

International School

**Capstone Project 2**

CMU-SE 451

**Database Design Document**

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**Craft Village Pollution Monitor System**

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**PROJECT INFORMATION**

|  |  |  |  |
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| **Project acronym** | CVPMS | | |
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| **Project Web URL** | [*https://github.com/Casca113s2/craft-village-pollution-monitor-system*](https://github.com/Casca113s2/craft-village-pollution-monitor-system) | | |
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# Introduction

## 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.

## Goal

To create database tables most accurate.

## 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.

## 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 |

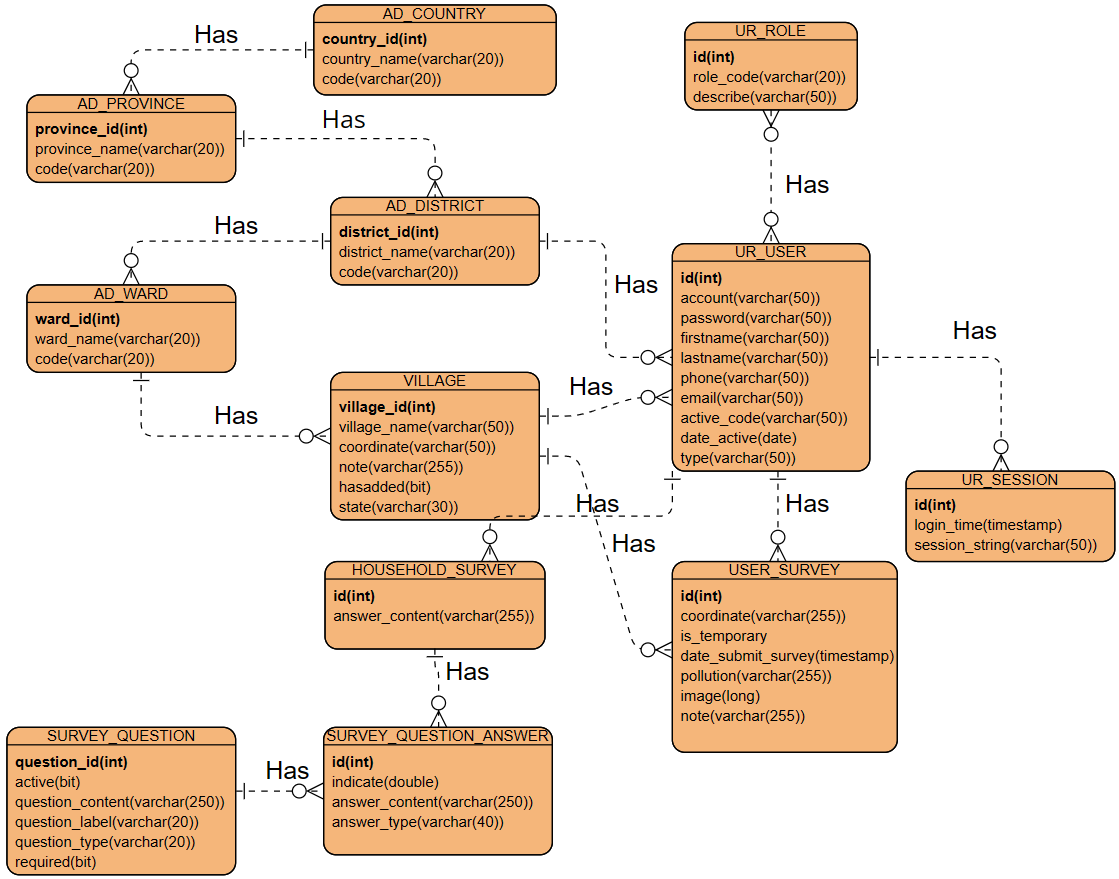
# Database Design For Sprint 1

## Table Overview

**Table 2.** Table Overview Sprint 1

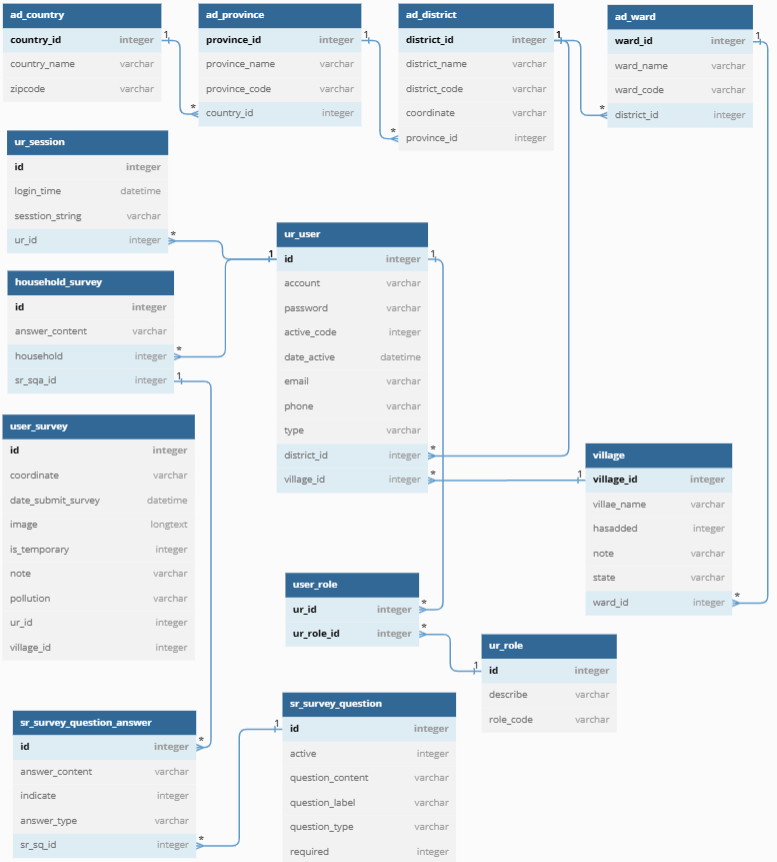
| **No** | **Table name** | **Short Description** |
| --- | --- | --- |
| 1 | AD\_COUNTRY | This table contains the information about countries. |
| 2 | AD\_PROVINCE | This table contains the information about provinces |
| 3 | AD\_DISTRICT | This table contains the information about districts |
| 4 | 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 |
| 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. |

## Entity Relationship Diagram

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**Figure 1.** Entity Relationship Diagram Sprint 1

## Table Relationship Diagram

****

**Figure 2.** Table Relationship Diagram Sprint 1

## Detail

### 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 |  |  |  |

### 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 |  |  |

### 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 |  |  |

### 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 |  |  |

### 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 |  |  |

### 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 |  |  |

### 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 |  |  |  |

### 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 |  |  |

### 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 |  |  |

### 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 |  |  |

### SR\_SURVEY\_QUESTION

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

| **Attributes** | **Datatype** | **Null** | **Key** | **Default** | **Extra** |
| --- | --- | --- | --- | --- | --- |
| Id | int | Not | PK |  | Auto |
| Question\_content | varchar(255) | Not |  |  |  |
| Question\_label | varchar(20) | Allow |  |  |  |
| Question\_type | Varchar(20) | Not |  |  |  |
| Active | int | Not |  | 1 |  |
| Required | Int | Not |  | 0 |  |

