CS211 Project Statement

You are required to design a system in Prolog that will ensure a fair timetable for the student of CS211. You will learn the basics of prolog using the online resources. You may program the project using the environment named SWI-Prolog (https://www.swi-prolog.org/). You will be learning to manage and execute the project using the help provided on the website.
You will be using the following predicates for enforcing the constraints. Each defines a set of courses, their exams, instructors teaching and students following them, as well as a set of rooms and their capacity/availabilities. You will be inserting this information in the system using the data provided herewith to construct the knowledge base. Each specifies the following knowledge:

- A set of students: **student(RollNo,Name)**: A student with unique identifier 'SID' and name 'Name'.
- A set of lecturers: **instructor(emailID,Name)**: A lecturer with unique identifier 'LID' and name 'Name'.
- A set of courses: **course(CID,Title)**: A course with unique identifier 'CID' and name 'Name'.
- A set of section for each course: **course(CID,SecID)**: A course with unique identifier 'CID' and name 'Name'.
- A list of enrollment in CS211 sections: **section(RollNo,SecID)**: A student with RollNumber and SecID for CS211.
- Which instructor teaches which courses: **teaches(emailID,SecID)**: The instructor with 'email' teaches the section with 'SecID'.
- The capacity of rooms: **capacity(RID,Capacity)**: The room with 'RID' can facilitate at most 'Capacity' students.
- The timing of the exam as per given datesheet: exam: **examTime(Date,StartTime,EndTime,CID**)

You will be programming the predicates so that the system will be able to answer the following queries.

1. Whether the given student name has two exams in one day. The system will reply with the name of the student.
2. Whether the given instructor Name is teaching any of the sections of the given course name
3. Whether two courses with given course name have the exam at the same time. For this you will change the time of the CS211 exam to another exam
4. Whether two courses with given course name have the exam at the same time in the same room
5. Whether the exams in the given room can be switched with another given room having same capacity.
6. Whether the given room is being used as an exam room in the date sheet on the given day
7. Whether two students' names have a common section of the given course name
8. Whether a given name belongs to two different Roll numbers
9. Whether a given instructor Name teaches two sections of the same course

10. Whether a given instructor Name teaches two different courses

Try following the guideline available example here to execute your first prolog example

Rubric:

1. Installing correctly SWI prolog (any other Prolog IDE) and executing any prolog project of your choice available online (other than the above example). [20 marks]
2. Successfully Importing all the provided information to knowledge base. [30 marks].
3. Providing correct results for all queries/predicates. [10 marks for each predicate]

Submission Instructions.

1. You will be working in a group of 2 however the grading will be done on individual basis.
2. One group member will be attempting to provide the odd numbered predicates and the second group members will be providing the even numbered the predicates.
3. Both group members will provide the submission as two parts.
    a. A video with screen recording of all steps with appropriate commentary.
    b. All code files and knowledge base files prepared for execution of the project in zip format.
4. You are supposed to record a video for all of the above steps and upload it on YouTube and share the link as submission for the project on the classroom.
    a. You can use any software for screen recording. Google meet is among the easiest one to use for this purpose.
    b. One group will provide one video that will contain following sections
        i. First section will introduce both group members with names and roll numbers
        ii. Second section show the installation and execution of the existing program available online.
        iii. Third portion will show the process of preparing the knowledge base
        iv. Fourth portion will show the execution of predicates of first group member
        v. Fifth portion will show the execution of predicates of second group member

A demo session will be held for guidance that will optional to attend.