

Vietnamese Study System for Japanese

DETAIL DESIGN DOCUMENT

Class Design

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SIGNATURE PAGE

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TABLE OF CONTENTS

1 Introduction 8

1.1 Purpose 8

1.2 Definitions, Acronyms and Abbreviations 8

2 Packages 9

2.1 core.common Package 10

2.1.1 Class diagram 10

2.1.2 Const class 11

2.1.3 Utils class 15

2.1.4 JsonUtils class 16

2.1.5 HttpUtils Class 16

2.1.6 HtmlUtils Class 16

2.1.7 Common Sequence Diagram 17

2.2 core.controller Package 17

2.2.1 Class diagram 17

2.2.2 CoreController Class 18

2.2.3 CourseController Class 18

2.2.4 ExamController Class 18

2.2.5 LessonController Class 19

2.2.6 QuestionController Class 19

2.2.7 ReportController Class 20

2.2.8 StatsController Class 20

2.2.9 UserController Class 20

2.2.10 Sequence Diagram 21

2.3 core.dao Package 21

2.3.1 Class diagram 22

2.3.2 HibernateCourseDao Class 22

2.3.3 HibernateExamDao Class 23

2.3.4 HibernateLessonDao Class 23

2.3.5 HibernateLessonVersionDao Class 24

2.3.6 HibernateQuestionDao Class 24

2.3.7 HibernateReportDao Class 25

2.3.8 HibernateUserDao Class 25

2.3.9 HibernateAnswerDao Class 26

2.3.10 Sequence diagram 27

2.4 core.exception Package 27

2.4.1 Class diagram 27

2.4.2 CorruptedFormException Class 28

2.4.3 EmailExpectedException Class 28

2.4.4 InvalidEmailException Class 28

2.4.5 PasswordExpectedException Class 29

2.4.6 PasswordIncorrectException Class 29

2.4.7 UsernameExpectedException Class 29

2.4.8 NullOrEmptyContentException Class 29

2.4.9 Sequence Diagram 30

2.5 core.form Package 30

2.5.1 Class diagram 30

2.5.2 AnswerForm Class 31

2.5.3 ChangeRoleForm Class 31

2.5.4 ChgpwdForm Class 32

2.5.5 CreateExamSinglePartForm Class 32

2.5.6 CreateLessonForm Class 32

2.5.7 ExamPartForm Class 33

2.5.8 FileUploadForm Class 33

2.5.9 LoginForm Class 33

2.5.10 QuestionForm Class 33

2.5.11 RegisterForm Class 34

2.5.12 ReportForm Class 34

2.5.13 SubmitExamForm Class 34

2.5.14 SubmitQuestionForm Class 34

2.5.15 SubmitAnswerForm Class 35

2.5.16 UpdateLessonForm Class 35

2.5.17 UpdateUserForm Class 35

2.5.18 Sequence Diagram 36

2.6 core.model package 36

2.6.1 Class diagram 36

2.6.2 AnswerModel Class 37

2.6.3 BasicModel Class 37

2.6.4 CourseModel Class 37

2.6.5 ExamAnswer Class 38

2.6.6 ExamModel Class 38

2.6.7 ExamQuestionModel Class 38

2.6.8 LessonModel Class 39

2.6.9 LessonVersionModel Class 39

2.6.10 QuestionModel Class 40

2.6.11 ReportModel Class 40

2.6.12 UserModel Class 41

2.6.13 Sequence Diagram 42

2.7 core.response Package 42

2.7.1 Class diagram 42

2.7.2 AddQuestionResponseData Class 43

2.7.3 AnswerResponse Class 44

2.7.4 BriefAnswerResponse Class 44

2.7.5 BriefLessonResponse Class 44

2.7.6 BriefQuestionResponse Class 44

2.7.7 CreateLessonResponse Class 45

2.7.8 ExamAnswerResponse Class 45

2.7.9 ExamPartResponse Class 46

2.7.10 ExamQuestionResponse Class 46

2.7.11 ExamResultResponse Class 46

2.7.12 ExamSinglePartResponseClass 47

2.7.13 GetCourseResponse Class 47

2.7.14 GetExamResponse Class 47

2.7.15 GetLearnerExamsResponseData Class 48

2.7.16 GetLessonResponse Class 48

2.7.17 GetLessonVersionResponse Class 48

2.7.18 GetListUsersResponseData Class 49

2.7.19 GetUserResponseData Class 49

2.7.20 LoginResponse Class 50

2.7.21 QuestionResponse Class 50

2.7.22 Response Class 51

2.7.23 ResponseCode Class 51

2.7.24 StatsLastExamResponse Class 52

2.7.25 StatsLessonsResponse Class 52

2.7.26 StatsQuestionsResponse Class 53

2.7.27 StatsSkillAvgResponse Class 53

2.7.28 StatsUsersResponse Class 53

2.7.29 UploadFileResponse Class 53

2.7.30 Sequence Diagram 54

2.8 core.security package 54

2.8.1 Class diagram 54

2.8.2 Veazy403Handler Class 54

2.8.3 VeazyAuthenEntryPoint Class 55

2.8.4 VeazyAuthenFailureHandler Class 55

2.8.5 VeazyAuthenFilter Class 55

2.8.6 VeazyAuthenProvider Class 55

2.8.7 VeazyAuthenSuccessHandler Class 56

2.8.8 Sequence Diagram 56

2.9 core.service Package 56

2.9.1 Class diagram 56

2.9.2 CourseServiceImpl Class 57

2.9.3 ExamServiceImpl Class 57

2.9.4 LessonServiceImpl Class 57

2.9.5 QuestionBankServiceImpl Class 58

2.9.6 QuestionServiceImpl Class 58

2.9.7 ReportServiceImpl Class 58

2.9.8 StatsServiceImpl Class 59

2.9.9 UserServiceImpl Class 59

# Introduction

## Purpose

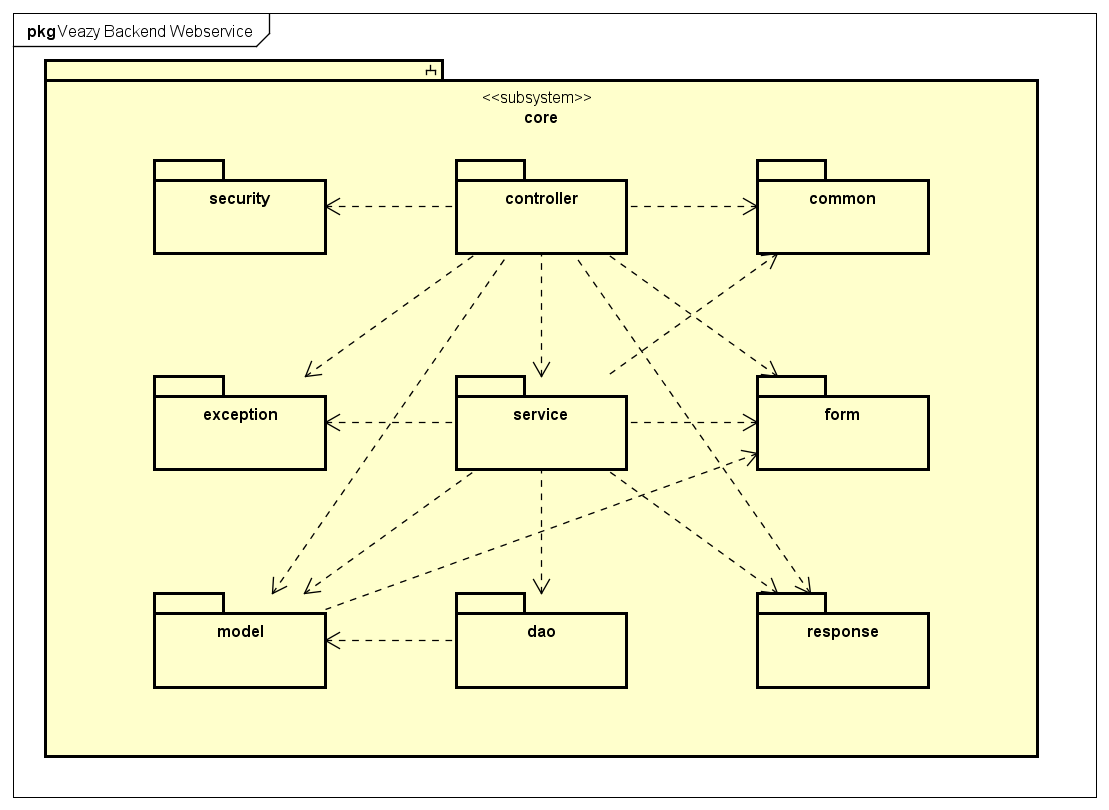
Vietnamese Study System for Japanese class design document contains descriptions of all classes of the Vietnamese Study System for Japanese system. It includes:

* Class diagrams that describe the static relation of all classes in the system.

## Definitions, Acronyms and Abbreviations

|  |  |  |
| --- | --- | --- |
| Abbreviations | Description | Comment |
| MVC | Model View Control model |  |

# Packages



**Figure 0: List Packages**

|  |  |  |  |
| --- | --- | --- | --- |
| No | Package | Language | Description |
| 1. 01 | core | JAVA | Contains classes related to core functions |
|  | common | JAVA | Contains common shared classes |
|  | controller | JAVA | Contains Spring controllers |
|  | dao | JAVA | Contains Hibernate data access object classes |
|  | exception | JAVA | Contains user-defined exceptions |
|  | form | JAVA | Contains pojo data forms |
|  | model | JAVA | Contains Spring entity classes |
|  | response | JAVA | Contains data response classes |
|  | security | JAVA | Contain classes related to security |
|  | service | JAVA | Contains Spring service classes |

## core.common Package

### C:\Users\CuHo\Desktop\Diagram v2\Common.pngClass diagram

**Figure 1: Class diagram core.common package**

|  |  |  |
