CAMS SC2002 SCSX Lab Group 1

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SOLID

S - Single Responsibility Principle

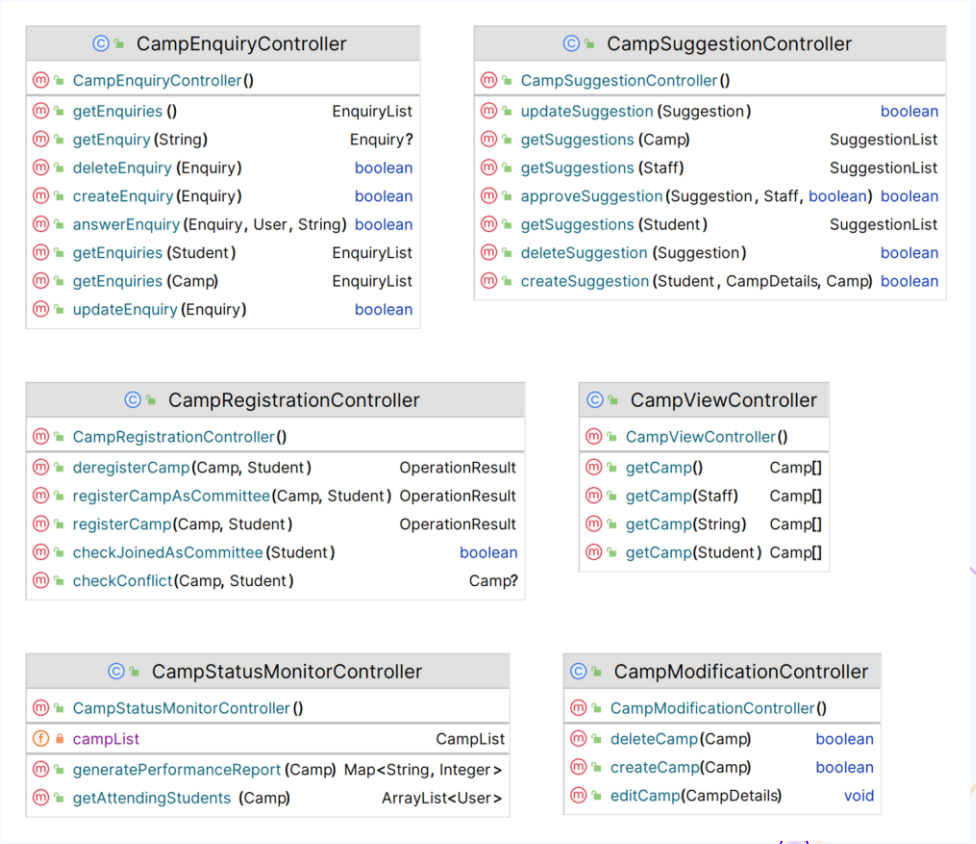
O - Open Closed Principle

L - Liskov Substitution Principle

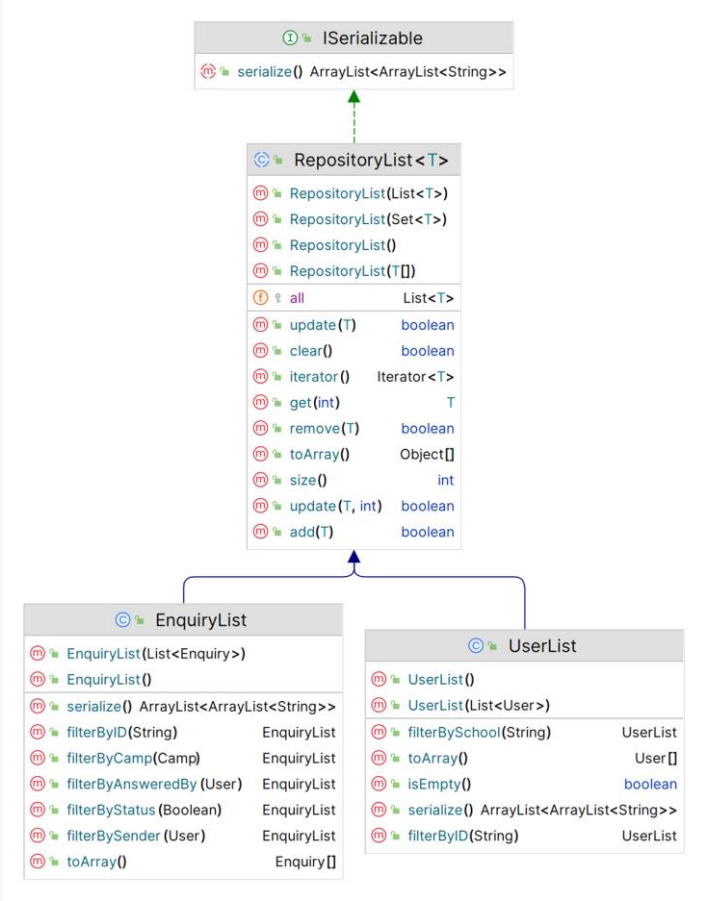
I - Interface Segregation Principle

D - Dependency Injection Principle

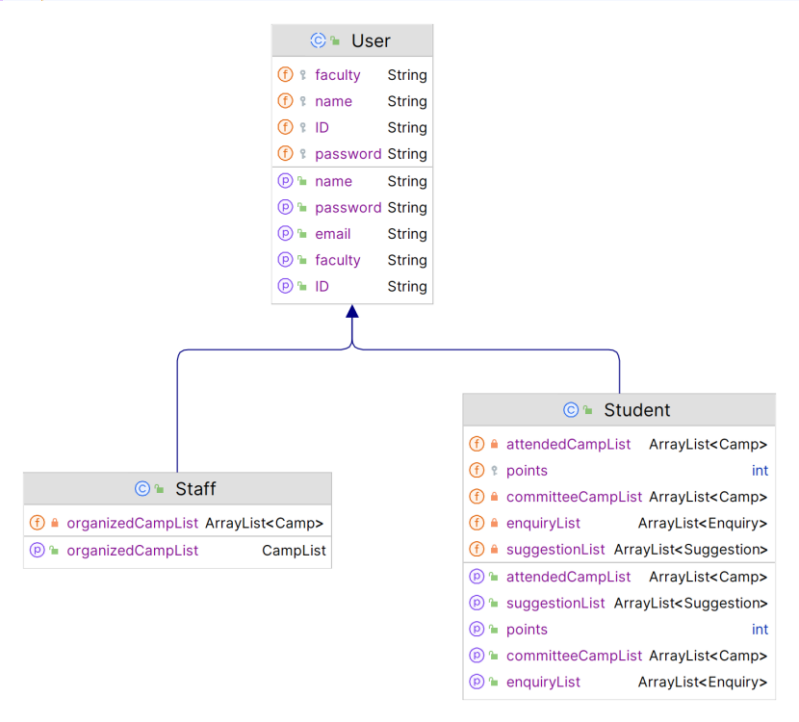
S - Single Responsibility Principle



O - Open Closed Principle



L - Liskov Substitution Principle



- Interface Segregation Principle

D - Dependency Injection Principle

```java
public static boolean exportToCSV(String filename, ISerializable serializable) {
    ArrayList<ArrayList<String>> data = serializable.serialize();
    try (CSVPrinter printer = new CSVPrinter(new FileWriter(filename), CSVFormat.DEFAULT)) {
        for (ArrayList<String> row : data) {
            printer.printRecord(row);
        }
    } catch (Exception e) {
        System.out.println(e.toString());
        return false;
    }
    return true;
}
```

