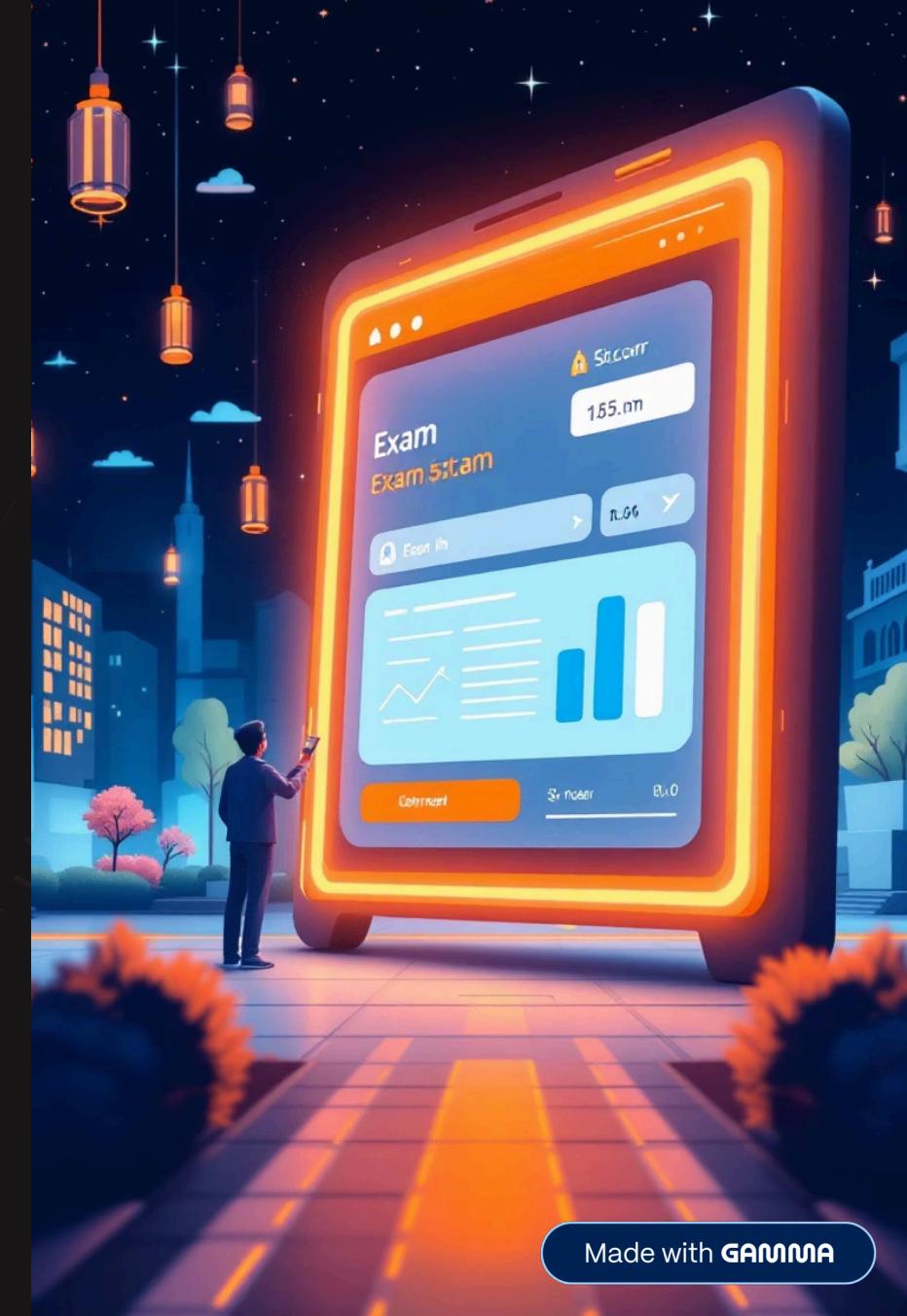


Exam Management: Introducing KAEMS

Welcome to KAEMS, a cutting-edge web application designed to streamline and enhance the entire exam management process for universities. We're here to present a solution that brings efficiency, transparency, and advanced functionality to administrators and students alike.





Key Benefits of KAEMS



Time Efficiency

Automate complex tasks, reducing manual effort and saving valuable administrative time.