| --- | --- | --- |
| No | Class Name | Description |
| 1 | Const | Contains common constants |
| 2 | Utils | Contains common utility functions |
| 3 | JsonUtils | Contains json utility functions |
| 4 | HttpUtils | Contains http utility functions |
| 5 | HtmlUtils | Contains html utility functions |

### Const class

#### Attributes

|  |  |  |  |
| --- | --- | --- | --- |
| No | Attribute | Type | Value |
| 1. 1 | FINAL\_NAME | String | Veazy |
|  | CORS\_HEADER\_ORIGIN | String | Origin |
| 1. 2 | CORS\_HEADER\_ENABLED | boolean | true |
| 1. 3 | RESOURCE\_URL | String | /res |
| 1. 3 | EXAM\_INSURANCE\_TIME | Integer | 30 |
|  | URLMAPPING\_MAKE\_ADMIN | String | /mkad/{user\_id} |
|  | URLMAPPING\_MAKE\_EDITOR | String | /mked/{user\_id} |
|  | URLMAPPING\_HOME | String | / |
|  | URLMAPPING\_UPLOADFILE | String | /uploadfile |
|  | URL\_PREFIX | String | /api |
|  | URLMAPPING\_REGISTER | String | URL\_PREFIX + "/register" |
|  | URLMAPPING\_LOGIN | String | URL\_PREFIX + "/login" |
|  | URLMAPPING\_LOGOUT | String | URL\_PREFIX + "/logout" |
|  | URLMAPPING\_RESET\_PASSWORD | String | URL\_PREFIX + "/users/reset\_password" |
|  | URLMAPPING\_BAN\_USER | String | URL\_PREFIX + "/users/ban/{user\_id}" |
|  | URLMAPPING\_UNBAN\_USER | String | URL\_PREFIX + "/users/unban/{user\_id}" |
|  | URLMAPPING\_GET\_USER | String | URL\_PREFIX + "/users/{user\_id}" |
|  | URLMAPPING\_GET\_CURRENT\_USER | String | URL\_PREFIX + "/user" |
|  | URLMAPPING\_UPDATE\_CURRENT\_USER | String | URL\_PREFIX + "/user/update" |
|  | URLMAPPING\_CHGPWD\_CURRENT\_USER | String | URL\_PREFIX + "/user/chgpwd" |
|  | URLMAPPING\_GET\_LIST\_USERS | String | URL\_PREFIX + "/users" |
|  | URLMAPPING\_GET\_SIZE\_USERS | String | URL\_PREFIX + "/users/count" |
|  | URLMAPPING\_GET\_LEARNER\_EXAMS | String | URL\_PREFIX + "/users/{user\_id}/exams" |
|  | URLMAPPING\_GET\_LEARNER\_EXAM\_STATISTIC | String | URL\_PREFIX + "/users/{user\_id}/exams/statistics" |
|  | URLMAPPING\_CHANGE\_ROLE | String | URL\_PREFIX + "/users/change\_roll/{user\_id}" |
|  | URLMAPPING\_STATS\_SKILL\_AVG | String | URL\_PREFIX + "/stats/skill/avg" |
|  | URLMAPPING\_STATS\_LAST\_EXAM | String | URL\_PREFIX + "/stats/exam/last/{number}" |
|  | URLMAPPING\_STATS\_COURSE\_AVG | String | URL\_PREFIX + "/stats/course/avg" |
|  | URLMAPPING\_CREATE\_LESSON | String | URL\_PREFIX + "/lessons/new" |
|  | URLMAPPING\_GET\_LESSON\_VERSION | String | URL\_PREFIX + "/lessons/{lesson\_id}/ver{version}" |
|  | URLMAPPING\_DRAFT\_LESSON | String | URL\_PREFIX + "/lessons/savedraft/{lesson\_id}" |
|  | URLMAPPING\_UPDATE\_LESSON | String | URL\_PREFIX + "/lessons/update/{lesson\_id}" |
|  | URLMAPPING\_PUBLISH\_LESSON | String | URL\_PREFIX + "/lessons/publish/{lesson\_id}" |
|  | URLMAPPING\_REPORT\_LESSON | String | URL\_PREFIX + "/lessons/report/{lesson\_id}" |
|  | URLMAPPING\_GET\_LESSON\_COURSE | String | URL\_PREFIX + "/courses/{course\_id}/lessons" |
|  | URLMAPPING\_GET\_LESSON | String | URL\_PREFIX + "/lessons/{lesson\_id}" |
|  | URLMAPPING\_GET\_SIZE\_LESSON | String | URL\_PREFIX + "/lessons/count" |
|  | URLMAPPING\_GET\_ALL\_LESSON | String | URL\_PREFIX + "/lessons" |
|  | URLMAPPING\_DELETE\_LESSON | String | URL\_PREFIX + "/lessons/delete/{lesson\_id}" |
|  | URLMAPPING\_GET\_COURSES | String | URL\_PREFIX + "/courses" |
|  | URLMAPPING\_LOOKUP\_JAVI | String | URL\_PREFIX + "/dict/javi/" |
|  | URLMAPPING\_LOOKUP\_VIJA | String | URL\_PREFIX + "/dict/vija/" |
|  | URLMAPPING\_CREATE\_QUESTION | String | URL\_PREFIX + "/questions/new" |
|  | URLMAPPING\_GET\_SIZE\_QUESTION | String | URL\_PREFIX + "/questions/count" |
|  | URLMAPPING\_UPDATE\_QUESTION | String | URL\_PREFIX + "/questions/update/{question\_id}" |
|  | URLMAPPING\_GET\_QUESTION | String | URL\_PREFIX + "/questions/{question\_id}" |
|  | URLMAPPING\_GET\_QUESTION\_OF\_SKILL | String | URL\_PREFIX + "/skill/{skill\_id}/questions" |
|  | URLMAPPING\_GET\_QUESTION\_OF\_COURSE | String | URL\_PREFIX + "/courses/{course\_id}/questions" |
|  | URLMAPPING\_GET\_LIST\_QUESTIONS | String | URL\_PREFIX + "/questions" |
|  | URLMAPPING\_DELETE\_QUESTION | String | URL\_PREFIX + "/questions/delete/{question\_id}" |
|  | URLMAPPING\_REPORT\_QUESTION | String | URL\_PREFIX + "/questions/report/{question\_id}" |
|  | URLMAPPING\_CREATE\_EXAM | String | URL\_PREFIX + "/exams" |
|  | URLMAPPING\_SUBMIT\_EXAM\_ANSWER | String | URL\_PREFIX + "/exams/submit" |
|  | URLMAPPING\_GET\_EXAM | String | URL\_PREFIX + "/exams/{exam\_id}" |
|  | URLMAPPING\_REDO\_EXAM | String | URL\_PREFIX + "/exams/{exam\_id}/redo" |
|  | URLMAPPING\_GET\_REPORT | String | URL\_PREFIX + "/report/get/{report\_id}" |
|  | URLMAPPING\_GET\_ALL\_REPORT | String | URL\_PREFIX + "/report/all" |
|  | URLMAPPING\_READ\_REPORT | String | URL\_PREFIX + "/report/read/{report\_id}" |
|  | URLMAPPING\_DELETE\_REPORT | String | URL\_PREFIX + "/report/delete/{report\_id}" |
|  | URLMAPPING\_SEARCH\_QUESTION | String | URL\_PREFIX + "/search/question" |
|  | URLMAPPING\_SEARCH\_LESSON | String | URL\_PREFIX + "/search/lesson" |
|  | UPDATING | Integer | 1 |
|  | PUBLISHED | Integer | 2 |
|  | START\_INDEX | Integer | 1 |
|  | ROLE\_ADMIN | Integer | 1 |
|  | ROLE\_EDITOR | Integer | 2 |
|  | ROLE\_LEARNER | Integer | 3 |
|  | QUESTIONTYPE\_ALL | Integer | 0 |
|  | QUESTIONTYPE\_SINGULAR | Integer | 1 |
|  | QUESTIONTYPE\_GROUP | Integer | 2 |
|  | MULTIPLE\_CHOICE | Integer | 1 |
|  | QUESTIONSKILL\_VOCABULARY | Integer | 1 |
|  | QUESTIONSKILL\_GRAMMAR | Integer | 2 |
|  | QUESTIONSKILL\_READING | Integer | 3 |
|  | QUESTIONSKILL\_LISTENING | Integer | 4 |

