:30PM and before Mar. 4, 2020 at 8:30AM
495 SELECT * FROM Ticket
496 WHERE StartDate BETWEEN '2020-03-01 16:30:00' AND '2020-
        03-04 08:30:00'
497 ORDER BY StartDate;
498 GO
499
500 -- C. Retrieve a list of all tickets for three Specific
        categories
501 SELECT C.Description, T.*
502 FROM Category C INNER JOIN Ticket T ON C.CategoryID = T.
        CategoryID
503 WHERE C.Description = 'Hardware Peripheral' OR C.
        Description = 'Hardware Desktop' OR C.Description = 'Microsoft Office'
504 ORDER BY C.Description;
505 GO
506
507 -- D. Retrieve a list of tickets assigned to a particular
        Staff member and ordered by assigned date
508 SELECT TS.AssignedDate, T.TicketID
509 FROM TicketStaff TS
510     LEFT OUTER JOIN Staff S
511         ON TS.StaffID = S.StaffID
512     RIGHT OUTER JOIN Ticket T
```

```
513      ON TS.TicketID = T.TicketID
514 WHERE S.FirstName = 'Juliana' AND S.LastName = 'Ferreira'
515 ORDER BY TS.AssignedDate;
516 GO
517
518 -- E. Retrieve a list of users' names and the number of
519 -- tickets created by each user
520 -- Display zero (0) for those users that have not created
521 -- any tickets and order the list by the user's last names
522 .
523
524 SELECT U.FirstName, U.LastName, COUNT(T.TicketID) AS
525     NumberOfTickets
526 FROM "User" U LEFT OUTER JOIN Ticket T ON U.UserID = T.
527     UserID
528 GROUP BY U.FirstName, U.LastName
529 ORDER BY U.LastName;
530 GO
531
532 -- F. Retrieve a list of ticket titles that have comments
533 -- with the phrase "initial comment" somewhere in the text
534
535 SELECT T.Title, C.CommentID, C.Description
536 FROM Ticket T INNER JOIN Comment C ON T.TicketID = C.
537     TicketID
538 WHERE C.Description LIKE '%initial comment%';
539 GO
540
541 -- G. Retrieve a list of the categories for tickets than
542 -- have more than two (2) active tasks that have not been
543 -- assigned to any Staff member
544
545 SELECT CT.Description, T.TicketID
546 FROM Ticket T
547     LEFT JOIN Category CT
548         ON T.CategoryID = CT.CategoryID
549     RIGHT JOIN Task TK
550         ON T.TicketID = TK.TicketID
551 WHERE TK.StaffID IS NULL
552 GROUP BY T.TicketID, CT.Description
553 HAVING COUNT(TK.TicketID) > 2;
554 GO
```