"Happy Learning" Kindergarten

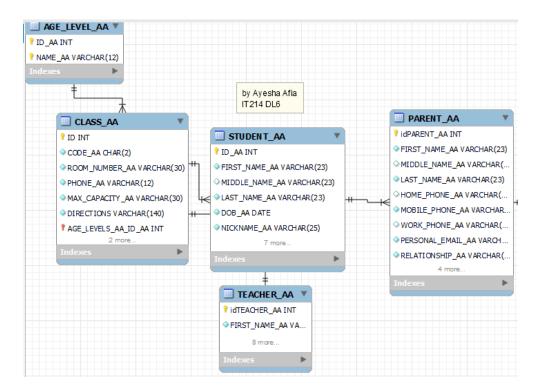
Database Design Report

The database is designed to manage the operations of "Happy Learning" private kindergarten and its classes, age levels, students, and teachers.



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TASK 1 ERD



Conceptual Analysis

The main entities:

AGE LEVEL: All age levels (name)

CLASS: All classes in the kindergarten (name, code, room number, phone number, capacity, directions to location.)

STUDENT: All students in the kindergarten (first name, middle name, last name, nickname, date of birth, address, class)

PARENT: PARENTs of the STUDENTS (first, last, middle name, home phone number, mobile phone number, work phone number, email, relationship to the child.)

TEACHER: Teachers in the kindergarten (first, middle, last name, home phone number, work email,

personal email, the graduated college and their highest degree, area of the degree.)

The main relationships are

AGE LEVEL contains CLASS

• One to many relationship because each age level contains MANY (3) classes but each class

belongs to only one age level.

STUDENT enrolled in CLASS

Many to one relationship because one student can be enrolled in one class but one class can

have many students.

STUDENT is related to PARENT

Many to many relationship because there can be many students or many PARENTs

• BRIDGE:RELATION decides PARENTs relationship to the student

STUDENT has PARENT RELATION

• PARENT has student RELATION .

TEACHER is assigned to CLASS

• One to one relationship because one teacher can only be assigned to one class and each class

has only one teacher.

Entities Analysis

Entity: AGE_LEVEL

Domain: VARCHAR(10)

SIMPLE ATTRIBUTE

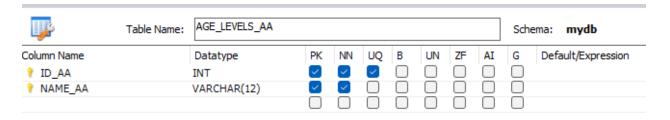
SINGLE VALUE

REQUIRED

UNIQUE

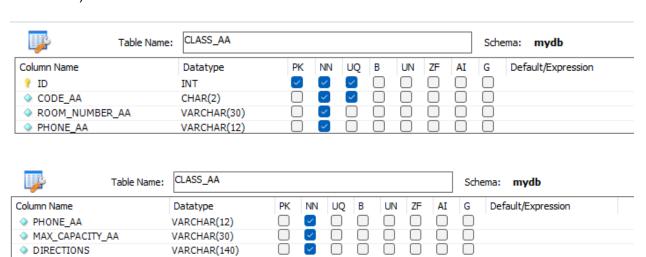
SIMPLE PRIMARY KEY ID

Keeps all age levels (name)



Entity: CLASS

All classes in the kindergarten (name, code, room number, phone number, capacity, directions to location.)



Entity: STUDENT

DIRECTIONS

Domain: VARCHAR(7)

VARCHAR(140)

