

HR VISION

Aya Sawalha & Raheeq Qassrawi

Introduction

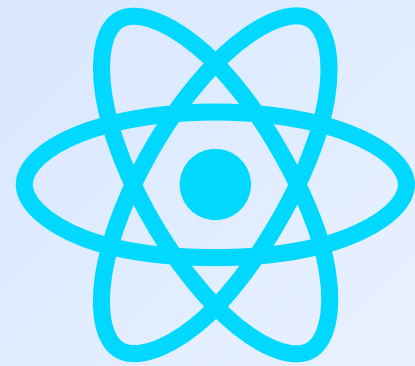
- Human Resource Management plays a vital role in institutional efficiency
- Universities face complex HR and academic coordination challenges
- An-Najah National University still relies on manual or semi-automated HR processes
- These processes lead to: Delays, Errors, Unfair workload distribution
- Need for a smart, integrated HR solution



Objectives

- ✓ Design and implement an intelligent HR system to improve efficiency, accuracy, and transparency.
- ✓ Automate attendance, leaves, exits, and approvals
- ✓ Apply AI for fair TA workload distribution
- ✓ Integrate HR operations with academic workload management
- ✓ Assist HODs with intelligent recommendations
- ✓ Enhance communication and notifications

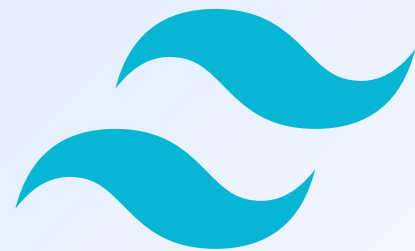
Used Technologies