### Utils class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | REGEX\_EMAIL\_PATTERN | String | private | Regex pattern to determine an email |

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | isValidEmail() | Checks if a string is a valid email or not. |
| 2 | isNullOrEmpty() | Checks if a string is null or empty. |
| 3 | round() | Rounds a double number to a specific precious |

### JsonUtils class

#### Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Attribute | Type | Default | Note | Description |
|  |  |  |  |  |  |

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | toJson() | Converts an object to a json format |
| 2 | toBeautyJson() | Converts an object to a beautiful json format |

### HttpUtils Class

#### Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Attribute | Type | Default | Note | Description |
| 1 |  |  |  |  |  |

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | getContextUrl() | Extracts context url from requested url |
| 2 | addCorsHeader() | Adds CORS headers if enabled |

### HtmlUtils Class

#### Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Attribute | Type | Default | Note | Description |
| 1 |  |  |  |  |  |

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | isEmptyDocument() | Checks if a html document string is empty text |

### Common Sequence Diagram

## core.controller Package

### C:\Users\CuHo\Desktop\Diagram v2\Controller.pngClass diagram

**Figure 2: Class diagram core.controller package**

|  |  |  |
| --- | --- | --- |
| No | Class Name | Description |
| 1 | CoreController | Processes common core api requests |
| 2 | CourseController | Processes api requests related to course |
| 3 | TestController | Processes api requests related to test |
| 4 | LessonController | Processes api requests related to lesson |
| 5 | QuestionController | Processes api requests related to question |
| 6 | ReportController | Processes api requests related to report |
| 7 | StatsController | Processes api requests related to statistic |
| 8 | UserController | Processes api requests related to user |

### CoreController Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 2 | uploadFile() | Processes file uploading requests |

### CourseController Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | getCourses() | Processes get cources requests |

### ExamController Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | createTestSinglePart() | Processes generating new test requests |
| 2 | submitTestAnswer() | Processes test submiting requests |
| 3 | getTestAnswer() | Processes getting an existing test requests |
| 4 | redoTest() | Processes redoing an existing requests |

### LessonController Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | createLesson() | Processes creating new lesson requests |
| 2 | saveDraftLesson() | Processes saving lesson draft requests |
| 3 | updateLesson() | Processes updating existing lesson requests |
| 4 | publishLesson() | Processes publishing lesson requests |
| 5 | reportLesson() | Processes reporting lesson requests |
| 6 | getLessonOfCourse() | Processes getting lesson via course requests |
| 7 | getLesson() | Processes getting single lesson requests |
| 8 | getNumberLesson() | Processes getting number of total lesson requests |
| 9 | getAllLesson() | Processes getting all lessons requests |
| 10 | getLessonVersion() | Processes getting a version of lesson requests |
| 11 | delete() | Processes deleting a lesson requests |

### QuestionController Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | createQuestion() | Processes creating new question requests |
| 2 | updateQuestion() | Processes updating an existing question requests |
| 3 | getListQuestions() | Processes getting list questions requests |
| 4 | getQuestion() | Processes getting single question requests |
| 5 | getNumberQuestion() | Processes getting number of questions requests |
| 6 | getQuestionOfSkill() | Processes getting questions via skill requests |
| 7 | getQuestionOfCourse() | Processes getting questions via course requests |
| 8 | deleteQuestion() | Processes deleting a question requests |
| 9 | reportQuestion() | Processes reporting a question requests |