SIMPLE ATTRIBUTE

SINGLE VALUE

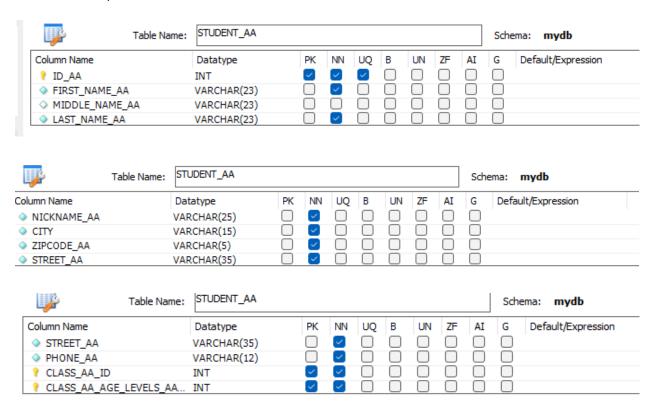
REQUIRED

UNIQUE

SIMPLE PRIMARY KEY ID

FOREIGN KEY RELATION

All students in the kindergarten (first name, middle name, last name, nickname, date of birth, address, class)



Entity: PARENT

Domain: VARCHAR(6)

SIMPLE ATTRIBUTE

SINGLE VALUE

REQUIRED

UNIQUE

SIMPLE PRIMARY KEY ID

FOREIGN KEY RELATION

PARENTs of the STUDENTS (first, last, middle name, home phone number, mobile phone number, work phone number, email, relationship to the child.)

Table N	ame: PARENT_AA	Schema: mydb
Column Name	Datatype	PK NN UQ B UN ZF AI G Default/Expression
idPARENT_AA	INT	
FIRST_NAME_AA	VARCHAR(23)	
→ MIDDLE_NAME_AA	VARCHAR(23)	
	VARCHAR(23)	
Table Name	PARENT_AA	Schema: mydb
Column Name	Datatype	PK NN UQ B UN ZF AI G Default/Expression
♦ HOME_PHONE_AA	VARCHAR(12)	
→ MOBILE_PHONE_AA	VARCHAR(12)	
◇ WORK_PHONE_AA	VARCHAR(12)	
PERSONAL_EMAIL_AA	VARCHAR(30)	
Table Name:	PARENT_AA	Schema: mydb
Column Name	Datatype	PK NN UQ B UN ZF AI G Default/Expression
◇ WORK_PHONE_AA	VARCHAR(12)	
PERSONAL_EMAIL_AA	VARCHAR(30)	
RELATIONSHIP_AA	VARCHAR(45)	
STIIDENT ΔΔ TD ΔΔ	INT	

ENTITY: TEACHER

Domain: VARCHAR(10)

SIMPLE ATTRIBUTE

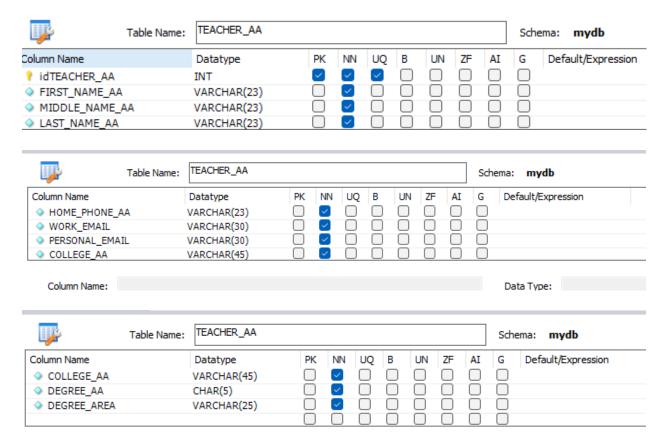
SINGLE VALUE

REQUIRED

UNIQUE

SIMPLE PRIMARY KEY ID

Teachers in the kindergarten (first, middle, last name, home phone number, work email, personal email, the graduated college and their highest degree, area of the degree.)



Relationship Analysis

Relationship name: AGE LEVEL contains CLASS

Degree: Binary because it involves two entities

Type: One to many relationship because each age level contains MANY (3) classes but each class belongs to only one age level.

Strength: The relationship is weak because the entities are independent.

Participation: AGE LEVEL has mandatory participation because the CLASS must belong to an AGE LEVEL.

Participation:CLASS has mandatory participation because each AGE LEVEL must contain at least one CLASS.

Cardinality: CLASS has cardinality because (1,3) because an AGE LEVEL does not have more than 3 classes.

