CENG206 Proje Report

Hasan Uslu - 19050111003
Arif Özalp - 21050111058
Selin Ergin - 22050111075
Ahmet Said Altunbaş - 20050111069
Ömer Faruk Başaran - 21050111041
Serhat Özdemir 21050111050

May 14, 2024

Pseudocode for our algorithm

```
1.  Create empty lists: allCourses, allInstructors, allServices, allClassrooms
2.  Create a new Schedule object with allClassrooms
3.  Define weekdays: Monday, Tuesday, Wednesday, Thursday, Friday
4.  Define time slots: 8:30, 9:30, 10:30, 11:30, ..., 15:30
5.  Call busyService to get and store instructor list
6.  Call classroomService to get and store classroom list (resetting each classroom)
7.  Call courseService to get and store course list (resetting each course)
8.  Call serviceService to get and store service list
9.  For each service in allServices:
    9.1. Find corresponding course using course code
    9.2. Loop through service timings
        9.2.1. If course hours are full or instructor is busy, skip to next service
        9.2.2. Loop through all classrooms
            9.2.2.1. Check if current or next classroom has space for this course at this time
            9.2.2.2. If there's space and student count fits, add course to schedule in that classro
10. For each course in allCourses:
    10.1. If course hours are full, skip to next course
    10.2. Loop through required course hours
        10.2.1. Loop through weekdays
            10.2.1.1. If course hours are full, break out of weekday loop
            10.2.1.2. If course requirement is met, move to next required hours
            10.2.2. Loop through time slots starting from this time onwards
                10.2.2.1. If course hours are full, break out of time loop
                10.2.2.2. Check if instructor is busy or there's a course from the same semester at
                10.2.2.3. Loop through all classrooms
                    10.2.2.3.1. If there's space for this course and student count fits (considering
    10.3. If course hours are not yet full, try to increase classroom capacity to fit the course
11. Check for unplaced courses: loop through allCourses, add unplaced courses to a separate list
12. If there are unplaced courses:
    12.1. Repeat steps 10 and 11 for the unplaced courses
    12.2. If there are still unplaced courses after another attempt, raise an alert and exit
13. Otherwise, convert the schedule object into arrays for better manipulation
```