React & React native



MySQL DB



Tailwind CSS



AWS RDS & S3



Ollama LLM

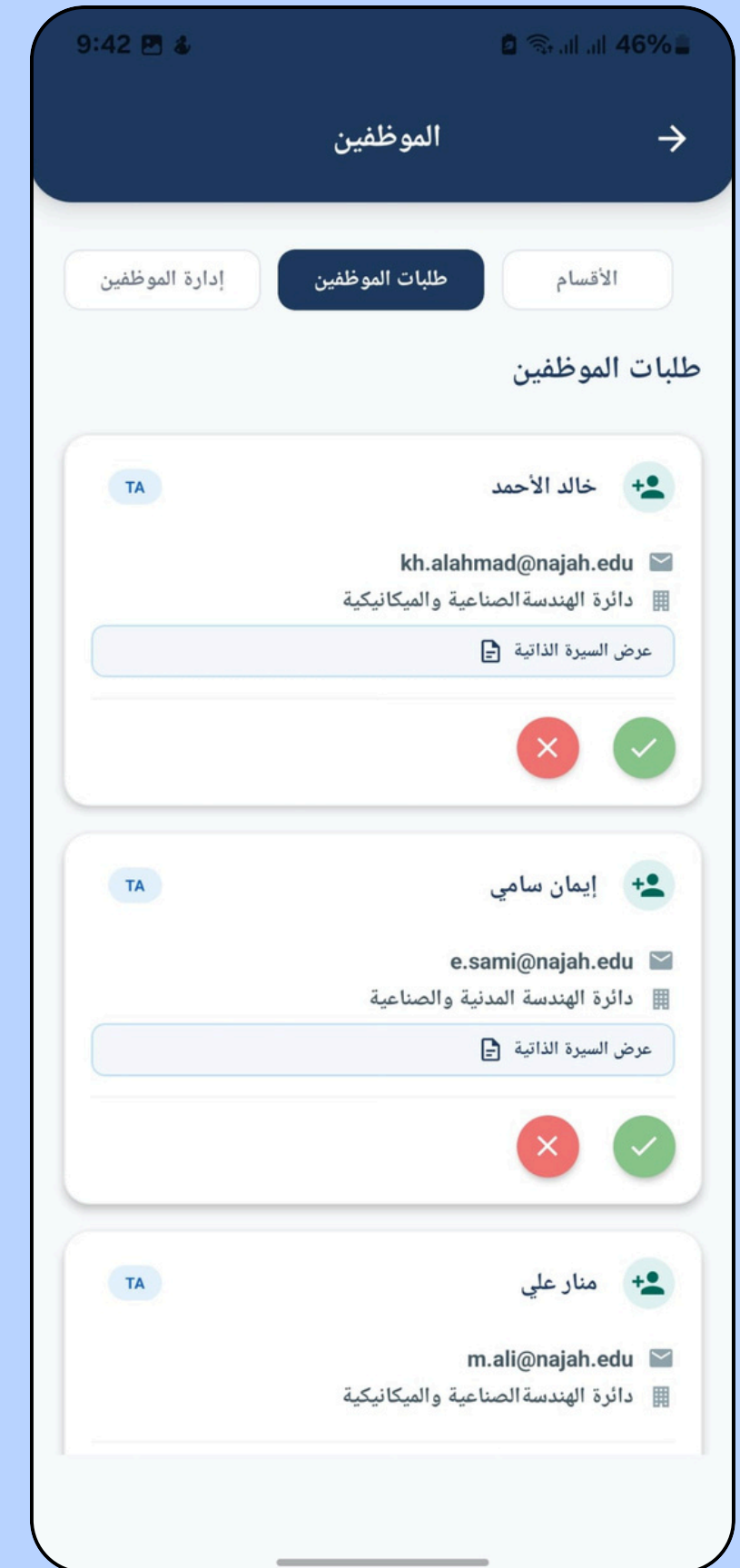


Socket io

Features

User Management

- The HR Vision System does not allow typical public sign-ups to maintain security and prevent unauthorized registrations.
- New user information is initially added by the system administrator.
- Added users are not activated or granted access immediately.
- The HR department must review and approve the user addition before the account becomes active in the system.



9:34 47%

إدارة الموظفين

بحث موظف...

د. مهند الحاج حسين
عميد الكلية

إضافة موظف جديد

صورة شخصية

تحميل صورة

الاسم الكامل

البريد الإلكتروني

القسم

اختر القسم...

السيرة الذاتية (CV)

تحميل ملف CV

حفظ

10:11 44%

الملف الشخصي

ليلى حسين
دائرة الهندسة الصناعية

الاسم الكامل

ليلى حسين

البريد الإلكتروني

s12113763@stu.najah.edu

السيرة الذاتية (CV)

