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(ISKANDAR MALAYSIA ECOLIFE CHALLENGE)

P3 : CONCEPTUAL DESIGN

SCSD2523-03: DATABASE

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1. GUIDELINES FOR P3 WORK PAPER

Based on the requirements in P2, identify the entities and attributes of each entity for the IMELC database system. It is important to determine all possible relationships between entities. Not only that, you should also determine the multiplicities for each relationship to show the flow between each entity. Next, create a conceptual ERD Diagram to represent the information above to represent the flow of the system. You may include enhanced ERD features wherever possible. Lastly, it is important to produce the data dictionary for the created conceptual design.

A report for the IMELC database system contains the following deliveries : —

- ERD to represent system's conceptual database design.
- The data dictionary.
- System's functional requirement (data and transaction requirements) as in P2.
- Logical DFD (as produced in SCSD2613).

2. ENTITIY RELATIONSHIP DIAGRAM FOR IMELC

In Iskandar Malaysia Eco-life Challenge (IEMLC) database, the students will have to register their personal information first. Each student will have a unique student ID, name of the student, age of the student, gender, address of home, their city, zip code, their email and school code given by their school.

The student will be monitored by their parents. Each parent can monitor only one student at a time. A student will be monitored by one parent at a time. Their parents will have unique name, the ID of the student, name of the student, email of the student and school code. The students will also be checked by their teacher. Many students can be checked by more than one teacher. A teacher can check more than one student. The teacher will have a unique teacher ID, name of the teacher and their school code.

Each student will answer questions given from the organization. The question contains *panduan cabaran* (challenge guide), *cabaran* (challenge) and school project. Then, the students will key in the answers. The answers will contain the answers of *panduan cabaran* (challenge guidance), *cabaran* (challenge) and answers for school project. Many questions provided can key in many answers by students. Many answers can be keyed in on many questions provided.

Before the students' hands in the answers to the teachers, parents can check the answers given by the student. The teacher will send the answers to the school. The school contain a unique school code, address of the school, city and the zip code. A teacher will send the answers only to one school.

The school will submit the answers to the organization. The organization will have answer checked for the results, monitor of the school, the status of sending the results and the winner announcement. The organization will notify to alert the parents about the answers. An organization will notify only one parents at a time about the answers provided by the students.

2.1 CONCEPTUAL ERD FOR IMELC

A process of constructing a model information used in an enterprise, independent of all physical considerations.

