

# Schedule Optimizer

## Software Architectural Design

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### ***Unique Reference:***

The documents are stored in the <https://github.com/DarkLuminosity/Schedule-Optimizer/tree/master/03-Design%20Engineering> referenced with Schedule Optimizer - Architectural Design.pdf.

### ***Purpose:***

The purpose of this document would be to identify and finalize the software architecture for the Schedule Optimizer application.

### ***Audience:***

The audience for this document would be UP Diliman undergraduate students.

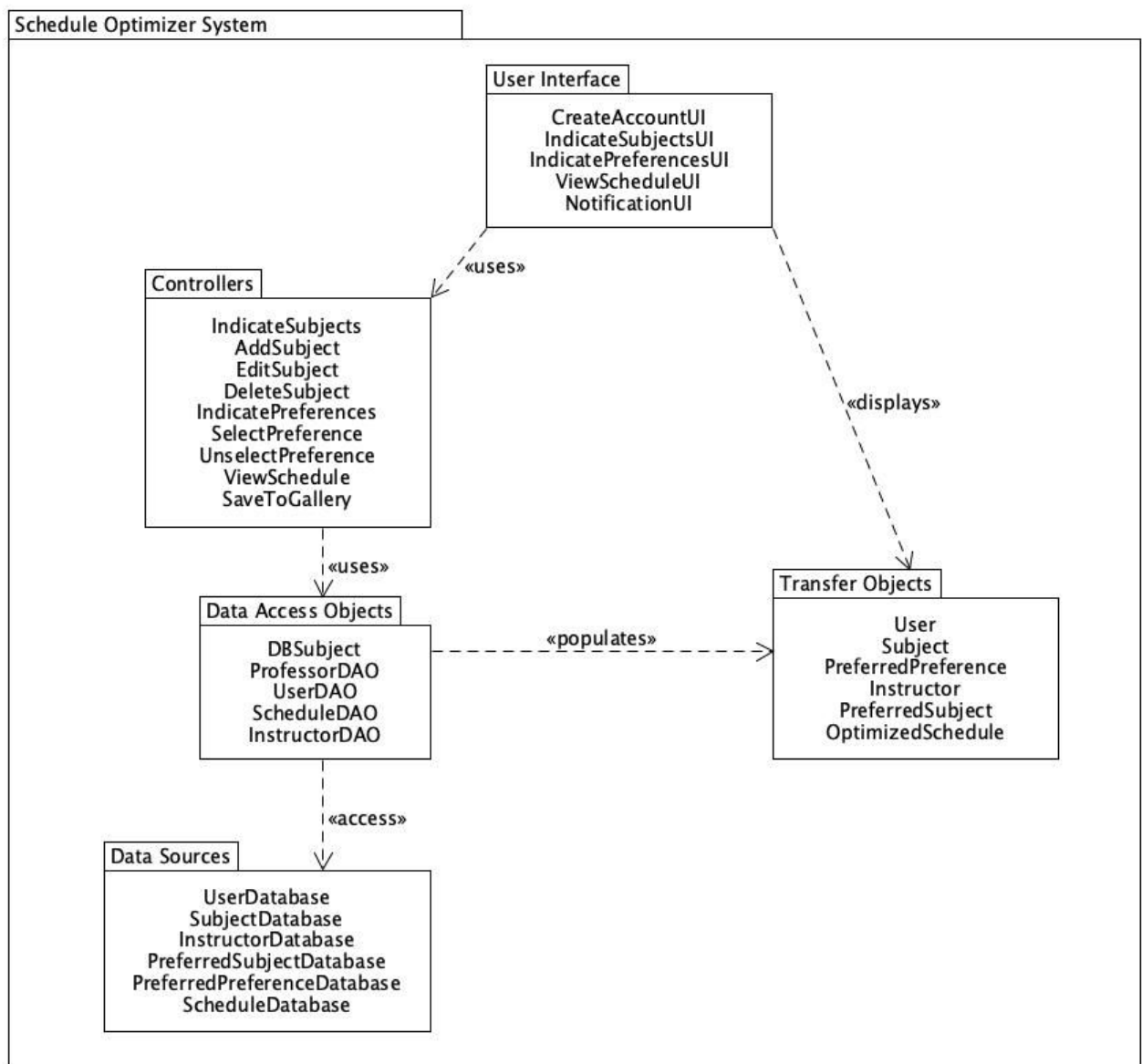
### ***Revision Control:***

<b><i>Revision Date</i></b>	<b><i>Person Responsible</i></b>	<b><i>Version Number</i></b>	<b><i>Contribution/Modification</i></b>
10/28/19	Engelberg See	1.0	Prepared Initial Document Added Data Sources Package
10/31/19	Engelberg See	2.0	Added Controller Package, Transfer Object Package
10/31/19	Antonio Cavan	3.0	Added Data Access Object Packages, User Interface Packages
10/31/19	John Matthew Ramos	4.0	Added Revised Software Architecture Model

**System Name:** Schedule Optimizer

**Description:** The Schedule Optimizer is an application that creates a schedule of UP classes that is optimized according to the student's preference. There are three actors that will interact with the system, mainly: Student, ProfstoPick, and CRS. The Student will be the main consumer of the application as he or she will provide the classes to be sorted and the preferences that would factor in the computation. Furthermore, the student will be able to keep track of the schedules taken for each semester. The ProfstoPick will be providing numerical data of professor ratings. Lastly, the CRS will be providing the list of classes from which the system will be picking from.

**Revised Software Architecture Model:**



### ***User Interface Package:***

<b>Class Name</b>	<b>Description</b>
CreateAccountUI	<p>This is the interface of the user in using the system for creating the user's account..</p> <p><u>Responsibilities:</u></p> <p>public void CreateAccount (String userID, String username, String password)</p>
IndicateSubjectsUI	<p>This is the interface of the user in using the system for adding the user's subjects.</p> <p><u>Responsibilities:</u></p> <p>public void AddSubject (int classcode, String coursename, time timeslot, String instructor, String building, int credits)</p> <p>public void DeleteSubject (int classcode, String coursename, time timeslot, String instructor, String building, int credits)</p> <p>public void EditSubject (int classcode, String coursename, time timeslot, String instructor, String building, int credits)</p>