Enhanced Security

Robust authentication and data management protocols protect sensitive academic information.



Seamless Access

Provide easy, real-time access to crucial exam information for both staff and students.



Data Accuracy

Minimize errors with centralized data management and automated seating plan generation.

The Technology Behind KAEMS

KAEMS is built on a robust and scalable technology stack, ensuring high performance, security, and maintainability. Our choices reflect a commitment to modern web development standards.



Backend: Express.js

A powerful and flexible JS library for rapid development and secure API management.



Frontend: React.js

Dynamic and responsive user interfaces for a smooth and intuitive user experience.

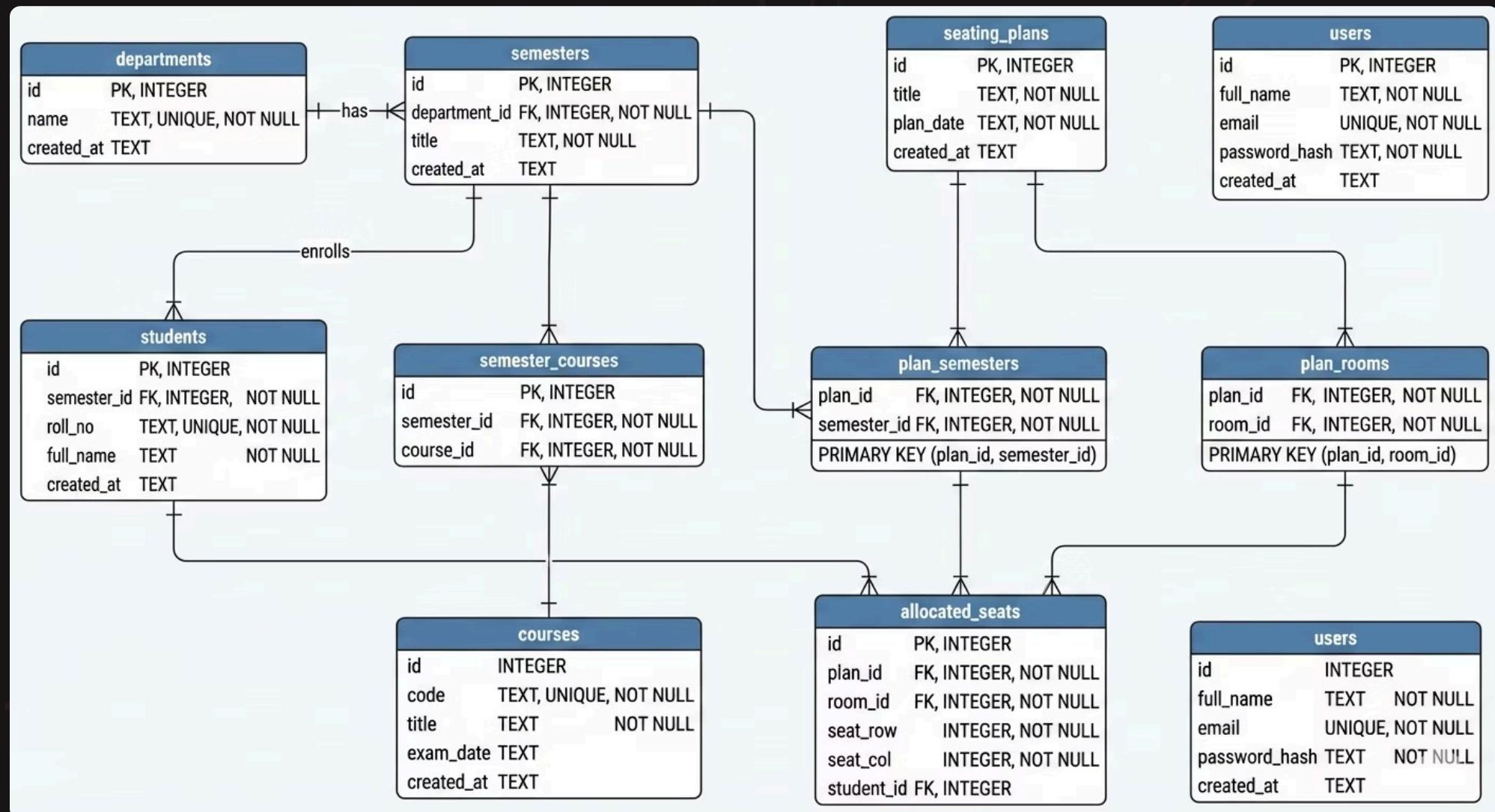


Database: SQLITE

Reliable and simple relational database for complex data structures and integrity.