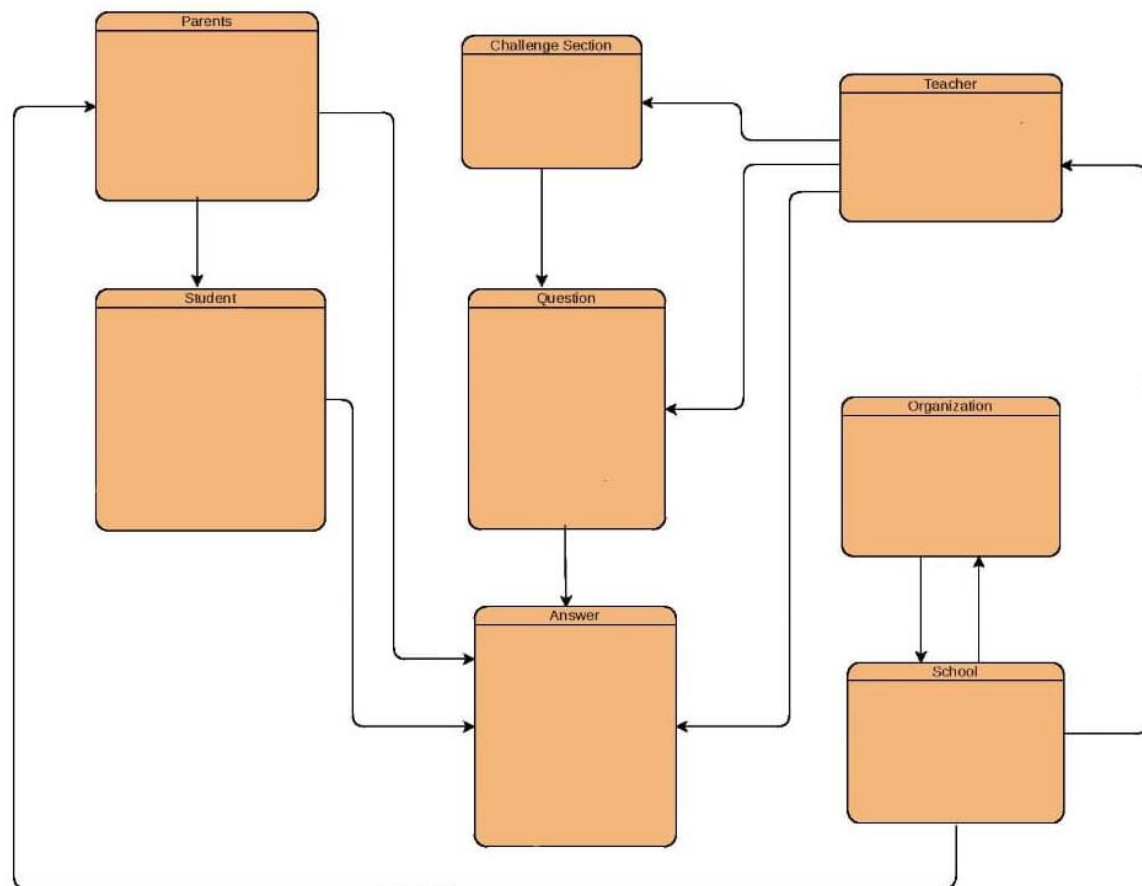


Figure 2.1.1 Conceptual Entity Relationship Diagram

2.2 ENTITY AND ATTRIBUTE TABLE FOR IMELC

ENTITY	ATTRIBUTE
Student	<u>StudentID</u> StudentName StudentAge Gender Address City ZipCode StudentEmail SchoolCode ParentsName
Parents	<u>ParentsName</u> <u>StudentID</u> StudentName StudentEmail SchoolCode
Teacher	<u>TeacherID</u> TeacherName SchoolCode
Question	CS1_Challenge01 CS1_Challenge02 CS1_Challenge03 CS2_Challenge01 CS2_Challenge02 CS2_Challenge03 CS2_Challenge04 CS2_Challenge05 CS3_SchoolProject
Answer	CS1_Challenge01_ans1 CS1_Challenge02_ans2 CS1_Challenge03_ans3 CS2_Challenge01_ans1 CS2_Challenge02_ans2 CS2_Challenge03_ans3 CS2_Challenge04_ans4 CS2_Challenge05_ans5 CS3_SchoolProject_ans Marks

School	<u>SchoolCode</u> Address City ZipCode
Organization	CheckAnswer MonitorSchool SendResults AnnounceWinner
Challenge Section	ChallengeSection1 ChallengeSection2 ChallengeSection3

2.3 LOGICAL ERD FOR IMELC

Process of constructing a model of information used in an enterprise based on a specific data model (e.g relational) but independent of a particular DBMS and other physical considerations.

