1. Courses Dataset

Course_ID	Course_Name	Department	Credits	Number_of_Lectures	Lecture_Duration	Preferred_Time_Slot	Preferred_Day
C101	Data Structures	Computer Sci	3	3	1 hour	Morning	Monday
C102	Operating System	Computer Sci	4	2	2 hours	Afternoon	Tuesday
C103	Calculus	Mathematics	3	2	1 hour	Morning	Wednesda
C104	Linear Algebra	Mathematics	3	3	1 hour	Afternoon	Thursday
C105	Physics I	Physics	4	2	2 hours	Morning	Friday
C106	Introduction to Psychology	Psychology	3	2	1 hour	Afternoon	Monday
C107	Sociology 101	Social Sciences	3	3	1 hour	Morning	Tuesday
C108	Microeconomics	Economi	3	2	1 hour	Afternoon	Thursday
C109	Chemistry I	Chemistr	4	2	2 hours	Morning	Wednesda
C110	Biology II	Biology	4	3	1 hour	Morning	Friday

2. Professors Dataset

Professor_ID	Professor_Name	Department	Courses_Taught	Preferred_Time_Slots	Availability	Max_Classes_Per_Day
P101	Dr. Alice Brown	Computer Sci	C101, C102	9 AM - 12 PM	Mon to Wed	2
P102	Dr. Bob Green	Mathematics	C103, C104	1 PM - 4 PM	Mon to Thu	3
P103	Dr. Carol White	Physics	C105, C109	9 AM - 11 AM	Fri	2
P104	Dr. David Black	Psychology	C106	2 PM - 4 PM	Mon and Tue	2
P105	Dr. Emily Clark	Social Sciences	C107	10 AM - 12 PM	Tues to Thurs	2
P106	Dr. Frank Lee	Economics	C108	11 AM - 1 PM	Thurs	2
P107	Dr. Grace White	Chemistry	C109, C110	9 AM - 12 PM	Wed to Fri	2

3. Students Dataset

Student_ID	Student_Name	Year_of_Study	Courses_Enrolled	Preferred_Time_Slots
S101	John Doe	1st Year	C101, C103, C106	9 AM - 1 PM
S102	Jane Smith	1st Year	C102, C105, C107	1 PM - 4 PM
S103	Alan Lee	2nd Year	C104, C103, C108	Morning
S104	Emily Clark	2nd Year	C101, C110, C106	Afternoon
S105	Michael Scott	1st Year	C107, C104, C105	9 AM - 12 PM
S106	Jessica Green	2nd Year	C109, C110, C108	Morning
S107	Angela Martin	3rd Year	C102, C109, C107	10 AM - 3 PM
S108	Robert Brown	1st Year	C106, C101, C105	1 PM - 4 PM
S109	Lucy Wilson	3rd Year	C108, C102, C107	Morning
S110	Thomas Anderson	1st Year	C101, C105, C106	9 AM - 12 PM

4. Rooms Dataset

Room_ID	Room_Name	Capacity	Available_Times	Room_Type
R101	Room A	60	9 AM - 5 PM	Lecture Hall
R102	Room B	50	9 AM - 5 PM	Lecture Hall
R103	Room C	40	9 AM - 3 PM	Lecture Hall
R104	Lab A	30	9 AM - 3 PM	Lab
R105	Lab B	20	9 AM - 3 PM	Lab

5. Time Slots Dataset

Slot_ID	Day	Start_Time	End_Time	Available_Rooms
TS101	Monday	9:00 AM	10:00 AM	R101, R102, R103
TS102	Monday	10:00 AM	11:00 AM	R101, R102, R103
TS103	Tuesday	1:00 PM	2:00 PM	R101, R102
TS104	Wednesday	9:00 AM	10:00 AM	R101, R103
TS105	Thursday	1:00 PM	2:00 PM	R102, R103
TS106	Friday	9:00 AM	10:00 AM	R101, R103
TS107	Friday	11:00 AM	12:00 PM	R104, R105
TS108	Thursday	10:00 AM	11:00 AM	R101, R104

6. Constraints Dataset

Constraint_ID	Constraint_Type	Description
C001	Hard	No professor should have overlapping classes
C002	Hard	Room capacity should not be exceeded
C003	Hard	No student should have overlapping classes
C004	Soft	Try to assign courses in professors' preferred time slots
C005	Soft	Minimize gaps between student classes
C006	Hard	Lab rooms should only be used for practical courses