CURRICULUM SCHEDULER DESIGN DOCUMENT

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1.1 Purpose

The purpose of this document is to outline the functional requirements for a course scheduling system semester wise for an academic department in a University. . This document is meant to explain the features of the course scheduler so as to serve as a guide to the developers on one hand and a software validation document for the prospective client on the other.

1.2 Intended Audience and Scope

This document is the only one that describes the requirements of the system. It is meant for use by the developers or students, academic staff and will be the basis for validating the final delivered system. Any changes made to the requirements in the future will have to go through a formal change approval process.

More specifically, this system is designed as a drag drop system. A file which has information about the constraints and the courses is given as an input. It is processed in such a way that we should drag and drop the courses in the semester slot provided for them. An error message will be popped up if the selection of any course violates the constraints. Final output is exported into a file.

1.3 Definitions, Acronyms, Abbreviations

CSV: Comma separated value.
GUI: Graphical User Interface.
Course Type: Core course or Liberal Arts elective or Free elective or Department elective etc.

1.4 Document Overview

Rest of the design document is divided into 3 sections

System Overview

This section gives the overall description of the software system which explains what system does.

System Architecture

This section includes the basic plan for the whole project which includes architecture design, decomposition description, design rationale.

Data Design

This section includes the data description and the data dictionary.

2. System Overview

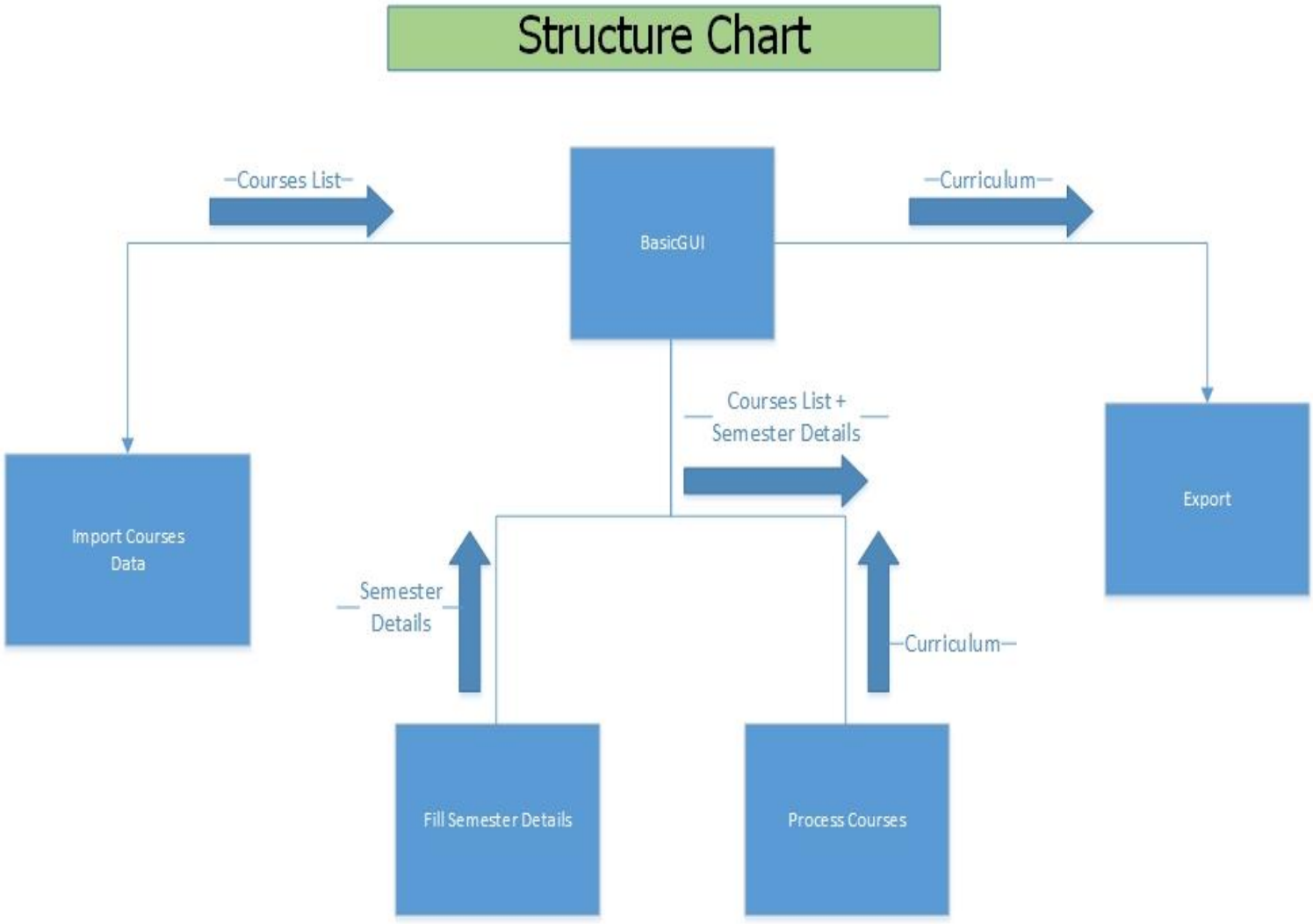
In a department, there are a set of courses that a student should complete in all the eight semesters. Each course has a unique course ID. For each course there are some constraints. E.g., a course must be completed between particular semesters and prerequisites for a course etc.

