

**Capstone Project Report**

**Report 4 – Software Design Document**

– Ho Chi Minh City, 01/2021 –

**Table of Contents**

[I. Project Report 5](#_Toc70305101)

[1. Status Report 5](#_Toc70305102)

[2. Team Involvements 5](#_Toc70305103)

[3. Issues/Suggestions 5](#_Toc70305104)

[II. Software Design Document 6](#_Toc70305105)

[1. Overall Description 6](#_Toc70305106)

[1.1 Assumptions 6](#_Toc70305107)

[1.2 Design Constraints 6](#_Toc70305108)

[2. System Architecture Design 6](#_Toc70305109)

[2.1 Overall Architecture 6](#_Toc70305110)

[2.2 System Architecture 7](#_Toc70305111)

[2.3. Package Diagram 8](#_Toc70305112)

[3. System Detailed Design 10](#_Toc70305113)

[3.1 Class Diagram 10](#_Toc70305114)

[3.2 Sequence Diagram(s) 11](#_Toc70305115)

[3.3 Activity Diagram(s) 19](#_Toc70305116)

[4. Class Specifications 25](#_Toc70305117)

[4.1 User 25](#_Toc70305118)

[4.2 PersonalActivity 25](#_Toc70305119)

[4.3 Role 26](#_Toc70305120)

[4.4 Memorandum 26](#_Toc70305121)

[4.5 TargetSchool 27](#_Toc70305122)

[4.6 Report 27](#_Toc70305123)

[4.7 School 28](#_Toc70305124)

[4.8 District 29](#_Toc70305125)

[4.9 SchoolStatus 29](#_Toc70305126)

[4.10 TargetSchoolPurpose 30](#_Toc70305127)

[4.11 EducationalLevel 30](#_Toc70305128)

[4.12 SchoolScale 30](#_Toc70305129)

[4.13 SchoolType 30](#_Toc70305130)

[5. Data & Database Design 31](#_Toc70305131)

[5.1 Database diagram 31](#_Toc70305132)

[5.2 Data File Design 37](#_Toc70305133)

**List Tables**

[Table 1. Overall Architecture Data Dictionary 6](#_Toc70305929)

[Table 2. Package Diagram Specifications 10](#_Toc70305930)

[Table 3. Class User Specification - Attributes 25](#_Toc70305931)

[Table 4. Class User Specification - Methods 25](#_Toc70305932)

[Table 5. Class PersonalActivity Specification - Attributes 26](#_Toc70305933)

[Table 6. Class PersonalActivity Specification - Methods 26](#_Toc70305934)

[Table 7. Class Role Specification - Attributes 26](#_Toc70305935)

[Table 8. Class Role Specification - Methods 26](#_Toc70305936)

[Table 9. Class Memorandum Specification - Attributes 27](#_Toc70305937)

[Table 10. Class Memorandum Specification - Methods 27](#_Toc70305938)

[Table 11. Class TargetSchool Specification - Attributes 27](#_Toc70305939)

[Table 12. Class TargetSchool Specification - Methods 27](#_Toc70305940)

[Table 13. Class Report Specification - Attributes 28](#_Toc70305941)

[Table 14. Class Report Specification - Methods 28](#_Toc70305942)

[Table 15. Class School Specification - Attributes 29](#_Toc70305943)

[Table 16. Class School Specification - Methods 29](#_Toc70305944)

[Table 17. Class District Specification - Attributes 29](#_Toc70305945)

[Table 18. Class District Specification - Methods 29](#_Toc70305946)

[Table 19. Class SchoolStatus Specification - Attributes 29](#_Toc70305947)

[Table 20. Class SchoolStatus Specification - Methods 29](#_Toc70305948)

[Table 21. Class TargetSchoolPurpose Specification - Attributes 30](#_Toc70305949)

[Table 22. Class TargetSchoolPurpose Specification - Methods 30](#_Toc70305950)

[Table 23. Enum Class EducationalLevel Specification 30](#_Toc70305951)

[Table 24. Enum Class SchoolScale Specification 30](#_Toc70305952)

[Table 25. Enum Class SchoolType Specification 30](#_Toc70305953)

[Table 26. Description for table "school" 33](#_Toc70305954)

[Table 27. Description for table "district" 33](#_Toc70305955)

[Table 28. Description for table "school\_status" 33](#_Toc70305956)

[Table 29. Description for table "target\_school" 34](#_Toc70305957)

[Table 30. Description for table "report" 34](#_Toc70305958)

[Table 31. Description for table "target\_school\_purpose" 34](#_Toc70305959)

[Table 32. Description for table "user" 35](#_Toc70305960)

[Table 33. Description for table "role" 35](#_Toc70305961)

[Table 34. Description for table "personal\_activity" 36](#_Toc70305962)

[Table 35. Description for table "memorandum" 37](#_Toc70305963)

[Table 36. Data File Design 37](#_Toc70305964)

**List Figures**

[Figure 1. System Architecture 7](#_Toc70329827)

[Figure 2. Package Diagram 8](#_Toc70329828)

[Figure 3. Class Diagram 10](#_Toc70329829)

[Figure 4. Create memorandum 11](#_Toc70329830)

[Figure 5. Create new accounts 12](#_Toc70329831)

[Figure 6. Edit school’s information 13](#_Toc70329832)

[Figure 7. Remove personal activities 14](#_Toc70329833)

[Figure 8. Edit personal activities 15](#_Toc70329834)

[Figure 9. View target school details 16](#_Toc70329835)

[Figure 10. Remove report 17](#_Toc70329836)

[Figure 11. Edit report 18](#_Toc70329837)

[Figure 12. Create target schools 19](#_Toc70329838)

[Figure 13. Assign salesmen to target schools 20](#_Toc70329839)

[Figure 14. Update target school's details 21](#_Toc70329840)

[Figure 15. Remove a target school 22](#_Toc70329841)

[Figure 16. Create reports 23](#_Toc70329842)

[Figure 17. Update report 24](#_Toc70329843)

[Figure 18. Database Diagram 32](#_Toc70329844)

# I. Project Report

## 1. Status Report

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **Work Item** | **Status** | **Notes (Work Item in Details)** |
| 1 |  | Pending |  |
| 2 |  | In Progress |  |
| 3 |  | Completed |  |

## 2. Team Involvements

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **Task** | **Member** | **Notes (Task Details, etc.)** |
| 1 |  | NguyenLG |  |
| 2 |  | HaPTN |  |
| 3 |  | GiaNG |  |

## 3. Issues/Suggestions

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **Issue** | **Status** | **Notes (Solution, Suggestion, etc.)** |
| 1 |  | Pending |  |
| 2 |  | In Progress |  |
| 3 |  | Completed |  |

# II. Software Design Document

## 1. Overall Description

### 1.1 Assumptions

This system is designed basing on these following assumptions:

* Web application
* ReactJS
* Spring boot
* MySQL
* 3-Tier architecture

### 1.2 Design Constraints

This system should be complied with following items:

* The system should work on Laptop, Tablet, Mobile.
* The system must run over the Internet; all the hardware shall require connect to the Internet.
* The system shall communicate through HTTP protocol over the Internet.
* The system shall available 24/7.

## 2. System Architecture Design

### 2.1 Overall Architecture

Our system is built on three-tier architecture, which allows us to modularize the user interface, business logic, and data storage layers. As a result, we gain great flexibility, code reusable, and easy maintenance for not only developing but also implementing the system.

|  |  |
| --- | --- |
| **Overall Architecture Data Dictionary** | |
| **Name** | **Description** |
| Presentation Tier | This tier provides a user interface and handles user interactions. It communicates with the application tier which provides the results to the browser. |
| Application Tier | This tier contains a set of rules for processing information and business logic. All communication goes through the application tier. |
| Data Tier | This tier comprises the database where the information processed by the application tier is stored. |