### ReportController Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | getReport() | Processes getting an existing report requests |
| 2 | getAllReport() | Processes getting all reports requests |
| 3 | readReport() | Processes marking a report as read requests |
| 4 | deleteReport() | Processes deleting a report requests |

### StatsController Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | getCourseAvg() | Processes getting average test result via course requests |
| 2 | getLastTest() | Processes getting a number of last test results requests |
| 3 | getSkillAvg() | Processes getting average test result via skill requests |

### UserController Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | register() | Processes registering a new account requests |
| 2 | loginProceed() | Processes checking login status requests |
| 3 | logoutProceed() | Processes logging out requests |
| 4 | getCurrentUser() | Processes getting current logged in user requests |
| 5 | updateCurrentUser() | Processes updating current logged in user requests |
| 6 | changePasswordCurrentUser() | Processes changing password requests |
| 7 | getUser() | Processes getting a specific user requests |
| 8 | banUser() | Processes banning an user requests |
| 9 | unbanUser() | Processes unbanning an user requests |
| 10 | getListUser() | Processes getting list of users requests |
| 11 | getNumberUser() | Processes number of users requests |
| 12 | getLearnerTests() | Processes getting list of finished tests of current logging in user requests |
| 13 | changeUserRoll() | Processes changing an user role requests |

## C:\Users\CuHo\Desktop\Diagram v2\Dao.pngcore.dao Package

**Figure 3: Class diagram core.dao package**

### Class diagram

|  |  |  |
| --- | --- | --- |
| No | Class Name | Description |
| 1 | HibernateCourseDao | Provides methods to manage course data in database |
| 2 | HibernateTestDao | Provides methods to manage test data in database |
| 3 | HibernateLessonDao | Provides methods to manage lesson data in database |
| 4 | HibernateLessonVersionDao | Provides methods to manage versions of lesson in database |
| 5 | HibernateQuestionDao | Provides methods to manage question data in database |
| 6 | HibernateReportDao | Provides methods to manage report data in database |
| 7 | HibernateUserDao | Provides methods to manage user data in database |
| 8 | HibernateAnswerDao | Provide method to manage the question answer in database |

### HibernateCourseDao Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | save() | Save a course to database |
| 2 | findById() | Find a course by its id |
| 3 | findByExample() | Find all course have same feature with example |
| 4 | findByExample() | Find some course have same feature with example |
| 5 | getAll() | Return all course |
| 6 | update() | Update a course |
| 7 | delete() | Delete a course |
| 8 | getCount() | Return the number of the course in database |
| 9 | executeSql() | Return the courses execute by sql |

### HibernateExamDao Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | save() | Save an exam to database |
| 2 | findById() | Find an exam by its id |
| 3 | findByExample() | Find all exam have same feature with example |
| 4 | findByExample() | Find some exam have same feature with example |
| 5 | getAll() | Return all exam |
| 6 | update() | Update an exam |
| 7 | delete() | Delete an exam |
| 8 | getCount() | Return the number of the exam in database |
| 9 | executeSql() | Return the exams execute by sql |

### HibernateLessonDao Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | save() | Save a lesson to database |
| 2 | findById() | Find a lesson by its id |
| 3 | findByExample() | Find all lesson have same feature with example |
| 4 | findByExample() | Find some lesson have same feature with example |
| 5 | getAll() | Return all lesson |
| 6 | update() | Update a lesson |
| 7 | delete() | Delete a lesson |
| 8 | getCount() | Return the number of the lesson in database |
| 9 | executeSql() | Return the lessons execute by sql |

### HibernateLessonVersionDao Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | save() | Save a lesson version to database |
| 2 | findById() | Find a lesson version by its id |
| 3 | findByExample() | Find all lesson version have same feature with example |
| 4 | findByExample() | Find some lesson version have same feature with example |
| 5 | getAll() | Return all lesson version |
| 6 | update() | Update a lesson version |
| 7 | delete() | Delete a lesson version |
| 8 | getCount() | Return the number of the lesson version in database |
| 9 | executeSql() | Return the lesson versions execute by sql |

### HibernateQuestionDao Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | save() | Save a question to database |
| 2 | findById() | Find a question by its id |
| 3 | findByExample() | Find all question have same feature with example |
| 4 | findByExample() | Find some question have same feature with example |
| 5 | getAll() | Return all question |
| 6 | update() | Update a question |
| 7 | delete() | Delete a question |
| 8 | getCount() | Return the number of the question in database |
| 9 | executeSql() | Return the questions execute by sql |

### HibernateReportDao Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | save() | Save a report to database |
| 2 | findById() | Find a report by its id |
| 3 | findByExample() | Find all report have same feature with example |
| 4 | findByExample() | Find some report have same feature with example |
| 5 | getAll() | Return all report |
| 6 | update() | Update a report |
| 7 | delete() | Delete a report |
| 8 | getCount() | Return the number of the report in database |
| 9 | executeSql() | Return the reports execute by sql |

### HibernateUserDao Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | save() | Save an account to database |
| 2 | findById() | Find an account by its id |
| 3 | findByExample() | Find all account have same feature with example |
| 4 | findByExample() | Find some account have same feature with example |
| 5 | getAll() | Return all account |
| 6 | update() | Update an account |
| 7 | delete() | Delete an account |
| 8 | getCount() | Return the number of the account in database |
| 9 | executeSql() | Return the accounts execute by sql |

### HibernateAnswerDao Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | save() | Save an answer to database |
| 2 | findById() | Find an answer by its id |
| 3 | findByExample() | Find all answer have same feature with example |
| 4 | findByExample() | Find some answer have same feature with example |
| 5 | getAll() | Return all answer |
| 6 | update() | Update an answer |
| 7 | delete() | Delete an answer |
| 8 | getCount() | Return the number of the answer in database |
| 9 | executeSql() | Return the answer execute by sql |

## core.exception Package

### C:\Users\CuHo\Desktop\Exception.pngClass diagram

***Figure 4: Class diagram Practice core.exception package***

|  |  |  |
| --- | --- | --- |
| No | Class Name | Description |
| 1 | CorruptedFormException | Exception throwed when user submitted a corrupted form i.e. form that does not have enough expected data |
| 2 | EmailExpectedException | Exception throwed when submitted form does not contain email |
| 3 | InvalidEmailException | Exception throwed when submitted form contains invalid email |
| 4 | PasswordExpectedException | Exception throwed when submitted form does not contain password |
| 5 | PasswordIncorrectException | Exception throwed when submitted form contains incorrect username or password |
| 6 | UsernameExpectedException | Exception throwed when submitted form does not contain username |
| 7 | NullOrEmptyContentException | Exception throwed when submitted data is null or empty |

### CorruptedFormException Class

#### Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Attribute | Type | Default | Note | Description |
| 1 | ERROR\_CODE | int |  | private |  |

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | getCode() |  |

### EmailExpectedException Class

#### Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Attribute | Type | Default | Note | Description |
| 1 | ERROR\_CODE | int |  | private |  |