The system is to produce that specifies a list of courses every semester for all the eight semesters. Courses are dragged and dropped in the semester slot given. If a course added against the constraints specified, the system should produce a "conflict report" that the chosen course cannot be added to the particular semester slot and the constraint that is violated.

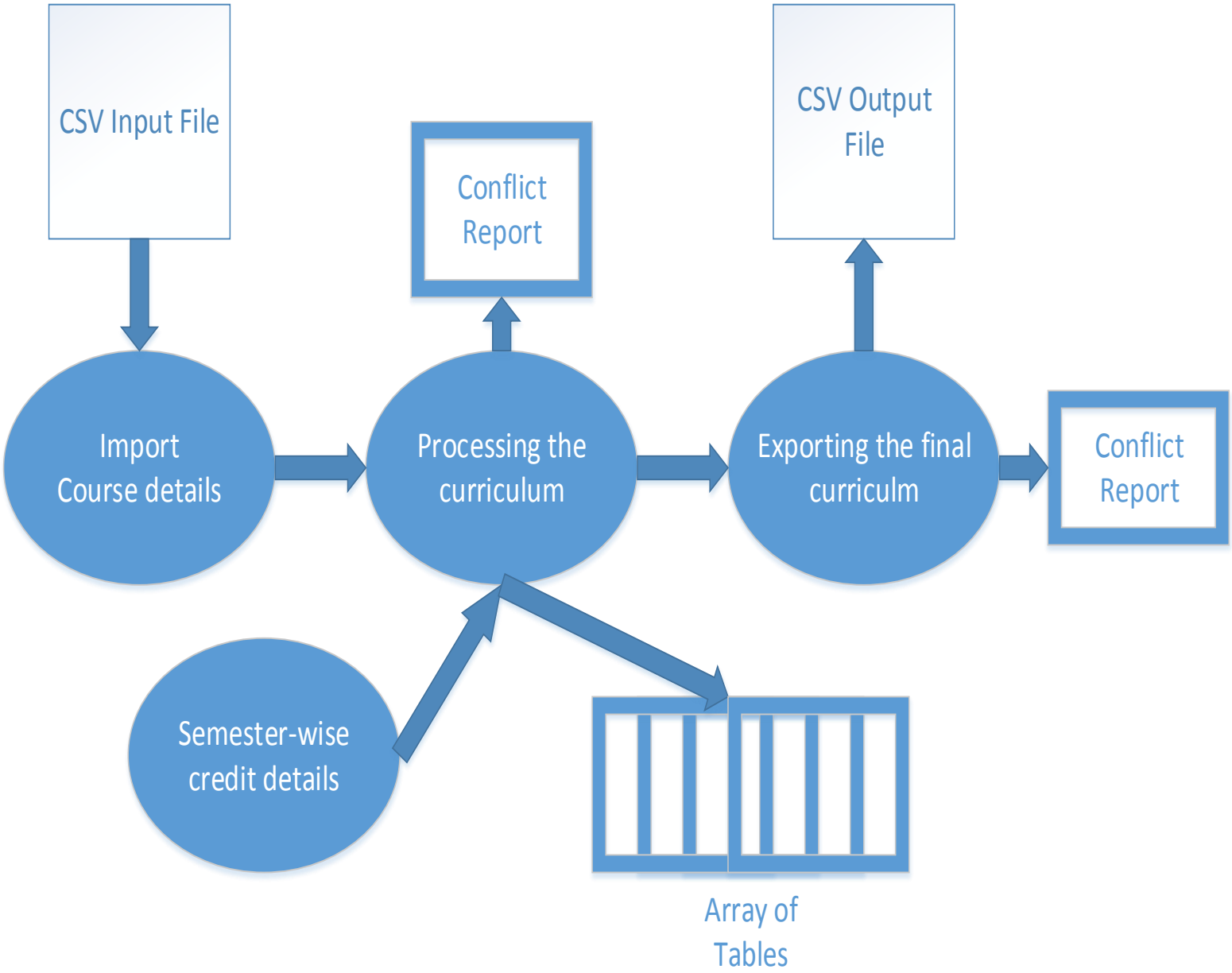
3. SYSTEM ARCHITECHTURE:

