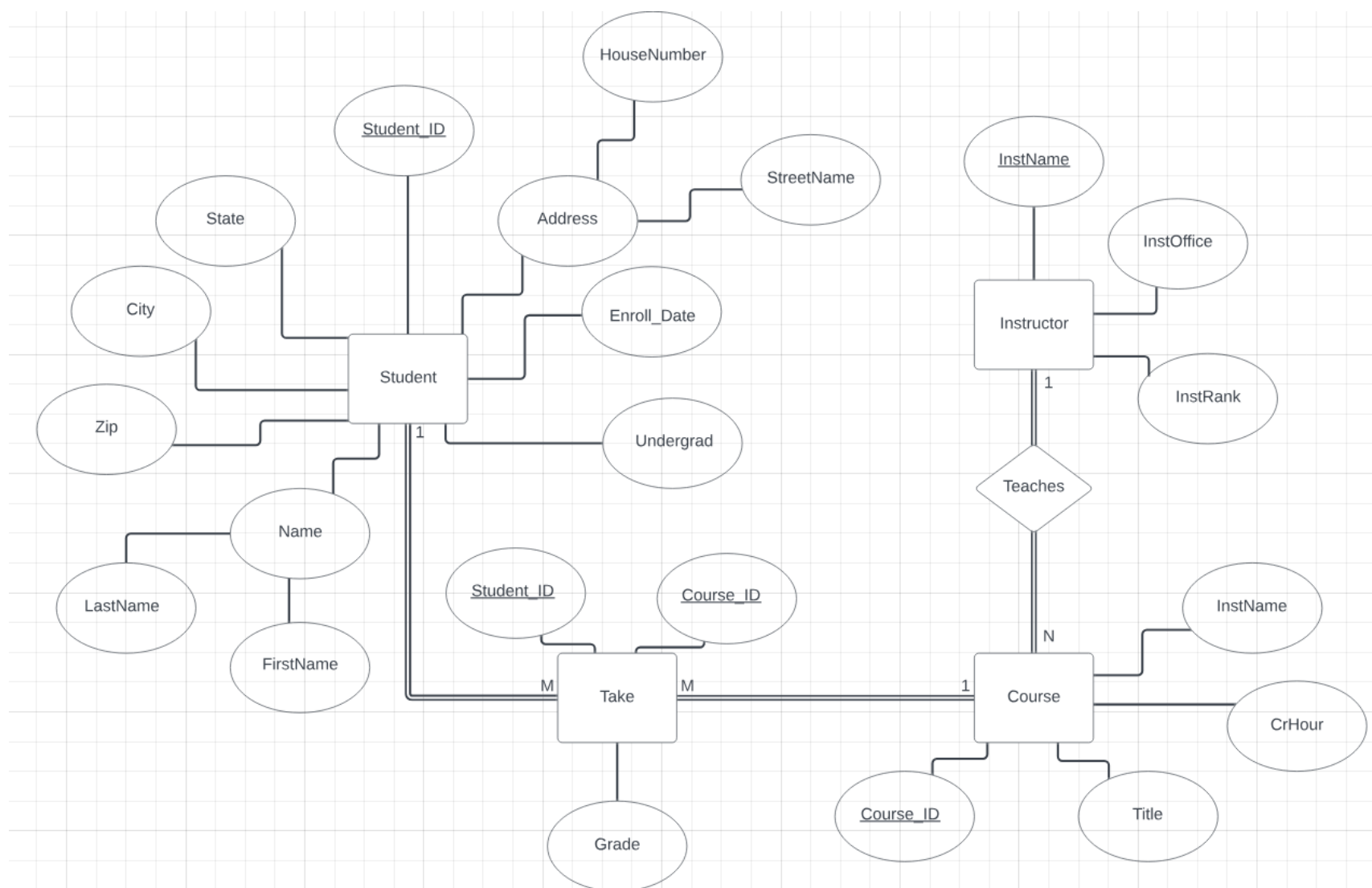Brian Dass

Professor Renu Balyan

CS 4550

10 December 2023

PROJECT

```
1       -- QUESTION_2
2  ● ⊖ CREATE TABLE student (
3          Student_ID CHAR(4) PRIMARY KEY,
4          Lastname VARCHAR(20) NOT NULL,
5          Firstname VARCHAR(20) NOT NULL,
6          Address VARCHAR(100) NOT NULL,
7          City VARCHAR(20) NOT NULL,
8          State CHAR(2) NOT NULL,
9          Zip VARCHAR(20) NOT NULL,
10         Enroll_Date DATE NOT NULL,
11         Undergrad BOOLEAN NOT NULL
12     );
13
14 ● ⊖ CREATE TABLE Instructor (
15         InstName VARCHAR(20) PRIMARY KEY,
16         InstOffice CHAR(5) NOT NULL,
17         InstRank VARCHAR(20) NOT NULL
18     );
19
20 ● ⊖ CREATE TABLE Course (
21         Course_ID CHAR(7) PRIMARY KEY,
22         Title VARCHAR(100) NOT NULL,
23         CrHour INT NOT NULL,
24         InstName VARCHAR(50) NOT NULL,
25         FOREIGN KEY (InstName)
26             REFERENCES Instructor (InstName)
27     );
28
29 ● ⊖ CREATE TABLE Take (
30         Student_ID CHAR(4) NOT NULL,
31         Course_ID CHAR(7) NOT NULL,
32         Grade CHAR(1),
```

```sql
33          PRIMARY KEY (Student_ID , Course_ID),
34          FOREIGN KEY (Student_ID)
35              REFERENCES Student (Student_ID),
36          FOREIGN KEY (Course_ID)
37              REFERENCES Course (Course_ID)
38      );
39
40  •   INSERT INTO Student (Student_ID, LastName, FirstName, Address, City, State, Zip, Enroll_Date, Undergrad) VALUES
41          ("0103", "O'Casey","Harriet",  "4088 Ottumwa Way", "Lexington", "KY", "40515", "1997-08-25", 1),
42          ("0122", "Logan", "Janet",  "860 Charleston St.", "Lexington", "MA", "55500", "1998-01-19", 0),
43          ("0123", "Hagen", "Greg",  "6065 Rainbow Falls Rd.", "Springfield", "MO", "65803", "1997-06-10", 1),
44          ("0139", "Carroll", "Pat", "4018 Landers Lane", "Lafayette", "CO", "84548", "1997-08-25", 1),
45          ("0148", "Wolf", "Bee", "1775 Bear Trail", "Cincinnati", "OH", "45208", "1998-01-19", 1),
46          ("0167", "Krumpie", "Scott", "580 E Main St.", "Lexington", "KY", "40506-0034", "1997-08-25", 0),
47          ("0171", "Harvey", "Eiliot", "34 Kerry Dr", "El Mano", "CO", "80646", "1997-08-25", 1),