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | getCode() |  |

### InvalidEmailException Class

#### Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Attribute | Type | Default | Note | Description |
| 1 | ERROR\_CODE | int |  | private |  |

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | getCode() |  |

### PasswordExpectedException Class

#### Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Attribute | Type | Default | Note | Description |
| 1 | ERROR\_CODE | int |  | private |  |

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | getCode() |  |

### PasswordIncorrectException Class

#### Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Attribute | Type | Default | Note | Description |
| 1 | ERROR\_CODE | int |  | private |  |

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | getCode() |  |

### UsernameExpectedException Class

#### Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Attribute | Type | Default | Note | Description |
| 1 | ERROR\_CODE | int |  | private |  |

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | getCode() |  |

### NullOrEmptyContentException Class

#### Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Attribute | Type | Default | Note | Description |
| 1 | ERROR\_CODE | int |  | private |  |

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | getCode() |  |

## core.form Package

### C:\Users\CuHo\Desktop\Diagram v2\Form.pngClass diagram

**Figure 5: Class diagram core.form package**

|  |  |  |
| --- | --- | --- |
| No | Class Name | Description |
| 1 | AnswerForm | Answer form |
| 2 | ChangeRoleForm | Form for requesting change user role |
| 3 | ChgpwdForm | Form for requesting change password |
| 4 | CreateTestSinglePartForm | Form for generating a single-skill test |
| 5 | CreateLessonForm | Form for creating a test |
| 6 | TestPartForm | Form for generating a test |
| 7 | FileUploadForm | Upload file form |
| 8 | LoginForm | Login form |
| 9 | QuestionForm | Question form |
| 10 | RegisterForm | Register form |
| 11 | ReportForm | Report form |
| 12 | SubmitTestForm | Test form for submittion |
| 13 | SubmitQuestionForm | Question form for test submittion |
| 14 | SubmitAnswerForm | Answer of a question form for test submittion |
| 15 | UpdateLessonForm | Lesson information form for updating a lesson |
| 16 | UpdateUserForm | User information form for updating an user |

### AnswerForm Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | answer | String | private | The question answer. |
| 2 | isRight | Boolean | private | The answer is correct or not |

### ChangeRoleForm Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | userId | Integer | private | The user id. |
| 2 | role | Integer | private | The new role of user. |

### ChgpwdForm Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | oldPassword | String | private | Old password. |
| 2 | newPassword | String | private | New password. |

### CreateExamSinglePartForm Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | courseId | Integer | private | The course of the exam |
| 2 | skill | Integer | private | The skill of the exam |
| 3 | numberOfQuestion | Integer | private | The number question of the exam |

### CreateLessonForm Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | courseId | Integer | private | The course id of lesson. |
| 2 | lessonTitle | String | private | The lesson title. |
| 3 | description | String | private | The lesson description. |
| 4 | vocabulary | String | private | The lesson vocabulary. |
| 5 | grammar | String | private | The lesson grammar. |
| 6 | reading | String | private | The lesson reading part. |
| 7 | listening | String | private | The lesson listening part. |
| 8 | practice | String | private | The lesson practice part. |
| 9 | article | String | private | The lesson article. |

### ExamPartForm Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | skill | int | private | The skill of exam. |
| 2 | numberOfQuestion | int | private |  |

### FileUploadForm Class

### LoginForm Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | username | String | private | The user name. |
| 2 | encryptedPassword | String | private | The user password has been encrypted. |

### QuestionForm Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | questionId | Integer | private | The question Id. |
| 2 | questionAnswerType | Integer | private | The question answer type. |
| 3 | questionType | Integer | private | The question type. |
| 4 | questionSkill | Integer | private | The question skill. |
| 5 | courseId | Integer | private | The course id of question. |
| 6 | creatorId | Integer | private | The id of user who create question. |
| 7 | numberOfQuestion | Integer | private | The number of child question. |
| 8 | etaTime | Integer | private | Estimate time to complete the question |
| 9 | question | String | private | The question. |
| 10 | attachment | String | private | The file attach with question |

### RegisterForm Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | username | String | private | The user name. |
| 2 | password | String | private | The user password. |
| 3 | email | String | private | The user email. |

### ReportForm Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | content | String | private | The report content. |

### SubmitExamForm Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | examId | Integer | private | The exam id. |
| 2 | takenTime | Integer | private | The time user do exam. |

### SubmitQuestionForm Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | questionId | Integer | private | The question id. |

### SubmitAnswerForm Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | answer | String | private |  |
| 2 | isSelected | Boolean | private |  |

### UpdateLessonForm Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | lessonId | Integer | private | The lesson id |
| 2 | courseId | Integer | private | The course id of lesson. |
| 3 | lessonTitle | String | private | The lesson title. |
| 4 | description | String | private | The lesson description. |
| 5 | vocabulary | String | private | The lesson vocabulary. |
| 6 | grammar | String | private | The lesson grammar. |
| 7 | reading | String | private | The lesson reading part. |
| 8 | listening | String | private | The lesson listening part. |
| 9 | practice | String | private | The lesson practice part. |
| 10 | article | String | private | The lesson article. |

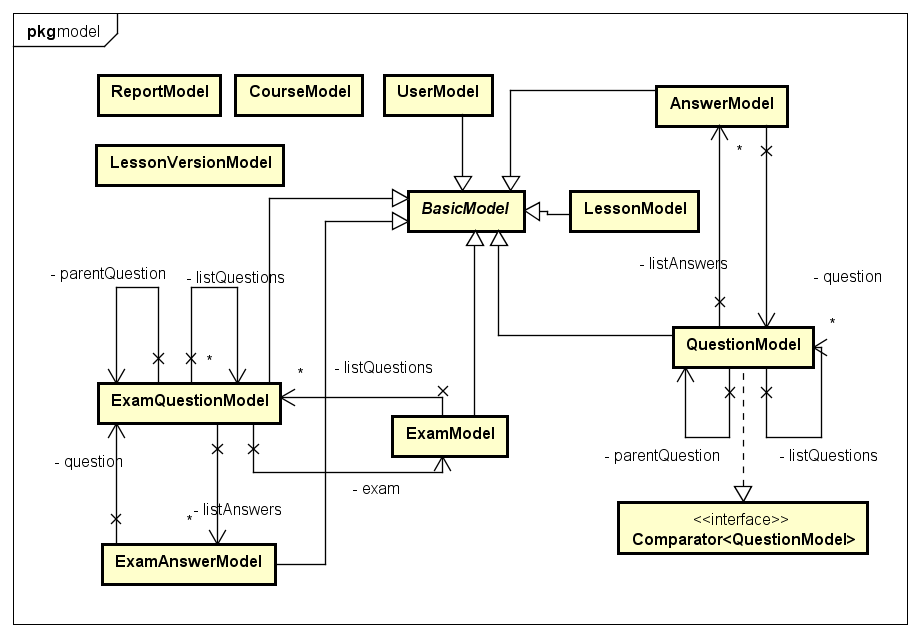
### UpdateUserForm Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | firstName | String | private | The user first name. |
| 2 | lastName | String | private | The user last name. |
| 3 | dob | Long | private | date of birth |
| 4 | address | String | private | The user address. |
| 5 | hobby | String | private | The user hobby. |
| 6 | bio | String | private | The user introduction. |
| 7 | website | String | private | The user website. |
| 8 | quote | String | private |  |