Database Architecture: Entity-Relationship Diagram

Our database is meticulously designed to manage all aspects of exam administration, from student records to room layouts. This ERD illustrates the relationships between key entities, ensuring data integrity and efficient querying.



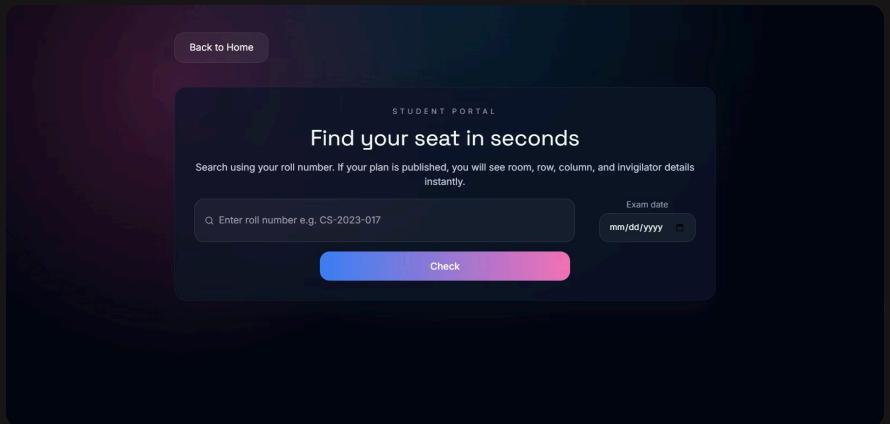
- This visual representation helps in understanding the logical structure of our data and the relationships between different components of the system.

Student Experience: Seating Plan Retrieval

Students can effortlessly find their seating arrangements using their roll number and exam date. The system provides immediate access to their designated seat, along with a visual room grid for easy navigation.

- **Input:** Roll Number, Exam Date
- **Output:** Seating details (room, seat number, block), Interactive Room Grid

Main Hall										Capacity 200 • Grid 1
100 • Dr. Malik										
240 Nazia Ja... Spring 2025 Computer Science	267 Christian ... Fall 2025 Mechanical Engineering	254 Justin Gr... Spring 2025 Electrical Engineering	255 Brandon ... Spring 2025 Electrical Engineering	268 Ryan Ed... Fall 2025 Mechanical Engineering	256 Gregory ... Spring 2025 Electrical Engineering	269 John Coll... Fall 2025 Mechanical Engineering	257 Samuel G... Spring 2025 Electrical Engineering	270 Jonathan ... Fall 2025 Mechanical Engineering		
276 Landon ... Spring 2025 Mechanical Engineering	286 Christop... Fall 2025 Mathematics	181 Elena Ro... Fall 2025 Physics	287 Daniel Pe... Fall 2025 Mathematics	182 Claire Reed Fall 2025 Physics	288 Matthew ... Fall 2025 Mathematics	183 Vivian Co... Fall 2025 Physics	289 Anthony ... Fall 2025 Mathematics	184 Maya Mo... Fall 2025 Physics		
190 Ivy Richa... Fall 2025 Physics	204 Elena Be... Fall 2025 Business Administration	277 Aaron Bell Spring 2025 Mechanical Engineering	205 Skylar W... Fall 2025 Business Administration	278 Charles ... Spring 2025 Mechanical Engineering	206 Maggie B... Fall 2025 Business Administration	279 Connor B... Spring 2025 Mechanical Engineering	207 Daisy Ross Fall 2025 Business Administration	280 Eli Rivera Spring 2025 Mechanical Engineering		
296 Edward B... Spring 2025 Mathematics	EMPTY	297 Brian Wo... Spring 2025 Mathematics	191 Josephin... Spring 2025 Physics	298 Ronald B... Spring 2025 Mathematics	192 Piper Ho... Spring 2025 Physics	299 Timothy ... Spring 2025 Mathematics	193 Luna Ward Spring 2025 Physics	300 Jason He... Spring 2025 Mathematics		
200 Valentina... Spring 2025 Physics	213 Ariana Lo... Spring 2025 Business Administration	EMPTY	214 Adriana ... Spring 2025 Business Administration	EMPTY	215 Morgan F... Spring 2025 Business Administration	EMPTY	216 McKenzie... Spring 2025 Business Administration	EMPTY		



This feature reduces student anxiety and confusion on exam day, contributing to a smoother start for all examinations.

