School Management System

Staff Registration Design Document

# Purpose

The document illustrates the design of sudent registration module.

# For the Associates:

Associates should refer the following documents to understand the screen design and the high level design.

* CaseStudyScreenDesign.doc – Ilustrates the screen design the associates to follow for developing the application.
* CaseStudyMasterDesign.docx – Ilustrates the class hierarchy, flow sequence , packaging details and exception handling mechanism for developing the application.

# Database Design

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Table Name | Column Name | Column Discription | Data Type | Data Size | Primary Key |
| STAFF  \_SALARY | YEAR\_OF\_EXPERIENCE | Column is used for storing years of experience | number | 2 | No |
|  | HIGHEST\_QUALIFICATION | Column is used for storing the highest qualification | varchar2 | 10 | No |
|  | SALARY | Column is used for storing the Salary | number | (7,2 ) | Yes |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table Name | Column Name | Column Discription | Data Type | Data Size | Primary Key | Foreign Key |
| STAFF  \_INFO | STAFF\_ID | Column is used for storing staff register number | Varchar2 | 5 | Yes |  |
|  | STAFF\_NAME | Column is used for storing staff name | varchar2 | 25 | No |  |
|  | DATE\_OF\_BIRTH | Column is used for storing the staff’s date of birth | date |  | No |  |
|  | ADDRESS | Column is used for storing the address | varchar2 | 50 |  |  |
|  | COUNTRY\_ID | Column is used for storing the country\_id | Varchar2 | 5 |  | Yes  COUNTRY\_INFO |
|  | GENDER | Column is used for storing the gender | char  Values can be ‘M’ or ‘F’ | 1 |  |  |
|  | SALARY | Column is used for storing salary | number | (7,2) |  | YES  FK  STAFF  \_SALARY |
|  | HIGHEST\_QUALIFICATION | Column is used for storing the highest qualification | varchar2 | 20 |  |  |
|  | EMAIL\_ID | Column for storing the email id | varchar2 | 20 |  |  |
|  | CONTACT\_NUMBER | Column for storing the  Contact number | Number | 10 |  |  |
|  | DESIGNATION | Column for storing the  Designation | Varchar | 20 |  |  |
|  | YEAR\_PASSED\_OUT | Column is used for storing the year of passing | Number | 5 |  |  |
|  | EXPERIENCE | Column is used for storing the experience | Number | 2 |  |  |
|  | DOJ | Column is used for storing the date of joining | Date |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table Name | Column Name | Column Discription | Data Type | Data Size | Primary Key | Foreign key |
| COUNTRY\_INFO | COUNTRY\_ID | Column is used for storing countryid | varchar2 | 5 | Yes |  |
|  | COUNTRY\_NAME | Column is used for storing the storing the country name | varchar2 | 25 |  |  |
|  | STATE\_NAME | Column is used for storing the state name | varchar2 | 25 |  |  |

# Required Objects, Services, and Libraries

### Value Objects:

|  |  |
| --- | --- |
| **Value Object Name** | **Value Object Description** |
| StaffVO | This VO is used for transferring the staff details from presentation to the back end. |
| SalaryVO | This VO is used for retrieving the salary details of a staff for transfering it from DAO to BO |

# Technical Specifications



## Register Staff screen: This screen is used by admin to enter the details into the system.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Data Element** | **Control type** | **Default Values** | **Editable Field** | **Restrictions** | **Mandatory/**  **Non Mandatory** | **Data Type** | **Data Size** |
| Staff Name | Textbox | No | Yes | Only Characters | Mandatory | Varchar | 25 |
| DOB | Textbox with date picker | No | No |  | Mandatory | date |  |
| Country | Dropdownbox | No | No | Country names should be populated from the country\_info table | Mandatory |  |  |
| State | Dropdown box | No | No | Based on the above country selection ,the state names should be populated from the country\_info table | Mandatory |  |  |
| Address | TextArea | No | Yes | AlphaNumeric | Mandatory | Varchar | 50 |
| Contact No. | Textbox | No | Yes | Only Numbers | Mandatory | Number | 10 |
| Mail Id | Textbox | No | Yes | Should be in a valid Email Format for example abc@xyz.com | Mandatory | Varchar | 20 |
| Gender | Radio Button | No | No | Male/Female | Mandatory |  |  |
| Highest Qualification | Text box | No | Yes |  | Mandatory | Varchar | 20 |
| Experience | Text box | No | Yes |  | Mandatory | Number | 2 |
| YOP | Drop down menu | No | No |  | Mandatory | Number | 5 |
| Date of Joining | Textbox with date picker | No | No |  | Mandatory |  |  |
| Salaryviewer | Link | No | No | By clicking the link, pop up window should be displayed with the salary details retrieved from the salary\_info table. | Mandatory |  |  |
| Register | Submit Button | No | No | By Clicking the button, all the field contents will be validated and stores all the details into the staff\_info table | Mandatory |  |  |
| Reset | Button | No | No | By Clicking the button, the contents in all the fields will be cleared. | Mandatory |  |  |

On successful registration the following message should be displayed **“Staff Registered Successfully”**

## Application Components Specification:

Refer to the sequence and class diagram in the master design document for details on the components hierarchy, how they structured and integrated.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Component Name** | **Method Name** | **Method input** | **Method Output** | **Description** | **Algorithm** |
| SchoolRegistrationDelegate | registerStaff | StaffVO | boolean | This method invokes the facades and throws University and University business Exception. | Not applicable |
| ServicelLocator | locate | Façade name | Façade Object | Method used for locating the appropriate façade based on the input name and return the object. Throws UiversityException when any runtime error occurs. | Not applicable. |
| SchoolRegistrationFacade | registerStaff | StaffVO | Boolean | Method invokes the appropriate BO’s and returns the value to the screens. Handles exceptions , logs it and throws it back to the presentation tier. | Not applicable. |
| RegistrationBO | registerStaff | StaffVO | Boolean | Method performs validations , calculates the fees and invokes the DAO to store the staff details in the system. Throws university and university business exception. | Refer to section 5 for salary calculation details and the validations to be done. |
| StaffDAO | getMaxRegNumber |  | Int | This method should return the maximum register number existing in the system from staff\_info. This is used for the generation of the new staff registration numbers by the system. | NA |
| StaffDAO | registerStaff | StaffVO | Boolean | Loads the staff\_info table with the details in staffVO | NA |
| StaffDAO | retrieveSalary | SalaryVO | Integer | This returns the salary loaded in a SalaryVO object | NA |
| StaffDAO | checkEmailID | emailid | Boolean | Checks if the email id is already registered in the system. | NA |



# Algorithms



### Validations

* If(staff name contains characters other than alphabets and space) throw business exception with error code 507.
* If Email Id does not contains @ and . throw business exception with error code 502
* If Email Id already exists , throw business exception with error code 508
* If the staff experience is greater than 37,throw business exception with error code 509
* If DOB greater than sysdate throw business exception with error code 504
* If DOJ lesser than sysdate throw business exception with error code 505
* If Contact no does contain alphabets and >10 digits, throw business exception with error code 506.

### Salary Calculation

**Step 1 :** Get the salary from the salary\_info table using the retrieveSalary method of the DAO based on years of experience and Highest Qualification.

### Staff Registration

**Step 1** : Perform all the business validation

**Step 2** :Generate the register number for the staff

Calculate the register number as given below

1. Get the maximum register number in the system
2. Generate the register number as one more than the max number as provided below

Register Number = Maximum Register Number+1

**Step 3:** Retrieve the salary based upon the experience.

**Step 4:** Load the details into the staff\_info rable.