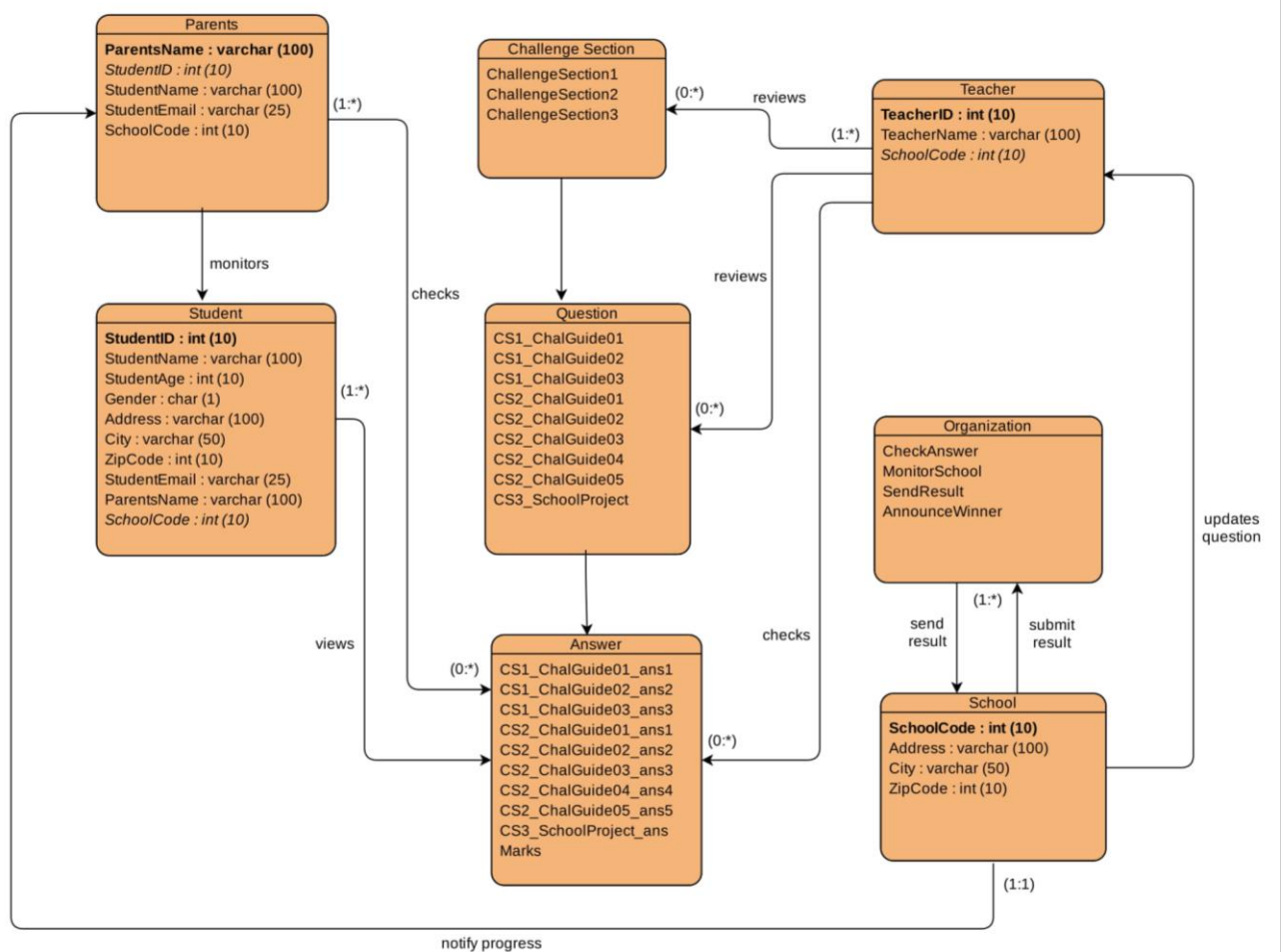


Figure 2.3.1 Logical ERD for IMELC

3. DATA DICTIONARY IMELC

Data dictionary that documents the entities for Student of IMELC

3.1 CONCEPTUAL DATA DICTIONARY

Entity name	Description	Occurrence
Student	General term describing all student by IMELC.	Each student that went to Johor Bahru school.
Parents	General term describing all parents of the student.	Each parent has child or children that went to the particular school.
Teacher	General term describing all teachers in the school.	Each school has teachers that are teaching in the school.

Entity name	Multiplicity	Relationship	Entity name	Multiplicity
Student	*:*	Answers	Question	*:*
	:	Monitored by	Parents	1:1
Question	*:*	Keys in	Answer	*:*
Parents	1:1	Checks	Answer	*:*
Answer	*:*	Hands in	Teacher	1:*
Teacher	1:*	Sends	School	1:1
School	1:1	Submit to	Organization	1:1
Organization	1:1	Notifies	School	1:1
Challenge	1:*	Splits	Question	1:1

3.2 LOGICAL DATA DICTIONARY

DATA STUDENT

Field Number	Data type	Data Format	Field Size	Example	Description
studentID	integer	NNNNN	10	10,001	Unique number ID for all student
studentName	varchar		50	Muhammad Fikri bin Muhammad Faliq	Name for student
studentAge	integer	NN	10	12	The age for student
Gender	char	F/M	1	M	Gender for Gender
Address	varchar		100	11, Taman Universiti	Student Address
City	varchar		50	Skudai, Johor	City for the address
ZipCode	integer		10	81300	Code for Zip
studentEmail	varchar	db@gmail.co m	25	fikri@gmail.com	Email for student
SchoolCode	integer	NNN	10	101	The code for School

DATA TEACHER

Field Number	Data type	Data Format	Field Size	Example	Description
TeacherID	integer	TNN	10	T01	unique number ID for all teacher
TeacherName	varchar		100	Khatijah Binti Amri	Name for teacher
SchoolCode	integer	NNN	10	101	The code for School

DATA PARENTS

Field Number	Data Type	Data Format	Field Size	Example	Description
Name	varchar		100	Hayati Binti Rahmat	Name for student's parents
studentID	integer	NNNN	10	10001	Unique number ID for all student
studentName	varchar		100	Muhammad Fikri bin Muhammad Faliq	Name for student
studentEmail	varchar		25	fikri@gmail.com	Email for student
SchoolCode	integer	db@gmail.com		101	The code for School

4. SYSTEM OF FUNCTION REQUIREMENTS

4.1 DATA REQUIREMENTS

Student

The data held the information of student from each school to login into their account and answer every question. Student can view all the questions and answer by using their studentID.

Teacher

The data held the information of teacher to monitor student performance and updates the questions. Teacher from school can review the questions from organizer and checks or monitor student answers and progress.

Questions

The data holds the question that have been prepared by the organizer.

Answer

The data holds the answers to the questions students have answered.

Organization

The data holds the student marks for each school.

4.2 TRANSACTION REQUIREMENTS

Data Entry

1. Enter the details of student(SCSD08, Firash Rayfarl, 12, Male, 9 Bukit Indah, Ampang, Selangor, rayfarl@gmail.com, Fariz bin Haziq, 0001).

