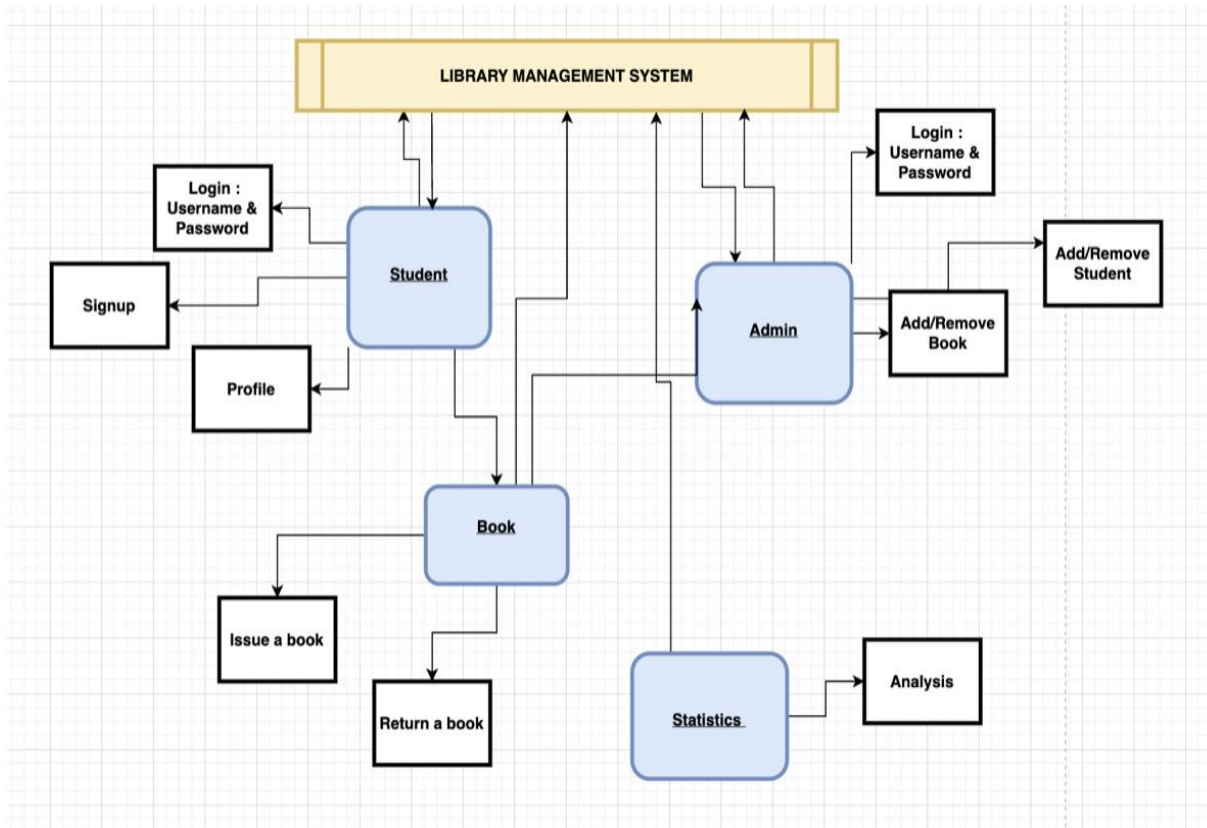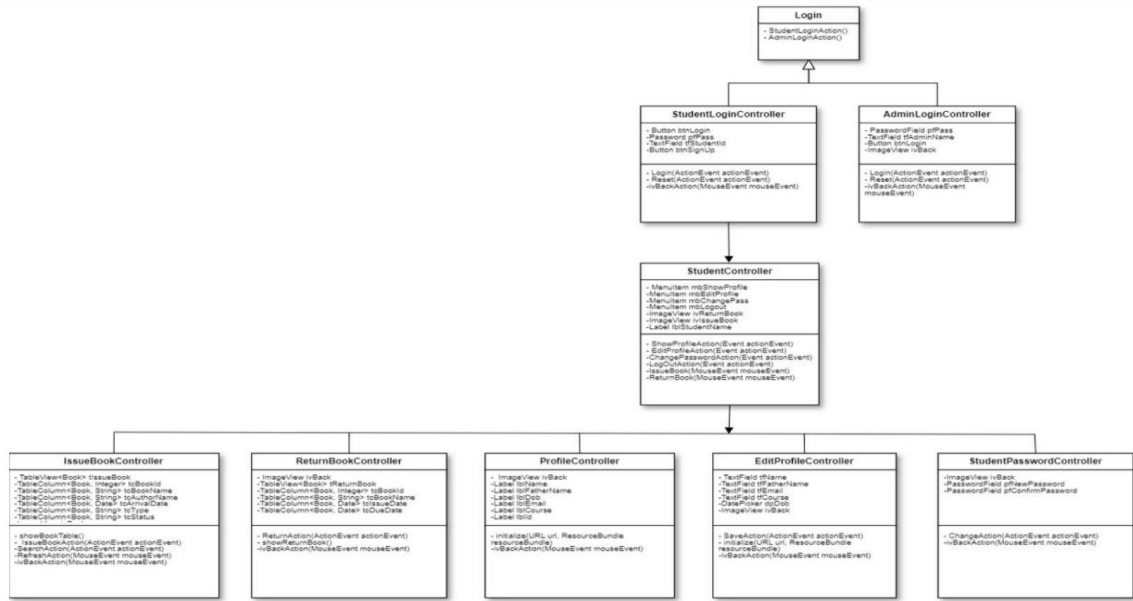Design of Scalable Library Management System :