## core.model package

### Class diagram



**Figure 6: Class diagram core.model package**

|  |  |  |
| --- | --- | --- |
| No | Class Name | Description |
| 1 | AnswerModel | Stores data of a single answer of a question |
| 2 | BasicModel | Contains common fields of model |
| 3 | CourseModel | Stores data of a course (as known as a level) |
| 4 | TestAnswerModel | Stores data of a single answer of a question in a generated test |
| 5 | TestModel | Stores data of a test |
| 6 | TestQuestionModel | Stores data of a question in a generated test |
| 7 | LessonModel | Stores data of a lesson |
| 8 | LessonVersionModel | Stores data of a version of lesson |
| 9 | QuestionModel | Stores data of a question in the questionbank |
| 10 | ReportModel | Stores data of a report |
| 11 | UserModel | Stores data of an user |

### AnswerModel Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | answer | String | private |  |
| 2 | isRight | Boolean | private |  |

### BasicModel Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | id | Integer | private |  |
| 2 | createDate | Long | private |  |
| 3 | updateDate | Long | private |  |
| 4 | deleteDate | Long | private |  |
| 5 | deleteFlag | Boolean | private |  |

### CourseModel Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | id | Integer | private |  |
| 2 | name | String | private |  |
| 3 | description | String | private |  |

### ExamAnswer Class

#### Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Attribute | Type | Default | Note | Description |
| 1 | answer | String |  | private | The answer. |
| 2 | isRight | Boolean |  | private | The answer is correct or not. |
| 3 | isSelected | Boolean |  | private | The answer is selected by learner or not. |

### ExamModel Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | userId | Integer | private | The id of user who do exam |
| 2 | courseId | Integer | private | The course id of exam |
| 3 | questionSkill | Integer | private | The skill of exam |
| 4 | result | Double | private | The result |
| 5 | takenTime | Integer | private | The time user do exam |
| 6 | etaTime | Integer | private | The total time of exam |
| 7 | finishState | Boolean | private | The exam has been finished or not |

### ExamQuestionModel Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | questionId | Integer | private | The question id |
| 2 | question | String | private | The question |
| 3 | questionType | Integer | private | The question type |
| 4 | numberOfQuestion | Integer | private | The number of child question |
| 5 | questionAnswerType | Integer | private | The question answer type |
| 6 | attachment | String | private | The file attach with question |
| 7 | isChanged | Boolean | private | The question has been changed or not |

### LessonModel Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | index | Integer | private | The index of lesson in course. |
| 2 | courseId | Integer | private | The course id of lesson. |
| 3 | currentVersionId | Integer | private | The current lesson version id. |

### LessonVersionModel Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | id | Integer | private | The lesson version id |
| 2 | createDate | Long | private | The create date. |
| 3 | updateDate | Long | private | The update date |
| 4 | lessonId | Integer | private | The lesson id. |
| 5 | version | Integer | private | The lesson version |
| 6 | state | Integer | private | The state of lesson version |
| 7 | title | String | private | The lesson title. |
| 8 | description | String | private | The lesson description. |
| 9 | creatorId | Integer | private | The creator id |
| 10 | vocabulary | String | private | The lesson vocabulary. |
| 11 | grammar | String | private | The lesson grammar. |
| 12 | reading | String | private | The lesson reading part. |
| 13 | listening | String | private | The lesson listening part. |
| 14 | practice | String | private | The lesson practice part. |
| 15 | article | String | private | The lesson article. |

### QuestionModel Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | questionCode | Integer | private |  |
| 2 | creatorId | Integer | private |  |
| 3 | questionAnswerType | Integer | private |  |
| 4 | questionType | Integer | private |  |
| 5 | questionSkill | Integer | private |  |
| 6 | numberOfQuestion | Integer | private |  |
| 7 | courseId | Integer | private |  |
| 8 | question | String | private |  |
| 9 | content | List<Integer> | private |  |
| 10 | state | Integer | private |  |
| 11 | attachment | Integer | private |  |

### ReportModel Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | id | Integer | private | The report id |
| 2 | createDate | Long | private | The create date |
| 3 | deleteDate | Long | private | The delete date |
| 4 | deleteFlag | Long | private | The report is deleted or not |
| 5 | senderId | Integer | private | The user who send report |
| 6 | receiverId | Integer | private | The user who receive report |
| 7 | readFlag | Boolean | private | Check if report is read or not |
| 8 | content | String | private | The report content |
| 9 | lessonId | Integer | private | The id of lesson is reported |
| 10 | questionId | Integer | private | The id of question is reported |

### UserModel Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | email | String | private | The user email |
| 2 | userName | String | private | The user name |
| 3 | encryptedPassword | String | private | The password had been encrypted |
| 4 | firstName | String | private | The user first name. |
| 5 | lastName | String | private | The user last name. |
| 6 | dob | Long | private | Date of birth |
| 7 | joinDate | Long | private | The join date |
| 8 | address | String | private | The user address. |
| 9 | role | Integer | private | The user role |
| 10 | hobby | String | private | The user hobby. |
| 11 | bio | String | private | The user introduction. |
| 12 | website | String | private | The user website. |
| 13 | quote | String | private |  |
| 14 | isBanned | Boolean | private | The user is banned or not |

## core.response Package

### C:\Users\CuHo\Desktop\Diagram v2\Response.pngClass diagram

**Figure 7: Class diagram core.response package**

|  |  |  |
| --- | --- | --- |
| No | Class Name | Description |
| 1 | AddQuestionResponse | Response for adding a new question api |
| 2 | AnswerResponse | Response for an answer in a question |
| 3 | BriefAnswerResponse | Response for a brief answer in a brief question in a generated test |
| 4 | BriefLessonResponse | Response for a brief lesson |
| 5 | BriefQuestionResponse | Response for a brief question in a generated test |
| 6 | CreateLessonResponse | Response for creating a lesson api |
| 7 | TestAnswerResponse | Response for an answer of a question in a generated test |
| 8 | TestPartResponse | Response for a generated test |
| 9 | TestQuestionResponse | Response for a question in a generated test |
| 10 | TestResultResponse | Response for test result |
| 11 | TestSinglePartResponse | Response for generating a single-skill test api |
| 12 | GetCourseResponse | Response for getting list courses api |
| 13 | GetTestResponse | Response for getting a taken test api |
| 14 | GetLearnerTestsResponse | Response for getting learner tests api |
| 15 | GetLessonResponse | Response for getting a lesson api |
| 16 | GetLessonVersionResponse | Response for getting a lesson version api |
| 17 | GetListUsersResponse | Response for getting list users api |
| 18 | GetUserResponse | Response for getting a user api |
| 19 | LoginResponse | Response for login api |
| 20 | QuestionResponse | Response for a question |
| 21 | Response | Response form for all api |
| 22 | ResponseCode | Return code for each api |
| 23 | StatsCourseAvgResponse | Response for getting average result of tests via course statistic api |
| 24 | StatsLastTestResponse | Response for getting last test statistic api |
| 25 | StatsLessonsResponse | Response for getting lesson statistic api |
| 26 | StatsQuestionsResponse | Response for getting questions statistic api |
| 27 | StatsSkillAvgResponse | Response for getting average result of tests via skill statistic api |
| 28 | StatsUsersResponse | Response for getting users statistic api |
| 29 | UploadFileResponse | Response for uploading api |