48          ("0181", "Zygote","Carrie", "8607 Ferndale St.", "Grenoble", "CA", "91360-4260", "1997-08-25", 1),
49          ("0194", "Loftus","Abner", "8077 Montana Place", "Big Fish Bay", "WI", "53717", "1998-01-19", 1),
50          ("0251", "Grainger", "John", "2256 N Sante Fe Dr.", "Iliase", "CA", "91210", "1998-01-19", 1);
51
52  •   INSERT INTO Instructor (InstName, InstOffice, InstRank) VALUES
53          ("Lujan", "BE109", "Assistant"),
54          ("Morris", "BE110", "Full"),
55          ("Presley", "BE144", "Associate"),
56          ("Wike", "BE220", "Full");
57
58  •   INSERT INTO Course (Course_ID, Title, CrHour, InstName) VALUES
59          ("DIS 110", "Introduction to DOS", 2, "Lujan"),
60          ("DIS 118", "Microcomputer Applications", 3, "Wike"),
61          ("DIS 138", "Introduction to Windows", 2, "Lujan"),
62          ("DIS 140", "Introduction to Database/Access", 3, "Presley"),
63          ("DIS 150", "Introduction to Spreadsheet/Excel", 2, "Morris");
64
```

```sql
65   INSERT INTO Take (Student_ID, Course_ID, Grade) VALUES
66       ("0103", "DIS 110", "A"),
67       ("0103", "DIS 118", "B"),
68       ("0122", "DIS 118", "A"),
69       ("0122", "DIS 138", "C"),
70       ("0122", "DIS 140", "C"),
71       ("0123", "DIS 110", "D"),
72       ("0123", "DIS 140", "E"),
73       ("0148", "DIS 140", "A"),
74       ("0148", "DIS 150", "B"),
75       ("0167", "DIS 138", "C"),
76       ("0167", "DIS 140", "C"),
77       ("0167", "DIS 150", "B"),
78       ("0181", "DIS 118", "A"),
79       ("0181", "DIS 140", "A"),
80       ("0181", "DIS 150", "D");
81   -- QUESTION_3
82   DELIMITER $$
83   CREATE PROCEDURE GetStudentData()
84   BEGIN
85       SELECT Student.FirstName, Student.LastName, Course.Title, Take.Grade
86       FROM Student
87       INNER JOIN Take ON Student.Student_ID = Take.Student_ID
88       INNER JOIN Course ON Take.Course_ID = Course.Course_ID
89       WHERE Course.CrHour >= 3;
90   END $$
91   DELIMITER ;
92   -- QUESTION_4
93   DELIMITER $$
94   CREATE FUNCTION Get_DateSpan(Student_ID CHAR(4))
95   RETURNS INTEGER
96   READS SQL DATA
```

```
97   BEGIN
98       DECLARE Span DECIMAL(9, 2);
99       DECLARE Enroll_Date DATE;