util/CSV.java

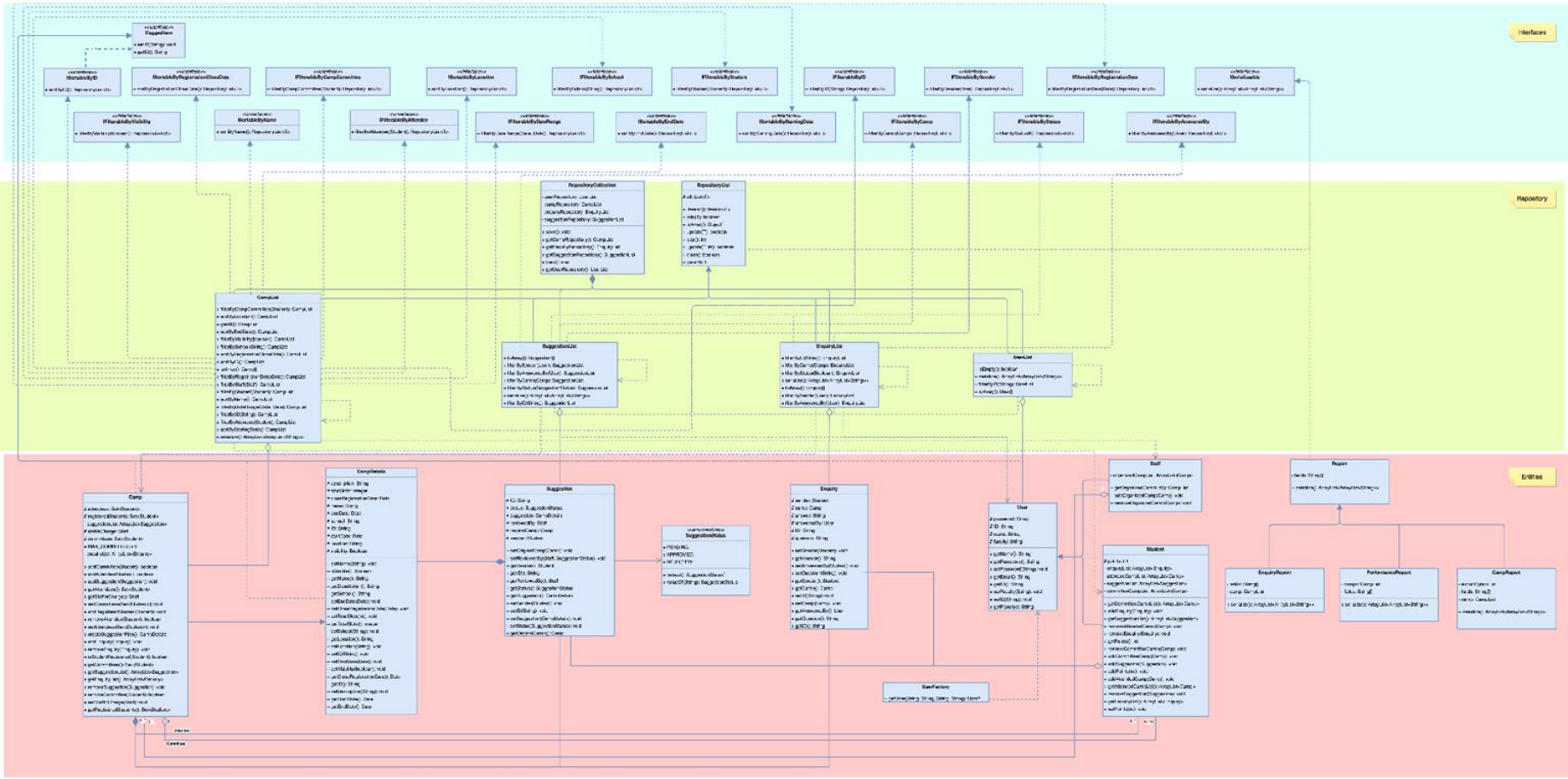
```java
public static void save() {
    CSV.exportToCSV(Config.USER_REPOSITORY_PATH, userRepository);
    CSV.exportToCSV(Config.CAMP_REPOSITORY_PATH, campRepository);
    CSV.exportToCSV(Config.ENQUIRY_REPOSITORY_PATH, enquiryRepository);
    CSV.exportToCSV(Config.SUGGESTION_REPOSITORY_PATH, suggestionRepository);
}
```