IndicatePreferencesUI	<p>This is the interface of the user in using the system for adding the user's preferences for the user's optimized schedule.</p> <p><u>Responsibilities:</u></p> <p>public void SelectPreferences (bool isClicked, int rank)</p> <p>public void UnselectPreferences (bool isClicked, int rank)</p> <p>public void incrementRankings(int rankings)</p> <p>public void decrementRankings(int rankings)</p> <p>public void removeHighlight(bool isClicked, int rank)</p> <p>public void highlightPreference(bool isClicked, int rank)</p>
ViewScheduleUI	<p>This is the interface of the user in using the system for viewing the user's optimized schedule within the app or choosing to save to their phone's gallery.</p> <p><u>Responsibilities:</u></p> <p>public void ViewSchedule (String ImageURL)</p> <p>public void SaveSchedule (String ImageURL)</p>
NotificationUI	<p>The is the interface presented when a problem occurs.</p> <p><u>Responsibilities:</u></p> <p>public void Notification (String message)</p>

***Controllers Package:***

Controller Name	Description
IndicateSubjects	<p>This is the control that allows the User to complete the list of subjects to be scheduled. It is considered an abstract class.</p> <p><u>Attributes:</u></p> <p>public Subject theSubject; public SubjectList theSubjectList;</p>
AddSubject	<p>This is the control that adds a subject to the list of subjects. It extends IndicateSubjects.</p> <p><u>Responsibilities:</u></p> <p>public addSubject(Subject s): return void</p>
EditSubject	<p>This is the control that edits a subject from the list of subjects. It extends IndicateSubjects.</p> <p><u>Responsibilities:</u></p> <p>editSubject(Subject s)</p>
DeleteSubject	<p>This is the control that deletes a subject from the list of subjects. It extends IndicateSubjects.</p> <p><u>Responsibilities:</u></p> <p>deleteSubject(Subject s)</p>
IndicatePreferences	<p>This is the control that allows the User to indicate preferences that would factor in to the scheduling algorithm. It is considered an abstract class.</p> <p><u>Attributes:</u></p> <p>public Preference thePreference; public PreferenceList thePreferenceList;</p>
SelectPreference	<p>This is the control that adds a preference to the list of preferences. It extends IndicatePreferences.</p> <p><u>Responsibilities:</u></p> <p>selectPreference(bool isClicked, int rank)</p>
UnselectPreference	<p>This is the control that removes a preference from the list of preferences. It extends IndicatePreferences.</p> <p><u>Responsibilities:</u></p> <p>unselectPreference(bool isClicked, int rank)</p>
ViewSchedule	<p>This is the control that allows the User to view the optimized scheduled generated by the algorithm. It is considered an abstract class.</p> <p><u>Attributes:</u></p> <p>public Schedule theSchedule; public ScheduleList theScheduleList;</p>
SaveToGallery	<p>This is the control that allows the User to save a screenshot of the generated schedule to their gallery. It extends ViewSchedule.</p> <p><u>Responsibilities:</u></p> <p>downloadSchedule(Schedule sched)</p>