### AddQuestionResponseData Class

#### Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Attribute | Type | Default | Note | Description |
| 1 | questionId | Integer |  | private |  |

### AnswerResponse Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | answer | String | private |  |
| 2 | isRight | Boolean | private |  |

### BriefAnswerResponse Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | answer | String | private |  |
| 2 | isRight | Boolean | private |  |
| 3 | isSelected | Boolean | private |  |

### BriefLessonResponse Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | lessonId | Integer | private |  |
| 2 | title | String | private |  |
| 3 | state | Integer | private |  |
| 4 | courseId | Integer | private |  |
| 5 | version | Integer | private |  |
| 6 | description | String | private |  |

### BriefQuestionResponse Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | questionId | Integer | private |  |
| 2 | question | String | private |  |
| 3 | attachment | String | private |  |

### CreateLessonResponse Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | lessonId | Integer | private |  |
| 2 | courseId | Integer | private |  |
| 3 | version | Integer | private |  |
| 4 | lessonTitle | String | private |  |
| 5 | description | String | private |  |
| 6 | creatorId | Integer | private |  |
| 7 | createDate | Long | private |  |
| 8 | vocabulary | String | private |  |
| 9 | grammar | String | private |  |
| 10 | reading | String | private |  |
| 11 | listening | String | private |  |
| 12 | practice | String | private |  |
| 13 | article | String | private |  |

### ExamAnswerResponse Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | answer | Integer | private |  |
| 2 | isRight | Boolean | private |  |
| 3 | isSelected | Boolean |  |  |

### ExamPartResponse Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | examId | Integer | private |  |
| 2 | skill | Integer | private |  |
| 3 | etaTime | Integer | private |  |
| 4 | offlineCheck | Boolean | private |  |

### ExamQuestionResponse Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | questionId | Integer | private |  |
| 2 | questionType | Integer | private |  |
| 3 | question | String | private |  |
| 4 | numberOfQuestion | Integer | private |  |
| 5 | questionAnswerType | Integer | private |  |
| 6 | attachment | String | private |  |
| 7 | isChanged | Boolean | private |  |

### ExamResultResponse Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | examId | Integer | private |  |
| 2 | course | Integer | private |  |
| 3 | skill | Integer | private |  |
| 4 | offlineCheck | Boolean | private |  |
| 5 | etaTime | Integer | private |  |

### ExamSinglePartResponseClass

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | examId | Integer | private |  |
| 2 | result | Double | private |  |

### GetCourseResponse Class

#### Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Attribute | Type | Default | Note | Description |
| 1 | name | String |  | private |  |
| 2 | description | String |  | private |  |

### GetExamResponse Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | examId | Integer | private |  |
| 2 | courseId | Integer | private |  |
| 3 | questionSkill | Integer | private |  |
| 4 | result | Double | private |  |
| 5 | takenTime | Integer | private |  |
| 6 | etaTime | Integer | private |  |

### GetLearnerExamsResponseData Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | exams | ExamResponseData | private |  |

### GetLessonResponse Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | lessonId | Integer | private |  |
| 2 | courseId | Integer | private |  |
| 3 | lessonTitle | String | private |  |
| 4 | description | String | private |  |
| 5 | updateDate | Long | private |  |
| 6 | state | Integer | private |  |
| 7 | version | Integer | private |  |
| 8 | vocabulary | String | private |  |
| 9 | grammar | String | private |  |
| 10 | conversation | String | private |  |
| 11 | listening | String | private |  |
| 12 | practice | String | private |  |
| 13 | reading | String | private |  |
| 14 | previousLessonId | Integer | private |  |
| 15 | nextLessonId | Integer | private |  |

### GetLessonVersionResponse Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | lessonId | Integer | private |  |
| 2 | courseId | Integer | private |  |
| 3 | version | Integer | private |  |
| 4 | lessonTitle | String | private |  |
| 5 | description | String | private |  |
| 6 | creatorId | Integer | private |  |
| 7 | createDate | Long | private |  |
| 8 | updateDate | Long | private |  |
| 9 | vocabulary | String | private |  |
| 10 | grammar | String | private |  |
| 11 | reading | String | private |  |
| 12 | listening | String | private |  |
| 13 | practice | String | private |  |
| 14 | article | String | private |  |
| 15 | listVersions | List< Integer> | private |  |

### GetListUsersResponseData Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | listUsers | List<GetUserResponseData> | private |  |

### GetUserResponseData Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | email | String | private |  |
| 2 | userName | String | private |  |
| 3 | firstName | String | private |  |
| 4 | lastName | String | private |  |
| 5 | dob | Long | private |  |
| 6 | joinDate | Long | private |  |
| 7 | address | String | private |  |
| 8 | role | Integer | private |  |
| 9 | hobby | String | private |  |
| 10 | bio | String | private |  |
| 11 | website | String | private |  |
| 12 | quote | String | private |  |

### LoginResponse Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | role | Integer | private |  |

### QuestionResponse Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | questionId | Integer | private |  |
| 2 | questionCode | Integer | private |  |
| 3 | questionAnswerType | Integer | private |  |
| 4 | questionType | Integer | private |  |
| 5 | questionSkill | Integer | private |  |
| 6 | courseId | Integer | private |  |
| 7 | question | String | private |  |
| 8 | state | Integer | private |  |
| 9 | createDate | Long | private |  |
| 10 | updateDate | Long | private |  |

### Response Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | code | Integer | private |  |
| 2 | data | String | private |  |

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 |  |  |

### ResponseCode Class

#### Attributes

|  |  |  |  |
| --- | --- | --- | --- |
| No | Attribute | Type | Value |
| 1. 1 | SUCCESS | int | 200 |
| 1. 2 | CREATED | int | 201 |
| 1. 3 | FOUND | int | 302 |
| 1. 3 | BAD\_REQUEST | int | 400 |
|  | UNAUTHORIZED | int | 401 |
|  | PERMISSION\_DENIED | int | 403 |
|  | REQUEST\_TIMEOUT | int | 408 |
|  | INVALID\_EMAIL | int | 410 |
|  | DUPLICATED\_EMAIL | int | 411 |
|  | EMAIL\_NOT\_FOUND | int | 412 |
|  | DUPLICATED\_USERNAME | int | 413 |
|  | CORRUPTED\_FORM | int | 460 |
|  | USERNAME\_EXPECTED | int | 461 |
|  | PASSWORD\_EXPECTED | int | 462 |
|  | EMAIL\_EXPECTED | int | 463 |
|  | INVALID\_PASSWORD | int | 420 |
|  | INCORRECT\_PASSWORD | int | 421 |
|  | USER\_NOT\_FOUND | int | 430 |
|  | USER\_NOT\_ALLOW | int | 431 |
|  | USER\_INACTIVE | int | 432 |
|  | USER\_EXAMS\_NOT\_FOUND | int | 433 |
|  | USERNAME\_PASSWORD\_NOT\_MATCH | int | 470 |
|  | PASSWORD\_INCORRECT | int | 471 |
|  | QUESTION\_NOT\_FOUND | int | 440 |
|  | INTERNAL\_SERVER\_ERROR | int | 500 |
|  | UNSUPPORTED\_API | int | 600 |

