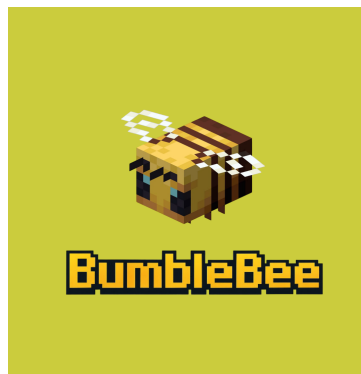


User Manual

Automated Time Table & Exam Scheduling System



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1 Overview

The **Automated Scheduling System** for IIIT Dharwad contains two major modules:

1. **Academic Time Table Scheduler**
2. **Exam Time Table Scheduler**

Both systems read data from CSV files and generate well-formatted Excel timetables with conflict avoidance.

Academic Time Table Features

- Automatic lecture + lab scheduling.
- Faculty conflict detection.
- Room availability constraints.
- First-Half / Second-Half semester logic.
- Color-coded Excel output.
- Faculty-wise consolidated timetable.

Exam Scheduler Features

- Automatically generates clash-free exam timetables.
- Ensures one exam per branch per day.
- Supports multiple exam slots (Morning/Evening).
- Automatic room allocation.
- Invigilation assignment generation.
- Generates per-branch and combined exam sheets.

2 Folder Structure

The project folder structure (as in repository):

```
AUTOMATED-TIME-TABLE-SCHEDULING-FOR-IIIT-DHARWAD/
|
+-- data/
|   +-- CSE_3_courses-A.csv
|   +-- CSE_3_courses-B.csv
|   +-- CSE_1_A_courses.csv
|   +-- CSE_1_B_courses.csv
|   +-- CSE_5_courses.csv
|   +-- All_7_courses.csv
|   +-- DSAI_3_courses.csv
|   +-- ECE_3_courses.csv
|   +-- rooms.csv
|   +-- timeslots.csv
|
+-- data/exam_data/
|   +-- CSE_1.csv
|   +-- CSE_3.csv
|   +-- DSAI_3.csv
|   +-- ECE_3.csv
|   +-- All_7_courses.csv
|   +-- rooms.csv
|   +-- timeslots.csv
|   +-- faculty.csv
|
+-- timetable_automation/
|   +-- main.py          # Academic Scheduler
|   +-- exam.py          # Exam Scheduler
|   +-- __init__.py
|
+-- docs/
+-- tests/
+-- README.md
```

3 Running the Schedulers

3.1 Running the Academic Time Table Scheduler

From the project root directory:

```
python -m timetable_automation.main
```

This generates:

- <DEPT>_timetable.xlsx
- faculty_timetable.xlsx
- <DEPT>_unscheduled_courses.xlsx

3.2 Running the Exam Scheduler

From the project root directory:

```
python -m timetable_automation.exam
```

This produces:

- exam_timetable.xlsx
- unscheduled_exams.xlsx
- invigilation_assignments.xlsx
- Branch-wise exam timetables

4 Adding New Data Files

4.1 Adding a New Department (Academic Timetable)

Step 1: Place the new CSV file inside:

```
data/
```

Example:

ECE_5_courses.csv

Step 2: Open `timetable_automation/main.py` and add it to the dictionary :

```
departments = {
    "CSE-3-A": "data/CSE_3_courses-A.csv",
    "CSE-3-B": "data/CSE_3_courses-B.csv",
    ...
    "ECE-5": "data/ECE_5_courses.csv",    # <-- Add this
}
```

Step 3: Run:

```
python -m timetable_automation.main
```

4.2 Adding a New Exam Dataset (Exam Timetable)

Step 1: Place the new file inside:

```
data/exam_data/
```

Example:

CSE_5.csv

Step 2: Modify `timetable_automation/exam.py`:

```
departments = {
    "CSE-3": "data/exam_data/CSE_3.csv",
    "CSE-5": "data/exam_data/CSE_5.csv",    # <-- Add new file
}
```

Step 3: Run:

```
python -m timetable_automation.exam
```

4.3 Important Notes

- File names can be anything, but keys should be meaningful: "CSE-5", "ECE-3" etc.
- The scheduler does not auto-detect new files | they must be added in code.
- Each dataset must include valid columns: Course_Code, Course_Title, Faculty.
- Exam scheduler requires: rooms.csv, faculty.csv, timeslots.csv in exam_data/.

5 Sample Input Files

Academic: timeslots.csv

Start_Time	End_Time
07:30	09:00
09:00	10:00
10:00	10:30
10:30	12:00
14:00	15:30

Exam: timeslots.csv

Start_Time	End_Time
09:00	12:00
14:00	17:00

6 FAQ

Q1. Why is a course/exam unscheduled?

Usually because:

- Room unavailable
- Faculty clash
- Slot clash
- Max exams per day limit

Q2. How to change break times?

Edit:

```
self.excluded_slots = [...]
```

Q3. How to add more exam slots?

Modify:

```
data/exam_data/timeslots.csv
```

7 Future Enhancements

- Automatic student clash matrix generation.
- Seating arrangement generator.
- Web UI for uploading CSV and downloading timetables.
- Google Calendar integration.