Administrator Dashboard: Centralized Control

Admins gain secure access to a comprehensive dashboard upon successful authentication. This central hub provides full control over all system entities and critical operations.



Secure Authentication

Robust login protocols ensure only authorized personnel can access sensitive data.



Intuitive Dashboard

A clean and organized interface provides an overview of all ongoing activities and management options.

ENGINE

Multi-room orchestration

Pick a date, select one or more rooms, then generate seating plans for all chosen rooms at once. The backend will create the seating plan and allocate students automatically.

Exam date

12/15/2025

Select rooms

Auditorium A
101 • 120 seats

Block C-12
312 • 45 seats

Block D-08
408 • 35 seats

Lab Complex B
205 • 30 seats

Main Hall
100 • 200 seats

R12
209 • 40 seats

R21
309 • 50 seats

Optional plan title (applies to all generated plans)

Optional friendly label

Generate seating plan

Clear selection

HISTORY

Seating plans • Dec 20, 2025

2025-12-20 • 200 seats

Seating plans • Dec 18, 2025

ACTIVE PLAN

Seating plans • Dec 20, 2025

2025-12-20 • crafted by Admin

R12

Block C-12

Block D-08

Main Hall

ROOM

R12

209 • Mr. Ahmed

Export PDF pack

Capacity 40 • Grid 5x8

101 Ali Khan Fall 2025 Computer Science	121 John Doe Fall 2025 Electrical Engineering	102 Sara Ahmed Fall 2025 Computer Science	122 Robert Smith Fall 2025 Electrical Engineering	103 Mohammed... Fall 2025 Computer Science	123 Michael Jo... Fall 2025 Electrical Engineering	104 Fatima Khan Fall 2025 Computer Science	124 David Willi... Fall 2025 Electrical Engineering
141 Emma Wils... Fall 2025 Mechanical Engineering	161 Riley Scott Fall 2025 Mathematics	142 Olivia Taylor Fall 2025 Mechanical Engineering	162 Aria Green Fall 2025 Mathematics	143 Ava Thomas Fall 2025 Mechanical Engineering	163 Lily Adams Fall 2025 Mathematics	144 Isabella Mo... Fall 2025 Mechanical Engineering	164 Zoe Baker Fall 2025 Mathematics
105 Omar Ahmed Fall 2025 Computer Science	125 James Bro... Fall 2025 Electrical Engineering	106 Aisha Malik Fall 2025 Computer Science	126 Thomas Jo... Fall 2025 Electrical Engineering	107 Hassan Shah Fall 2025 Computer Science	127 Charles Mill... Fall 2025 Electrical Engineering	108 Zainab Ali Fall 2025 Computer Science	128 Christophe... Fall 2025 Electrical Engineering
145 Sophia Jac... Fall 2025 Mechanical Engineering	165 Hannah Go... Fall 2025 Mathematics	146 Mia Martin Fall 2025 Mechanical Engineering	166 Layla Nelson Fall 2025 Mathematics	147 Charlotte L... Fall 2025 Mechanical Engineering	167 Scarlett Ca... Fall 2025 Mathematics	148 Amelia White Fall 2025 Mechanical Engineering	168 Aubrey Mit... Fall 2025 Mathematics
109 Bilal Khan Fall 2025 Computer	129 Daniel Garcia Fall 2025 Electrical	110 Nadia Huss... Fall 2025 Computer	130 Paul Rodrig... Fall 2025 Electrical	111 Ahmed Raza Spring 2025 Computer	131 Mark Wilson Spring 2025 Computer	112 Sana Khan Spring 2025 Computer	132 Donald Ma... Spring 2025 Electrical

CRUD Operations: Managing Core Entities

The admin dashboard empowers staff to perform Create, Read, Update, and Delete (CRUD) operations on all essential entities within the system.

