



# Capstone Project 2

CMU-SE 451

## Database Design Document

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### Craft Village Pollution Monitor System

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## PROJECT INFORMATION

<b>Project acronym</b>	CVPMS		
<b>Project Title</b>	Craft Village Pollution Monitor System		
<b>Start Date</b>	01/03/2023	<b>End Date</b>	15/05/2023
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1.1	02/10/2022	Create user system	Hua Hoang Phuc	
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2.0	01/03/2023	Create question and answer entities	Phuc, Hua Hoang	
2.1	14/04/2023	Create data set entity	Phuc, Hua Hoang	

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# 1. Introduction

## 1.1. Purpose

Place information system's database design document describes structure of database and file structure of system. Database Design document will introduce all attribute the System that will help developer and tester base on this design to implement and test.

## 1.2. Goal

To create database tables most accurate.

## 1.3. Scope

- ❖ This Database Design Document provides the basic for “Craft Village Pollution Monitor System” Database design.
- ❖ It defines the database that will support the “Craft Village Pollution Monitor System” Data Model.
- ❖ It describes both logical and physical definition, non-functional issues, and the database interfaces; storage aspects are defined in the physical database design sections.
- ❖ The following topics are covered in this document:
  - Assumptions and decisions on database design.
  - Entity-mapping.
  - Table column definitions.
  - Primary, unique and foreign key definitions.
  - Column and row level validation rules (check constraints).
  - Rule for populating specific columns (sequences, derivations, demoralized (column)).
  - Interfaces and dependencies with other components.
  - Data access description.
- ❖ The database design for “Craft Village Pollution Monitor System” is composed of definitions for database objects derived by mapping entities to tables attributes to columns, unique identifiers to unique keys and relationship to foreign keys.

- ❖ During design, these initial definitions are enhanced to support the functionality described in the functional specification/ user stories and defined in the primary and supporting modules of the application high level design.

## 1.4. Definitions, Acronyms and Abbreviations

**Table 1.** *Definitions, Acronyms and Abbreviations*

Abbreviations	Description	Comment
PK/FK	Primary/ Foreign Key	Use to indicate a file is a Primary or Foreign key in a table
ERD	Entity Relationship Diagram	Show the relationship between entities in the system
Auto	Auto increment	Auto increment

## 2. Database Design For Sprint 1

### 2.1. Table Overview

**Table 2.** *Table Overview Sprint 1*

No	Table name	Short Description
1	AD_COUNTRY	This table contains the information about countries.
2	AD_PROVINCE	This table contains the information about provinces
3	AD_DISTRICT	This table contains the information about districts
4	UR_USER	This table shows all information of user
5	UR_ROLE	This table contains the roles
6	USER_ROLE	This table shows the roles of users
7	UR_SESSION	This table saves the sessions



No	Table name	Short Description
8	USER_SURVEY	This table saves surveys of personal user
9	SR_SURVEY_QUESTION	This table contains the information about questions in household survey.
10	SR_SURVEY_QUESTION_ANSWER	This table contains the information about answers for each question.
11	HOUSEHOLD_SURVEY	This table contains the information about household answers.

