

**BUS USER SUPPORT SYSTEM**

**DETAIL DESIGN DOCUMENT**

**Data Design**

**Project Code: BUSS**

**Document Code: BUSS\_Data\_Design\_v1.0\_EN**

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**SIGNATURE PAGE**

**ORIGINATOR:** Nguyen Thanh Nam 19/06/2015

Technical Leader

**REVIEWERS:** Trinh Thi Tuyet Mai 30/06/2015

Test Leader

**APPROVAL:** Nguyen Van Sang 30/06/2015

Supervisor

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# Introduction

## Purpose

Bus User Support System data design document describes structure of database and file structure of system including internal file structure as well as interface file structure.

## Definitions, Acronyms and Abbreviations

|  |  |  |
| --- | --- | --- |
| Abbreviations | Description | Comment |
| PK/FK | Primary/ Foreign key | Use to indicate that a field is a primary or foreign key in table |
| V | Check value null | Set value “null” for attribute in table |
| Y | Check value unique | Set value “unique” for attribute in table |

## References

List the entire reference document such as: other document of the system, or the technical article.

|  |  |
| --- | --- |
| Document Number | Title |
| v1.0 | BUSS\_ Class\_Design\_v1.0\_EN |
| v1.0 | BUSS\_ Screen\_Design\_v1.0\_EN |

## Overview

General overview of the detail design such as what is the structure of the document:

* Introduction
* Database
* Appendix

# Database

## ERDs

Entity relationship diagrams



**Figure 1: Entity relationship diagrams**

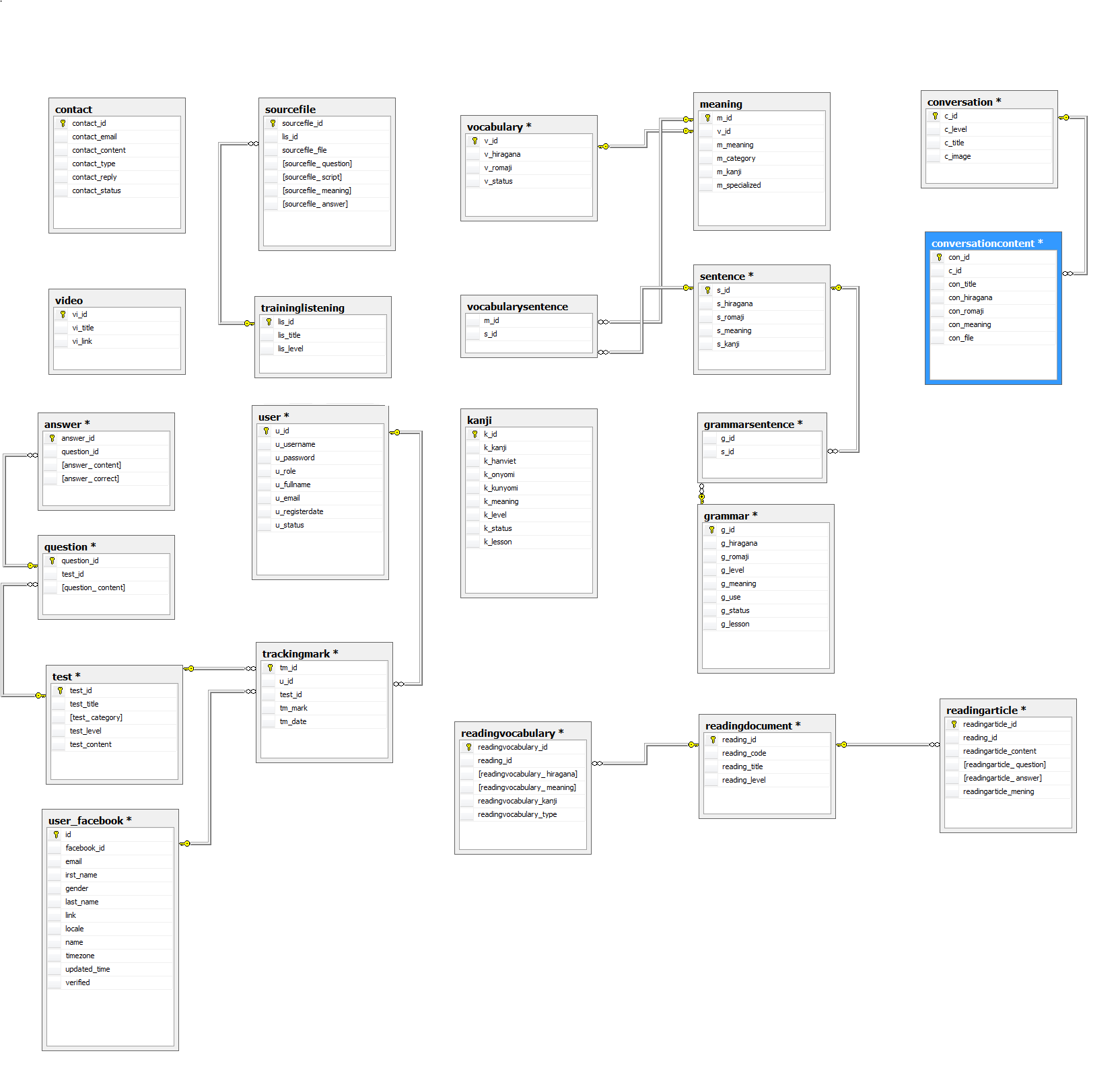
|  |  |  |
| --- | --- | --- |
| **No** | **Entity** | **Description** |
| 1 | User | User is all of people using website include guest and member who registered. |
| 2 | Vocabulary | Vocabulary is all of new word in Japanese. |
| 3 | Meaning | Meaning of vocabulary. |
| 4 | VocabularySentence | VocabularySentence include reference between Meaning and Sentence. |
| 5 | Sentence | Sentence is example of vocabulary and grammar. |
| 6 | Grammar | Grammar is structure sentences in Japanese. |
| 7 | Video | Video include title and link of video. |
| 8 | GrammarSentence | GrammarSentence include reference between Grammar and Sentence. |
| 9 | Kanji | Kanji is all of kanji in Japanese. |
| 10 | Conversation | Conversation in all lesson. |
| 11 | ConversationContent | Content of conversation. |
| 12 | Contact | Contact is Q&A, opinion of member send to admin. |
| 13 | TrainingListening | All listening lesson in Japanese. |
| 14 | SourceFile | Source of file listening. |
| 15 | ReadingDocument | Document that user can read on website. |
| 16 | ReadingVocabulary | Reference to ReadingDocument. |
| 17 | ReadingArticle | Reference to ReadingDocument. |
| 18 | TrackingMark | User can check mark of test that they did it. |
| 19 | Test | Test is some quiz that member can do it. |
| 20 | Question | Reference to Test. |
| 21 | Answer | Reference to Test. |