Table 1. Overall Architecture Data Dictionary

### 2.2 System Architecture

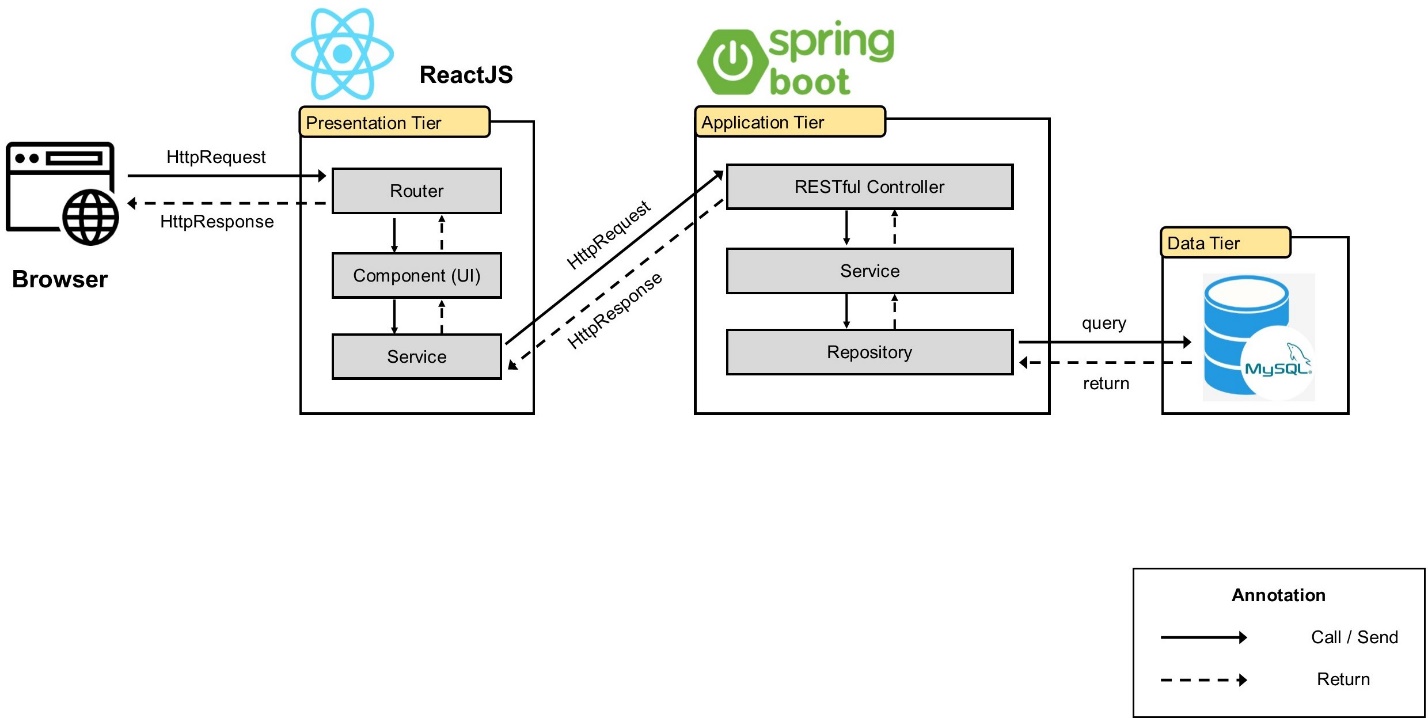


Figure 1. System Architecture

### 2.3. Package Diagram

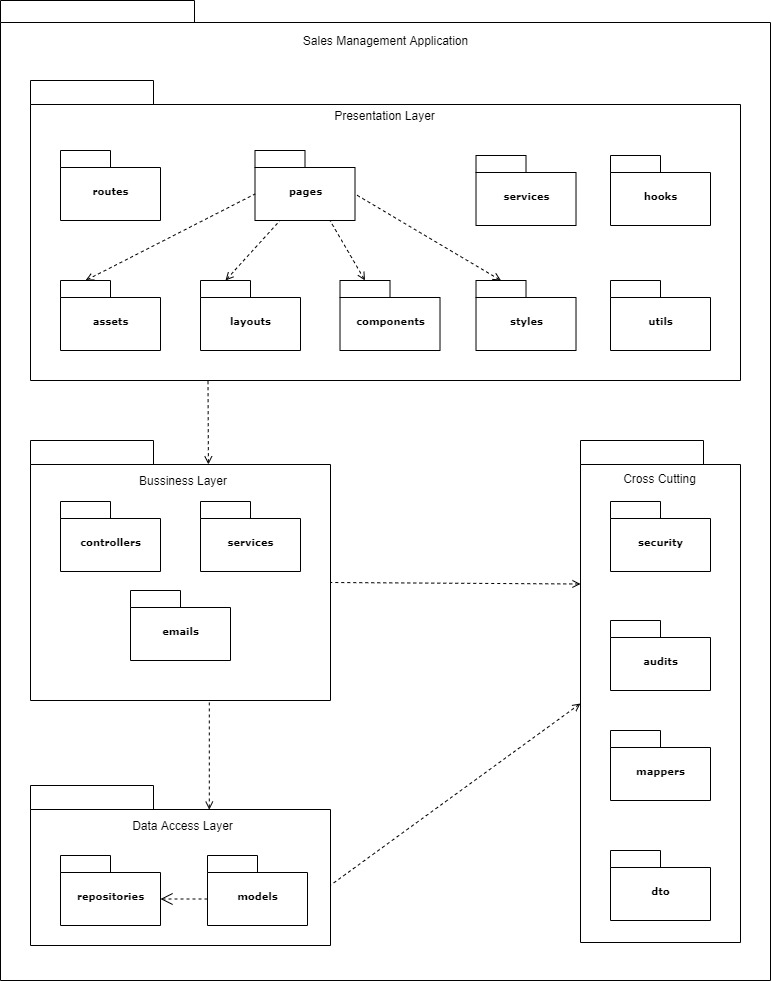


Figure 2. Package Diagram

|  |  |  |
| --- | --- | --- |
| **No** | **Package** | **Description** |
| 01 | routes | The package contains functions for app navigation. |
| 02 | pages | The package contains the pages of the routing. |
| 03 | services | The package contains functions to manage API. |
| 04 | hooks | The package contains custom hook functions. |
| 05 | assets | The package contains images and icons. |
| 06 | layouts | The package contains layout components for the app. |
| 07 | components | The package contains UI components that can be shared. |
| 08 | styles | The package contains global CSS, JavaScript for application-level styles. |
| 09 | utils | The package contains all the helper functions. |
| 10 | controllers | The package contains classes provide RESTful web services. |
| 11 | services | The package contains classes for business logic. |
| 12 | emails | The package contains a class provides email service. |
| 13 | repositories | The package contains classes responsible for communicating with data sources, processing queries, and returning data types requested by the Service layer. |
| 14 | models | The package contains classes that represent persisted data to the database. |
| 15 | security | The package contains classes for JWT handling, authentication, and authorization. |
| 16 | audits | The package contains classes for auditing entity objects. |
| 17 | mappers | The package contains a class to convert data between the DTO and entity objects. |
| 18 | dto | The package contains classes to aggregate and encapsulate data for transfer. |