The screenshot displays the 'MANAGE ENTITIES' section of the 'CRUD Panel'. At the top, there are buttons for 'Upload CSV' and 'Refresh data'. Below these are five navigation tabs: 'Courses' (selected), 'Departments', 'Semesters', 'Rooms', and 'Students'. The main area is titled 'COURSES' and contains a sub-section 'Manage courses'. It includes fields for 'Course code' (CS-301), 'Course title' (Data Structures), and 'Exam date' (mm/dd/yyyy). A 'Save course' button is located at the bottom of this form. Below this, there's a search bar with 'All courses' and a 'Search courses...' placeholder. At the very bottom, there's a small card for 'Calculus II' with a delete icon. The overall design is modern and minimalist, using a dark background with light-colored buttons and text.

Automated Seating Plan Generation

One of SeatSecure's most powerful features is its ability to automatically generate optimal seating plans. This eliminates tedious manual assignments and reduces the potential for errors.

- **Selection:** Admin selects desired rooms and the specific exam date.
- **Process:** The system intelligently assigns students to available seats, considering factors like student capacity, room constraints, and conflict avoidance.
- **Result:** Comprehensive seating plans are generated for all students scheduled for exams in the selected rooms on that date.



This automation ensures fair distribution, maximizes room utilization, and significantly reduces planning overhead.

Efficient Data Management: Bulk Upload & Export

SeatSecure supports both bulk data uploads and convenient PDF exports, ensuring flexibility and ease of use for administrators.



Bulk Data Upload (CSV)

Admins can quickly import large datasets—such as student lists or room configurations—via CSV files, dramatically speeding up initial setup and updates.



Exam Plan Export (PDF)

Generated exam plans can be instantly exported as professional PDF documents, ready for printing, distribution, or archival purposes.

Seating plans • Dec 20, 2025 — Block C-12									
Invigilator: Mrs. Ali Room Code: 312									
	1	2	3	4	5	6	7	8	9
1	225 Taiba Shah	242 Kenneth Clar	226 Rukhsana Beg	243 Steven Lewis	227 Asif Hussain	244 Edward Walke	228 Shazia Akhta	245 Brian Hall	229 Imran Baig
2	157 Chloe King	175 Lucy Evans	158 Ella Wright	176 Stella Edwar	159 Grace Lopez	177 Aurora Colli	160 Victoria Hill	178 Nova Stewart	261 Jack Perez
3	230 Saima Raza	246 Ronald Allen	231 Waseem Chaud	247 Anthony Youn	232 Nadia Sheikh	248 Kevin Herman	233 Kashif Mehmo	249 William King	234 Shabana Pav
4	262 Dylan Robert	179 Emilia Sanch	263 Tyler Turner	180 Willow Morri	264 Evan Phillip	281 Adam Cooper	265 Nathan Campb	282 Jeremiah Ric	266 Caleb Parker
5	235 Javed Iqbal	250 Scott Wright	236 Farah Naz	251 Eric Lopez	237 Arsalan Khan	252 Stephen Hill	238 Rashida Bibi	253 Andrew Scott	239 Sohail Ahmed

KAEMS: The Future of Exam Management

KAEMS a comprehensive, secure, and user-friendly solution for modern university exam administration. Invest in efficiency, accuracy, and a better experience for everyone.

Ready for Implementation

Our solution is designed for seamless integration and deployment.

Scalable & Adaptable

Built to grow with your institution's needs and evolving requirements.

Unwavering Support

Dedicated support to ensure smooth operation and user satisfaction.

The screenshot shows the KAEMS login page. At the top left is a 'Back to Home' button. The main section is titled 'PORTAL ACCESS Admin / Invigilator Login'. It describes access to an immersive dashboard, CRUD suite, allocation engine, and analytics. Below this are fields for 'Email' and 'Password', both with placeholder text. A large blue button at the bottom is labeled 'Enter dashboard'. A small note at the bottom says 'In case of forgotten credentials, please contact your Tech admin.' To the right, under 'HIGHLIGHTS', is a bulleted list of features: deterministic seat assignments, manual swap endpoint validation, jsPDF exports, and a search-ready dashboard. Below this is a box titled 'NEED ACCESS?' containing the text 'Admins & invigilators' and the instruction 'Reach out to your academic lead for elevated roles or create a custom admin via the backend once logged in.'