### 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 |  |  |

### 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 |  |  |

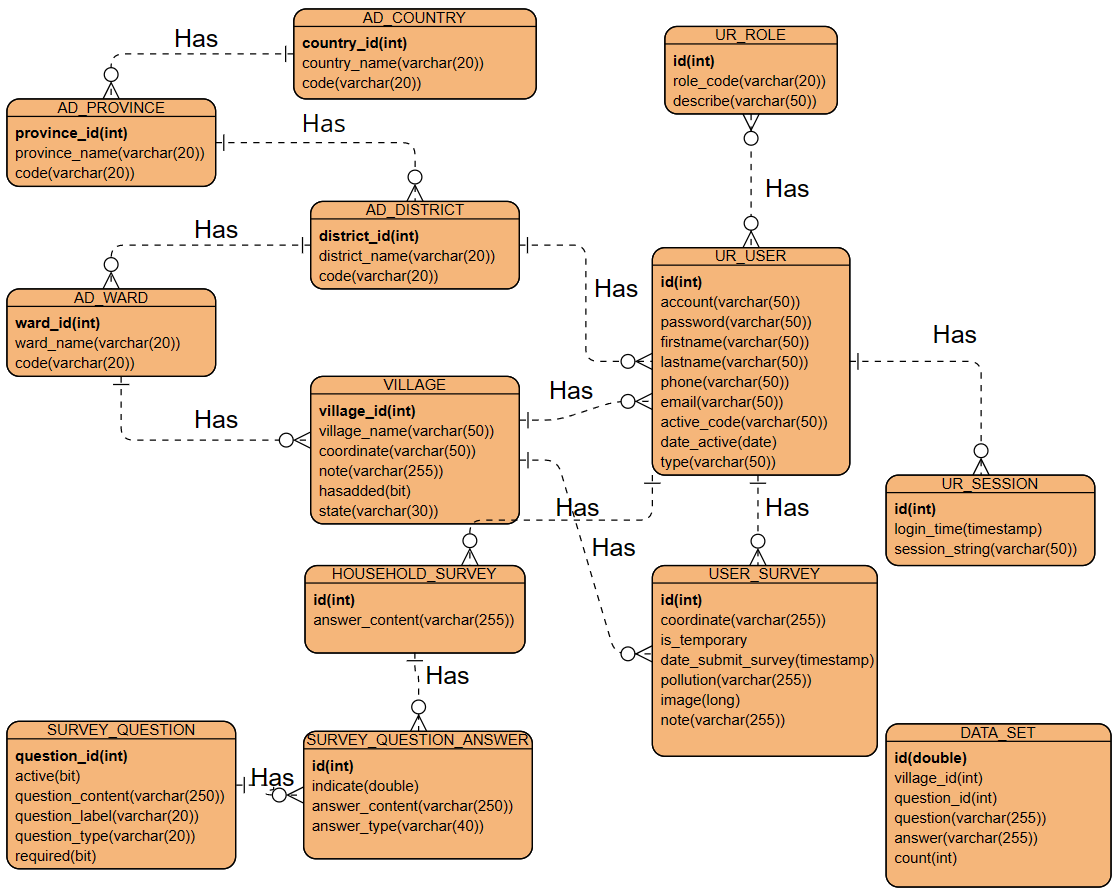
# Database Design For Sprint 4

## Table Overview

**Table 16.** Table Overview Sprint 4

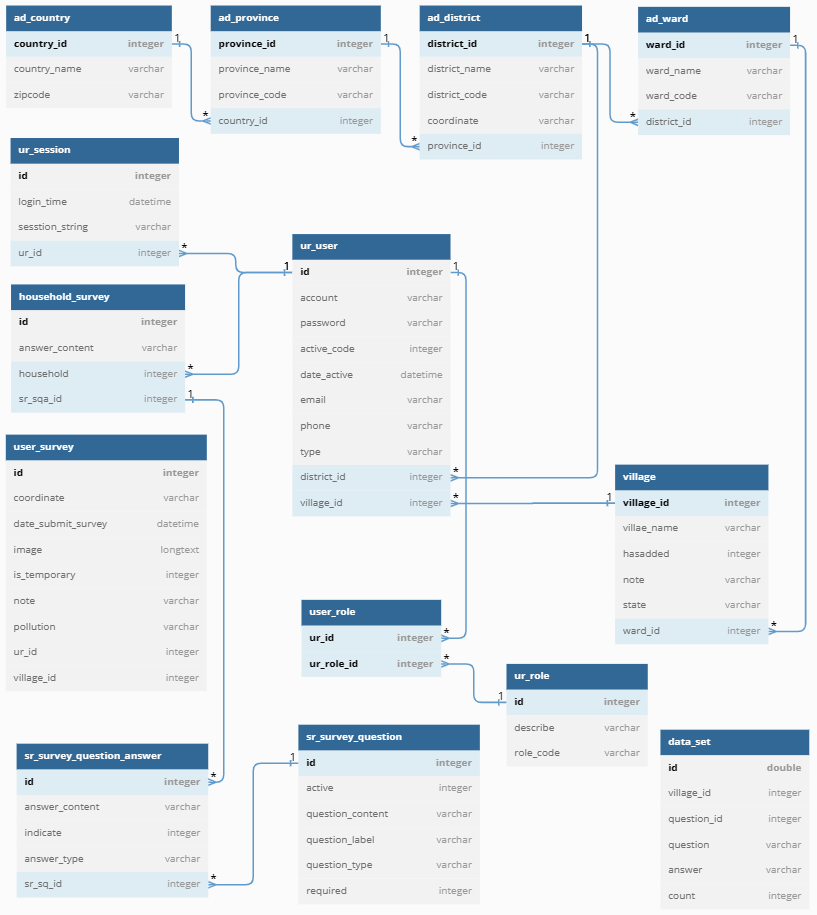
|  |  |  |
| --- | --- | --- |
| **No** | **Table name** | **Short Description** |
| 1 | DATA\_SET | This table contains data to detect and train pollution. |

## Entity Relationship Diagram

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**Figure 3.** Entity Relationship Diagram Sprint 4

## Table Relationship Diagram

****

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

## Detail

### 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 |  |  |  |