The system to be developed is for scheduling all the courses semester wise in a department for a batch based on the input of a file which consists about course details and entering details regarding number of minimum and maximum credits that a student must complete every semester and details about each course. The scheduler should satisfy different constraints.

ARCHITECHTURE DESIGN



DATA FLOW DIAGRAM



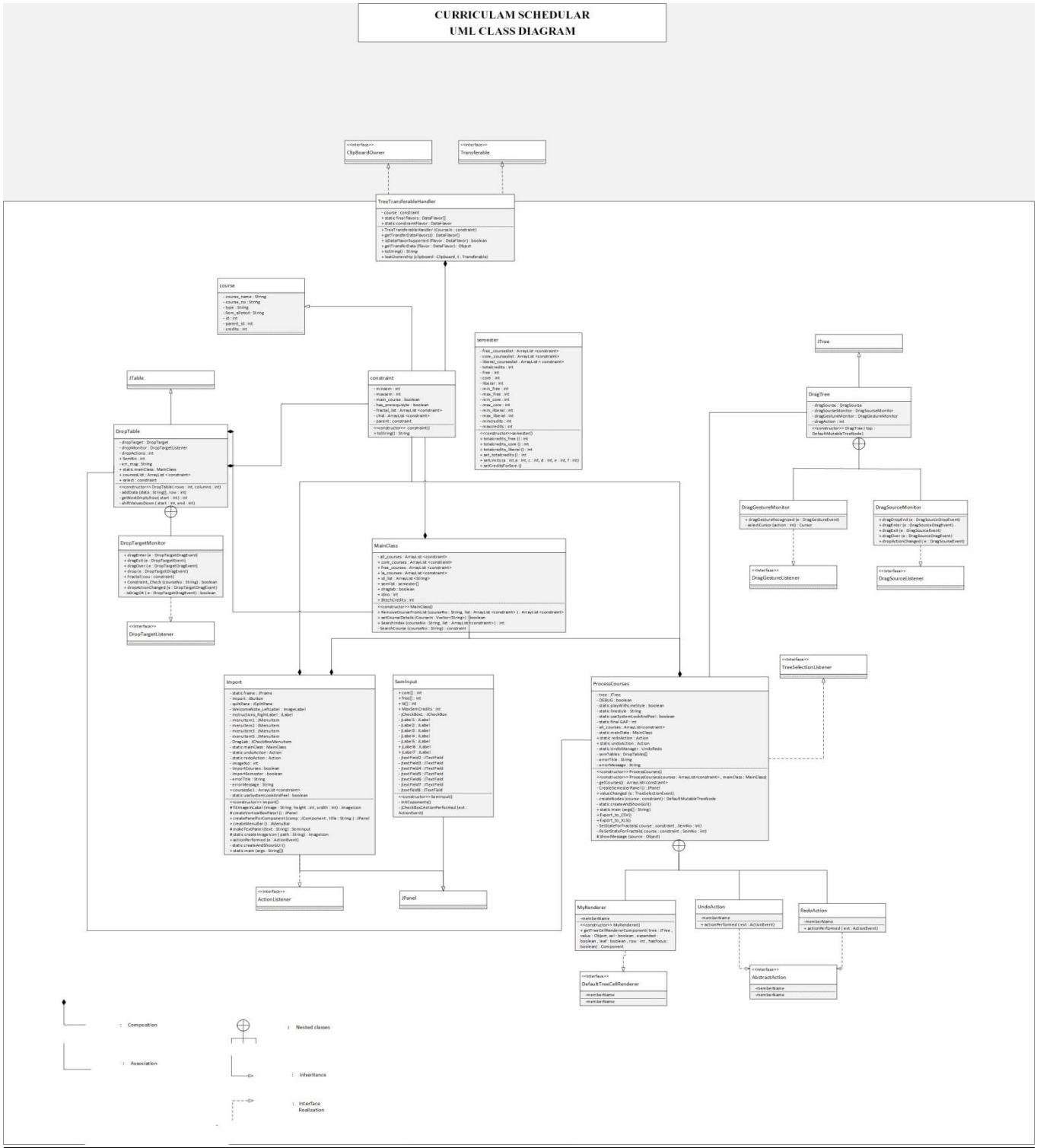
DATA FLOW IN CURRICULUM SCHEDULER

4. DATA DESIGN

Data description

We took the information about courses and semesters from the csv files and storing it in instance of class, “mainclass”. The following figure describes OO design of the modules in curriculum scheduler:

CLASS DIAGRAM



Data Dictionary

- Course
- Constraint
- DragGestureMonitor
- DragSourceMonitor
- DragTree
- DropTable
- DropTargetMonitor
- Import
- ImageLabel
- MainClass
- ProcessCourses
- RedoAction
- Semester
- SemInput
- TreeTransferHandler
- UndoAction
- UndoRedo