Relationship name: STUDENT enrolled in CLASS

Degree: Binary because it involves two entities

Type: Many to one relationship because one student can be enrolled in one class but one class can have many students.

Strength: The relationship is weak because the entities are independent.

Participation: STUDENT has mandatory participation because the STUDENT must belong to a CLASS.

Participation:CLASS has mandatory participation because each CLASS must contain at least one STUDENT.

Cardinality: STUDENT has cardinality because (1,30) because a CLASS does not have more than 30 students.

Relationship name: STUDENT is related to PARENT

Degree: Binary because it involves two entities

Type: Many to one relationship because one student can be enrolled in one class but one class can have many students.

Strength: The relationship is strong because the entities are dependent.

Participation: STUDENT has mandatory participation because the STUDENT must belong to a PARENT.

Participation:PARENT has mandatory participation because each PARENT must contain at least one STUDENT.

Foreign key: The relationship is represented by the foreign key RELATION

- BRIDGE:RELATION decides PARENTs relationship to the student
- STUDENT has PARENT RELATION
- PARENT has student RELATION.

Relationship name: TEACHER is assigned to CLASS

Degree: Binary because it involves two entities

Type: One to one relationship because one teacher can only be assigned to one class and each class has only one teacher.

Strength: The relationship is weak because the entities are independent.

Participation: TEACHER has mandatory participation because the TEACHERmust belong to a CLASS.

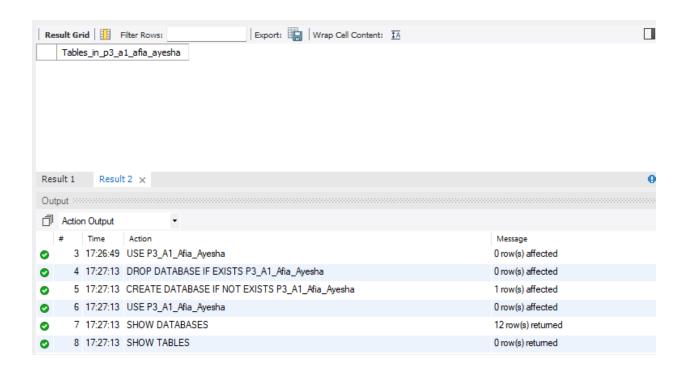
Participation: CLASS has mandatory participation because each CLASS must contain at least one

TEACHER.

Cardinality: CLASS has cardinality because (1) because a CLASS does not have more than 1 TEACHER.