RepositoryCollection.java

Design Highlights

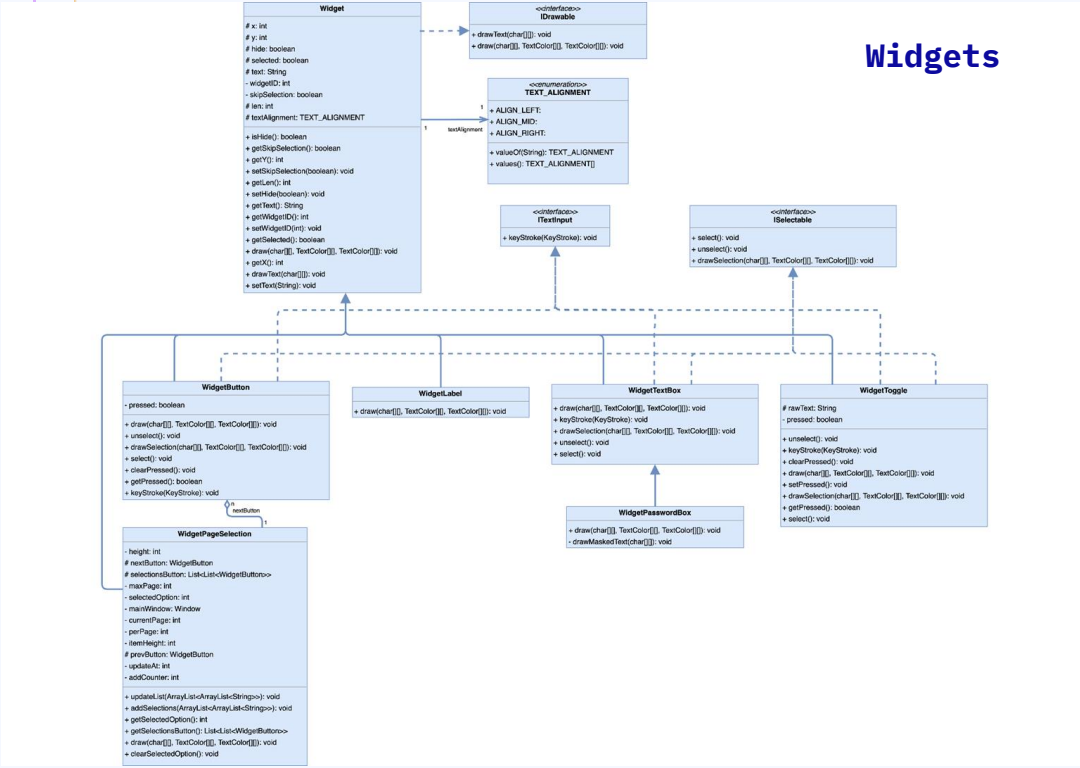
- **Generic Repository Class**: An overall *RepositoryList* abstract class is used to store data and easily perform various filtering and sorting operations.
- **Configurable Central Repository**: All CSV data are imported and saved together through the *RepositoryCollection* class to ensure persistent data while being easily modifiable by changing the path values in `const/Config.java`.
- **Factory Design Pattern**: A factory pattern is used to determine if a user is a staff or a student so that proper methods can occur
- **Extensible and Reusable User Interface** (UI): UI components are created such that they can be reused throughout the entire application.
- **Entity-Control-Boundary** (ECB) Architecture: Classes are separated into three possible stereotypes (entity, control, and boundary), which provide modularity and separation of concerns.