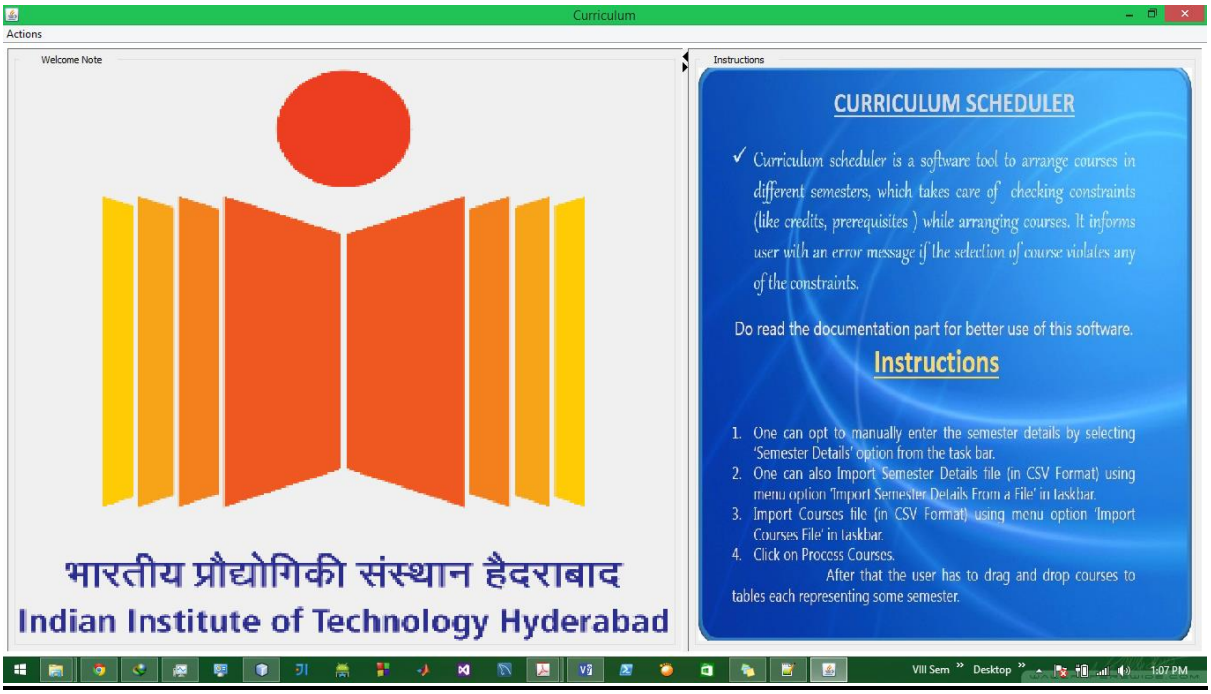
HUMAN INTERFACE DESIGN

Overview of User Interface:

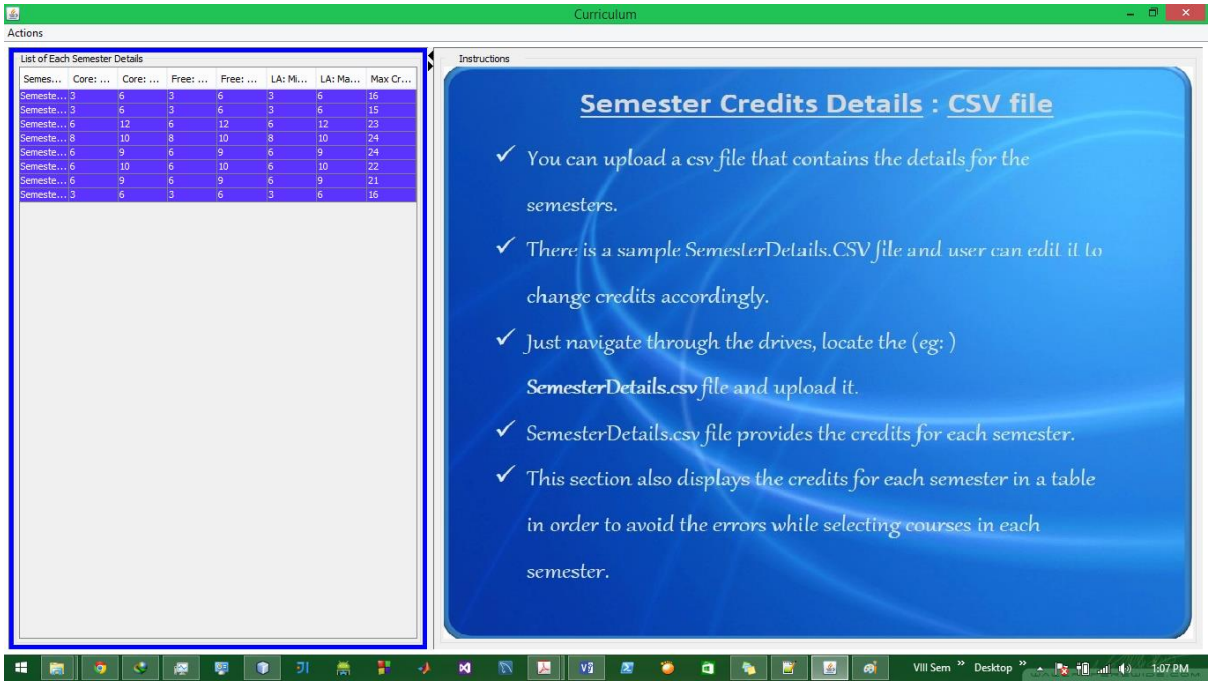
The entire software is a stand-alone application in JAVA. The user screen is split vertically into two panes. The left pane contains the UI for filling semester credit constraints, processing courses, which expands and contracts as per user action. The right part displays the instructions related to operations that are specified on the left pane. Either one of the left pane or right pane can be expanded partially or completely.