List of relations of entities and brief description

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Entity A** | **Entity B** | **Relation** | **Description** |
| 1 | User | Vocabulary | Many to many | Each User can search many words and each word is searched by many users |
| 2 | User | Sentence | Many to many | Each User can search many sentences and each sentence is searched by many users |
| 3 | User | Grammar | Many to many | Each User can search many grammars and each grammar is searched by many users |
| 4 | User | Video | Many to many | Each User can search many videos and each video is searched by many users |
| 5 | User | Kanji | Many to many | Each User can search many Kanji and each Kanji is searched by many users |
| 6 | User | Conversation | Many to many | Each User can search many conversation and each conversation is searched by many users |
| 7 | User | Contact | One to many | Each user can send many contacts. |
| 8 | User | TrainingListening | Many to many | Each User can train many listen and each listen is trained by many users |
| 9 | User | ReadingDocument | Many to many | Each User can read many documents and each document is read by many users |
| 10 | User | TrackingMark | One to many | Each User can track mark of many tests |
| 11 | User | Test | Many to many | Each User can do many tests and each test is did by many users |
| 12 | Vocabulary | Meaning | One to many | Each Vocabulary has many meanings. |
| 13 | Conversation | ConversationContent | One to many | Each Conversation has many conversation content. |
| 14 | TrainingListening | SourceFile | One to many | Each TrainingListening has many source file. |
| 15 | Test | Question | One to many | Each Test has many questions |
| 16 | Question | Answer | One to many | Each Question has many answers |
| 17 | ReadingDocument | Kanji | One to many | Each ReadingDocument has many kanji |
| 18 | ReadingDocument | Grammar | One to many | Each ReadingDocument has many grammars |
| 19 | ReadingDoccument | ReadingVocabulary | One to many | Each ReadingDocumnet has many reading vocabulary |
| 20 | ReadingDocument | ReadingArticle | One to many | Each ReadingDocument has many reading article |
| 21 | Grammar | Sentence | Many to many | Each Grammar has many sentence and each sentence has many grammar. |
| 22 | Vocabulary | Sentence | Many to many | Each Vocabulary has many sentence and each sentence has many vocabulary. |