Class Diagrams

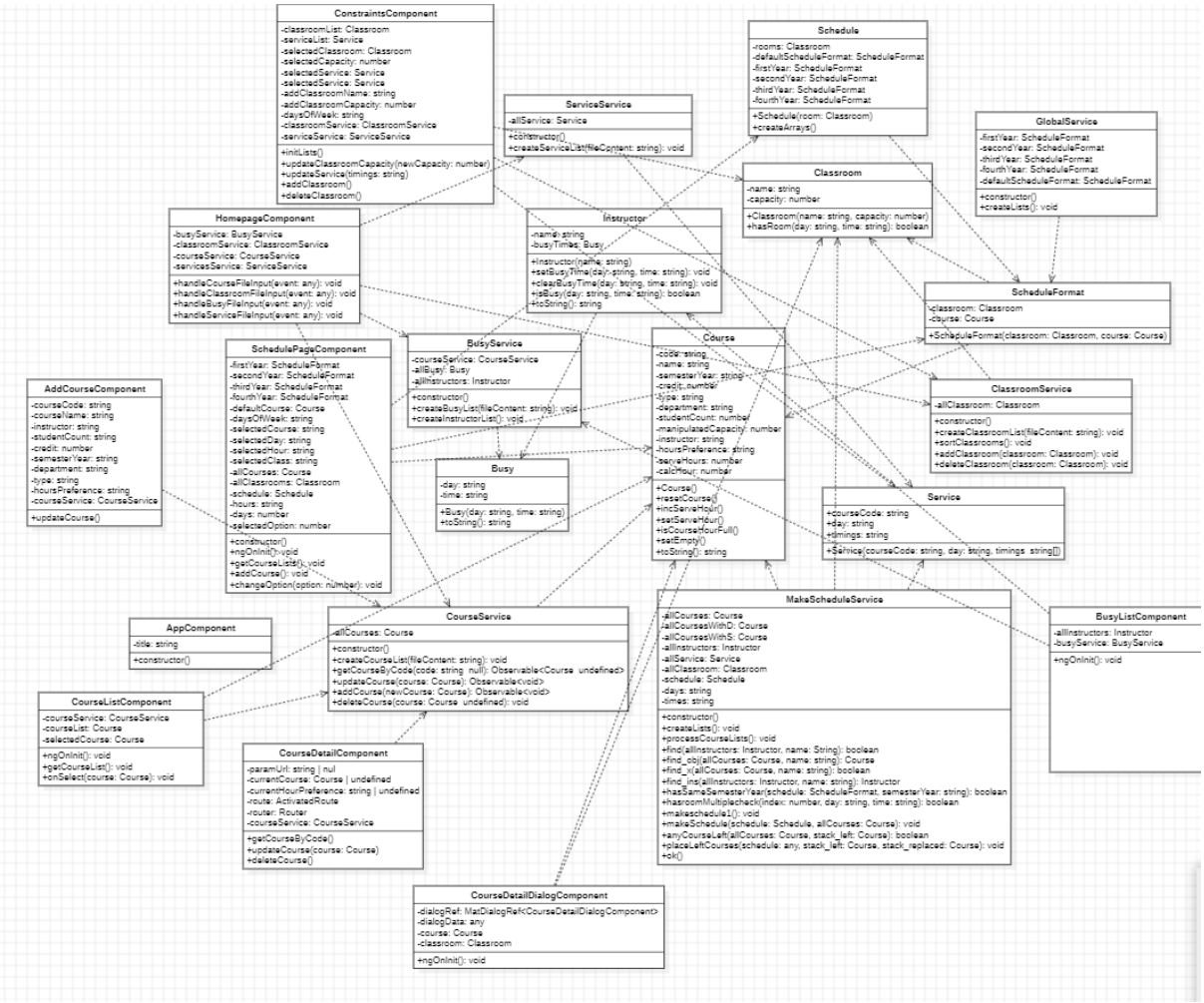


Figure 1: Class Diagram

Screenshots

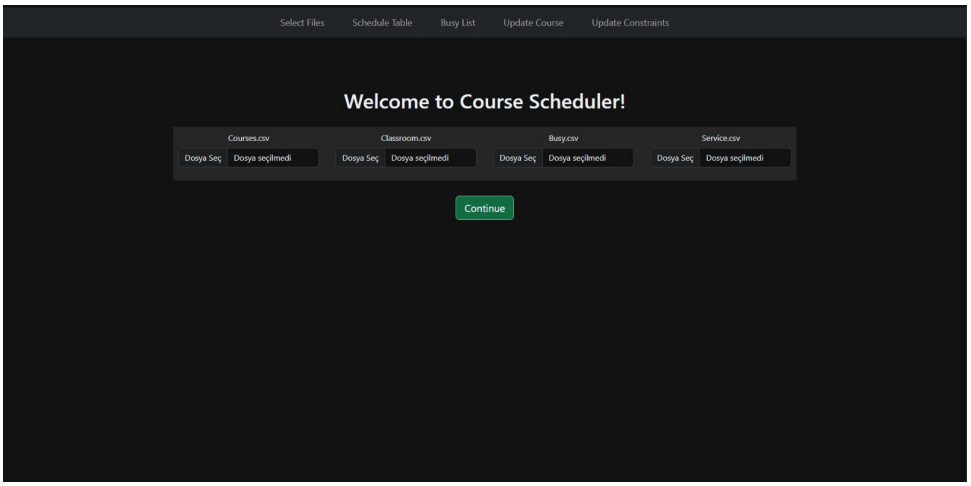


Figure 2: Select Course Page

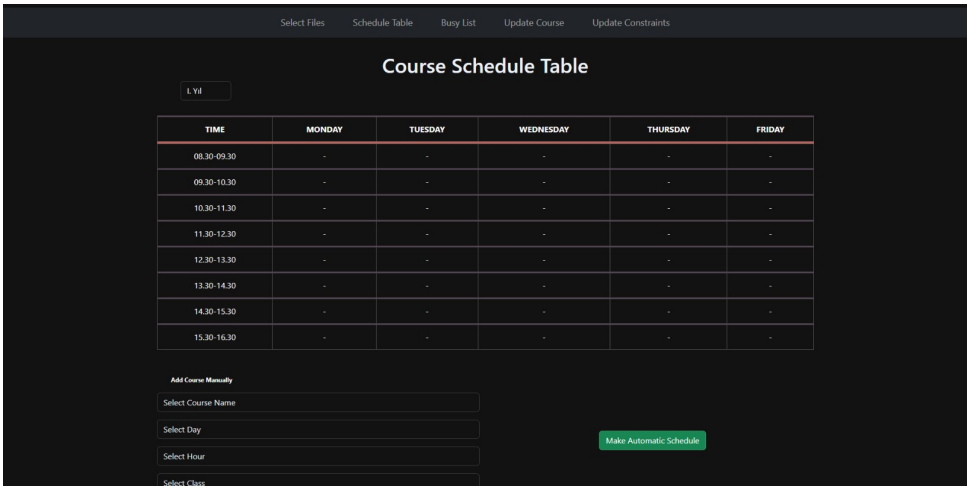


Figure 3: Empty Table Page