TASK 2 CREATE DATABASE

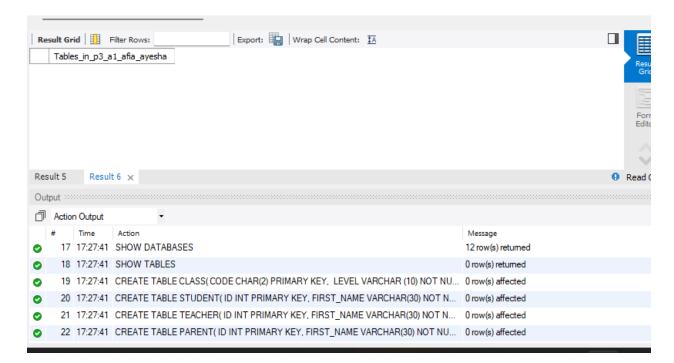
TASK 3 CREATE TABLES



```
12 • ⊝ CREATE TABLE CLASS(
13
      CODE CHAR(2) PRIMARY KEY,
       LEVEL VARCHAR (10) NOT NULL,
4
15
       COLOR VARCHAR(10) NOT NULL,
16
      ROOM INT NOT NULL UNIQUE,
       PHONE CHAR(12) NOT NULL UNIQUE,
.7
18
       CAPACITY INT NOT NULL,
19
        LOCATION VARCHAR(100)
20
       );
11
!2 • ○ CREATE TABLE STUDENT(
23
       ID INT PRIMARY KEY,
14
       FIRST_NAME VARCHAR(30) NOT NULL,
25
       MIDDLE_NAME VARCHAR(30),
       LAST_NAME VARCHAR(30) NOT NULL,
26
27
       NICKNAME VARCHAR(15),
28
       DOB DATE NOT NULL,
```

```
MIDDLE_NAME VARCHAR(30),
25
26
       LAST_NAME VARCHAR(30) NOT NULL,
27
       NICKNAME VARCHAR(15),
28
       DOB DATE NOT NULL,
29
       STREET VARCHAR(50) NOT NULL,
      CITY VARCHAR(25) NOT NULL,
30
      ZIPCODE VARCHAR(10) NOT NULL,
31
       CLASS_CODE CHAR(2) NOT NULL REFERENCES CLASS(CODE)
32
33
34 • ⊝ CREATE TABLE TEACHER(
       ID INT PRIMARY KEY,
35
       FIRST_NAME VARCHAR(30) NOT NULL,
36
      MIDDLE_NAME VARCHAR(30),
37
      LAST_NAME VARCHAR(30) NOT NULL,
38
39
       HOME_PHONE CHAR(12) NOT NULL,
       WORK_PHONE CHAR(12) NOT NULL,
40
```

```
41
       DOB DATE NOT NULL,
       WORK_EMAIL VARCHAR(30) NOT NULL,
42
       PERSONAL_EMAIL VARCHAR(30) NOT NULL,
43
44
       DEGREE CHAR(5) NOT NULL,
       DEGREE_AREA VARCHAR(30) NOT NULL
45
46
       );
47 • ○ CREATE TABLE PARENT(
       ID INT PRIMARY KEY,
48
       FIRST_NAME VARCHAR(30) NOT NULL,
49
       MIDDLE_NAME VARCHAR(30),
50
       LAST_NAME VARCHAR(30) NOT NULL,
51
       HOME_PHONE CHAR(12) NOT NULL,
52
       WORK_PHONE CHAR(12) NOT NULL,
53
       DOB DATE NOT NULL,
54
       WORK_EMAIL VARCHAR(30) NOT NULL,
55
       PERSONAL_EMAIL VARCHAR(30) NOT NULL,
56
       RELATIONSHIP VARCHAR(30) NOT NULL
57
```