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 |  |  |

### StatsLastExamResponse Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | result | Double | private |  |

### StatsLessonsResponse Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | numberOfLessons | Integer | private |  |

### StatsQuestionsResponse Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | numberOfLessons | Integer | private |  |

### StatsSkillAvgResponse Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | listening | Double | private |  |
| 2 | reading | Double | private |  |
| 3 | vocabulary | Double | private |  |
| 4 | grammar | Double | private |  |

### StatsUsersResponse Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | activeUser | Integer | private |  |
| 2 | totalUser | Integer | private |  |

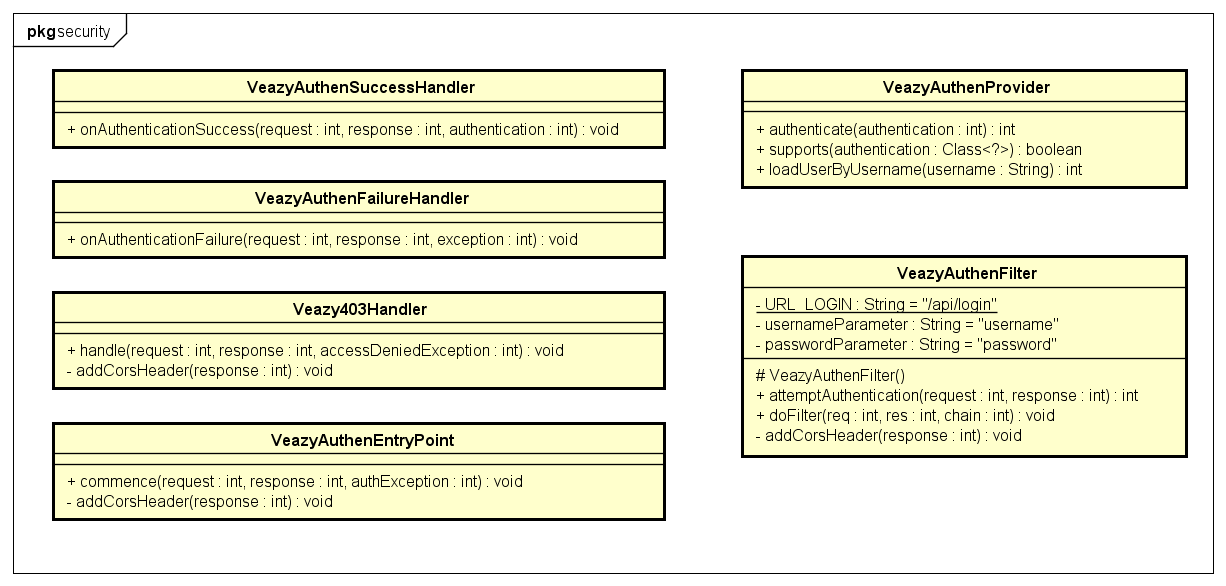
### UploadFileResponse Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | link | String | private |  |

## core.security package

### Class diagram



**Figure 8: Class diagram core.security package**

|  |  |  |
| --- | --- | --- |
| No | Class Name | Description |
| 1 | Veazy403Handler | Handles 403 forbidden error |
| 2 | VeazyAuthenEntryPoint | Handles anonymous requests |
| 3 | VeazyAuthenFailureHandler | Handles authentication failure requests |
| 4 | VeazyAuthenFilter | Filters authentication requests |
| 5 | VeazyAuthenProvider | Provides authentication mechanism |
| 6 | VeazyAuthenSuccessHandler | Handles authentication success requests |

### Veazy403Handler Class

#### Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | Attribute | Type | Default | Note | Description |
| 1 |  |  |  |  |  |

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | handle() |  |

### VeazyAuthenEntryPoint Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | commence() |  |

### VeazyAuthenFailureHandler Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | onAuthenticationFailure() |  |

### VeazyAuthenFilter Class

#### Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Attribute | Type | Note | Description |
| 1 | URL\_LOGIN | String | private |  |
| 2 | usernameParameter | String | private |  |
| 3 | passwordParameter | String | private |  |

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | attemptAuthentication() |  |
| 2 | doFilter() |  |
| 3 | addCorsHeader() |  |

### VeazyAuthenProvider Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | authenticate() |  |
| 2 | supports() |  |
| 3 | loadUserByUsername() |  |

### VeazyAuthenSuccessHandler Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | onAuthenticationSuccess() |  |

## core.service Package

### C:\Users\CuHo\Desktop\Diagram v2\Service.pngClass diagram

**Figure 9: Class diagram core.service package**

|  |  |  |
| --- | --- | --- |
| No | Class Name | Description |
| 1 | CourseServiceImpl | Contains business logical functions for processing course data |
| 2 | TestServiceImpl | Contains business logical functions for processing test data |
| 3 | LessonServiceImpl | Contains business logical functions for processing lesson data |
| 4 | QuestionBankServiceImpl | Contains business logical functions for processing question bank data |
| 5 | QuestionServiceImpl | Contains business logical functions for processing question data |
| 6 | ReportServiceImpl | Contains business logical functions for processing report data |
| 7 | StatsServiceImpl | Contains business logical functions for processing statistic data |
| 8 | UserServiceImpl | Contains business logical functions for processing user data |

### CourseServiceImpl Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | getCourses() |  |

### ExamServiceImpl Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | findLearnerExams() |  |
| 2 | saveExam() |  |

### LessonServiceImpl Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | createLesson() |  |
| 2 | getLessonVersion() |  |
| 3 | updateLesson() |  |
| 4 | publishLessonVersion() |  |
| 5 | reportLesson() |  |
| 6 | getLessonsOfCourse() |  |
| 7 | getLesson() |  |
| 8 | deleteLesson() |  |
| 9 | getAllLesson() |  |

### QuestionBankServiceImpl Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | generateTest() |  |
| 2 | getSingleQuestion() |  |

### QuestionServiceImpl Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | saveQuestion() |  |
| 2 | findQuestionById() |  |
| 3 | findQuestionByCode() |  |
| 4 | findAllQuestion() |  |
| 5 | update() |  |
| 6 | delete() |  |
| 7 | size() |  |

### ReportServiceImpl Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | saveReport() |  |
| 2 | getReport() |  |
| 3 | getAllReports() |  |
| 4 | readReport() |  |
| 5 | deleteReport() |  |

### StatsServiceImpl Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | getSkillAvg() | Return average exam point for each skill of a user. |
| 2 | getLastExamResult() | Return last exam result of a user. |
| 3 | getCourseAvg() | Return average exam point for each course of a user. |

### UserServiceImpl Class

#### Methods

|  |  |  |
| --- | --- | --- |
| No | Method | Description |
| 1 | saveUser() |  |
| 2 | saveUser() |  |
| 3 | findUserById() |  |
| 4 | findUserByEmail() |  |
| 5 | findUserByUsername() |  |
| 6 | findAllUser() |  |
| 7 | update() |  |
| 8 | update() |  |
| 9 | delete() |  |
| 10 | deleteUsers() |  |
| 11 | size() |  |
| 12 | changeUserRoll() |  |
| 13 | changePassword() |  |