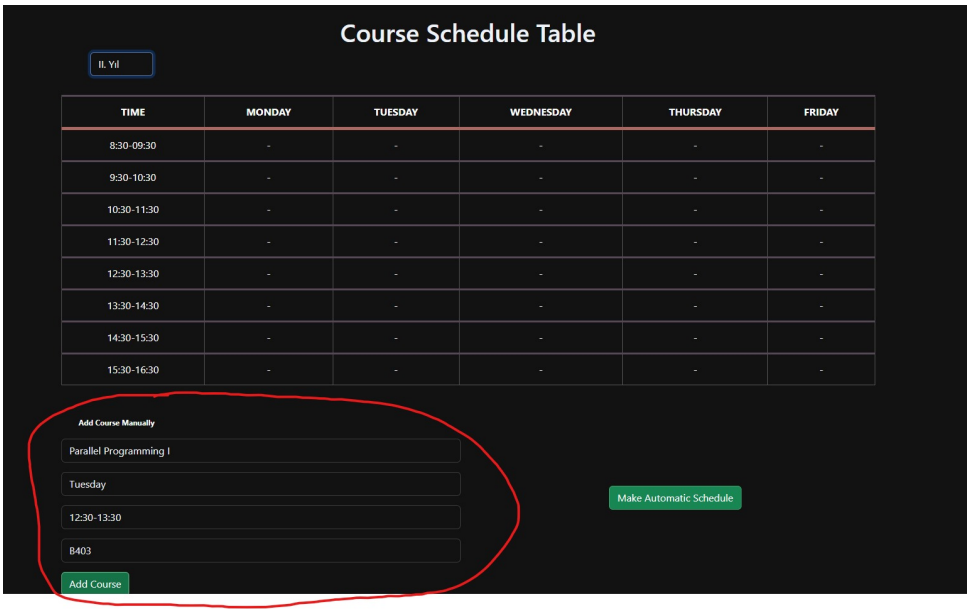


Figure 4: Table Before Manual Course Selection

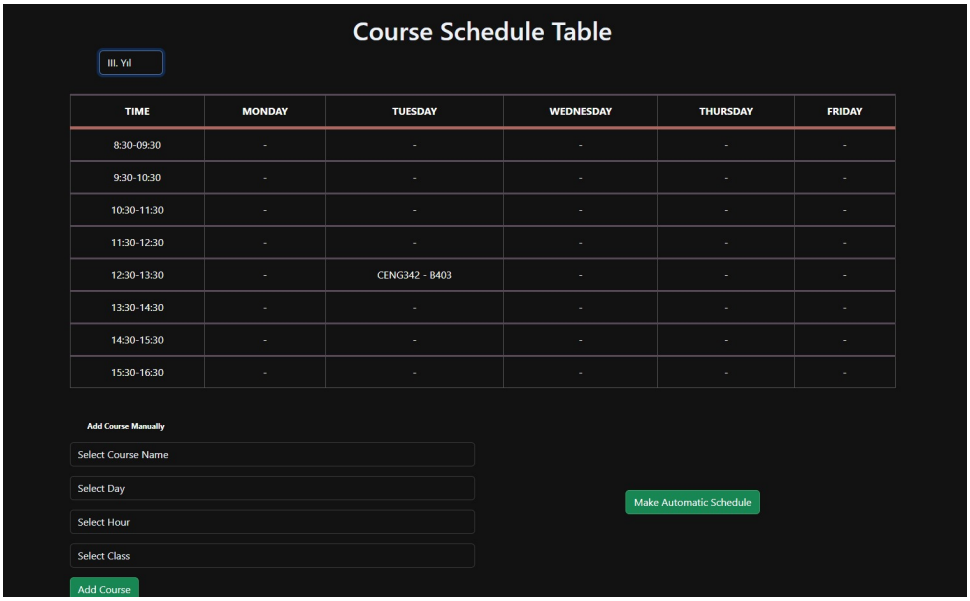


Figure 5: Table After Manual Course Selection

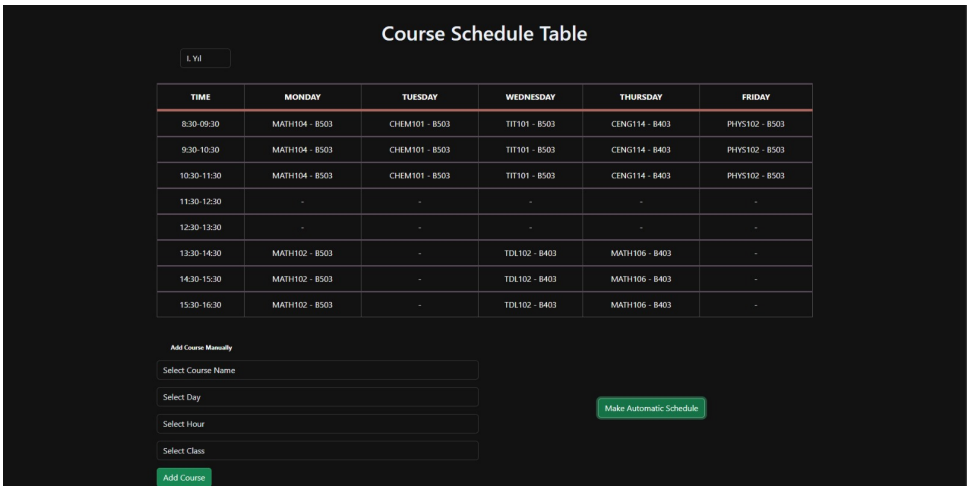