UML Diagrams :

Student

Login
- StudentLoginAction()
- AdminLoginAction()

StudentLoginController
- Button btnLogin
- Password pfPass
- TextField tfStudentId
- Button btnSignUp

- Login(ActionEvent actionEvent)
- Reset(ActionEvent actionEvent)
- ivBackAction(MouseEvent mouseEvent)

AdminLoginController
- PasswordField pfPass
- TextField tfAdminName
- Button btnLogin
- ImageView ivBack

- Login(ActionEvent actionEvent)
- Reset(ActionEvent actionEvent)
- ivBackAction(MouseEvent mouseEvent)

StudentController
- MenuItem mbShowProfile
- MenuItem mbEditProfile
- MenuItem mbChangePass
- ImageView ivReturnBook
- ImageView ivIssueBook
- Label lblStudentName

- ShowProfileAction(Event actionEvent)
- EditProfileAction(Event actionEvent)
- ChangePasswordAction(Event actionEvent)
- LogOutAction(Event actionEvent)
- IssueBook(MouseEvent mouseEvent)
- ReturnBook(MouseEvent mouseEvent)

IssueBookController
- TableView<Book> tIssueBook
- TableColumn<Book, Integer> tcBookId
- TableColumn<Book, String> tcBookName
- TableColumn<Book, String> tcAuthorName
- TableColumn<Book, Date> tcArrivalDate
- TableColumn<Book, String> tcType
- TableColumn<Book, String> tcStatus

- showBookTable()
- IssueBookAction(ActionEvent actionEvent)
- SearchAction(ActionEvent actionEvent)
- RefreshAction(MouseEvent mouseEvent)
- ivBackAction(MouseEvent mouseEvent)

ReturnBookController
- ImageView ivBack
- TableView<Book> tReturnBook
- TableColumn<Book, Integer> tcBookId
- TableColumn<Book, String> tcBookName
- TableColumn<Book, Date> tcIssueDate
- TableColumn<Book, Date> tcDueDate

- ReturnAction(ActionEvent actionEvent)
- showReturnBook()
- ivBackAction(MouseEvent mouseEvent)

ProfileController
- ImageView ivBack
- Label lblName
- Label lblFatherName
- Label lblDob
- Label lblEmail
- Label lblCourse
- Label lblId

- initialize(URL url, ResourceBundle resourceBundle)
- ivBackAction(MouseEvent mouseEvent)

EditProfileController
- TextField tfFatherName
- TextField tfName
- TextField tfEmail
- DatePicker dpDob
- TextField tfCourse
- ImageView ivBack

