

# TIME TABLE MANAGEMENT SYSTEM



Topic: Exam Time Tabling in a University

Team: V C SHARPER

Members: 1) MOHITH A  
2) KARTHIK VIJAYAKUMAR  
3) KEERTHAN.V.S



Under the guidance of Dr S.Saraswathy, Associate Professor, SSNCE

# PROBLEM STATEMENT

- The exam scheduling problem deals with the assignment of a set of events to a specific timeslot and room within a working week subject to a variety of hard constraints (requirements) and soft constraints (additional requirements specific to user/institution).
- The problem has following parameters:
  - Set of exams ( $E=E_1, E_2, \dots$ ),
  - Timeslots ( $T=T_1, T_2, \dots$ ),
  - Examination rooms or halls ( $R=R_1, R_2, \dots$ ),
  - Capacity of rooms ( $C=C_1, C_2, \dots$ ),
  - Invigilators or teachers ( $I=I_1, I_2, \dots$ ),
  - Set of students ( $S=S_1, S_2, \dots$ )



# INPUT AND OUTPUT

## INPUT:

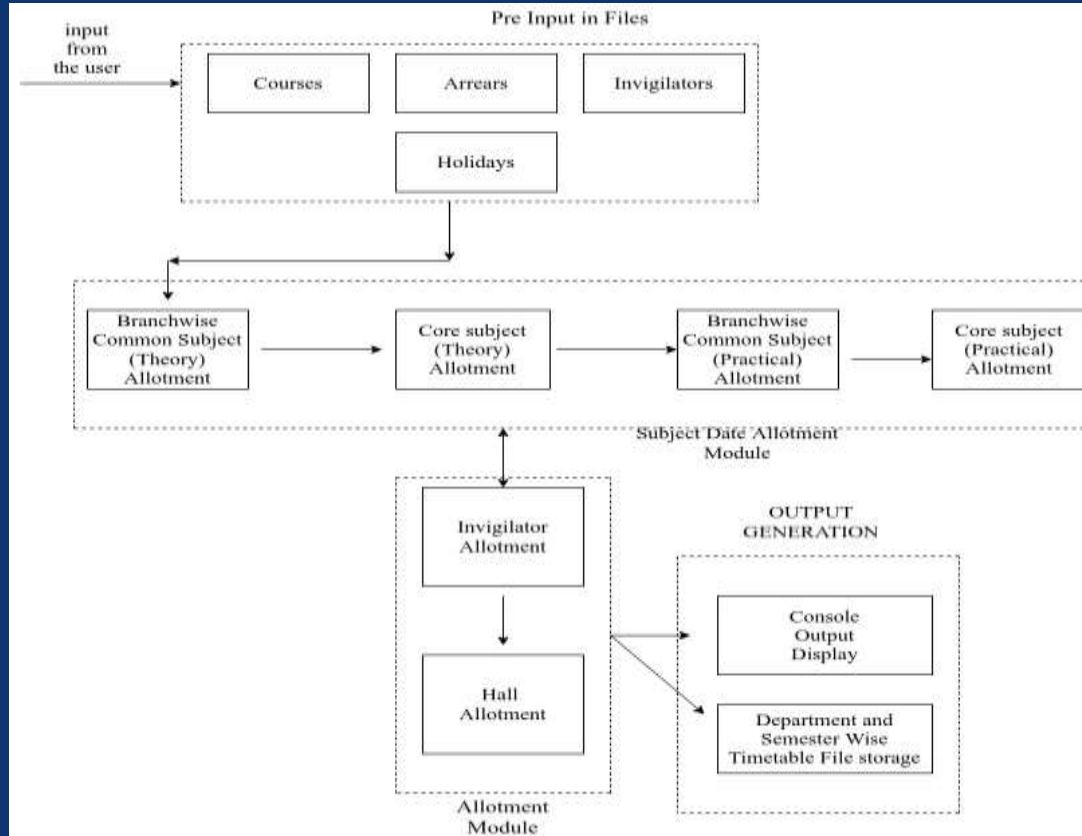
- Exam start date
- Exam type (theory/practical)
- Subject name and Course code
- List of Exam Halls
- Time Slots
- Faculty for invigilation
- No of students enrolled in each course in each Department
- List of University Declared Holidays and Public Holidays

## OUTPUT:

- Examination Schedule for Institution
- Venue of Examination
- Allotment of Invigilators
- Hall wise timetable
- Date wise timetable



# ARCHITECTURE DIAGRAM



# MODULE DESIGN/APPROACH/TECHNIQUE

- THE FOLLOWING MODULES ARE INCORPORATED AS A PART OF OUR PROJECT:

## 1) Header files (Pre-processor directives) and macros

## 2) Read courses module

- 2.1) Read courses function
- 2.2) Write courses function

## 3) Course allocation module

- 3.1) Common subject allotment across all departments in a semester
- 3.2) Common subject allotment across 2 departments in a semester
- 3.3) Core subject allotment

## 4) Holiday check module

## 5) Hall and invigilator allotment module

## 6) Print Exam timetable module



# CONSTRAINTS

## SOFT CONSTRAINTS:

The following set of soft constraints can be equally penalized:

- Practical examinations are grouped together and are not scheduled simultaneously with theory examinations.
- There is a gap of at least one day, between two exams of a particular stream.
- A student to invigilator ratio of 25:1 is maintained while allocating invigilators to halls.
- Arrear examinations are scheduled separately along with theory examinations. Examinations are scheduled such that a student can appear for arrear examinations without compensating for his current semester examinations.
- Exams for Courses that are common to all departments are scheduled first, followed by courses that are common to two or more departments (but not all) and lastly, the ones that are specific to a particular department.
- An invigilator is assigned no more than one slot per day (for a 3-hour exam). Also, assigned slots should not collide.



# REFERENCES

- [1] Gunawan, Aldy & Ng, Kien & Poh, Kim. (2006). A Mathematical Programming Model For A Timetabling Problem.. 42-47. ---- Mathematical Research
- [2] Kumar Bania, Rubul & Duarah, Pinkey. (2018). Exam Timetable Scheduling using Graph Coloring Approach. INTERNATIONAL JOURNAL OF COMPUTER SCIENCES AND ENGINEERING. 6. 10.26438/ijcse/v6i5.8493.
- [2] Asmuni, Hishammudin and Burke, Edmund K and Garibaldi, Jonathan M and McCollum, Barry and Parkes, Andrew J, *An investigation of fuzzy multiple heuristic orderings in the construction of university examination timetables*, Computers & Operations Research 2009
- [4] Burke, Edmund & Elliman, David & Weare, Rupert. (1994). A Genetic Algorithm Based University Timetabling System. 1.
- [5] D. Corne, H.L. Fang, C. Mellish “Solving the Modular Exam Scheduling Problem with Genetic Algorithms”, DAI Research Paper No. 622
- [6] Qu, Rong and Burke, EK and McCollum, Barry and Merlot, Liam TG and Lee, Sau Y, *A survey of search methodologies and automated approaches for examination timetabling*, Computer Science Technical Report No. NOTTCS-TR-2006-4, UK, 2006