Screen Images:

WELCOME PAGE

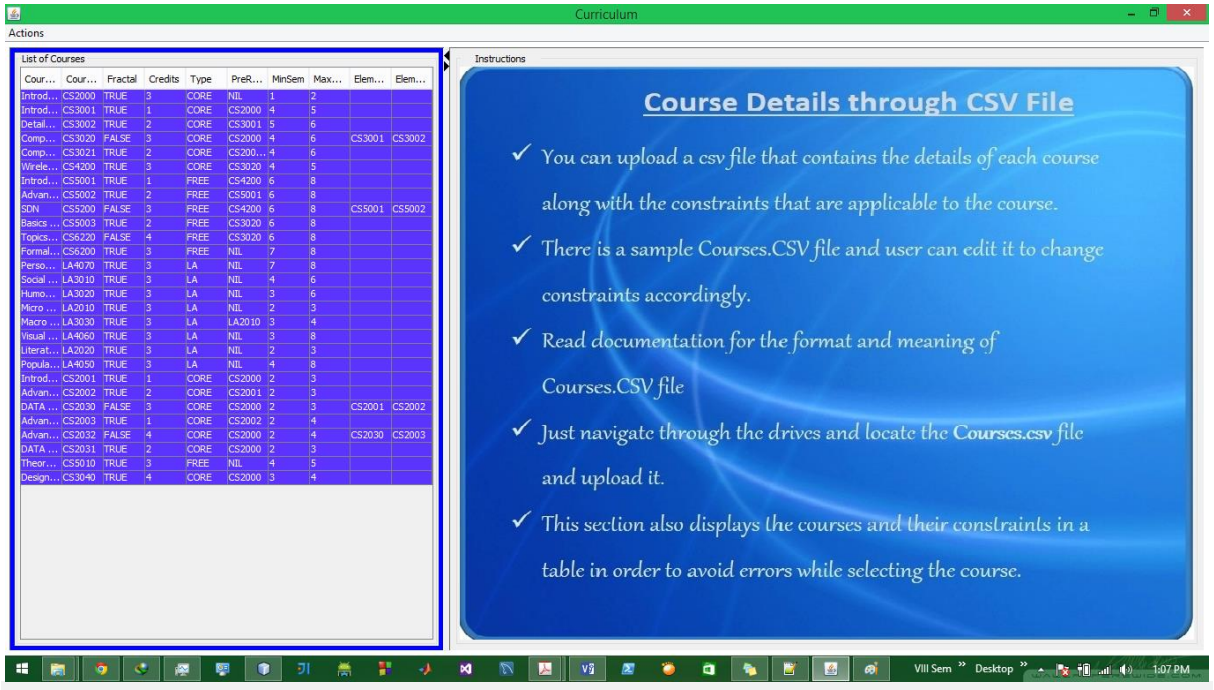


SEMESTER DETAILS

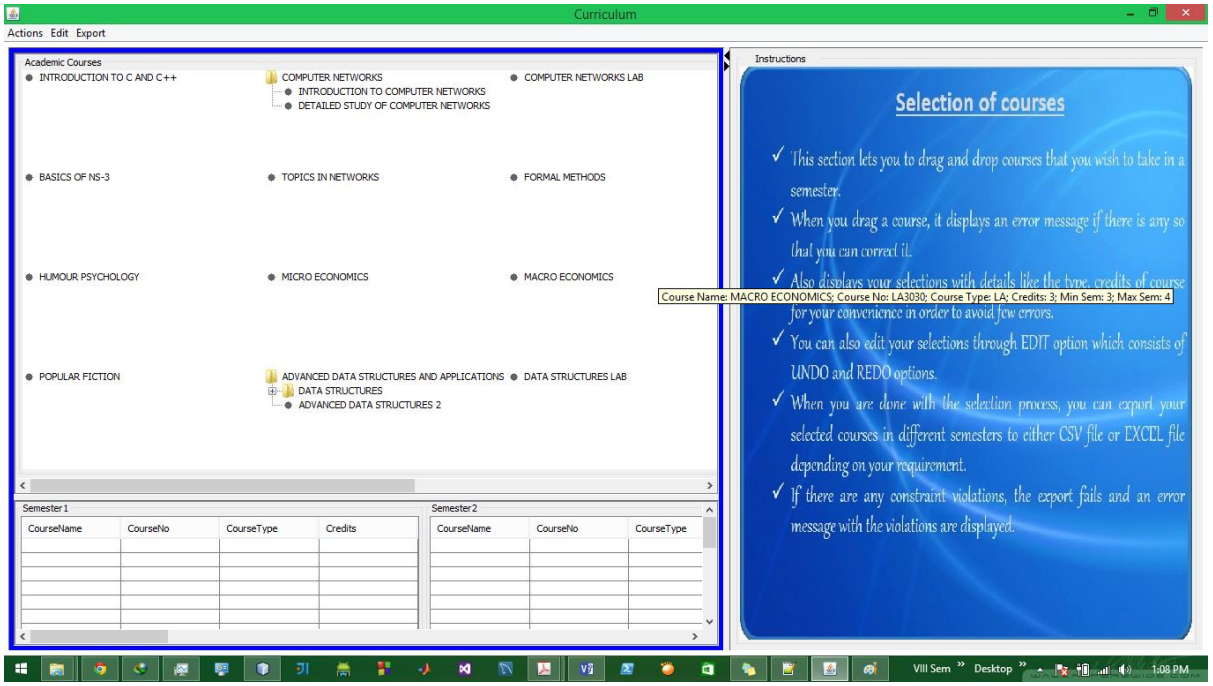


CSV FILE FOR COURSE DETAILS

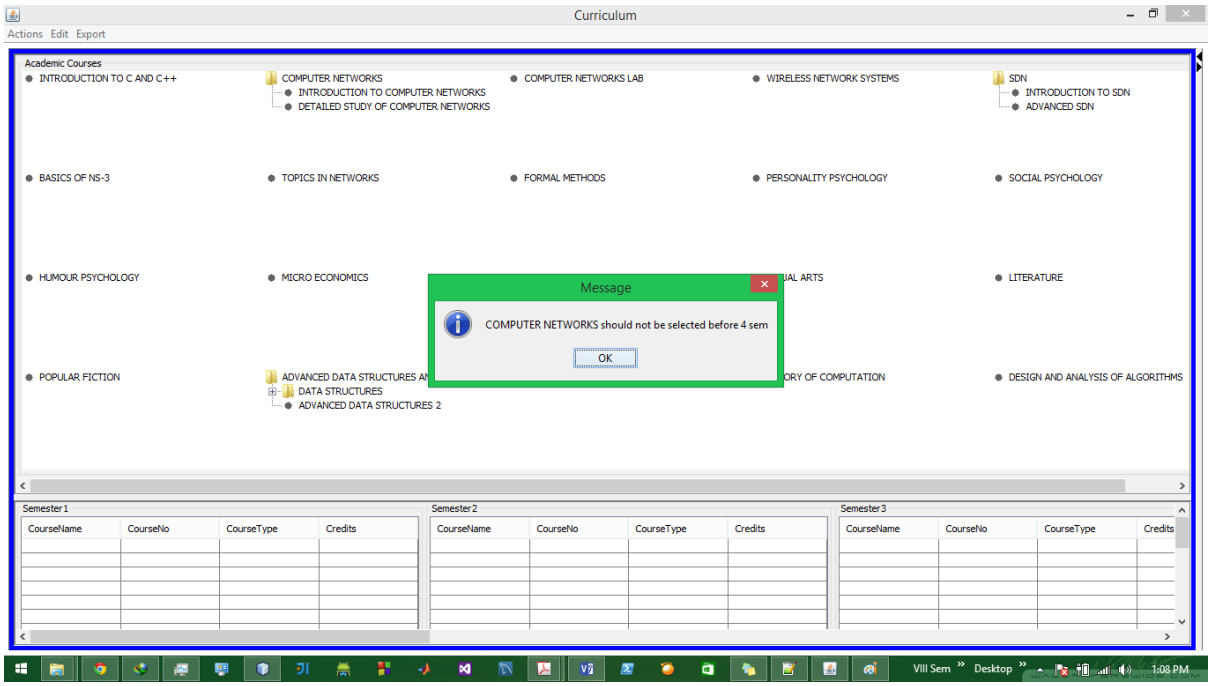
csv (Comma Separated Value) file stores tabular data (numbers and text) in plain-text form. Courses.csv file contains CourseName (String), CourseID (String), Fractal (boolean), Credits (int), Type (String), PreRequisite(CourseID), MinSem (int) , MaxSem (int), ElementaryCourse1 (CourseID), ElementaryCourse2 (CourseID)



