**Use Case:** Add New Timetable

**Primary Actor:**

• Timetable Coordinator

**Use Case Description:** This use case allows the Timetable Coordinator to create a new timetable for a semester, including course schedules, instructors, and room assignments.

**Stakeholders and Interests:**

• Timetable Coordinator: Responsible for scheduling courses efficiently.

• Students: Need a clear schedule to plan their studies.

• Faculty: Require confirmed schedules to conduct classes.

• University Administration: Ensures proper resource allocation for lectures.

**Preconditions:**

• The Timetable Coordinator must be logged into the system.

• Course offerings for the semester must be finalized.

**Postconditions:**

• A new timetable is added to the system.

• The timetable is accessible to students and faculty.

**Inputs:**

• Semester details (Start and End dates)

• Course details (Course ID, Name, Instructor, Credit Hours)

• Time slots and classroom assignments

**Outputs:**

• Confirmation of timetable creation

• Visible timetable for students and faculty

**Main Success Scenario:**

1. The Timetable Coordinator navigates to the "Add New Timetable" section.
2. The Coordinator selects the semester and enters relevant course details.
3. The system verifies available time slots and classroom capacity.
4. If all data is valid, the system generates the timetable.
5. The system confirms timetable creation and makes it available to students and faculty.

**Alternative Scenarios:**

3. **Room Unavailability:**

• The system notifies the Coordinator that a room is unavailable and suggests alternatives.

• The Coordinator selects a different room or time slot.

1. **Instructor Scheduling Conflict:**

• The system detects a scheduling conflict for an instructor.

• The Coordinator revises the schedule to resolve the conflict.

**Use Case:** Check Timetable Conflicts

**Primary Actor:**

• Timetable Coordinator

**Use Case Description:**

This use case allows the Timetable Coordinator to check for conflicts in the timetable, such as overlapping courses, room double-bookings, and instructor scheduling conflicts.

**Stakeholders and Interests:**

• Timetable Coordinator: Ensures smooth scheduling without conflicts.

• Students: Avoids overlapping class schedules.

• Faculty: Ensures they do not have overlapping teaching assignments.

• University Administration: Maintains efficient resource allocation.

**Preconditions:**

• A timetable must exist in the system.

• Course and instructor details must be entered into the system.

**Postconditions:**

• Identified conflicts are flagged for resolution.

• The timetable is validated for conflicts before finalization.

**Inputs:**

• Semester timetable

• Instructor schedules

• Room availability

**Outputs:**

• List of conflicts (if any)

• Suggestions for resolving conflicts

**Main Success Scenario:**

1. The Timetable Coordinator navigates to the "Check Timetable Conflicts" section.
2. The system scans the timetable for: • Overlapping courses in the same room. • Instructors assigned to multiple courses at the same time. • Students enrolled in overlapping courses.
3. The system generates a report listing detected conflicts.
4. The Coordinator makes adjustments to resolve conflicts.
5. The system confirms a conflict-free timetable.

**Alternative Scenarios:**

3. **Multiple Conflicts Found:**

The system displays multiple conflict warnings.

The Coordinator prioritizes and resolves conflicts one by one.

1. **Technical Error:**

If the system fails to process the timetable check, the Coordinator retries after system maintenance.