100      SELECT Student.Enroll_Date INTO Enroll_Date FROM Student WHERE Student.Student_ID = Student_ID;
101      SET Span = DATEDIFF(NOW(), Enroll_Date);
102      RETURN Span;
103  END $$
104  DELIMITER ;
105  -- QUESTION_5
106  CREATE TABLE UpdatedGrades (
107      Student_ID CHAR(4),
108      Course_ID CHAR(7),
109      Old_Grade CHAR(1),
110      New_Grade CHAR(1),
111      Date_Updated TIMESTAMP,
112      PRIMARY KEY (Student_ID , Course_ID)
113  );
114
115  DELIMITER $$
116  CREATE TRIGGER Grades_After_Update
117  AFTER UPDATE ON Take
118  FOR EACH ROW
119  BEGIN
120      INSERT INTO UpdatedGrades (Student_ID, Course_ID, Old_Grade, New_Grade, Date_Updated)
121      VALUES (OLD.Student_ID, OLD.Course_ID, OLD.Grade, NEW.Grade, NOW());
122  END $$
123  DELIMITER ;
124
125  SELECT
126      *
127  FROM
128      STUDENT;
```

```
129   SELECT
130       *
131   FROM
132       INSTRUCTOR;
133   SELECT
134       *
135   FROM
136       COURSE;
137   SELECT
138       *
139   FROM
140       TAKE;
141   SELECT
142       *
143   FROM
144       UPDATEDGRADES;
145
146
147
148
```

```
125 •  SELECT
126         *
127    FROM
128        STUDENT;
129 •  SELECT
130         *
131    FROM
132        INSTRUCTOR;
133 •  SELECT
134         *
135    FROM
136        COURSE;
137 •  SELECT
138         *
139    FROM
140        TAKE;
141 •  SELECT
142         *
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

Student_ID	Lastname	Firstname	Address	City	State	Zip	Enroll_Date	Undergrad
0103	O'Casey	Harriet	4088 Ottumwa Way	Lexington	KY	40515	1997-08-25	1
0122	Logan	Janet	860 Charleston St.	Lexington	MA	55500	1998-01-19	0
0123	Hagen	Greg	6065 Rainbow Falls Rd.	Springfield	MO	65803	1997-06-10	1
0139	Carroll	Pat	4018 Landers Lane	Lafayette	CO	84548	1997-08-25	1
0148	Wolf	Bee	1775 Bear Trail	Cincinnati	OH	45208	1998-01-19	1

STUDENT 1 ✕

Output

Action Output

#	Time	Action	Message
✓ 17	02:01:45	SELECT * FROM TAKE LIMIT 0, 1000	15 row(s) returned
✗ 18	02:01:50	SELECT * FROM UPDATED_GRADES LIMIT 0, 1000	Error Code: 1146. Table 'project.updated_grades'
✓ 19	02:02:07	SELECT * FROM UPDATEDGRADES LIMIT 0, 1000	0 row(s) returned
✓ 20	15:39:59	SELECT * FROM STUDENT LIMIT 0, 1000	10 row(s) returned