## 2.2. Entity Relationship Diagram

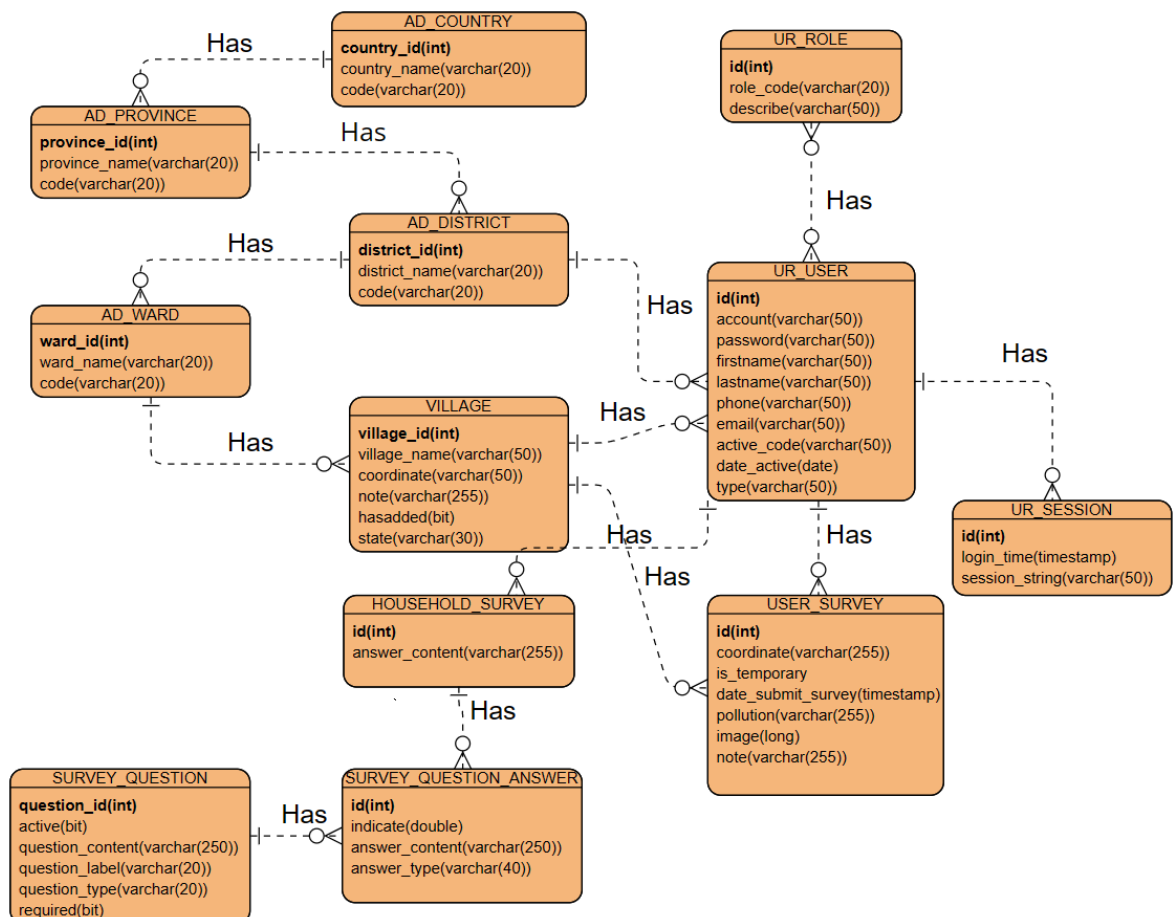


Figure 1. Entity Relationship Diagram Sprint 1

## 2.3. Table Relationship Diagram

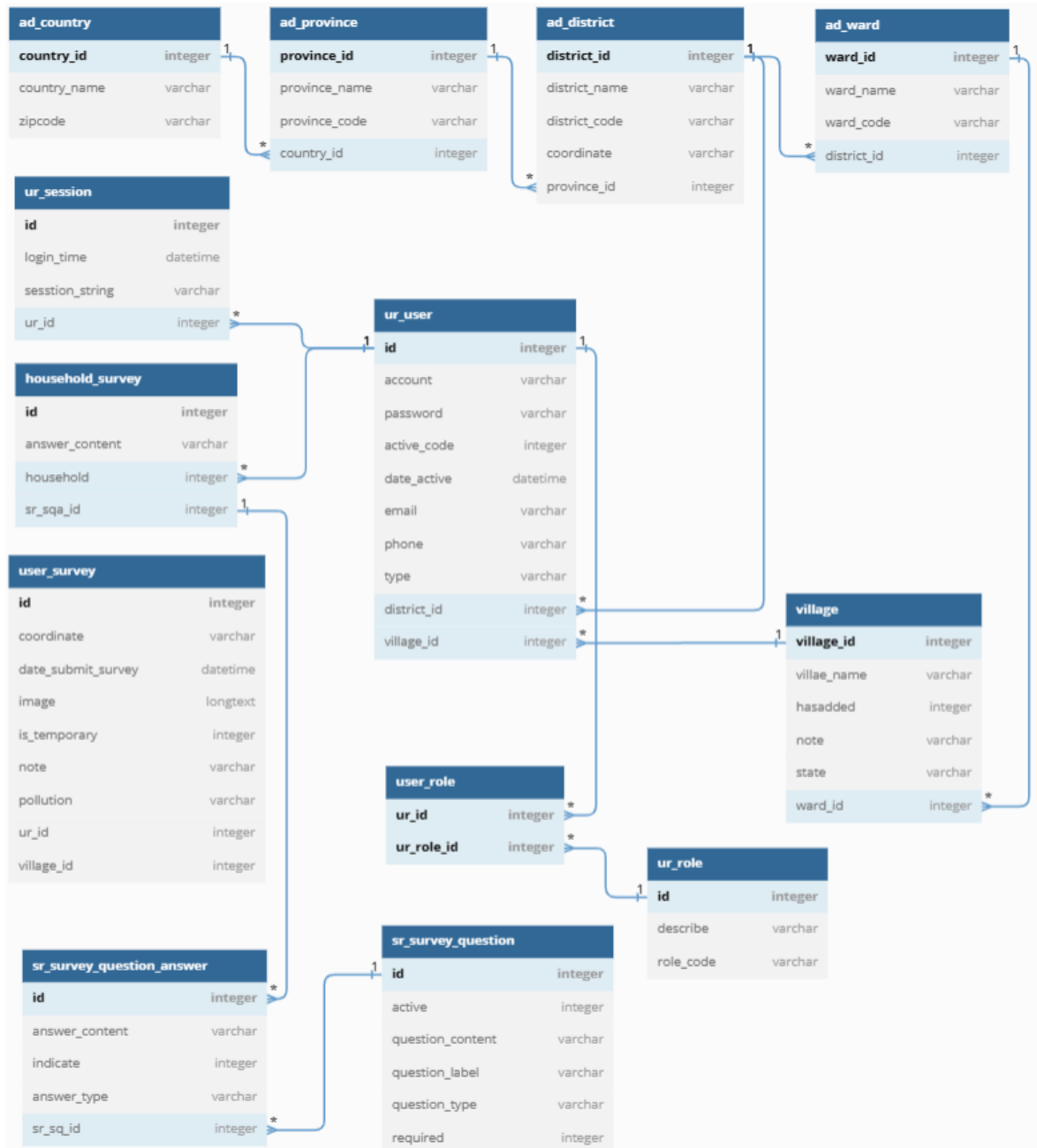


Figure 2. Table Relationship Diagram Sprint 1

## 2.4. Detail

### 2.4.1. AD\_COUNTRY

**Table 3. AD\_COUNTRY**

Attributes	Datatype	Null	Key	Default	Extra
Country_id	int	Not	PK		Auto
Country_name	varchar(50)	Not			
code	varchar(20)	Allow			

### 2.4.2. AD\_PROVINCE

**Table 4. AD\_PROVINCE**

Attributes	Datatype	Null	Key	Default	Extra
Province_id	int	Not	PK		Auto
Province_name	varchar(50)	Not			
code	varchar(20)	Allow			
Country_id	int	Not	FK		

### 2.4.3. AD\_DISTRICT

**Table 5. AD\_DISTRICT**

Attributes	Datatype	Null	Key	Default	Extra
District_id	int	Not	PK		Auto
District_name	varchar(50)	Not			
Code	varchar(20)	Allow			
Coordinate	Varchar(50)	Not			
Province_id	int	Not	FK		

### 2.4.4. AD\_WARD

**Table 6. AD\_WARD**

Attributes	Datatype	Null	Key	Default	Extra
ward_id	int	Not	PK		Auto
ward_name	varchar(50)	Not			
Code	varchar(20)	Allow			
district_id	int	Not	FK		