Table 2. Package Diagram Specifications

## 3. System Detailed Design

### 3.1 Class Diagram

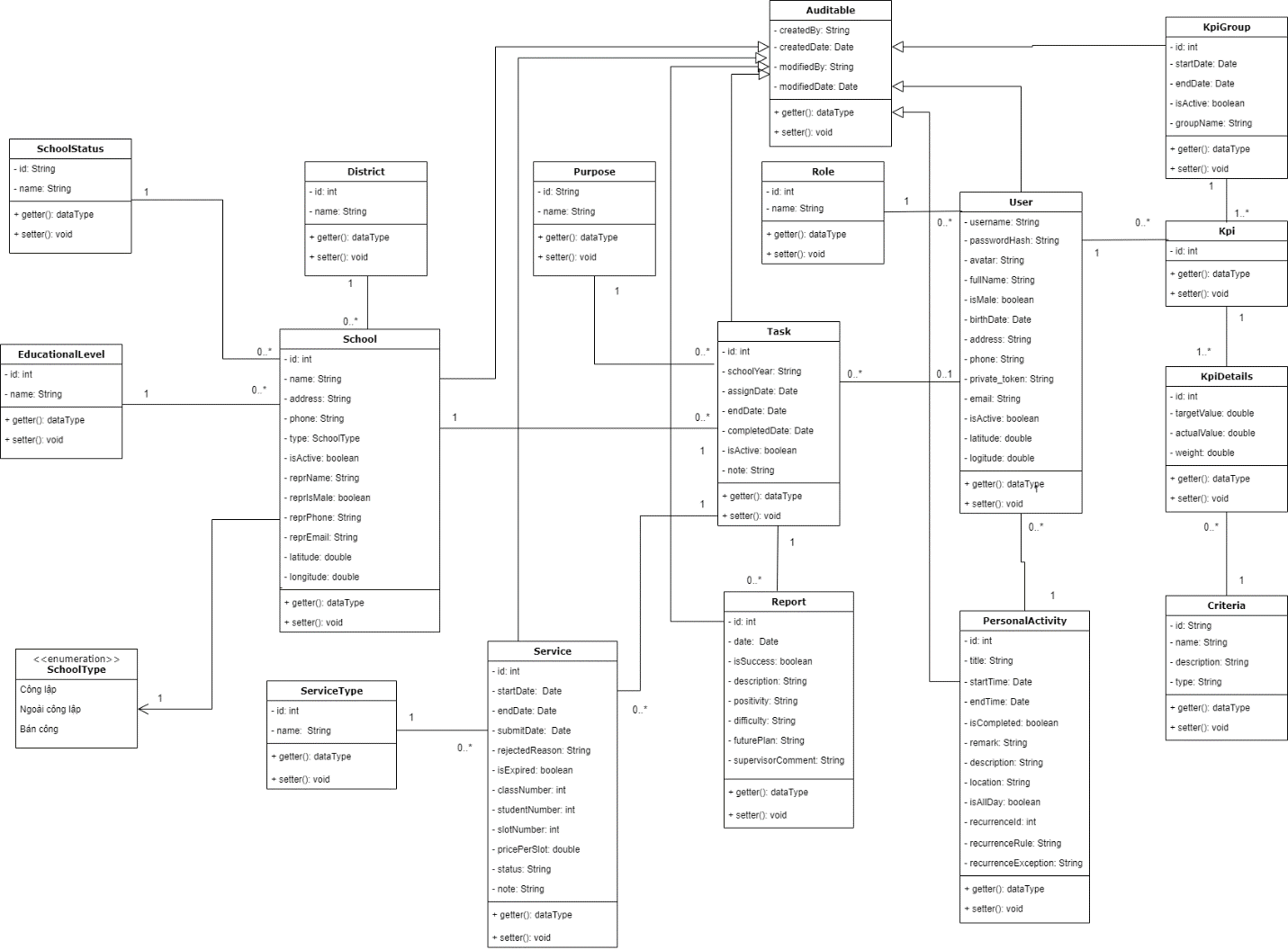


Figure 3. Class Diagram

### 3.2 Sequence Diagram(s)

#### <Administrator> Create new accounts

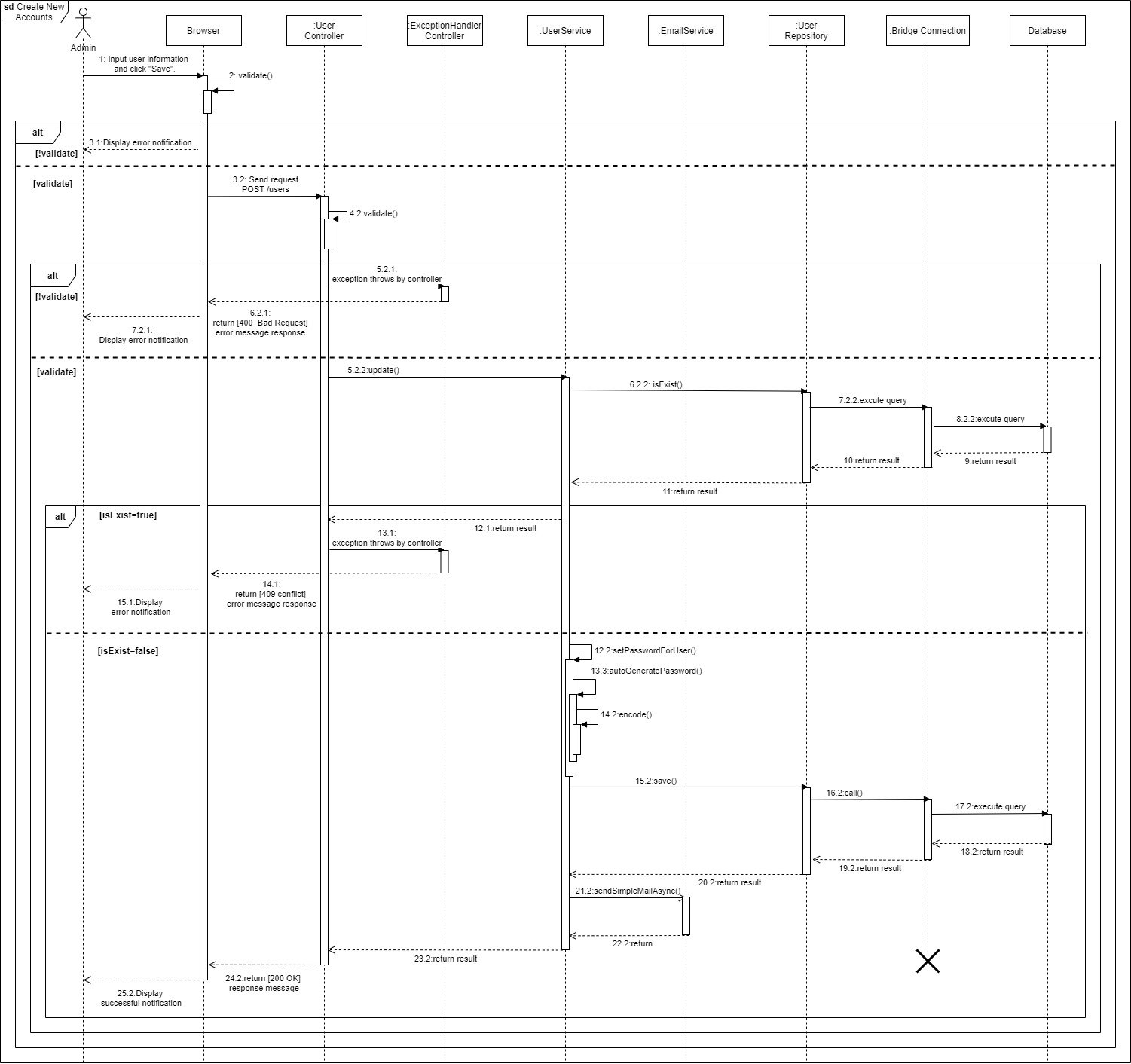


Figure 4. Create new accounts

#### <Administrator> Edit school’s information

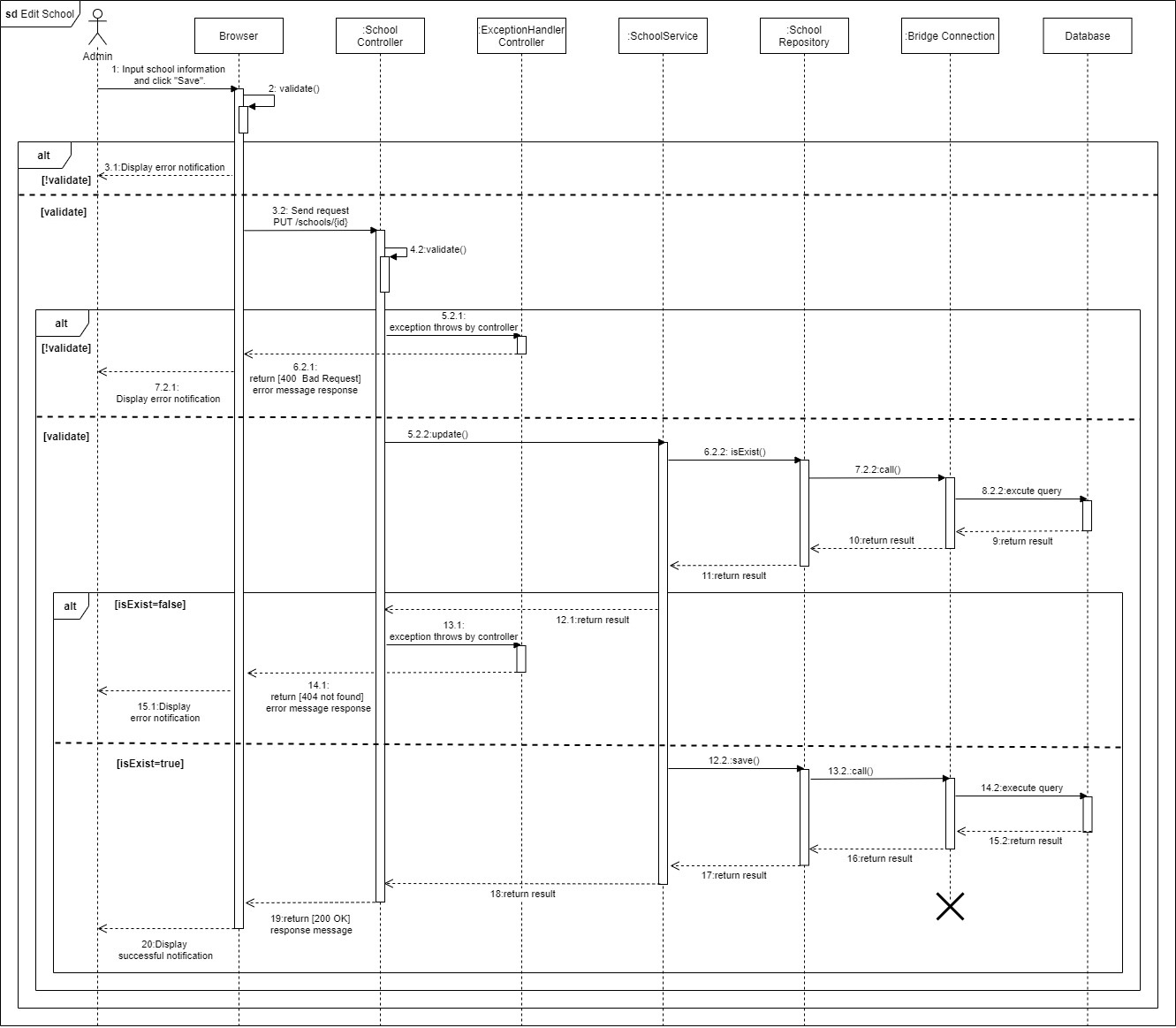


Figure 5. Edit school’s information

#### <Salesman> Remove personal activities

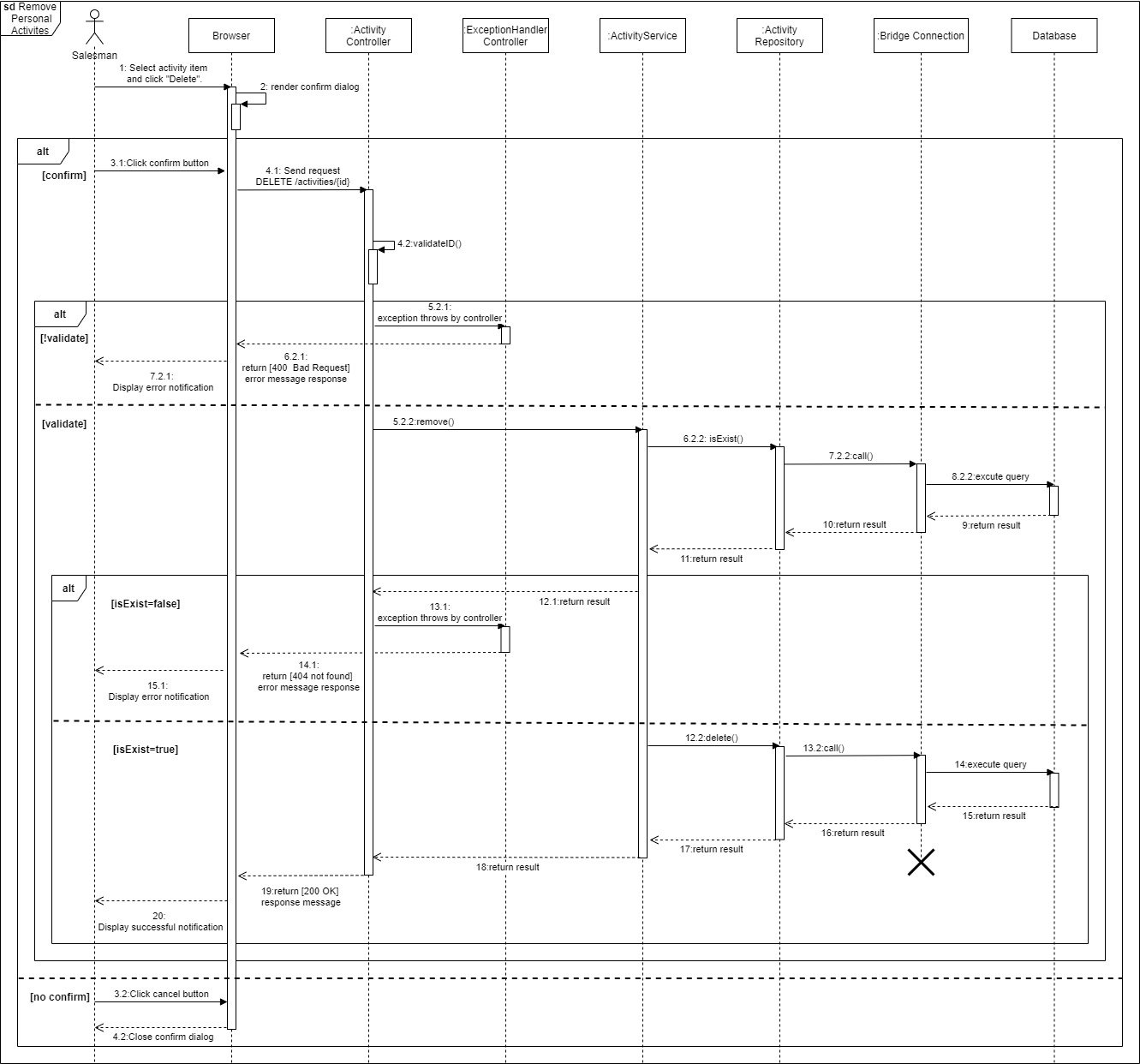


Figure 6. Remove personal activities