TASK 4 ADD DATA

```
59
        #TASK 4 ADD DATA BY AYESHA AFIA
       INSERT INTO CLASS VALUES('GT', 'Turtles', 'Green', '25', '111-999-0000', '27', 'North West'),
61 •
62
        ('GF', 'Foxes', 'Green', '26', '222-000-1111', '25', 'West'),
63
        ('GM', 'Monkeys', 'Green', '27', '333-000-2222', '31', 'South East'),
        ('RF', 'Foxes', 'Red', '28', '444-555-6600', '29', 'East'),
64
        ('RT', 'Turtles', 'Red', '29', '999-999-9999', '27', 'South West'),
65
66
       ('RM', 'Monkeys', 'Red', '30', '000-111-2222', '26', 'South'),
67
        ('BM', 'Monkeys', 'Blue', '31', '555-888-2222', '30', 'North'),
68
        ('BF', 'Foxes', 'Blue', '32', '777-777-7777', '28', 'North East'),
        ('BT', 'Turtles', 'Blue', '33', '888-999-8888', '26', 'Mid West');
69
70
       INSERT INTO STUDENT VALUES('1', 'John', 'Michael', 'Doe', NULL, '2016-03-25', 'King', 'Colombia', '20101',
71 •
       ('2', 'Jane', NULL, 'Smith', NULL, '2016-04-25', 'Main', 'Charleston', '20101', 'SC', 'GT'),
72
        ('3', 'John', NULL, 'Williams', 'JP', '2016-05-25', 'Dave', 'Colmbia', '20101', 'SC', 'GT'),
73
74
        ('4', 'Katie', 'Kasie', 'Maroney', 'Kat', '2016-06-25', 'Davis', 'River', '21102', 'SC', 'GM'),
75
        ('5', 'Cameron', 'Roderick', 'Johnson', 'Cam', '2016-07-25', 'Amanda', 'Middleburg', '21102', 'SC', 'BT'),
 75
        ('5', 'Cameron', 'Roderick', 'Johnson', 'Cam', '2016-07-25', 'Amanda', 'Middleburg', '21102', 'SC', 'BT'),
        ('6', 'Kevin', 'Michael', 'Carlson', NULL, '2016-08-25', 'Walney', 'Middleburg', '21100', 'SC', 'BM'),
 76
 77
         ('7', 'Christine', 'Alexa', 'Doe', NULL, '2016-09-25', 'King', 'Colombia', '20101', 'SC', 'GM'),
 78
        ('8', 'Justin', 'Robert', 'Fields', NULL, '2016-10-25', 'Queen', 'Charleston', '21110', 'SC', 'RM'),
 79
         ('9', 'Charles', 'Jack', 'Donovan', 'Charlie', '2016-11-25', 'Rainwater', 'McLean', '29900', 'VA', 'GF'),
         ('10', 'Alexander', 'Alfred', 'Doe', NULL, '2016-12-25', 'Hogan', 'Falls', '20105', 'SC', 'BF'),
 80
         ('11', 'Samantha', NULL, 'Ackerman', 'Sam', '2016-03-25', 'Kline', 'River', '20101', 'SC', 'RF'),
         ('12', 'Elizabeth', 'Katherine', 'Lemon', 'Liz', '2016-01-25', 'Link', 'Halifax', '20101', 'SC', 'BT');
 82
 83
        INSERT INTO TEACHER VALUES('100', 'Matthew', 'Johson', NULL, 'MJ@mial.com', NULL, 'South Carolina Universi
 84 •
         ('101', 'Mary', 'Doe', NULL, 'MD@mial.com', NULL, 'North Carolina University', 'English', 'GF', 'BA ENGLIS
 85
         ('102', 'John', 'Smith', NULL, 'JS@mial.com', NULL, 'Penn State University ', 'History', 'GM', 'BA HISTORY
 86
         ('103', 'Amanda', 'Grey', NULL, 'AG@mial.com', NULL, 'Duke University', 'Biology', 'RF', 'BS BIOLOGY'),
 87
         ('104', 'Shane', 'Austin', NULL, 'SA@mial.com', NULL, 'Virginia University', 'Chemistry', 'RT', 'MS CHEMIS
 88
         ('105', 'Dorris', 'Johson', NULL, 'DJ@mial.com', NULL, 'John Hopkins University', 'Psychology', 'RM', 'PhC
 89
         ('106', 'Stephanie', 'Miller', NULL, 'SM@mial.com', NULL, 'Jame Hawkins University', 'Sociology', 'BM', 'E
 90
         ('107', 'William', 'Meadow', NULL, 'WM@mial.com', NULL, 'Radford University', 'Math', 'BF', 'BA MATH'),
 91
         ('102', 'John', 'Smith', NULL, 'JS@mial.com', NULL, 'Penn State University ', 'History', 'GM', 'BA HISTORY
 86
         ('103', 'Amanda', 'Grey', NULL, 'AG@mial.com', NULL, 'Duke University', 'Biology', 'RF', 'BS BIOLOGY'),
         ('104', 'Shane', 'Austin', NULL, 'SA@mial.com', NULL, 'Virginia University', 'Chemistry', 'RT', 'MS CHEMIS