```
129 ● SELECT
130        *
131   FROM
132        INSTRUCTOR;
133 ● SELECT
134        *
135   FROM
136        COURSE;
137 ● SELECT
138        *
139   FROM
140        TAKE;
141 ● SELECT
142        *
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content: IA

InstName	InstOffice	InstRank
Lujan	BE109	Assistant
Morris	BE110	Full
Presley	BE144	Associate
Wike	BE220	Full
NULL	NULL	NULL

INSTRUCTOR 2 ×

Output

Action Output

#	Time	Action	Message
18	02:01:50	SELECT * FROM UPDATED_GRADES LIMIT 0, 1000	Error Code: 1146. Table 'project.updated_grades' do
19	02:02:07	SELECT * FROM UPDATEDGRADES LIMIT 0, 1000	0 row(s) returned
20	15:39:59	SELECT * FROM STUDENT LIMIT 0, 1000	10 row(s) returned
21	15:40:43	SELECT * FROM INSTRUCTOR LIMIT 0, 1000	4 row(s) returned

```
133 •    SELECT
134          *
135      FROM
136          COURSE;
137 •    SELECT
138          *
139      FROM
140          TAKE;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

Course_ID	Title	CrHour	InstName
DIS 110	Introduction to DOS	2	Lujan
DIS 118	Microcomputer Applications	3	Wike
DIS 138	Introduction to Windows	2	Lujan
DIS 140	Introduction to Database/Access	3	Presley
DIS 150	Introduction to Spreadsheet/Excel	2	Morris
NULL	NULL	NULL	NULL

COURSE 3 ×

Output

Action Output

#	Time	Action	Message
19	02:02:07	SELECT * FROM UPDATEDGRADES LIMIT 0, 1000	0 row(s) returned
20	15:39:59	SELECT * FROM STUDENT LIMIT 0, 1000	10 row(s) returned
21	15:40:43	SELECT * FROM INSTRUCTOR LIMIT 0, 1000	4 row(s) returned
22	15:41:06	SELECT * FROM COURSE LIMIT 0, 1000	5 row(s) returned

```
137   ●   SELECT
138          *
139       FROM
140          TAKE;
141   ●   SELECT
142          *
143       FROM
144          UPDATEDGRADES;
145
146
147
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content: ‎IA

Student_ID	Course_ID	Grade
0103	DIS 110	A
0103	DIS 118	B
0122	DIS 118	A
0122	DIS 138	C
0122	DIS 140	C
0123	DIS 110	D
0123	DIS 140	E
0148	DIS 140	A
0148	DIS 150	B
0167	DIS 138	C
0167	DIS 140	C
0167	DIS 150	B
0181	DIS 118	A
0181	DIS 140	A
0181	DIS 150	D
NULL	NULL	NULL

TAKE 4 ✕

Output

Action Output ▼

#	Time	Action			Message
20	15:39:59	SELECT	* FROM	STUDENT LIMIT 0, 1000	10 row(s) returned
21	15:40:43	SELECT	* FROM	INSTRUCTOR LIMIT 0, 1000	4 row(s) returned
22	15:41:06	SELECT	* FROM	COURSE LIMIT 0, 1000	5 row(s) returned
23	15:41:36	SELECT	* FROM	TAKE LIMIT 0, 1000	15 row(s) returned

```
141 •   SELECT
142        *
143     FROM
144        UPDATEDGRADES;
145
146
147
148
149
```

Result Grid | Filter Rows: [_____] | Edit: | Export/Import: | Wrap Cell Content: TA

Student_ID	Course_ID	Old_Grade	New_Grade	Date_Updated
NULL	NULL	NULL	NULL	NULL

UPDATEDGRADES 5 ✕

Output

Action Output ▾

#	Time	Action		Message
✓	21	15:40:43	SELECT * FROM INSTRUCTOR LIMIT 0, 1000	4 row(s) returned
✓	22	15:41:06	SELECT * FROM COURSE LIMIT 0, 1000	5 row(s) returned
✓	23	15:41:36	SELECT * FROM TAKE LIMIT 0, 1000	15 row(s) returned
✓	24	15:42:12	SELECT * FROM UPDATEDGRADES LIMIT 0, 1000	0 row(s) returned