#### <Salesman> Edit personal activities

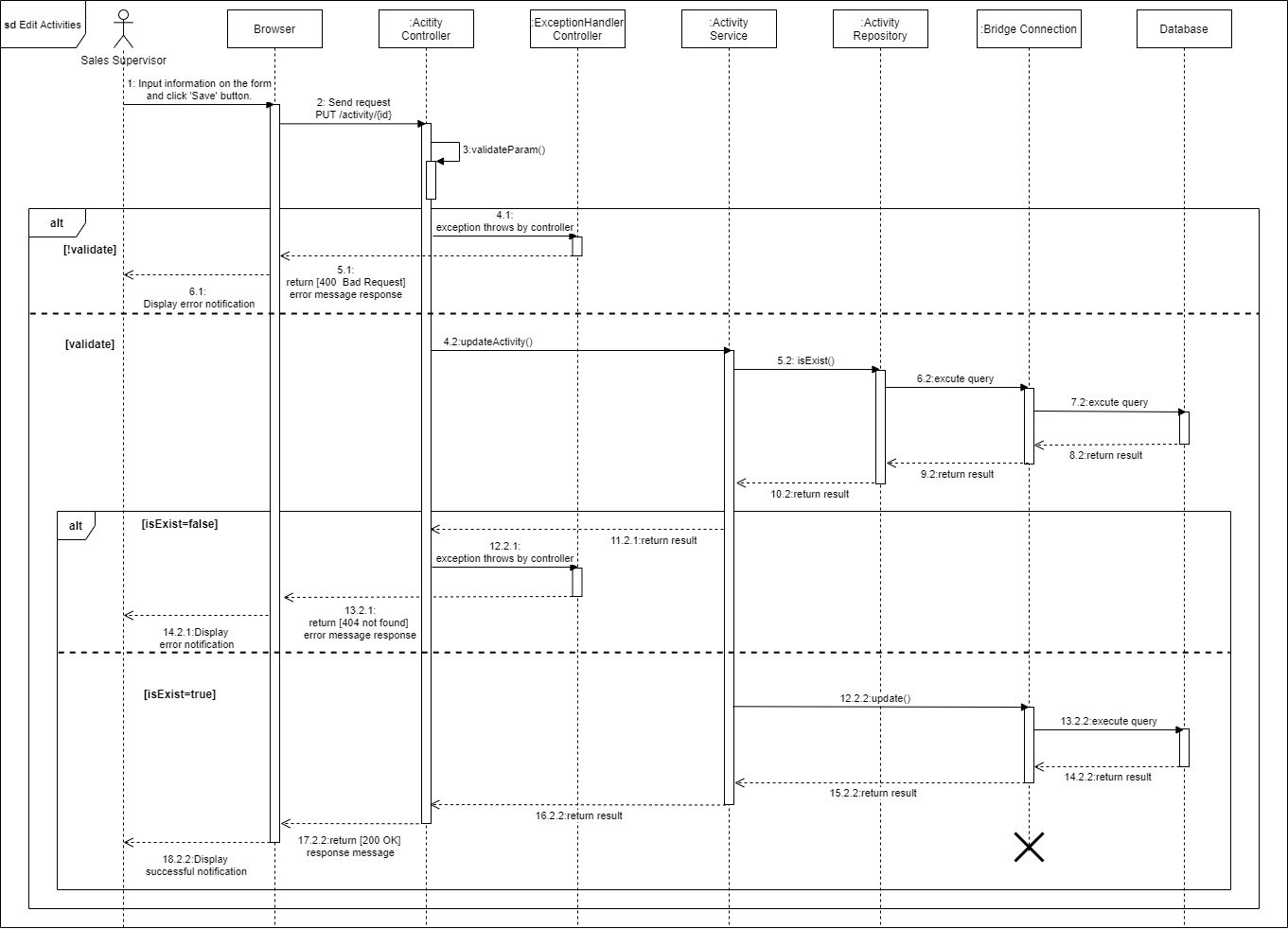


Figure 7. Edit personal activities

#### <Sales Manager> View task details

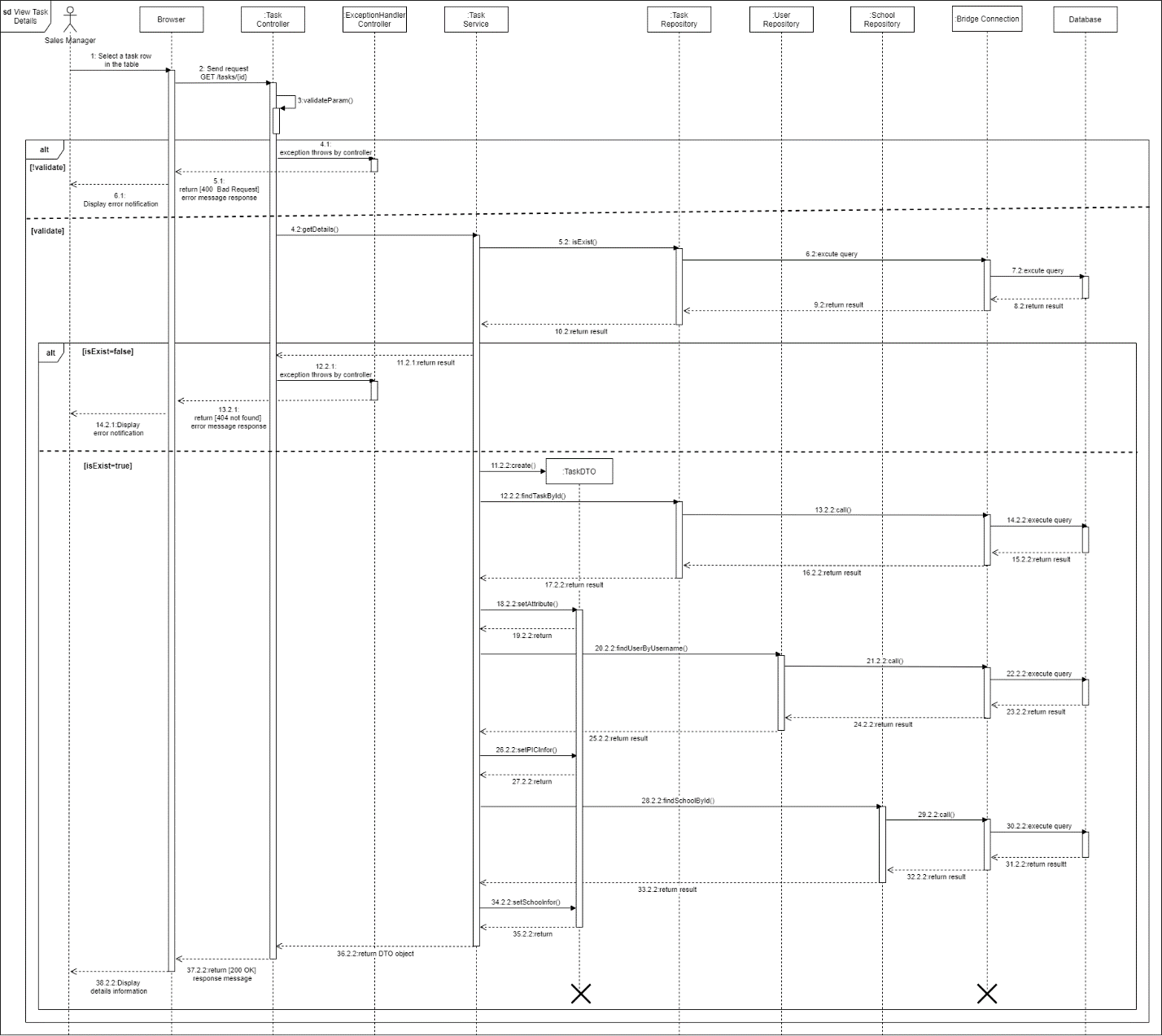


Figure 8. View target school details

#### <Salesman> Remove report

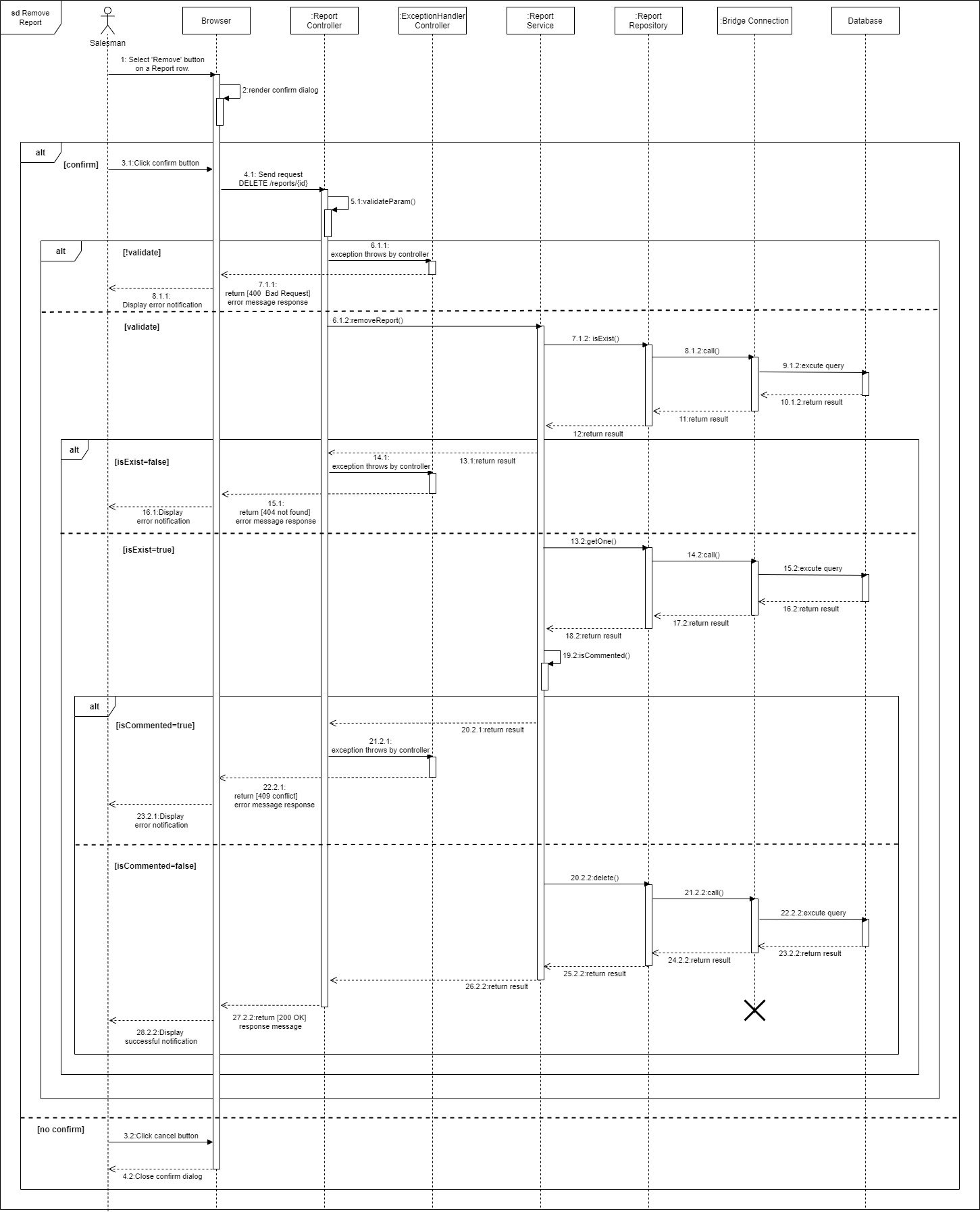


Figure 9. Remove report

#### <Salesman> Edit report

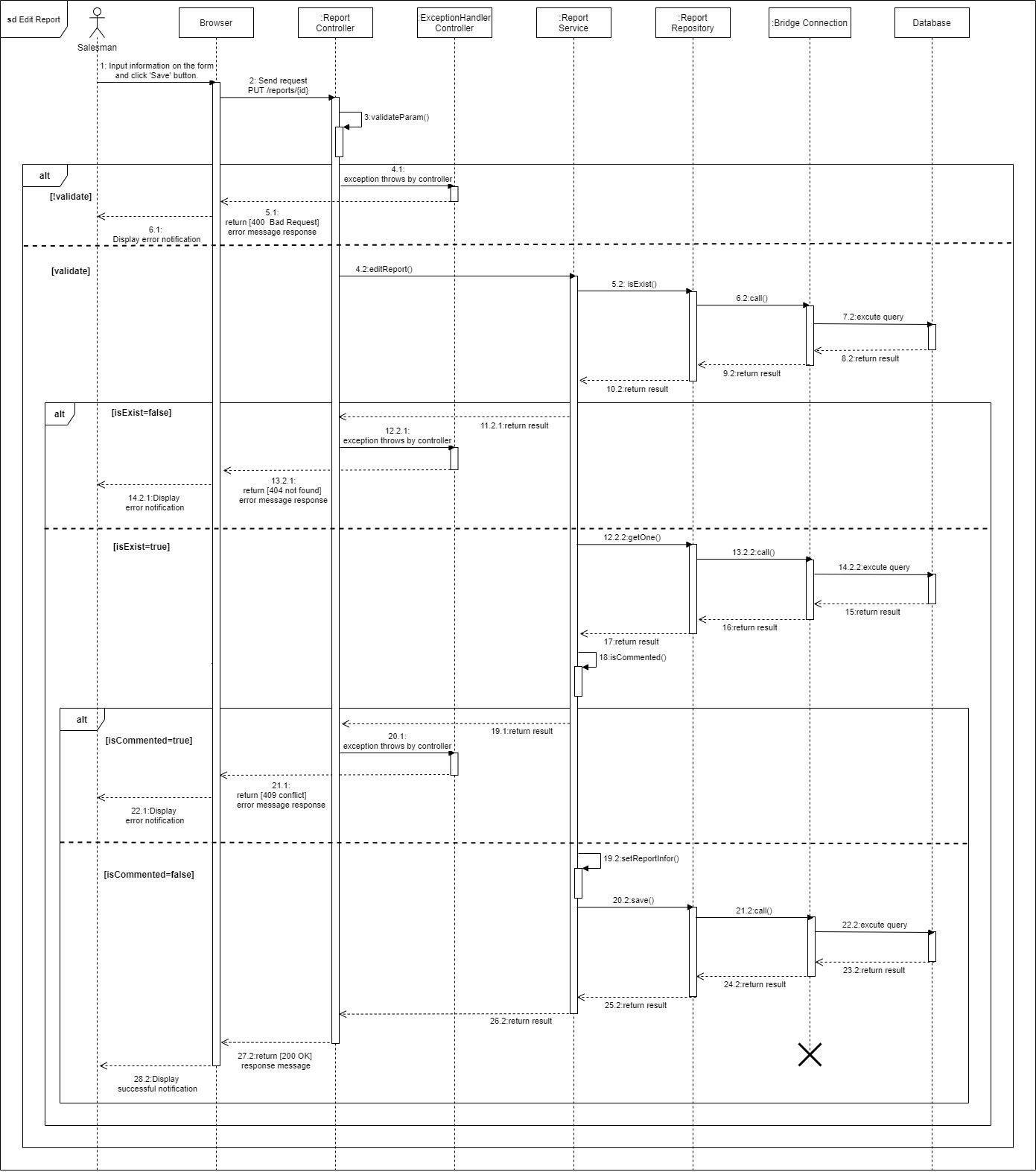


Figure 10. Edit report

### 3.3 Activity Diagram(s)

#### <Sales Manager> Login

Summary: This diagram shows the process by which the sales manager login to the system.