 88
         ('105', 'Dorris', 'Johson', NULL, 'DJ@mial.com', NULL, 'John Hopkins University', 'Psychology', 'RM', 'PhD
 89
         ('106', 'Stephanie', 'Miller', NULL, 'SM@mial.com', NULL, 'Jame Hawkins University', 'Sociology', 'BM', 'B
         ('107', 'William', 'Meadow', NULL, 'WM@mial.com', NULL, 'Radford University', 'Math', 'BF', 'BA MATH'),
 91
         ('108', 'Katie', 'Nolan', NULL, 'KN@mial.com', NULL, 'Rutgers University', 'Community Health', 'BT', 'BS C
 92
 93
 94 •
         INSERT INTO PARENT VALUES('200', 'Michael', 'Doe', NULL, '899-999-0000', NULL, 'MDOE@mial.com', 'Father'),
         ('201', 'Kelly', 'Smith', NULL, '999-999-1000', NULL, 'KS@mial.com', 'Mother'),
 95
         ('202', 'Daryl', 'Smith', NULL, '799-999-2000', NULL, 'DS@mial.com', 'Father'),
 97
         ('203', 'Justin', 'Williams', NULL, '123-456-7890', NULL, 'JW@mial.com', 'Father'),
         ('204', 'Kevin', 'Maroney', NULL, '234-567-8901', NULL, 'KME@mial.com', 'Father'),
 98
 99
         ('205', 'Mary', 'Johson', NULL, '345-999-5000', NULL, 'MJO@mial.com', 'Mother'),
100
         ('206', 'Michael', 'Johnson', NULL, '688-999-6000', NULL, 'MMMJ@mial.com', 'Father'),
         ('207', 'Hope', 'Carlson', NULL, '999-999-7000', NULL, 'HC@mial.com', 'Mother'),
101
102
         ('208', 'Rachel', 'Doe', NULL, '449-999-8000', NULL, 'RDOE@mial.com', 'Mother'),
```

```
INSERT INTO PARENT VALUES('200', 'Michael', 'Doe', NULL, '899-999-0000', NULL, 'MDDE@mial.com', 'Father')
 94 •
         ('201', 'Kelly', 'Smith', NULL, '999-999-1000', NULL, 'KS@mial.com', 'Mother'),
 95
         ('202', 'Daryl', 'Smith', NULL, '799-999-2000', NULL, 'DS@mial.com', 'Father'),
 96
 97
         ('203', 'Justin', 'Williams', NULL, '123-456-7890', NULL, 'JW@mial.com', 'Father'),
 98
         ('204', 'Kevin', 'Maroney', NULL, '234-567-8901', NULL, 'KME@mial.com', 'Father'),
 99
         ('205', 'Mary', 'Johson', NULL, '345-999-5000', NULL, 'MJO@mial.com', 'Mother'),
100
         ('206', 'Michael', 'Johnson', NULL, '688-999-6000', NULL, 'MMMJ@mial.com', 'Father'),
         ('207', 'Hope', 'Carlson', NULL, '999-999-7000', NULL, 'HC@mial.com', 'Mother'),
101
         ('208', 'Rachel', 'Doe', NULL, '449-999-8000', NULL, 'RDOE@mial.com', 'Mother'),
         ('209', 'Brianna', 'Fields', NULL, '199-999-9000', NULL, 'BF@mial.com', 'Mother'),
103
         ('210', 'Leslie', 'Donovan', NULL, '299-999-1100', NULL, 'LD@mial.com', 'Mother'),
104
         ('211', 'Alfred', 'Doe', NULL, '399-999-1200', NULL, 'ADOE@mial.com', 'Father'),
105
106
         ('212', 'Don', 'Lemon', NULL, '699-999-1300', NULL, 'DL@mial.com', 'Father'),
107
         ('213', 'Michelle', 'Lemon', NULL, '099-999-1400', NULL, 'ML@mial.com', 'Mother'),
         ('214','Joseph', 'Ackerman', NULL, '222-333-0000', NULL, 'JA@mial.com', 'Father');
108
       #TASK 5 QUERY DATA BY AYESHA AFIA
.10
.11 • SELECT * FROM CLASS;
      SELECT * FROM STUDENT;
.12 •
.13 •
       SELECT * FROM TEACHER;
.14 •
       SELECT * FROM PARENT;
.15
      select concat(student.first_name, ' ',if(isnull(student.middle_name), ' ', student.middle_name), ' ',if(isn
.16
      select class.level, class.color, concat(student.first_name, ' ',if(isnull(student.middle_name), '', studen
17 •
.18 •
       select parent.first_name as Parent_Name, parent.email, student.first_name as Student_Name, class.level, cl
.19 •
       select teacher_first_name as Teacher_Name, student_first_name as Student_Name, parent.FIRST_NAME as Parent
```

