UniSpace booking architecture

Our four-person team built a Flutter application for booking available campus rooms. Kévin Feltrin designed the Firestore schema and implemented the timetable imports and booking functions. Faculty advisor: Hassane Mimoun.

When a room changes

Writing, updating or deleting an event triggers roomStatusOnEventWrite. An event represents a class or a reservation. The function calls roomAvailability to refresh the room’s status.

When an event is created or modified, createTask schedules a task for its start and another for its end. Each recalculates availability at the relevant boundary.

Reservation lifecycle

createRoomReservation creates a booking. onReservationCancelled removes one. At the end of a confirmed booking, a scheduled task calls endReservationStatus and changes its status to finished.

Campus timetable and room inventory

syncCalendar reads the school’s ADE timetable in iCal format and writes classes to each room’s events collection. The scheduled imports run at 07:00 and 12:30.

importRoomCsv imports room attributes into Firestore, including whether a room has computers. These attributes let the team restrict which rooms appear in the catalogue and exclude inaccessible or virtual rooms.