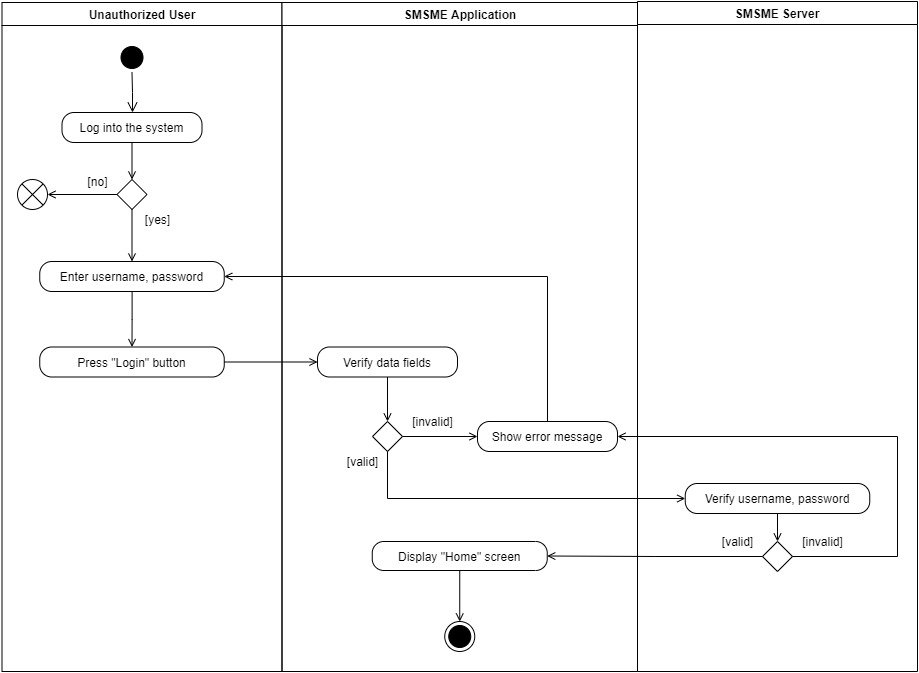


Figure 11. Login

#### <Sales Manager> Create task

Summary: This diagram shows the process by which the sales manager creates a task.

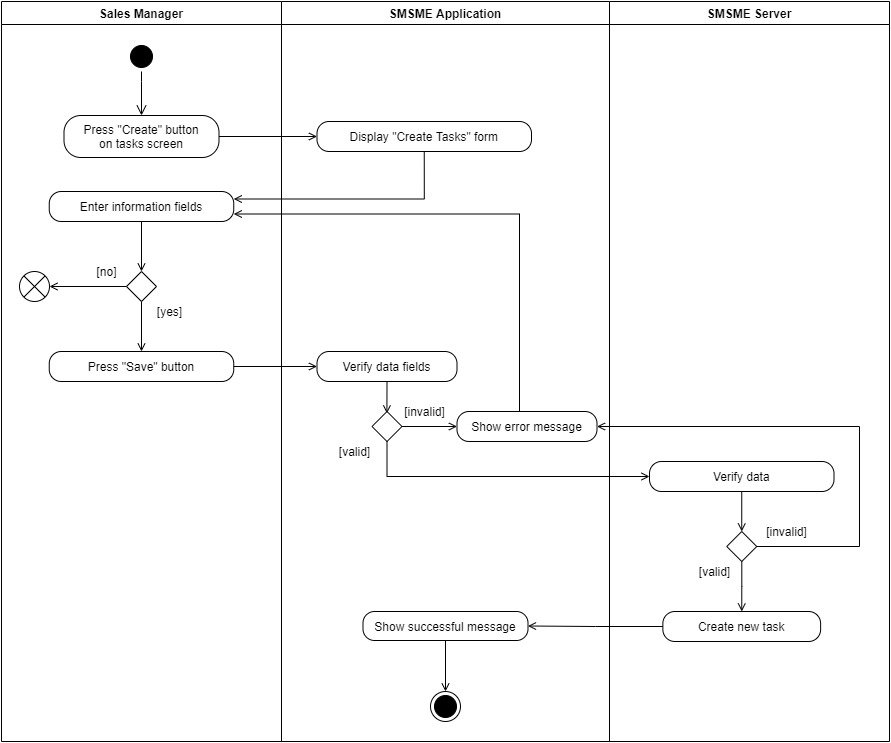


Figure 12. Create task

#### <Sales Manager> Update task

Summary: This diagram shows the process by which the sales manager updates a task.

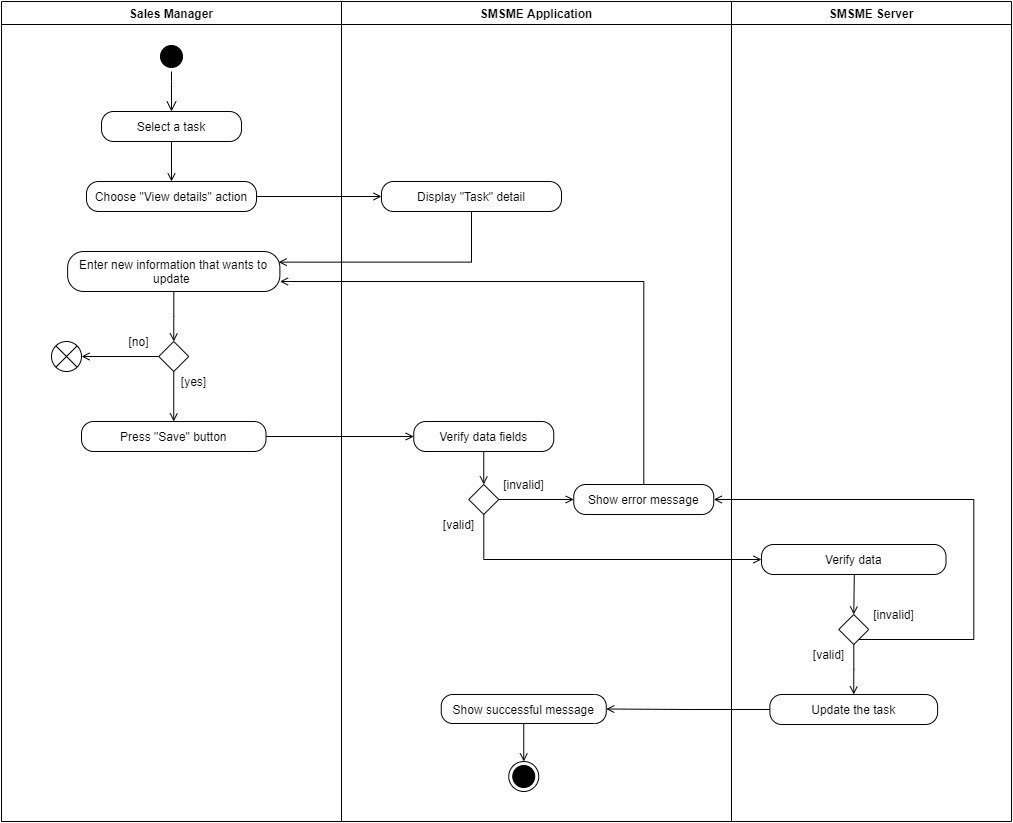


Figure 13. Update task details

#### <Sales Manager> Remove task

Summary: This diagram shows the process by which the sales manager removes a task.