Figure 6: Table After Automatic Schedule Generation

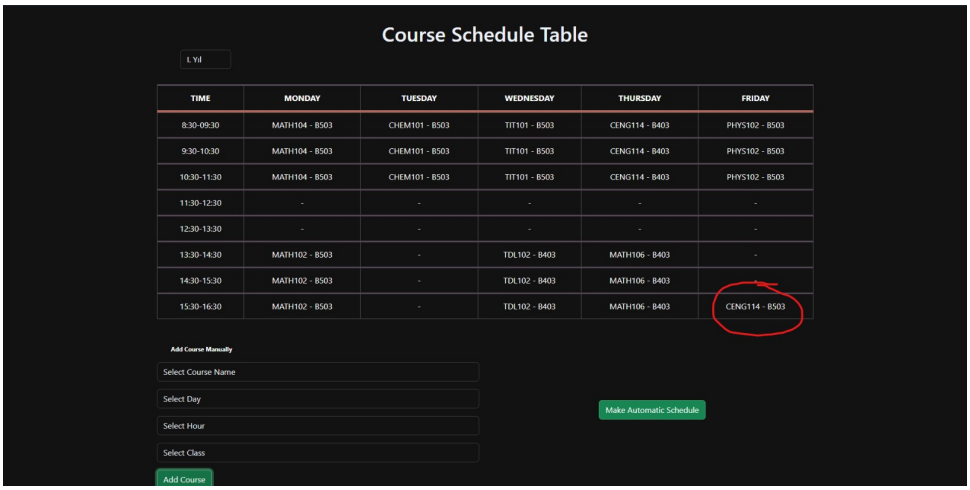
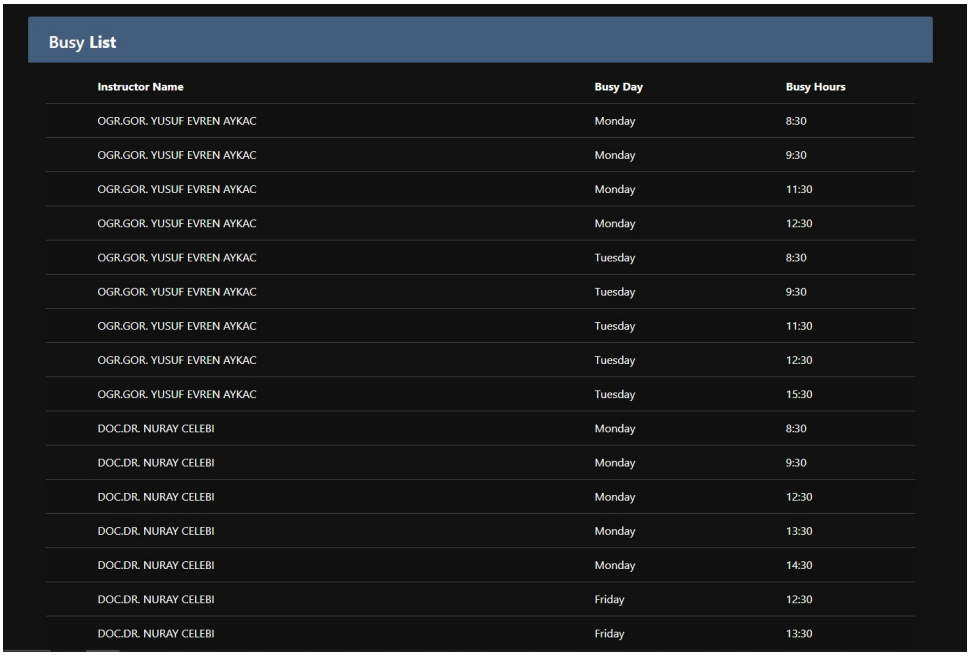


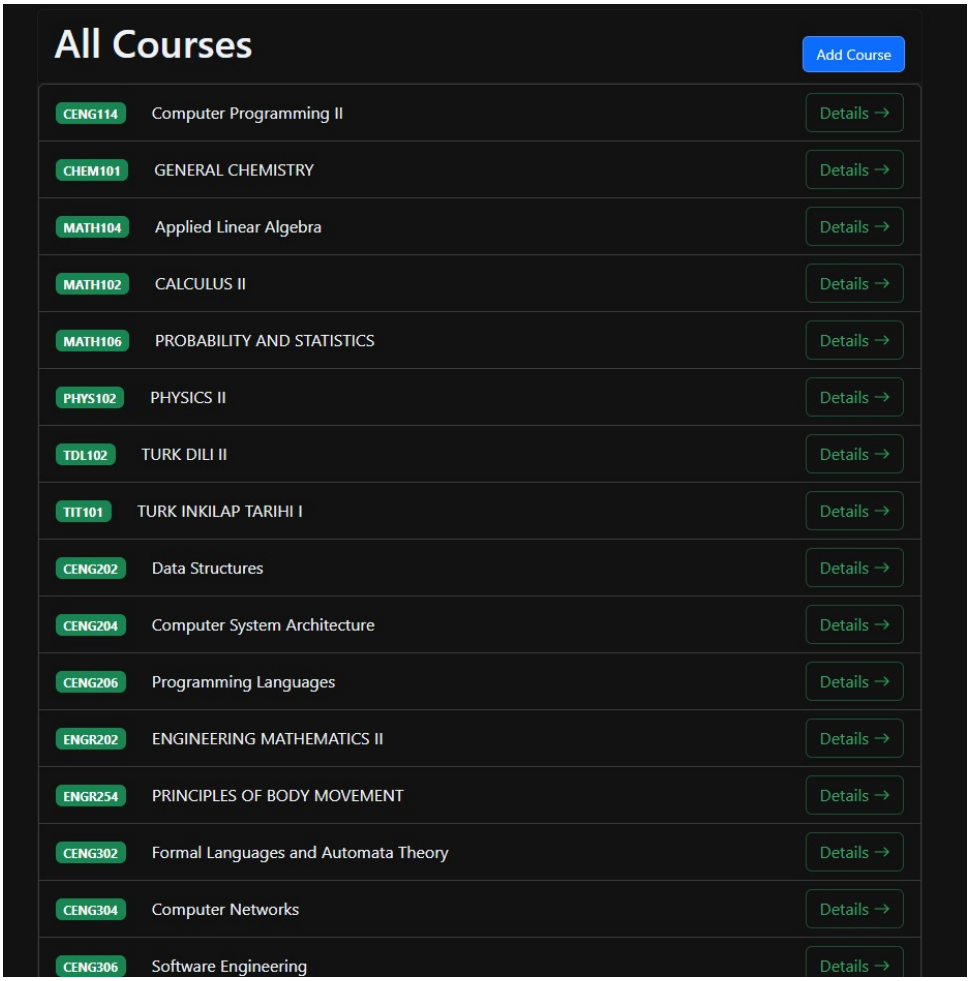
Figure 7: Manually Add Course After Automatic Schedule Generation