### *Data Access Objects Packages:*

DAO Name	Description
DBSubject	This is the entity class Subject, which contains the data about the subject picked. <u>Attributes:</u> private Subject theSubject; private int classcode; private string coursename; private int timeslot; private Professor thisProfessor; private string building; private int credits;
ProfessorDAO	This is the entity class Professor, which contains data about the Professor's ratings. <u>Attributes:</u> private int instructorid; private string instructorname; private int pedagogy; private int easiness; private int helpfulness; private Review reviewText;
UserDAO	This is the entity class User, which contains data in the current User. <u>Attributes:</u> private int userid; private string username; private Password user_password; private Preference preferenceID; private Schedule scheduleID;
ScheduleDAO	This is the entity class Schedule, which contains data on the Schedule picked by the user. <u>Attributes:</u> private int scheduleid; private int courseid1; private int courseid2; private int courseid3; private int courseid4; private int courseid5; private int courseid6; private int courseid7; private int courseid8; private int courseid9; private int courseid10;
InstructorDAO	This is the entity class Instructor, which contains the ratings of the Professor teaching the chosen Subject. <u>Attributes:</u> private int instructorID; private string instructorName; private int pedagogy; private int easiness; private int helpfulness; private Review reviewText;

### ***Transfer Objects Package:***

Class Name	Description
User	This is the entity class User, which contains the data about the user <u>Attributes:</u> private int userid private String username private String password
Subject	This is the entity class Subject, which contains the data about the subject <u>Attributes:</u> private int classcode private String coursename private time timeslot private String instructor private String building private String room private int credits <u>Functions:</u> public AddSubject (String coursename)
PreferredPreference	This is the entity class PreferredPreference, which contains the data about the preference. <u>Attributes:</u> private int preferenceid private int pedagogyrank private int easinessrank private int helpfulnessrank <u>Functions:</u> public removeFromPref_List(int preferenceid) public addToPref_List(int preferenceid)
Instructor	This is the entity class Instructor, which contains the data about the Professors. <u>Attributes:</u> private int instructorid private String instructorname private int pedagogy private int easiness private int helpfulness private String reviewtext <u>Functions:</u> public FetchInstructor (int instructorid)
PreferredSubject	This is the entity class PreferredSubject, which contains the data about the

	<p>PreferredSubject.</p> <p><u>Attributes:</u></p> <p>private int preferredsubjectid</p> <p>private int courseid</p> <p>private int rank</p> <p><u>Functions:</u></p> <p>public EditSubject (int preferredsubjectid)</p> <p>public DeleteSubject (int preferredsubjectid)</p>
OptimizedSchedule	<p>This is the entity class OptimizedSchedule, which contains the data about the optimized schedule</p> <p><u>Attributes:</u></p> <p>private int classcode</p> <p>private int courseid1</p> <p>private int courseid2</p> <p>private int courseid3</p> <p>private int courseid4</p> <p>private int courseid5</p> <p>private int courseid6</p> <p>private int courseid7</p> <p>private int courseid8</p> <p>private int courseid9</p> <p>private int courseid10</p>



***Data Sources Package:***

File Name or Database Name	Description
UserDatabase	This is the data source of user records found in a relational database system.
SubjectDatabase	This is the data source of subject records found in a relational database system.
InstructorDatabase	This is the data source of instructor records found in a relational database system.
PreferredSubjectDatabase	This is the data source of preferred subject records found in a relational database system.
PreferredPreferenceDatabase	This is the data source of preferred preference records found in a relational database system.
ScheduleDatabase	This is the data source of schedule records found in a relational database system.