Data Insert/Update/Delete

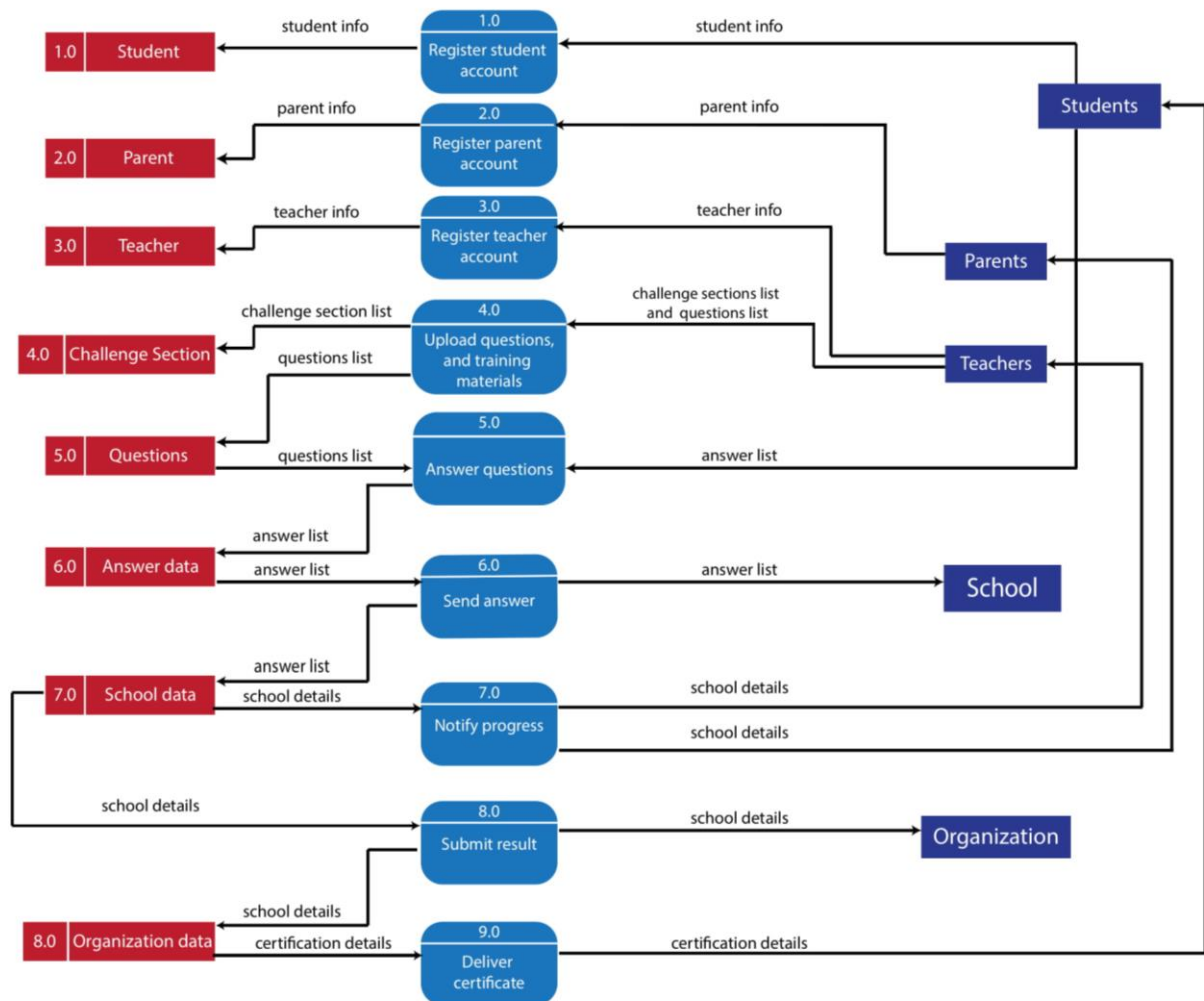
1. View all the questions.
2. Insert/view/update the answer of question.
3. View the marks.

Data Queries

1. List of the students of school.
2. List of the student's answer.
3. List of the student's result.

5. LOGICAL DATA FLOW DIAGRAM

Data Flow Diagram of Iskandar Malaysia Eco-Life Challenge Database



Data flow diagram (DFD) is drawn to represent the system of different levels of abstraction. It offers a more detailed look at the processes that make up an information system than a level-1 DFD does. It can be used to plan or record the specific framework of a system. Figure above shown level 2 DFD of Iskandar Malaysia Eco-Life Challenge for students, teachers, parents and organization in raising the awareness of Low Carbon Society (LCS).