**2.4.5. VILLAGE****Table 7. VILLAGE**

Attributes	Datatype	Null	Key	Default	Extra
village_id	int	Not	PK		Auto
village_name	varchar(50)	Not			
Coordinate	varchar(50)	Not			
Note	varchar(255)	Allow			
Hasadded	int	Not		0	
State	Varchar(3)	Not		“000”	
ward_id	int	Not	FK		

**2.4.6. UR\_USER****Table 8. UR\_USER**

Attributes	Datatype	Null	Key	Default	Extra
Id	int(11)	Not	PK		Auto
Account	varchar(50)	Not			
password	varchar(50)	Not			
Firstname	varchar(50)	Not			
Lastname	varchar(50)	Not			
Phone	varchar(50)	Not			
Active_code	varchar(50)	Not			
Date_active	timestamp	Not			
District_id	int	Allow	FK		
Village_id	int	Allow	FK		

**2.4.7. UR\_ROLE****Table 9. UR\_ROLE**

Attributes	Datatype	Null	Key	Default	Extra
Id	int	Not	PK		Auto
Role_code	varchar(20)	Not			
Describe	varchar(50)	Allow			

**2.4.8. USER\_ROLE****Table 10. USER\_ROLE**

Attributes	Datatype	Null	Key	Default	Extra
Ur_id	int	Not	PK, FK		
Ur_role_id	int	Not	PK, FK		

**2.4.9. UR\_SESSION****Table 11. UR\_SESSION**

Attributes	Datatype	Null	Key	Default	Extra
Id	int	Not	PK		Auto
Login_time	timestamp	Not			
Session_string	varchar(50)	Not			
Ur_id	int	Not	FK		

**2.4.10. USER\_SURVEY****Table 12. USER\_SURVEY**

Attributes	Datatype	Null	Key	Default	Extra
Id	int	Not	PK		Auto
Coordinate	varchar(255)	Not			
Is_temporary	varchar(20)	Not			
Date_submit_survey	timestamp	Not			
Pollution	varchar(255)	Not			
Note	varchar(255)	Allow			
Image	longtext	Not			
Village_id	int	Not	FK		
Ur_id	int	Not	FK		

**2.4.11. SR\_SURVEY\_QUESTION****Table 13. SR\_SURVEY\_QUESTION**

Attributes	Datatype	Null	Key	Default	Extra
Id	int	Not	PK		Auto
Question_content	varchar(255)	Not			

Attributes	Datatype	Null	Key	Default	Extra
Question_label	varchar(20)	Allow			
Question_type	Varchar(20)	Not			
Active	int	Not		1	
Required	Int	Not		0	

#### 2.4.12. SR\_SURVEY\_QUESTION\_ANSWER

**Table 14.** *SR\_SURVEY\_QUESTION*

Attributes	Datatype	Null	Key	Default	Extra
Id	int	Not	PK		Auto
Answer_content	Varchar(255)	Not			
Answer_type	varchar(50)	Not			
indicate	int	Allow			
Sr_sq_id	Int	Not	FK		

#### 2.4.13. HOUSEHOLD\_SURVEY

**Table 15.** *HOUSEHOLD\_SURVEY*

Attributes	Datatype	Null	Key	Default	Extra
Id	double	Not	PK		Auto
Answer_content	Varchar(255)	Not			
Household	Int	Not	FK		
Sr_sqa_id	Int	Not	FK		

### 3. Database Design For Sprint 4

#### 3.1. Table Overview

**Table 16.** *Table Overview Sprint 4*

No	Table name	Short Description
1	DATA_SET	This table contains data to detect and train pollution.