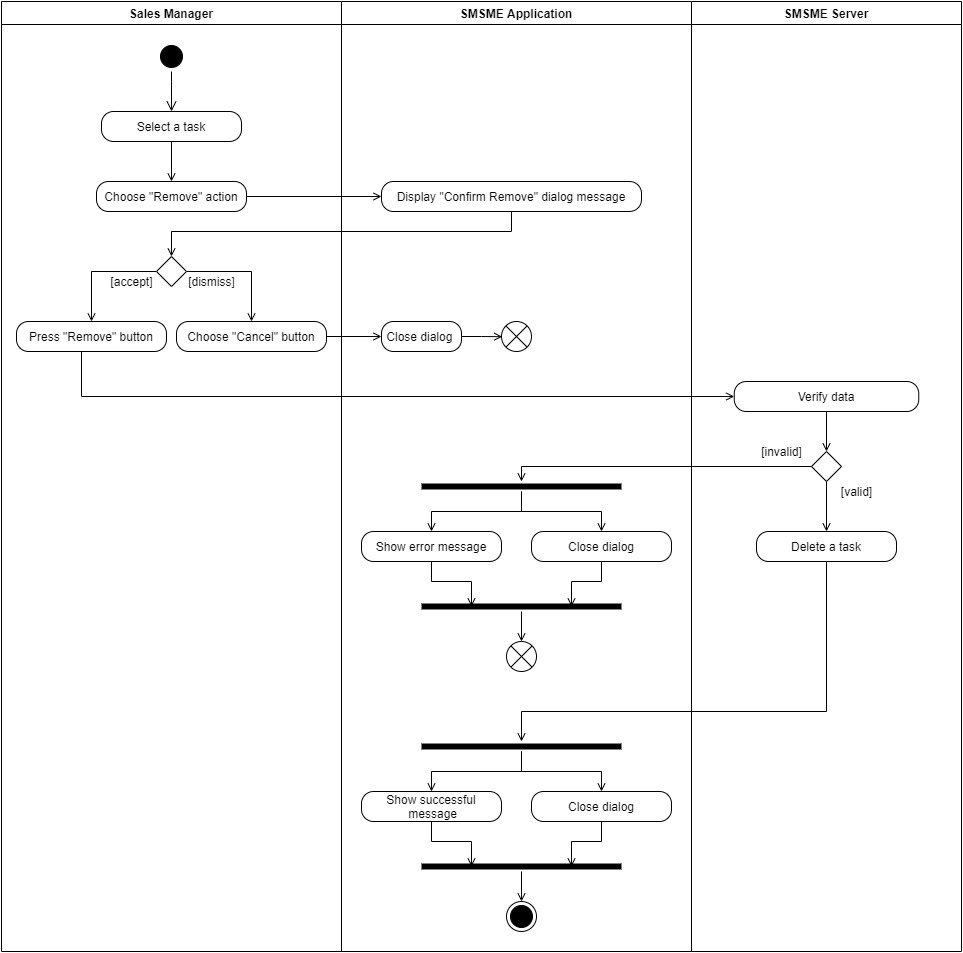


Figure 14. Remove a task

#### <Sales Manager/ Salesman> Create report

Summary: This diagram shows the process by which the sales manager or salesman create a report.

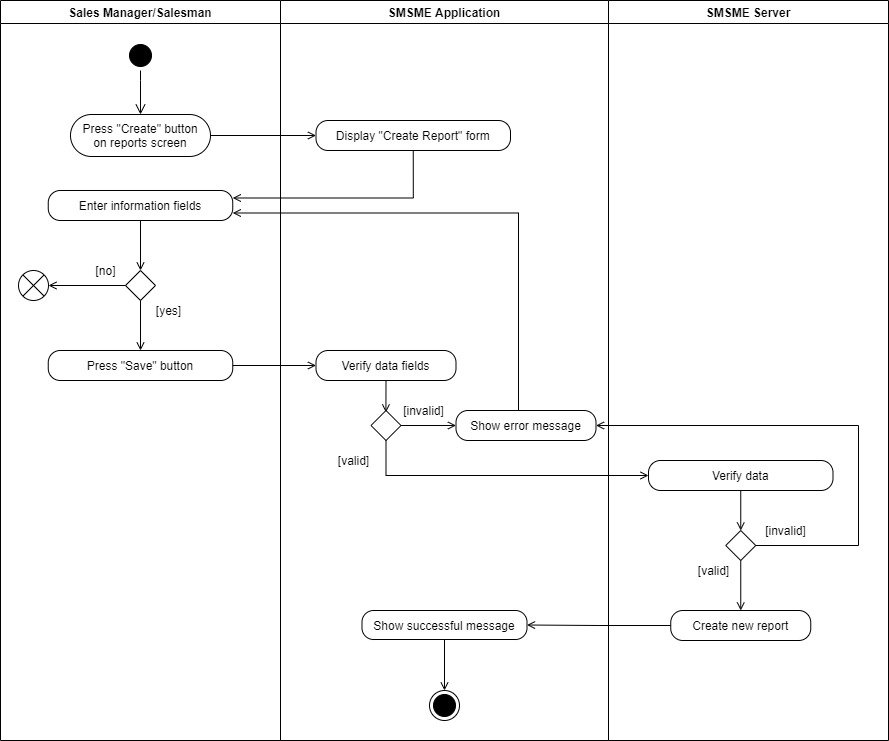


Figure 15. Create reports

#### <Sales Manager/ Salesman> Update report

Summary: This diagram shows the process by which the sales manager or salesman update a report.

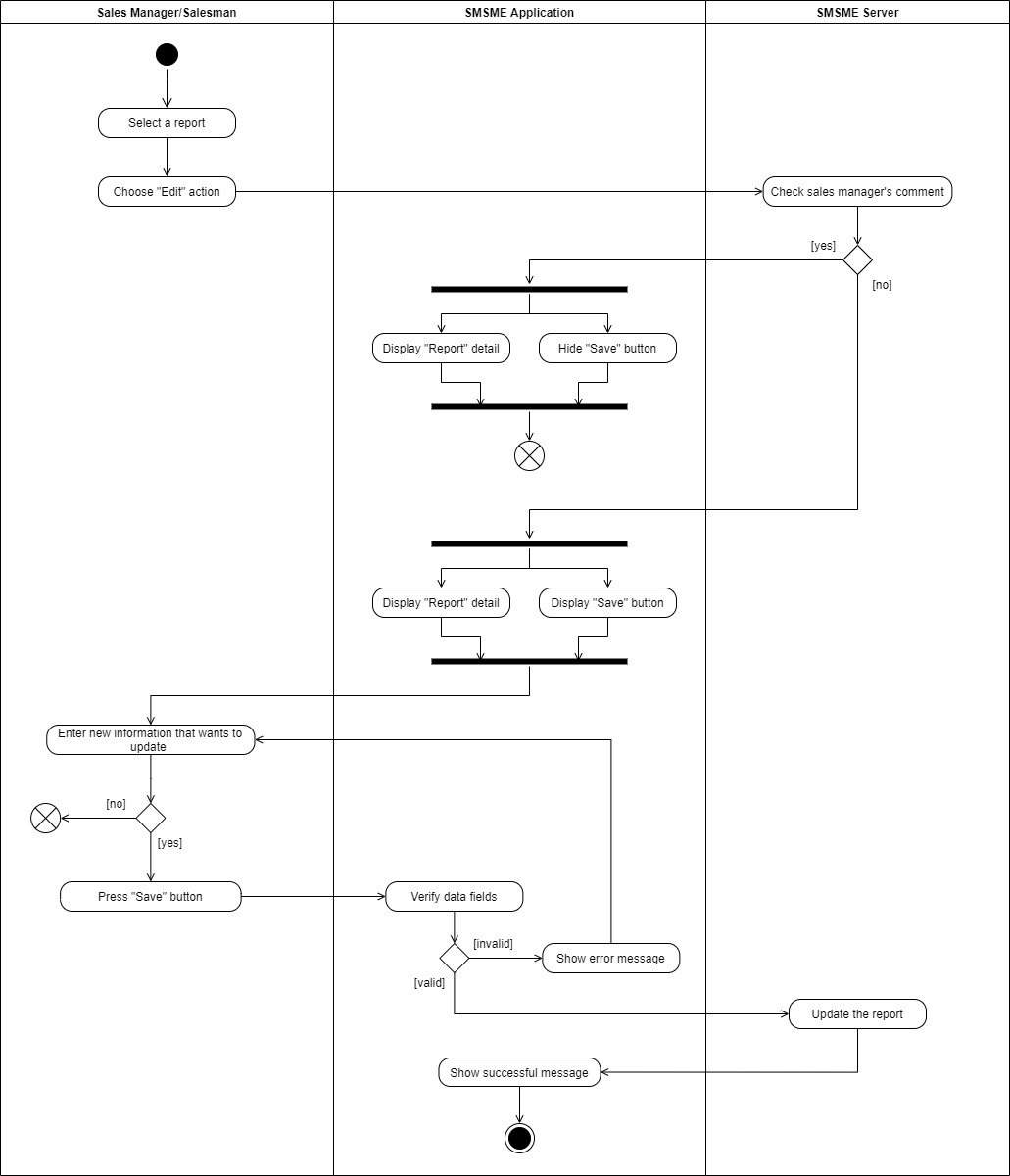


Figure 16. Update report

## 4. Class Specifications

### 4.1 User

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| username | String | private | The unique identifier of a user |
| passwordHash | String | private | The password hash of the user |
| fullName | String | private | The full name of the user |
| address | String | private | The address of the user |
| email | String | private | The email of the user |
| phone | String | private | The phone number of the user |
| isActive | boolean | private | The active status of the user |
| avatar | String | private | The avatar of the user |
| isMale | boolean | private | The gender of the user (true 🡪 male, false 🡪 female) |
| birthDate | Date | private | The birthdate of the user |
| latitude | double | private | The latitude of user’s location. |
| longitude | double | private | The longitude of user’s location. |

Table 3. Class User Specification - Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Method** | **Visibility** | **Return Type** | **Description** |
| 1 | getter | public | dataType | get attribute value |
| 2 | setter | public | void | set attribute value |

Table 4. Class User Specification - Methods

### 4.2 PersonalActivity

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| id | int | private | The unique identifier of a personal activity |
| title | String | private | The title of the personal activity |
| startTime | Date | private | The start time of the personal activity |
| endTime | Date | private | The end time of the personal activity |
| isCompleted | boolean | private | The completed status of the personal activity |
| remark | String | private | The remark of the personal activity |
| description | String | private | The description of the personal activity |
| location | String | private | The location of the personal activity |
| isAllDay | boolean | private | The duration of the personal activity, if it lasts for whole day or not |
| recurrenceId | int | private | The unique identifier of a recurrence series |
| recurrenceRule | String | private | The rule of the recurrence series |
| recurrenceException | String | private | The exception of the recurrence |

Table 5. Class PersonalActivity Specification - Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Method** | **Visibility** | **Return Type** | **Description** |
| 1 | getter | public | dataType | get attribute value |
| 2 | setter | public | void | set attribute value |

Table 6. Class PersonalActivity Specification - Methods

### 4.3 Role

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| id | int | private | The unique identifier of a role |
| name | String | private | The name of the role |

Table 7. Class Role Specification - Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Method** | **Visibility** | **Return Type** | **Description** |
| 1 | getter | public | dataType | get attribute value |
| 2 | setter | public | void | set attribute value |

Table 8. Class Role Specification - Methods

### 4.4 Service

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| id | int | private | The unique identifier of a memorandum |
| startDate | Date | private | The date when the service was launched. |
| endDate | Date | private | The date when the service was finished. |
| submitDate | Date | private | The date when Salesman sumitted the service that was sold. |
| note | String | private | The additional information of the service. |
| rejectReason | String | private | The reason that the Manager rejects the service information sold by Salesman. |
| isExpired | boolean | private | The service expiration status (true -> out of date, false-> current). |
| classNumber | int | private | The number of classes using the service. |
| studentNumber | int | private | The number of students per class using the service. |
| slotNumber | int | private | The number of lesson. |
| pricePerSlot | double | private | The price per lesson. |
| status | String | private | The status of submitted service (approved/ rejected/ pending). |