Busy List

Instructor Name	Busy Day	Busy Hours
OGR.GOR. YUSUF EVREN AYKAC	Monday	8:30
OGR.GOR. YUSUF EVREN AYKAC	Monday	9:30
OGR.GOR. YUSUF EVREN AYKAC	Monday	11:30
OGR.GOR. YUSUF EVREN AYKAC	Monday	12:30
OGR.GOR. YUSUF EVREN AYKAC	Tuesday	8:30
OGR.GOR. YUSUF EVREN AYKAC	Tuesday	9:30
OGR.GOR. YUSUF EVREN AYKAC	Tuesday	11:30
OGR.GOR. YUSUF EVREN AYKAC	Tuesday	12:30
OGR.GOR. YUSUF EVREN AYKAC	Tuesday	15:30
DOC.DR. NURAY CELEBI	Monday	8:30
DOC.DR. NURAY CELEBI	Monday	9:30
DOC.DR. NURAY CELEBI	Monday	12:30
DOC.DR. NURAY CELEBI	Monday	13:30
DOC.DR. NURAY CELEBI	Monday	14:30
DOC.DR. NURAY CELEBI	Friday	12:30
DOC.DR. NURAY CELEBI	Friday	13:30

Figure 8: Busy List Page



All Courses

Add Course

CENG114	Computer Programming II	Details →
CHEM101	GENERAL CHEMISTRY	Details →
MATH104	Applied Linear Algebra	Details →
MATH102	CALCULUS II	Details →
MATH106	PROBABILITY AND STATISTICS	Details →
PHYS102	PHYSICS II	Details →
TDL102	TURK DILI II	Details →
TIT101	TURK INKILAP TARIHI I	Details →
CENG202	Data Structures	Details →
CENG204	Computer System Architecture	Details →
CENG206	Programming Languages	Details →
ENGR202	ENGINEERING MATHEMATICS II	Details →
ENGR254	PRINCIPLES OF BODY MOVEMENT	Details →
CENG302	Formal Languages and Automata Theory	Details →
CENG304	Computer Networks	Details →
CENG306	Software Engineering	Details →