UML Class Diagram: Entity

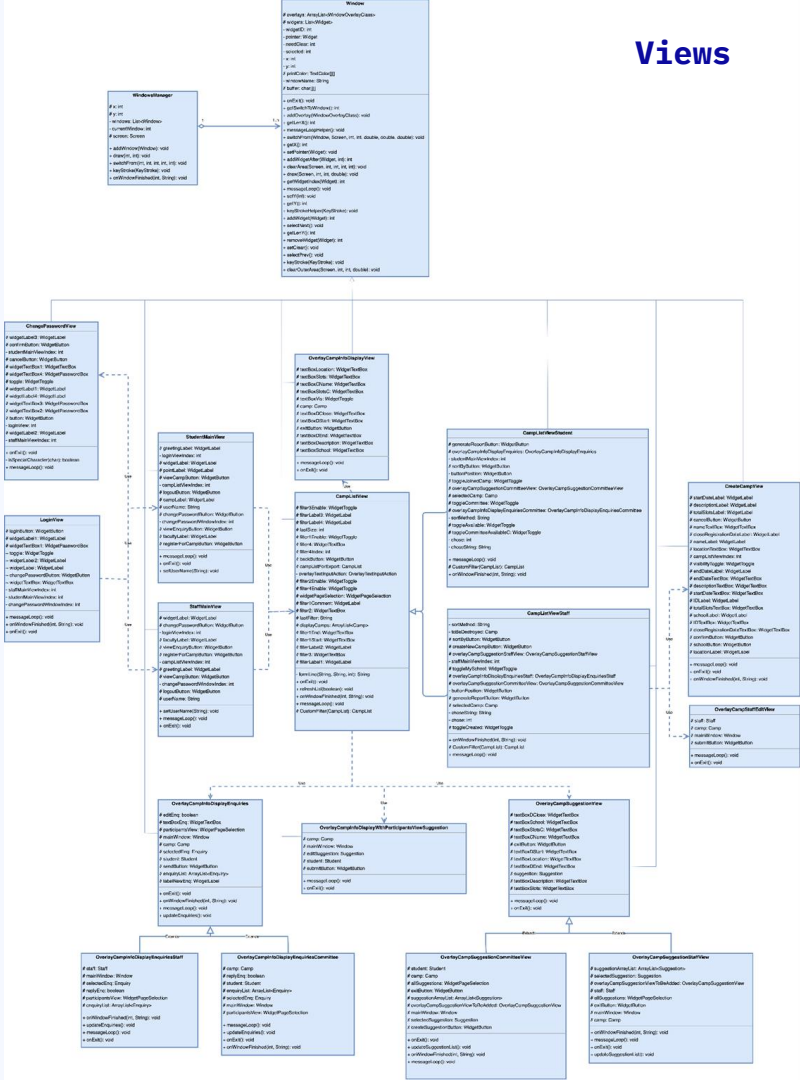


Boundary Diagram

Widgets



Views



UML Class Diagram Controller

03
Demonstration & Testing

Login

Functionality	✓
1. Cannot Login: invalid credentials	✓
2. Different menu for different users	✓
3. Can change password, re-login to verify effect	✓
4. First login: prompt user to change password, default password: ‘password’	✓

Student Main Page

Functionality	✓
1. Change Password	✓
2. Can use filters to view the camp list, default: alphabetical order	✓
3. View available camps based on faculty and visibility & its remaining slots	✓
4. Select camps to register as camp attendee or committee	✓
5. Can't join camp if it's at full capacity	✓

Functionality	✓
6.View/Edit/Submit enquiries for a camp	✓
7. View his/her registered camps & camp role	✓
8. Request to withdraw from camp, cannot rejoin that camp	✓
9. View reply to enquiry	✓

Staff Main Page

Functionality	✓
1. Change Password	✓
2. Create camp from inputting required data	✓
3. Only able to edit camps created by him/her + hide camp	✓
4. View all camps	✓
5. View and Reply Students' Enquiries in camps they created	✓

Functionality	✓
6. View list of students registered for the camp as attendees or committee	✓
7. View Suggestions to camp details from camp committee	✓
8. Accept/Reject Suggestion	✓
9. Generate camp report (student list, camp committee performance report, students' enquiry report)	✓
10. Can use filters to view the camp list, default: alphabetical order	✓

Camp Committee Member Main Page

Functionality	✓
1. Student Main Page functions	✓
2. Submit Suggestions to staff for changes to Camp details + point added	✓
3. View and Reply to Enquiries from Students from Camp he/she oversee + point added	✓

Functionality	✓
4. View/Edit/Delete Suggestions	✓
5. Generate Report for each camp (Student list, Students' Enquiry Report)	✓

04

Reflection

Initial Challenges

- Struggled with an overloaded codebase
- Faced a fragile system where minor changes caused significant issues.
- Difficulty in meeting project requirements effectively.

Impact of Design-Centric Development

- Achieved greater efficiency in workflow.
- Shifted perspective to view design as a foundational element in software development.
- Gained a deeper appreciation for the art of software design.

Future Outlook

- Confidence in design-first methodology for integrating advanced features.
- Anticipate seamless integration of features like password hashing and concurrent user access.
- Expectation of maintaining an adaptable and forward-compatible system.

Thanks!