## Table Database

### Table diagram

 Figure 2: Table diagram

n

List of tables and brief description

|  |  |  |
| --- | --- | --- |
| **No** | **Table Name** | **Description** |
|  | user | Store all user information that registered by created new account. |
|  | user\_facebook | Store all user information that registered by facebook. |
|  | vocabulary | Store some information of vocabulary. |
|  | meaning | Store some information of vocabulary. |
|  | sentence | Store all information of sentence. |
|  | vocabularySentence | Store id of Vocabulary and Sentence. |
|  | grammar | Store all information of grammar. |
|  | grammarsentence | Store id of Grammar and Sentence. |
|  | video | Store all information of video. |
|  | kanji | Store all information of kanji. |
|  | conversation | Store information of conversation. |
|  | conversationcontent | Store information of conversation. |
|  | contact | Store all content of contact that member send to admin. |
|  | traininglistening | Store information of listening. |
|  | sourcefile | Store information of listening. |
|  | readingdocument | Store information of document. |
|  | readingvocabulary | Store all information of vocabulary in document. |
|  | test | Store information of test. |
|  | question | Store content of question of test. |
|  | readingarticle | Store all information of article. |
|  | trackingmark | Store all information of user who did test. |
|  | answer | Store answer of question. |

### User table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | Field Name | Type | Length | Size | Null | Unique | P/F Key | Default | Description |
|  | u\_id | Int |  |  |  |  | P |  | PRIMARY KEY  This is automatically increase value 1 |
|  | u\_username | Varchar | 32 |  |  | Y |  |  | Username login |
|  | u\_password | Varchar | 32 |  |  |  |  |  | Store password login of user.  Using md5 algorithm. |
|  | u\_role | int |  |  |  |  |  |  | Admin can assign permission for user |
|  | u\_fullname | Varchar | 100 |  | V |  |  |  | User’s name display |
|  | u\_email | Varchar | 100 |  |  | Y |  |  | User’s email |
|  | u\_registerdate | Date |  |  |  |  |  |  | Date register |
|  | u\_status | Int |  |  |  |  |  |  | Active or deactive |

### User\_facebook table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | Field Name | Type | Length | Size | Null | Unique | P/F Key | Default | Description |
|  | id | Int |  |  |  |  | P |  | PRIMARY KEY  This is automatically increase value 1 |
|  | facebook\_id | Varchar | 50 |  |  | Y |  |  | ID of facebook |
|  | email | Varchar | 200 |  |  |  |  |  | Email of user facebook |
|  | first\_name | int |  |  |  |  |  |  | First name of user facebook |
| 1. gen | gender | Varchar | 20 |  |  |  |  |  | Gender of user facebook |
|  | last\_name | Varchar | 50 |  |  |  |  |  | Last name of user facebook |
|  | link | varchar | 200 |  |  |  |  |  | Link of user facebook |
|  | locale | varchar | 20 |  |  |  |  |  | Locale of user facebook |
|  | name | varchar | 50 |  |  |  |  |  | Name of user facebook |
|  | timezone | varchar | 10 |  |  |  |  |  | Timezone of user facebook |
|  | update\_time | varchar | 50 |  |  |  |  |  | Update time of user facebook |
|  | verified | varchar | 10 |  |  |  |  |  | Verified of user facebook |

### Vocabulary table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | Field Name | Type | Length | Size | Null | Unique | P/F Key | Default | Description |
|  | v\_id | Int |  |  |  |  | P |  | PRIMARY KEY  This is automatically increase value 1 |
|  | v\_hiragana | varchar | 200 |  |  | Y |  |  | Vocabulary’s hiragana |
|  | v\_romaji | Varchar | 200 |  |  |  |  |  | Vocabulary’s romaji |
|  | v\_status | int |  |  |  |  |  |  | Vocabulary’s status |