Figure 9: Course List Page

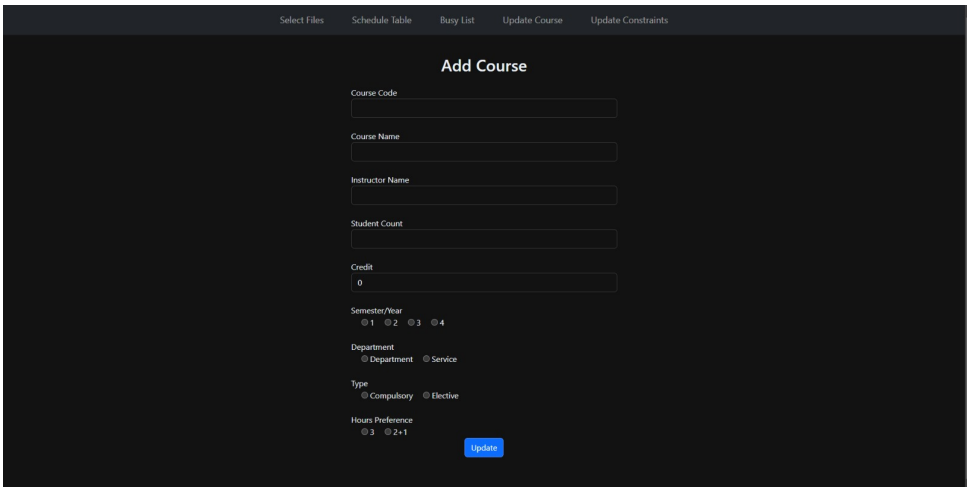


Figure 10: Add Course Page

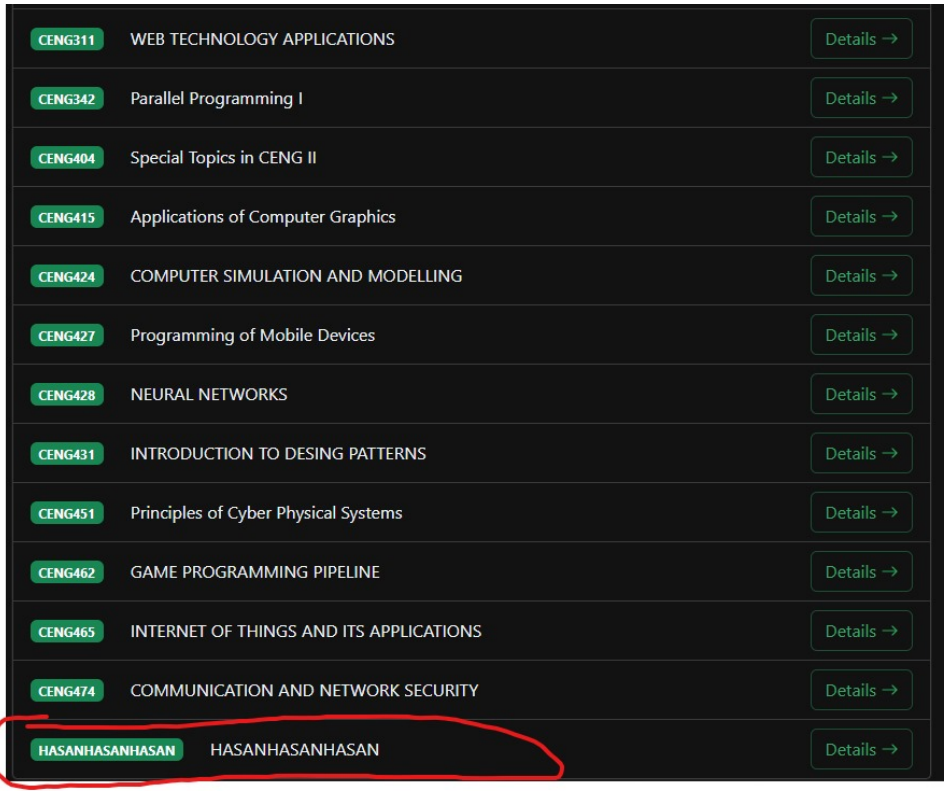


Figure 11: Course List Page After Manual Course Addition