- SaveAction(ActionEvent actionEvent)
- initialize(URL url, ResourceBundle resourceBundle)
- ivBackAction(MouseEvent mouseEvent)

StudentPasswordController
- PasswordField pfOldPassword
- PasswordField pfNewPassword
- PasswordField pfConfirmPassword

- ChangeAction(ActionEvent actionEvent)
- ivBackAction(MouseEvent mouseEvent)

Admin

AdminController
- Button btnLogOut
- Button btnChangePass
- Label lblAdminName
- Label lblAddStudentNotification
- Label lblIssueBookNotification
- Label lblReturnBookNotification
- Label lblStudentName

- initialize(URL url, ResourceBundle resourceBundle)
- Books(MouseEvent mouseEvent)
- LogoutAction(ActionEvent actionEvent)
- IssueBook(MouseEvent mouseEvent)
- ReturnBook(MouseEvent mouseEvent)
- AddStudent(MouseEvent mouseEvent)
- RemoveStudent(MouseEvent mouseEvent)

AdminIssueBookController
- ImageView ivBack
- TableView<Book> tIssueBook
- TableColumn<Book, Integer> tcBookId
- TableColumn<Book, String> tcBookName
- TableColumn<Book, Integer> tcStudentId
- TableColumn<Book, String> tcStudentName
- DatePicker dpIssueDate

- IssueAction(ActionEvent actionEvent)
- CancelAction(ActionEvent actionEvent)
- initialize(URL url, ResourceBundle resourceBundle)
- showIssueBook()

AddStudentController
- Label lblName
- Label lblFatherName
- Label lblEmail
- Label lblCourse
- Label lblDob
- Label lblMessage
- ImageView ivBack

- CancelAction(ActionEvent actionEvent)
- AddAction(ActionEvent actionEvent)
- ivBackAction(MouseEvent mouseEvent)
- initialize(URL url, ResourceBundle resourceBundle)
- displayData()
- remove()

RemoveStudentController
- TableView<Student> tRemoveStudent
- TableColumn<Student, Integer> tcId
- TableColumn<Student, String> tcName
- TableColumn<Student, String> tcFatherName
- TableColumn<Student, Date> tcDob
- TableColumn<Student, String> tcEmail
- TableColumn<Student, String> tcCourse

- initialize(URL url, ResourceBundle resourceBundle)
- RefreshAction(MouseEvent mouseEvent)
- DeleteAction(ActionEvent actionEvent)
- SearchAction(ActionEvent actionEvent)
- showStudData()

BookListController
- TextField tfName
- TextField tfFatherName
- TextField tfEmail
- TextField tfCourse
- DatePicker dpDob
- ImageView ivBack

- SaveAction(ActionEvent actionEvent)
- initialize(URL url, ResourceBundle resourceBundle)
- ivBackAction(MouseEvent mouseEvent)
- showBookTable()
- SearchAction(ActionEvent actionEvent)
- RefreshAction(MouseEvent mouseEvent)
- AddBookAction(ActionEvent actionEvent)
- UpdateAction(ActionEvent actionEvent)

AdminReturnBookController
- TableView<Book> tReturnTable
- TableColumn<Book, Integer> tcBookID
- TableColumn<Book, String> tcBookName
- TableColumn<Book, Integer> tcStudentID
- TableColumn<Book, String> tcStudentName
- TableColumn<Book, Date> tcIssueDate
- TableColumn<Book, Date> tcDueDate

- showReturnBooks()
- ReturnBookAction(ActionEvent actionEvent)
- ivBackAction(MouseEvent mouseEvent)

StatisticsController
- TableView<Book> tIssueBook
- TableColumn<Book, Integer> tcBookId
- TableColumn<Book, String> tcBookName
- TableColumn<Book, String> tcStudentName
- TableView<Book> tReturnBook
- TableColumn<Book, Date> trReturnDate
- PieChart pieChart

- ShowReturnedBook()
- initialize(URL url, ResourceBundle resourceBundle)
- ivBackAction(MouseEvent mouseEvent)
- ShowIssuedBook()
- ShowPieChart()