### Meaning table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | Field Name | Type | Length | Size | Null | Unique | P/F Key | Default | Description |
|  | m\_id | Int |  |  |  |  | P |  | PRIMARY KEY  This is automatically increase value 1 |
|  | v\_id | Int |  |  |  |  | FK |  | Foreign key to Vocabulary |
|  | m\_meaningvn | varchar | 500 |  |  | Y |  |  | Meaning of vocabulary |
|  | m\_category | Varchar | 10 |  |  |  |  |  | Category of vocabulary |
|  | m\_kanji | Varchar | 10 |  | V |  |  |  | Kanji of vocabulary |
|  | m\_specialized | varchar | 200 |  | V |  |  |  | Vocabulary’s specialized |

### Sentence table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | Field Name | Type | Length | Size | Null | Unique | P/F Key | Default | Description |
|  | s\_id | Int |  |  |  |  | P |  | PRIMARY KEY  This is automatically increase value 1 |
|  | s\_hiragana | varchar | 1000 |  |  |  |  |  | Sentence’s hiragana |
|  | s\_romaji | Varchar | 1000 |  |  |  |  |  | Sentence’s romaji |
|  | s\_meaning | varchar | 1000 |  |  |  |  |  | Sentence’s meaning |
|  | s\_kanji | varchar | 1000 |  |  |  |  |  | Sentence’s kanji |

### Vocabularysentence table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | Field Name | Type | Length | Size | Null | Unique | P/F Key | Default | Description |
|  | m\_id | Int |  |  |  |  | FK |  | Foreign key to Meaning |
|  | s\_id | Int |  |  |  |  | FK |  | Foreign key to Sentence |

### Grammar table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | Field Name | Type | Length | Size | Null | Unique | P/F Key | Default | Description |
|  | g\_id | Int |  |  |  |  | P |  | PRIMARY KEY  This is automatically increase value 1 |
|  | g\_hiragana | varchar | 200 |  |  | Y |  |  | Grammar’s hiragana |
|  | g\_romaji | Varchar | 200 |  |  |  |  |  | Grammar’s romaji |
|  | g\_level | Varchar | 10 |  |  |  |  |  | Grammar’s level |
|  | g\_meaning | varchar | 200 |  |  |  |  |  | Grammar’s meaning |
|  | g\_use | varchar | 1000 |  |  |  |  |  | Grammar’s use |
|  | g\_status | int |  |  |  |  |  |  | Grammar’s status |
|  | g\_lesson | Varchar | 20 |  | V |  |  |  | Grammar’s lesson |

### Grammarsentence table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | Field Name | Type | Length | Size | Null | Unique | P/F Key | Default | Description |
|  | g\_id | Int |  |  |  |  | FK |  | Foreign key to Grammar |
|  | s\_id | Int |  |  |  |  | FK |  | Foreign key to Sentence |

### Video table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | Field Name | Type | Length | Size | Null | Unique | P/F Key | Default | Description |
|  | vi\_id | Int |  |  |  |  | P |  | PRIMARY KEY  This is automatically increase value 1 |
|  | vi\_title | varchar | 200 |  |  |  |  |  | Video’s title |
|  | vi\_link | varchar | 200 |  |  | Y |  |  | Video’s link |

### Kanji table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | Field Name | Type | Length | Size | Null | Unique | P/F Key | Default | Description |
|  | k\_id | Int |  |  |  |  | P |  | PRIMARY KEY  This is automatically increase value 1 |
|  | k\_kanji | varchar | 10 |  |  | Y |  |  | Kanji in Japanese |
|  | k\_hanviet | varchar | 50 |  |  |  |  |  | Kanji’s Vietnamese-Han |
|  | k\_onyomi | varchar | 100 |  | V |  |  |  | Kanji’s onyomi |
|  | k\_kunyomi | varchar | 100 |  | V |  |  |  | Kanji’s kunyomi |
|  | k\_meaning | varchar | 200 |  |  |  |  |  | Kanji’s meaning |
|  | k\_level | varchar | 10 |  |  |  |  |  | Kanji’s level |
|  | k\_status | int |  |  |  |  |  |  | Kanji’s status |
|  | k\_lesson | varchar | 20 |  | V |  |  |  | Kanji’s lesson |