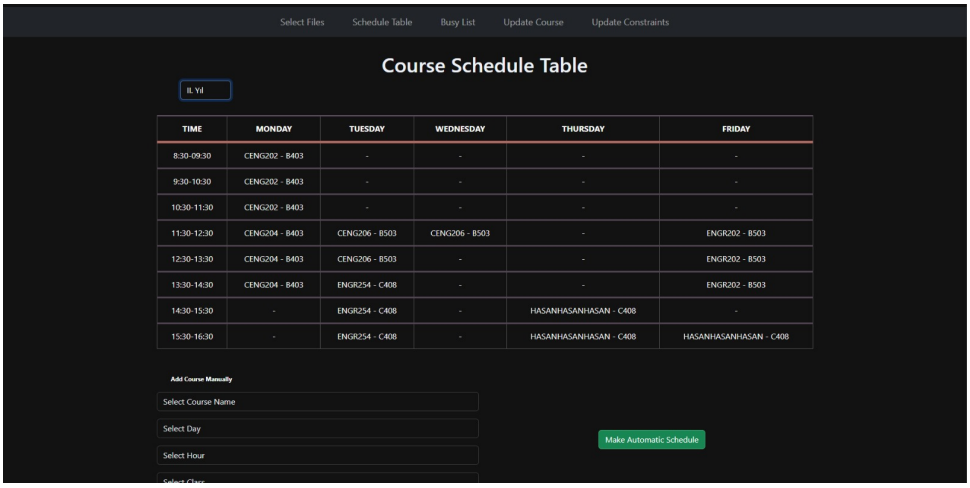


Figure 12: Table after Manual Course Addition

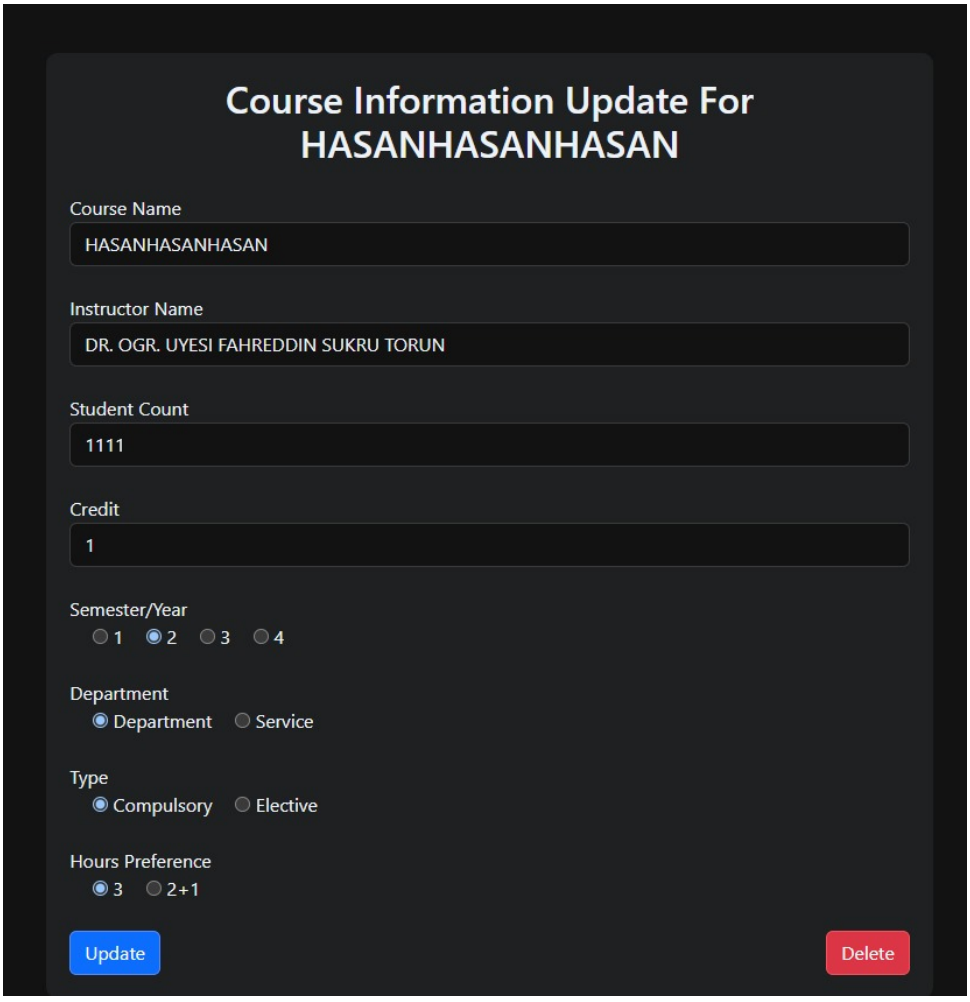


Figure 13: Edit Course Page

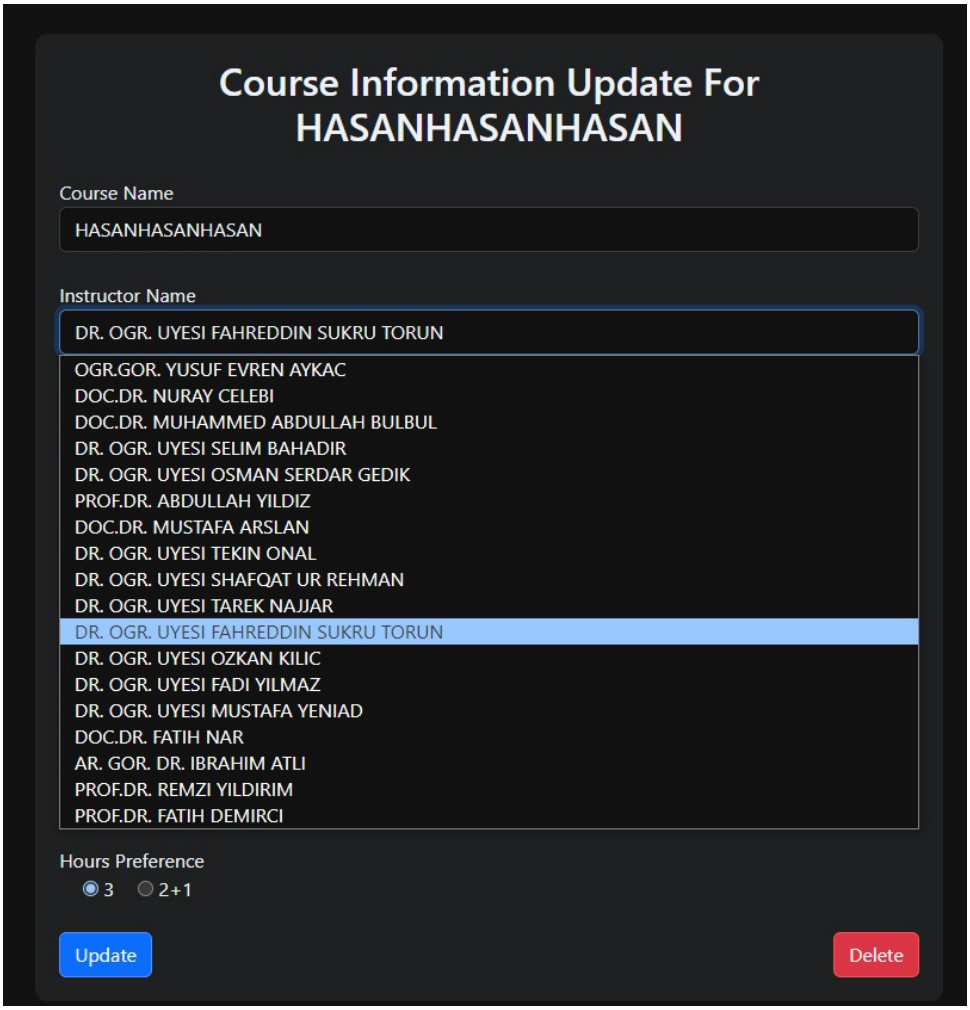


Figure 14: Add Course Page with Instructor List