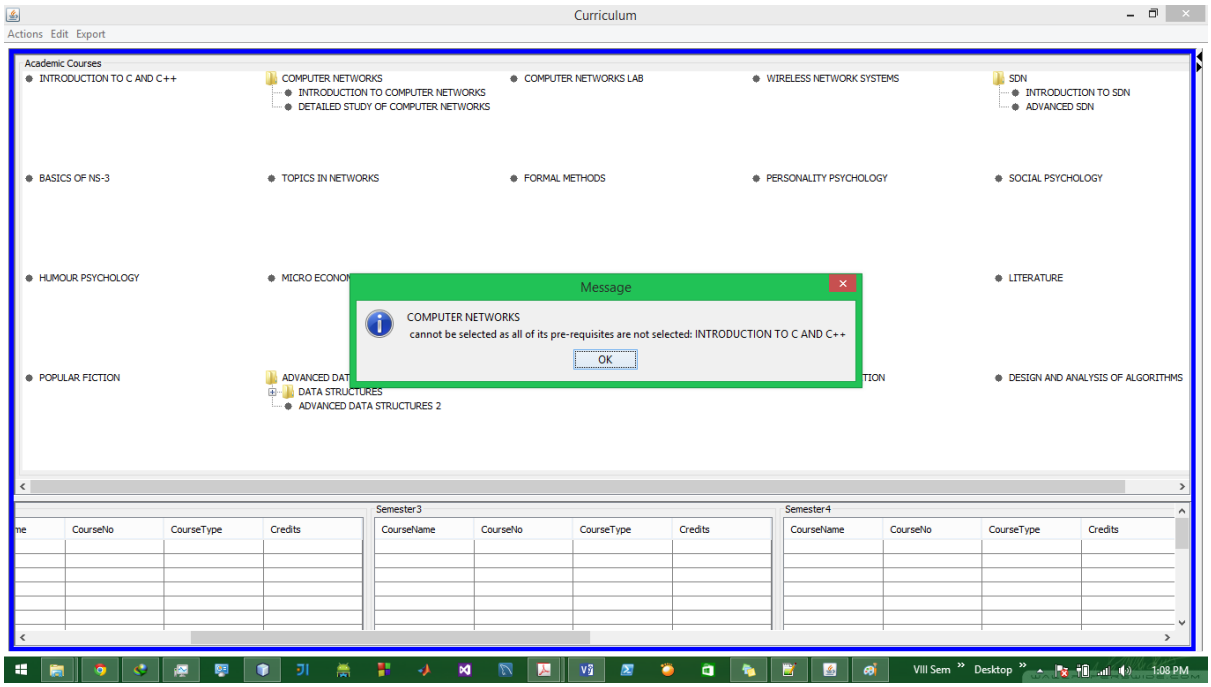
PROCEESSING THE CURRICULUM



IF ERROR OCCURS



ERROR: PREREQUISITE



ERROR WHILE EXPORTING THE OUTPUT TO CSV FILE