### Conversation table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | Field Name | Type | Length | Size | Null | Unique | P/F Key | Default | Description |
|  | c\_id | int |  |  |  |  | P |  | PRIMARY KEY  This is automatically increase value 1 |
|  | c\_level | varchar | 10 |  |  |  |  |  | Conversation’s level |
|  | c\_title | varchar | 100 |  |  |  |  |  | Conversation’s title |
| 1. C\_ | c\_image | Varchar | 200 |  | V |  |  |  | Conversation’s image |

### Conversationcontent table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | Field Name | Type | Length | Size | Null | Unique | P/F Key | Default | Description |
|  | con\_id | Int |  |  |  |  | P |  | PRIMARY KEY  This is automatically increase value 1 |
|  | c\_id | int |  |  |  |  | FK |  | Foreign key to Sentence |
|  | con\_title | Varchar | 200 |  |  |  |  |  | Content’s title |
|  | con\_hiragana | varchar | 5000 |  |  |  |  |  | Conversation’s hiragana |
|  | con\_romaji | Varchar | 5000 |  |  |  |  |  | Conversation’s romaji |
|  | con\_meaning | varchar | 5000 |  |  |  |  |  | Conversation’s meaning |
| 1. c | con\_file | Varchar | 200 |  |  |  |  |  | File listen of conversation |

### Contact table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | Field Name | Type | Length | Size | Null | Unique | P/F Key | Default | Description |
|  | contact\_id | Int |  |  |  |  | P |  | PRIMARY KEY  This is automatically increase value 1 |
|  | contact\_email | varchar | 100 |  |  |  |  |  | Contact’s email |
|  | contact\_content | varchar | 5000 |  |  |  |  |  | Contact’s content |
|  | contact\_type | varchar | 10 |  |  |  |  |  | Contact’s type |
|  | contact\_reply | varchar | 5000 |  | V |  |  |  | Contact’s reply |
|  | contact\_status | int |  |  |  |  |  |  | Contact’s status |

### Traininglistening table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | Field Name | Type | Length | Size | Null | Unique | P/F Key | Default | Description |
|  | lis\_id | int |  |  |  |  | P |  | PRIMARY KEY  This is automatically increase value 1 |
|  | lis\_title | Varchar | 500 |  |  |  |  |  | Listening’s title |
|  | lis\_level | varchar | 10 |  |  |  |  |  | Listening’s level |

### Sourcefile table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | Field Name | Type | Length | Size | Null | Unique | P/F Key | Default | Description |
|  | sourcefile\_id | int |  |  |  |  | P |  | PRIMARY KEY  This is automatically increase value 1 |
|  | lis\_id | Int |  |  |  |  | FK |  | Foreign key to TrainingListening |
|  | sourcefile\_file | Varchar | 100 |  |  |  |  |  | Listen’s file |
|  | sourcefile\_ question | varchar | 5000 |  |  |  |  |  | Listen’s question |
|  | sourcefile\_ script | varchar | 5000 |  |  |  |  |  | Listen’s script |
|  | sourcefile\_ meaning | varchar | 5000 |  |  |  |  |  | Listen’s meaning |
|  | sourcefile\_ answer | Varchar | 100 |  |  |  |  |  | Listen’s answer |

### Readingdocument table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | Field Name | Type | Length | Size | Null | Unique | P/F Key | Default | Description |
|  | reading\_id | int |  |  |  |  | P |  | PRIMARY KEY  This is automatically increase value 1 |
|  | reading\_code | varchar | 50 |  |  |  |  |  | Reading’s code |
|  | reading\_title | varchar | 100 |  |  |  |  |  | Reading’s title |
|  | reading\_level | varchar | 10 |  |  |  |  |  | Reading’s level |

### Readingvocabulary table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | Field Name | Type | Length | Size | Null | Unique | P/F Key | Default | Description |
|  | readingvocabulary\_id | Int |  |  |  |  | P |  | PRIMARY KEY  This is automatically increase value 1 |
|  | reading\_id | int |  |  |  |  | FK |  | Foreign key to ReadingDocument |
|  | readingvocabulary\_ hiragana | varchar | 100 |  |  |  |  |  | Vocabulary’s hiragana |
|  | readingvocabulary\_ meaning | varchar | 100 |  |  |  |  |  | Vocabulary’s meaning |
|  | readingvocabulary\_kanji | varchar | 10 |  | V |  |  |  | Vocabulary’s kanji |
|  | readingvocabulary\_type | Varchar | 50 |  |  |  |  |  | Type of readingvocabulary |