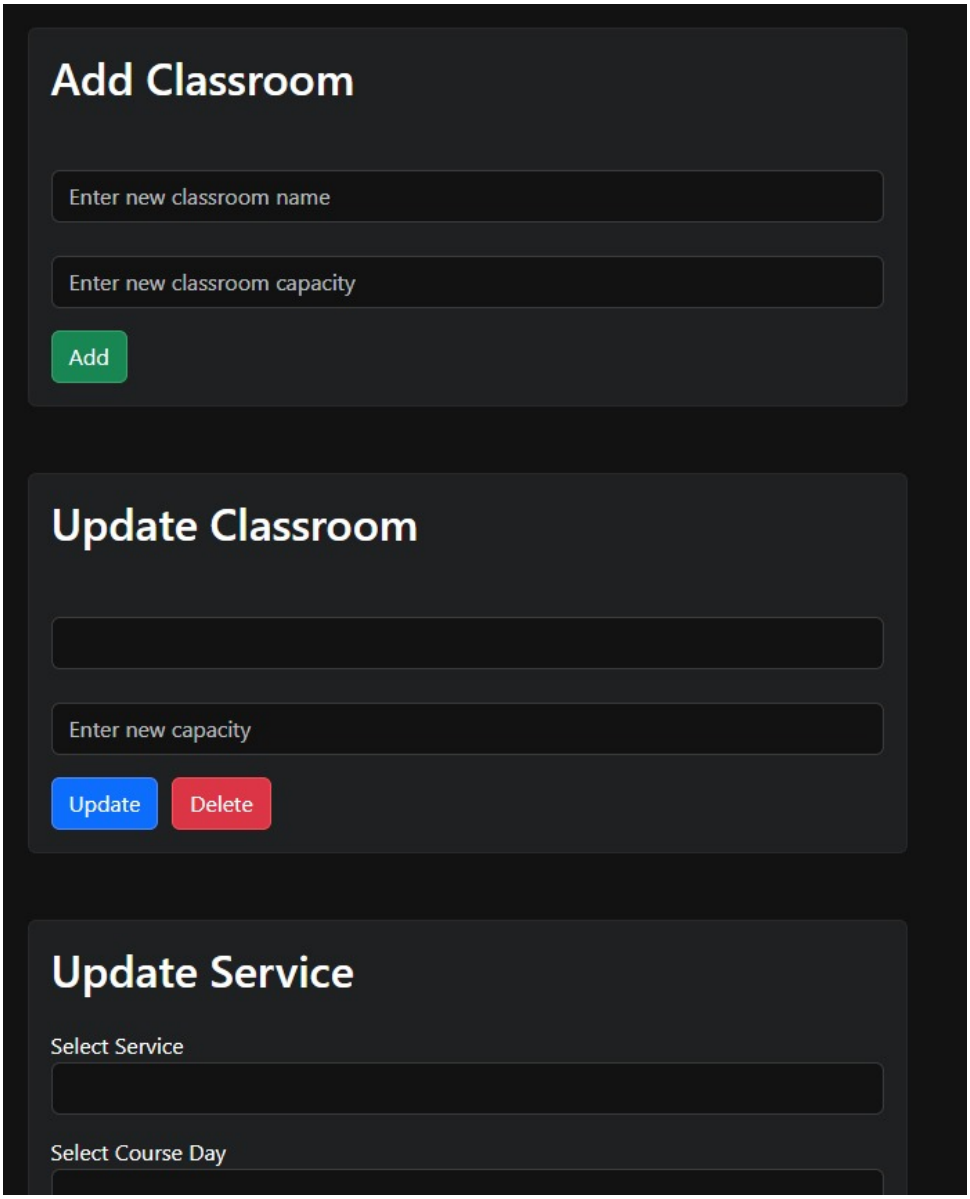


Figure 15: Add/Update Classroom and Update Service Page

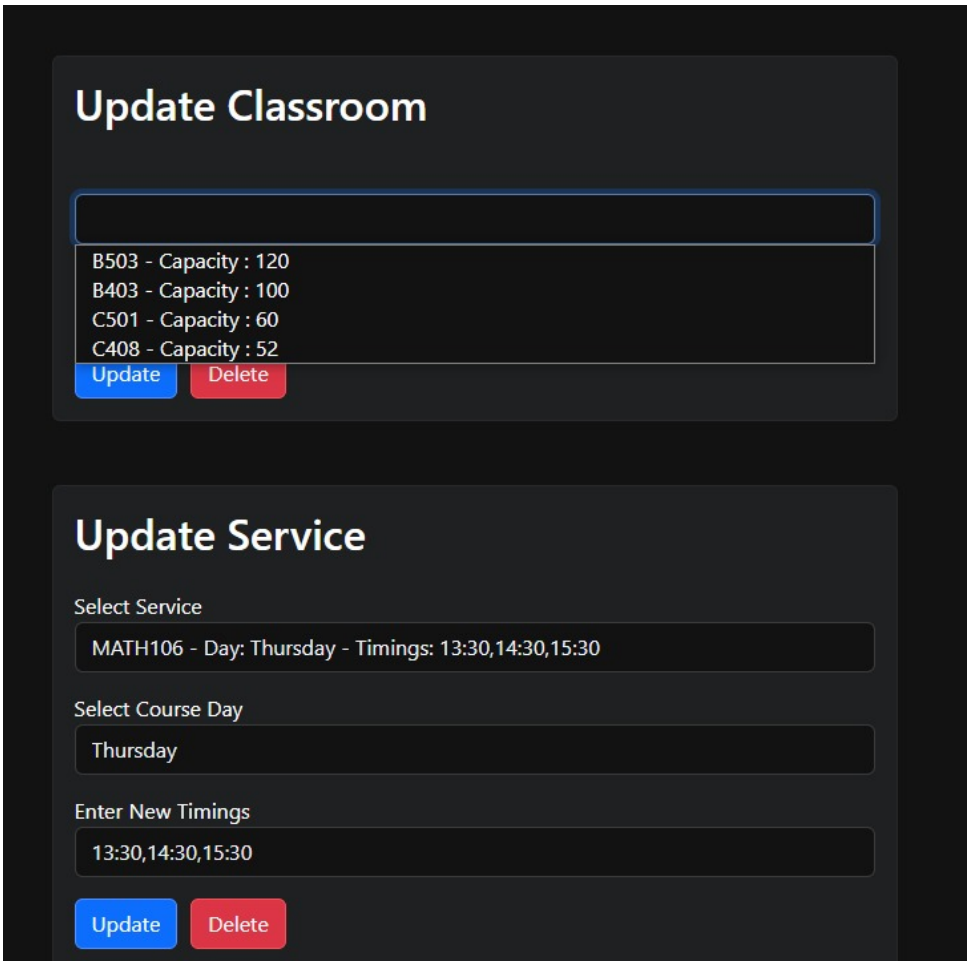


Figure 16: Update Classroom Page with Classroom List