### 3.2. Entity Relationship Diagram

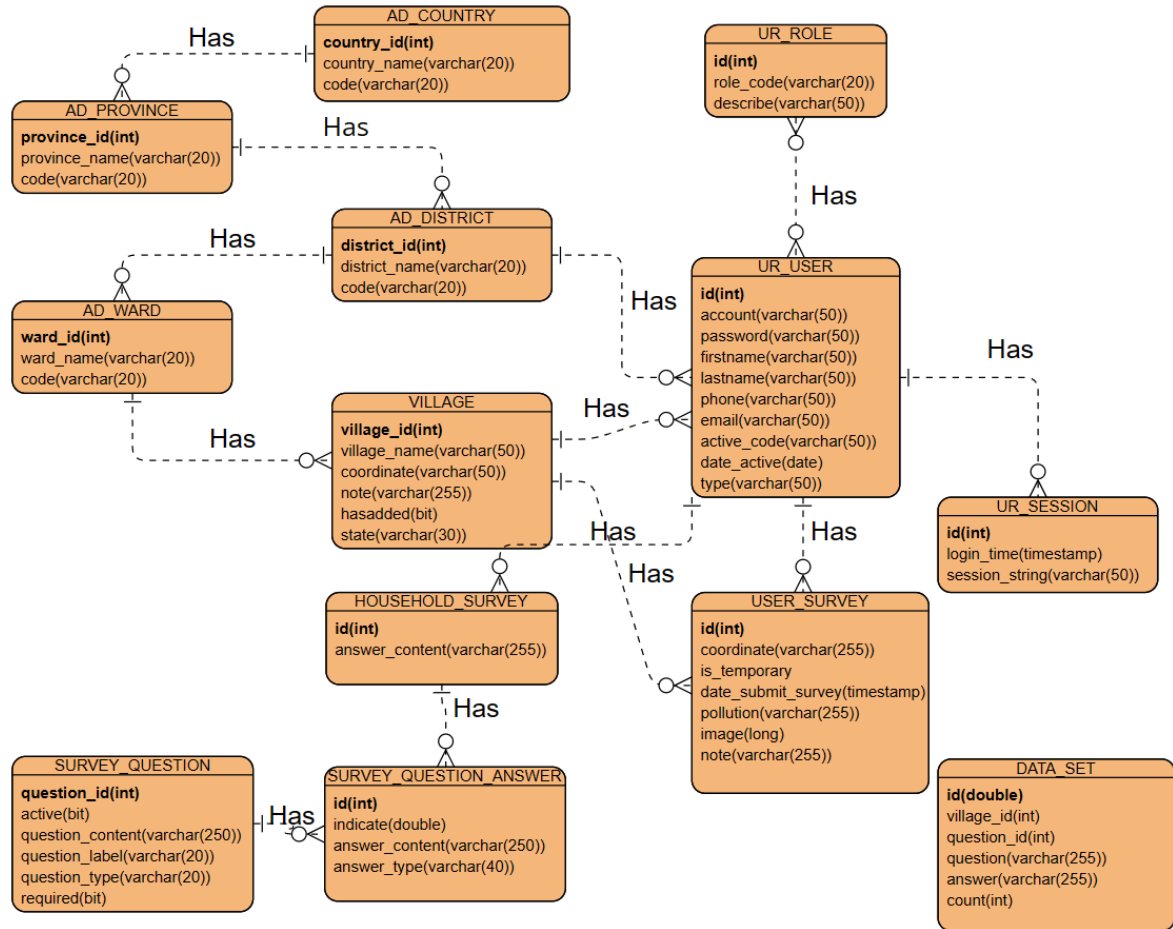
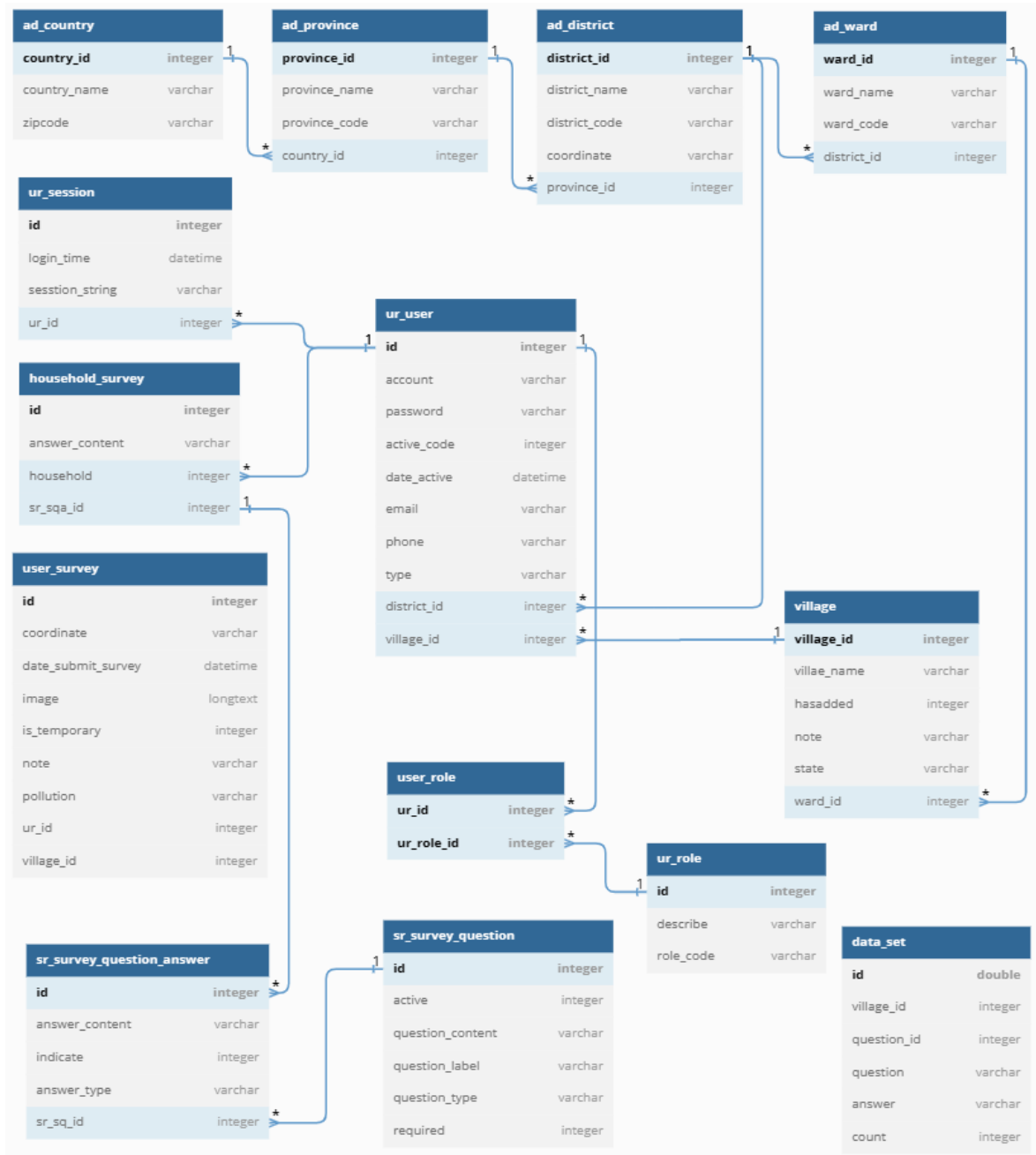


Figure 3. Entity Relationship Diagram Sprint 4

### 3.3. Table Relationship Diagram



**Figure 4.** Table Relationship Diagram Sprint 4



### 3.4. Detail

#### 3.4.1. DATA\_SET

**Table 17.** *DATA\_SET*

Attributes	Datatype	Null	Key	Default	Extra
Id	Double	Not	PK		
Village_id	int	Not			
Question_id	Int	Not			
Question	Varchar(255)	Not			
Answer	Varchar(255)	Not			
Count	Int	Not			