### Test table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | Field Name | Type | Length | Size | Null | Unique | P/F Key | Default | Description |
|  | test\_id | int |  |  |  |  | P |  | PRIMARY KEY  This is automatically increase value 1 |
|  | test\_title | varchar | 20 |  |  |  |  |  | Test’s title |
|  | test\_ category | varchar | 50 |  |  |  |  |  | Test’s category |
|  | test\_level | Varchar | 10 |  |  |  |  |  | Test’s level |
|  | test\_content | varchar | 5000 |  | V |  |  |  | Test’s content |

### Question table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | Field Name | Type | Length | Size | Null | Unique | P/F Key | Default | Description |
|  | question\_id | Int |  |  |  |  | P |  | PRIMARY KEY  This is automatically increase value 1 |
|  | test\_id | int |  |  |  |  | FK |  | Foreign key to Test |
|  | question\_ content | varchar | 200 |  |  |  |  |  | Question’s content |

### Readingarticle table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | Field Name | Type | Length | Size | Null | Unique | P/F Key | Default | Description |
|  | readingarticle\_id | Int |  |  |  |  | P |  | PRIMARY KEY  This is automatically increase value 1 |
|  | reading\_id | int |  |  |  |  |  |  | Foreign key to ReadingDocument |
|  | readingarticle\_content | Varchar | 5000 |  |  |  |  |  | Article’s content |
|  | readingarticle\_ question | Varchar | 5000 |  |  |  |  |  | Artcle’s question |
|  | readingarticle\_ answer | Varchar | 5000 |  |  |  |  |  | Article’s answer |
|  | readingarticle\_mening | Varchar | 5000 |  |  |  |  |  | Translate of article |

### Trackingmark table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | Field Name | Type | Length | Size | Null | Unique | P/F Key | Default | Description |
|  | tm\_id | Int |  |  |  |  | P |  | PRIMARY KEY  This is automatically increase value 1 |
|  | u\_id | Int |  |  |  |  | FK |  | Foreign key to User |
|  | test\_id | int |  |  |  |  | FK |  | Foreign key to Test |
|  | tm\_mark | varchar | 10 |  |  |  |  |  | Test’s mark |
|  | tm\_date | Date |  |  |  |  |  |  | Test’s date |

### Answer table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No | Field Name | Type | Length | Size | Null | Unique | P/F Key | Default | Description |
|  | answer\_id | Int |  |  |  |  | P |  | PRIMARY KEY  This is automatically increase value 1 |
|  | question\_id | Int |  |  |  |  | FK |  | Foreign key to Question |
|  | answer\_ content | varchar | 200 |  |  |  |  |  | Answer’s content |
|  | answer\_ correct | int |  |  |  |  |  |  | Answer’s correct |

# Appendix

## Data format symbol

Following symbols are used to describe format of data field in files as well as in tables.

|  |  |
| --- | --- |
| Symbol | Description |
| # | Digit placeholder. |
| . | Decimal placeholder. |
| , | Thousands separator. |
| : | Time separator. |
| / | Date separator. |
| \ | Treat the next character in the mask string as a literal. This allows you to include the '#', '&', 'A', and '?' characters in the mask. This character is treated as a literal for masking purposes. |
| > | Convert all the characters that follow to uppercase. |
| < | Convert all the characters that follow to lowercase. |
| A | Alphanumeric character placeholder (entry required). |
| A | Alphanumeric character placeholder (entry optional). |
| 9 | Digit placeholder (entry optional). For example: 0 – 9. |
| 0 | Digit placeholder (entry required). For example: 0 – 9. |
| C | Character or space placeholder (entry optional). Valid values for this placeholder are ANSI characters in the following ranges: 32-126 and 128-255. |
| & | Character placeholder (entry required). Valid values for this placeholder are ANSI characters in the following ranges: 32-126 and 128-255. |
| ? | Letter placeholder. For example: a – z or A – Z. |
| Literal | All other symbols are displayed as literals; that is, as themselves. bound in “” like “ABC” |