Table 9. Class Service Specification - Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Method** | **Visibility** | **Return Type** | **Description** |
| 1 | getter | public | dataType | get attribute value |
| 2 | setter | public | void | set attribute value |

Table 10. Class Service Specification - Methods

### 4.5 Task

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| id | int | private | The unique identifier of a task. |
| schoolYear | String | private | The school year of the task. |
| note | String | private | The note of the task. |
| isActive | boolean | private | The active status of the task (use for soft deleting). |
| assignDate | Date | private | The date when the Manager assigns the task to Salesman. |
| endDate | Date | private | The date when task is finished. |
| completedDate | Date | private | The date when Salesman completes the task. |

Table 11. Class Task Specification - Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Method** | **Visibility** | **Return Type** | **Description** |
| 1 | getter | public | dataType | get attribute value |
| 2 | setter | public | void | set attribute value |

Table 12. Class Task Specification - Methods

### 4.6 Report

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| id | int | private | The unique identifier of a report |
| date | Date | private | The date of the memorandum creation |
| isSucess | boolean | private | The result of the report( true -> success, false -> failed). |
| description | String | private | The description of the report |
| positivity | String | private | The positivity of the report |
| difficulty | String | private | The difficulty of the report |
| futurePlan | String | private | The future plan of the report |
| supervisorComment | String | private | The supervisor comment of the report |

Table 13. Class Report Specification - Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Method** | **Visibility** | **Return Type** | **Description** |
| 1 | getter | public | dataType | get attribute value |
| 2 | setter | public | void | set attribute value |

Table 14. Class Report Specification - Methods

### 4.7 School

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| id | int | private | The unique identifier of a school |
| name | String | private | The name of the school |
| address | String | private | The address of the school |
| phone | String | private | The phone number of the school |
| type | SchoolType | private | The school type of the school |
| isActive | boolean | private | The active status of the school |
| reprName | String | private | The name of the representative |
| reprGender | boolean | private | The gender of the representative |
| reprPhone | String | private | The phone number of the representative |
| reprEmail | String | private | The email of the representative |
| latitude | double | private | The latitude of School’s location. |
| longitude | double | private | The longitude of School’s location |

Table 15. Class School Specification - Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Method** | **Visibility** | **Return Type** | **Description** |
| 1 | getter | public | dataType | get attribute value |
| 2 | setter | public | void | set attribute value |

Table 16. Class School Specification - Methods

### 4.8 District

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| id | int | private | The unique identifier of a district |
| name | String | private | The name of the district |

Table 17. Class District Specification - Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Method** | **Visibility** | **Return Type** | **Description** |
| 1 | getter | public | dataType | get attribute value |
| 2 | setter | public | void | set attribute value |

Table 18. Class District Specification - Methods

### 4.9 SchoolStatus

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| id | String | private | The unique identifier of a school status |
| name | String | private | The name of the school status |

Table 19. Class SchoolStatus Specification - Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Method** | **Visibility** | **Return Type** | **Description** |
| 1 | getter | public | dataType | get attribute value |
| 2 | setter | public | void | set attribute value |

Table 20. Class SchoolStatus Specification - Methods

### 4.10 Purpose

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| id | String | private | The unique identifier of a target school purpose |
| name | String | private | The name of the target school purpose |

Table 21. Class Purpose Specification - Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Method** | **Visibility** | **Return Type** | **Description** |
| 1 | getter | public | dataType | get attribute value |
| 2 | setter | public | void | set attribute value |

Table 22. Class Purpose Specification - Methods

### 4.11 EducationalLevel

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| id | int | private | The unique identifier of the educational level. |
| name | String | private | The name of the educational level. |

Table 23. Class EducationalLevel Specification - Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Method** | **Visibility** | **Return Type** | **Description** |
| 1 | getter | public | dataType | get attribute value |
| 2 | setter | public | void | set attribute value |

Table 24. Class EducationalLevel Specification - Methods

### 4.12 SchoolType

|  |  |  |  |
| --- | --- | --- | --- |
| **Value** | **Type** | **Visibility** | **Description** |
| Công lập |  |  | Enum constant |
| Ngoài công lập |  |  | Enum constant |
| Bán công |  |  | Enum constant |

Table 25. Enum Class SchoolType Specification

### 4.13 Auditable

|  |  |  |  |
| --- | --- | --- | --- |
| **Value** | **Type** | **Visibility** | **Description** |
| CreatedDate | Date | private | The date of logging created event. |
| CreatedBy | String | private | The user’s username of logging created event. |
| ModifiedDate | Date | private | The date of logging modified event. |
| ModifiedBy | String | private | The user’s username of logging modified event. |

Table 26.Class Auditable Specification - Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Method** | **Visibility** | **Return Type** | **Description** |
| 1 | getter | public | dataType | get attribute value. |
| 2 | setter | public | void | set attribute value. |

Table 27. Class Auditable Specification - Methods

### 4.14 Kpi

|  |  |  |  |
| --- | --- | --- | --- |
| **Value** | **Type** | **Visibility** | **Description** |
| id | int | private | The unique identifier of the KPI. |

Table 28. Class Kpi Specification - Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Method** | **Visibility** | **Return Type** | **Description** |
| 1 | getter | public | dataType | get attribute value. |
| 2 | setter | public | void | set attribute value. |

Table 29. Class Kpi Specification – Methods

### 4.15 KpiGroup

|  |  |  |  |
| --- | --- | --- | --- |
| **Value** | **Type** | **Visibility** | **Description** |
| id | int | private | The unique identifier of the KPI group. |
| startDate | Date | private | The date when the KPI group is applied. |
| endDate | Date | private | The date when the KPI group is finished. |
| isActive | boolean | private | The active status of the KPI group. |
| groupName | String | private | The name of KPI group. |

Table 30. Class KpiGroup Specification - Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Method** | **Visibility** | **Return Type** | **Description** |
| 1 | getter | public | dataType | get attribute value. |
| 2 | setter | public | void | set attribute value. |

Table 31. Class KpiGroup Specification – Methods

### 4.16 KpiDetails

|  |  |  |  |
| --- | --- | --- | --- |
| **Value** | **Type** | **Visibility** | **Description** |
| id | int | private | The unique identifier of the KPI details. |
| targetValue | double | private | The value that Manager sets as the target. |
| actualValue | double | private | The value that Salesman creates. |
| weight | double | private | The weight of the KPI criteria. |

Table 32. Class KpiDetails Specification – Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Method** | **Visibility** | **Return Type** | **Description** |
| 1 | getter | public | dataType | get attribute value. |
| 2 | setter | public | void | set attribute value. |

Table 33. Class KpiDeatils Specification – Methods

### 4.17 Criteria

|  |  |  |  |
| --- | --- | --- | --- |
| **Value** | **Type** | **Visibility** | **Description** |
| id | String | private | The unique identifier of the criteria. |
| description | String | private | The description of criteria. |
| name | String | private | The name of criteria. |
| type | String | private | The type of criteria. |

Table 34. Class Criteria Specification – Attributes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Method** | **Visibility** | **Return Type** | **Description** |
| 1 | getter | public | dataType | get attribute value. |
| 2 | setter | public | void | set attribute value. |

Table 35. Class Criteria Specification – Methods

## 5. Data & Database Design

### 5.1 Database diagram

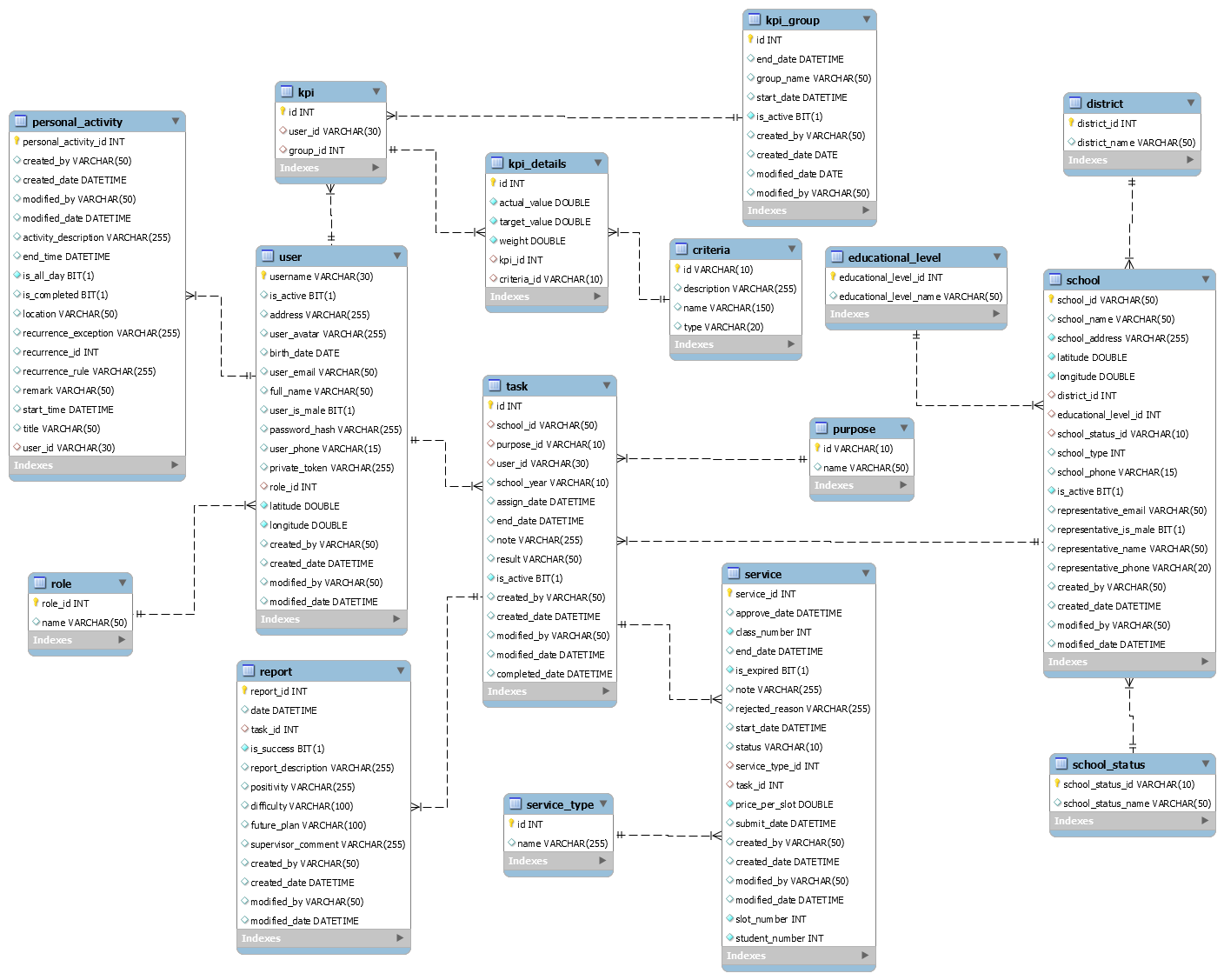


Figure 17. Database Diagram

#### school

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | school\_id | string | 50 | X | X | X | Auto generate from school\_name + district\_id + education\_level\_id |
| 2 | school\_name | varchar | 50 |  | X |  |  |
| 3 | school\_phone | varchar | 15 |  |  |  |  |
| 4 | school\_address | varchar | 255 |  | X |  |  |
| 5 | is\_active | bit | 1 |  | X |  | Use for soft deleting |
| 6 | education\_level\_id | int |  |  | X | X |  |
| 7 | school\_type | int |  |  | X |  |  |
| 8 | district\_id | int |  |  | X | X |  |
| 9 | school\_status\_id | varchar | 10 |  | X | X |  |
| 10 | representative\_name | varchar | 50 |  |  |  |  |
| 11 | representative\_email | varchar | 50 |  |  |  |  |
| 12 | representative\_phone | varchar | 15 |  |  |  |  |
| 13 | representative\_is\_male | bit | 1 |  |  |  |  |
| 14 | latitude | double |  |  |  |  |  |
| 15 | longitude | double |  |  |  |  |  |
| 16 | created\_by | varchar | 50 |  |  |  | Use for auditing |
| 17 | created\_date | datetime |  |  |  |  | Use for auditing |
| 18 | modified\_by | varchar | 50 |  |  |  | Use for auditing |
| 19 | modified\_date | datetime |  |  |  |  | Use for auditing |

Table 36. Description for table "school"

#### district

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | district\_id | int |  | X | X | X |  |
| 2 | district\_name | varchar | 50 |  | X |  |  |

Table 37. Description for table "district"

#### school\_status

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | school\_status\_id | varchar | 10 | X | X | X |  |
| 2 | school\_status\_name | varchar | 50 |  | X |  |  |

Table 38. Description for table "school\_status"

#### task

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | id | int |  | X | X | X |  |
| 2 | school\_year | varchar | 10 |  | X | X |  |
| 3 | school\_id | int |  |  | X | X |  |
| 4 | purpose\_id | varchar | 10 |  | X | X |  |
| 5 | user\_id | varchar | 30 |  |  | X |  |
| 6 | note | varchar | 255 |  |  |  |  |
| 7 | result | varchar | 50 |  |  |  |  |
| 8 | is\_active | bit | 1 |  | X |  | Use for soft deleting |
| 9 | assign\_date | datetime |  |  |  |  |  |
| 10 | end\_date | datetime |  |  |  |  |  |
| 11 | completed\_date | datetime |  |  |  |  |  |
| 12 | created\_by | varchar | 50 |  |  |  | Use for auditing |
| 13 | created\_date | datetime |  |  |  |  | Use for auditing |
| 14 | modified\_by | varchar | 50 |  |  |  | Use for auditing |
| 15 | modified\_date | datetime |  |  |  |  | Use for auditing |

Table 39. Description for table "task"

#### report

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | report\_id | int |  | X | X | X |  |
| 2 | date | datetime |  |  | X |  |  |
| 3 | task\_id | int |  |  | X | X |  |
| 4 | is\_success | bit | 1 |  | X |  |  |
| 5 | report\_description | varchar | 255 |  |  |  |  |
| 6 | positivity | varchar | 255 |  |  |  |  |
| 7 | difficulty | varchar | 100 |  |  |  |  |
| 8 | future\_plan | varchar | 100 |  |  |  |  |
| 9 | supervisor\_comment | varchar | 255 |  |  |  |  |
| 10 | created\_by | varchar | 50 |  |  |  | Use for auditing |
| 11 | created\_date | datetime |  |  |  |  | Use for auditing |
| 12 | modified\_by | varchar | 50 |  |  |  | Use for auditing |
| 13 | modified\_date | datetime |  |  |  |  | Use for auditing |

Table 40. Description for table "report"

#### purpose

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | id | varchar | 10 | X | X | X |  |
| 2 | name | varchar | 50 |  | X |  |  |

Table 41. Description for table " purpose"

#### user

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | username | varchar | 30 | X | X | X |  |
| 2 | password\_hash | varchar | 255 |  | X |  | Password is hashed by Bcript Hashing Algorithm. |
| 3 | full\_name | varchar | 50 |  |  |  |  |
| 4 | user\_email | varchar | 50 |  |  |  |  |
| 5 | user\_phone | varchar | 15 |  |  |  |  |
| 6 | role\_id | int |  |  | X | X |  |
| 7 | is\_active | bit | 1 |  | X |  | Use for soft deleting or when the users quit job. |
| 8 | address | varchar | 255 |  |  |  |  |
| 9 | user\_avatar | varchar | 255 |  |  |  | Presigned URL for retriving images from Firebase Storage. |
| 10 | user\_is\_male | bit | 1 |  | X |  |  |
| 11 | birth\_date | date |  |  |  |  |  |
| 12 | private\_token | varchar | 255 |  |  |  | This token is used to recovered the forgotten password. |
| 13 | latitude | double |  |  |  |  |  |
| 14 | longitude | double |  |  |  |  |  |
| 15 | created\_by | varchar | 50 |  |  |  | Use for auditing |
| 16 | created\_date | datetime |  |  |  |  | Use for auditing |
| 17 | modified\_by | varchar | 50 |  |  |  | Use for auditing |
| 18 | modified\_date | datetime |  |  |  |  | Use for auditing |

Table 42. Description for table "user"

#### role

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | role\_id | int |  | X | X | X |  |
| 2 | name | varchar | 30 |  | X |  |  |

Table 43. Description for table "role"

#### personal\_activity

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | personal\_activity\_id | int |  | X | X | X |  |
| 2 | title | varchar | 30 |  | X |  | Title of the to-do activity |
| 3 | remark | varchar | 50 |  |  |  | Result or remark of the activity |
| 4 | activity\_description | varchar | 255 |  |  |  |  |
| 5 | start\_time | datetime |  |  | X |  |  |
| 6 | end\_time | datetime |  |  | X |  |  |
| 7 | user\_id | varchar | 30 |  | X | X |  |
| 8 | is\_all\_day | bit | 1 |  | X |  | The duration of the personal activity, if it lasts for whole day or not |
| 9 | is\_completed | bit | 1 |  | X |  | The status of the activity, whether it is completed or not |
| 10 | location | varchar | 50 |  |  |  | Location where this activity happens/will happen. |
| 11 | recurrence\_id | int |  |  |  |  | An activity can occur one time or multiple time. If it occurs multiple time, this “recurrence\_id” is to specify the series/family of that activity. |
| 12 | recurrence\_rule | varchar | 255 |  |  |  | A series contains multiple same activities with the general rule for repeating after a period. |
| 13 | recurrence \_exception | varchar | 255 |  |  |  | This list is used to store the “personal\_activity\_id” of an exception in the series. |
| 14 | created\_by | varchar | 50 |  |  |  | Use for auditing |
| 15 | created\_date | datetime |  |  |  |  | Use for auditing |
| 16 | modified\_by | varchar | 50 |  |  |  | Use for auditing |
| 17 | modified\_date | datetime |  |  |  |  | Use for auditing |

Table 44. Description for table "personal\_activity"

#### service

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | service\_id | int |  | X | X | X |  |
| 2 | approved\_date | datetime |  |  | X |  |  |
| 3 | note | varchar | 255 |  |  |  |  |
| 4 | class\_number | int |  |  |  |  |  |
| 5 | start\_date | datetime |  |  | X |  |  |
| 6 | end\_date | datetime |  |  |  |  |  |
| 7 | submit\_date | datetime |  |  |  |  |  |
| 8 | task\_id | int |  |  | X | X |  |
| 9 | is\_expired | bit | 1 |  | X |  |  |
| 10 | service\_type\_id | int |  |  |  | X |  |
| 11 | status | varchar | 10 |  |  |  |  |
| 12 | price\_per\_slot | double |  |  |  |  |  |
| 13 | slot\_number | int |  |  |  |  |  |
| 14 | student\_number | int |  |  |  |  |  |
| 15 | rejectReason | varchar | 255 |  |  |  |  |
| 16 | created\_by | varchar | 50 |  |  |  | Use for auditing |
| 17 | created\_date | datetime |  |  |  |  | Use for auditing |
| 18 | modified\_by | varchar | 50 |  |  |  | Use for auditing |
| 19 | modified\_date | datetime |  |  |  |  | Use for auditing |

Table 45. Description for table "service"

#### service\_type

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | id | int |  | X | X | X |  |
| 2 | name | varchar | 255 |  | X |  |  |

Table 46. Desription for table "service\_type"

#### kpi

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | id | int |  | X | X | X |  |
| 2 | user\_id | String | 30 |  | X | X |  |
| 3 | group\_id | int |  |  | X | X |  |

Table 47. Desription for table "kpi"

#### kpi\_group

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | id | int |  | X | X | X |  |
| 2 | group\_name | varchar | 50 |  | X |  |  |
| 3 | start\_date | datetime |  |  | X |  |  |
| 4 | end\_date | datetime |  |  |  |  |  |
| 5 | is\_active | bit | 1 |  |  |  |  |
| 6 | created\_by | varchar | 50 |  |  |  | Use for auditing |
| 7 | created\_date | datetime |  |  |  |  | Use for auditing |
| 8 | modified\_by | varchar | 50 |  |  |  | Use for auditing |
| 9 | modified\_date | datetime |  |  |  |  | Use for auditing |

Table 48. Desription for table "kpi\_group"

#### kpi\_details

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | id | int |  | X | X | X |  |
| 2 | actual\_value | double |  |  | X |  |  |
| 3 | target\_value | double |  |  | X |  |  |
| 4 | weight | double |  |  | X |  |  |
| 5 | is\_active | bit | 1 |  | X |  |  |
| 6 | kpi\_id | int |  |  | X | X |  |
| 7 | criteria\_id | varchar | 10 |  | X | X |  |

Table 49. Desription for table "kpi\_details"

#### criteria

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | id | varchar | 10 | X | X | X |  |
| 2 | description | varchar | 255 |  | X |  |  |
| 3 | name | varchar | 150 |  | X |  |  |
| 4 | type | varchar | 20 |  |  |  |  |

Table 50. Desription for table "criteria"

#### educational\_level

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | educational\_level\_id | int |  | X | X | X |  |
| 2 | educational\_level\_name | varchar | 50 |  |  |  |  |

Table 51. Desription for table "educational\_level"

### 5.2 Data File Design

We use Firebase Storage to store images.

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **File Name** | **Type** | **Notes** |
| 1 | avatars | jpg, jpeg, png | The images are used for user’s avatar. |
| 2 | Import\_Sample.xlsx | xlsx | The sample sheet for user import guidance. |

Table 52. Data File Design