عرض السيرة الذاتية الحالية

القسم

دائرة الهندسة الصناعية والميكانيكية

HRVision

المساعدة ورش العمل تعميمات

الأسئلة المطوي آخر

9:33 47%

نظام الموارد البشرية HRVision System
جامعة النجاح الوطنية An-Najah National

الدخول إلى نظام HRVision

رقم المستخدم

كلمة السر

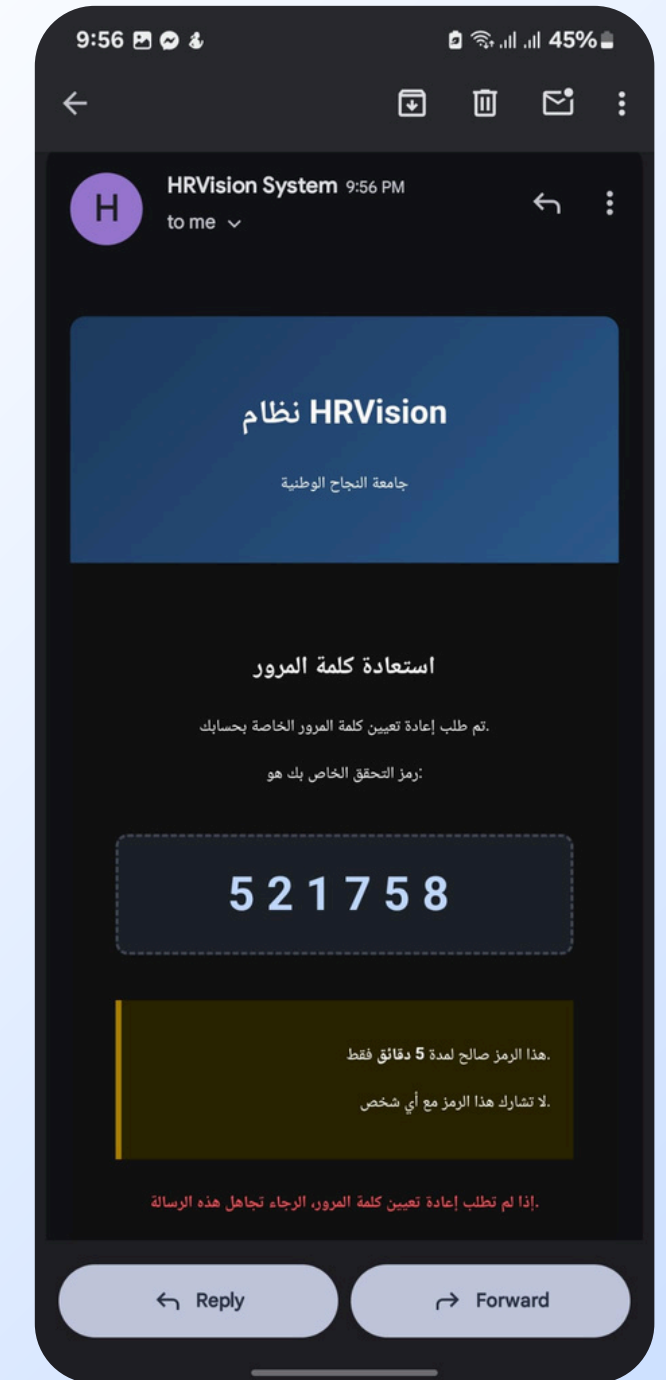
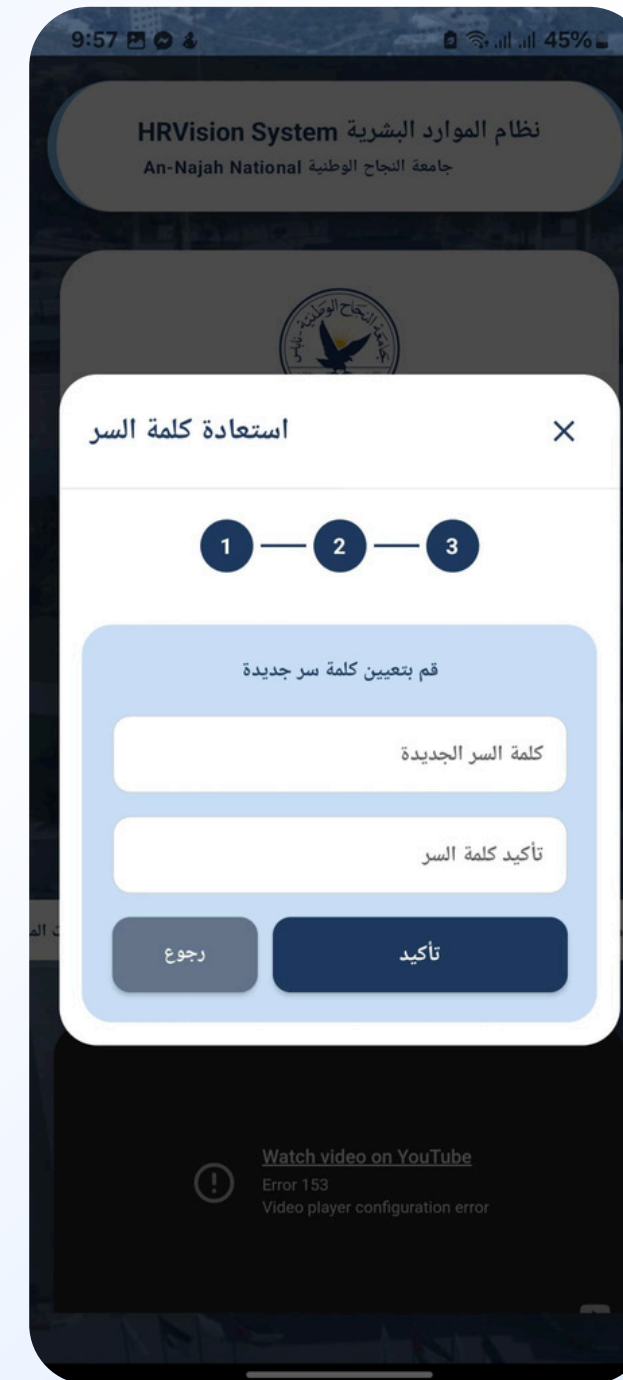
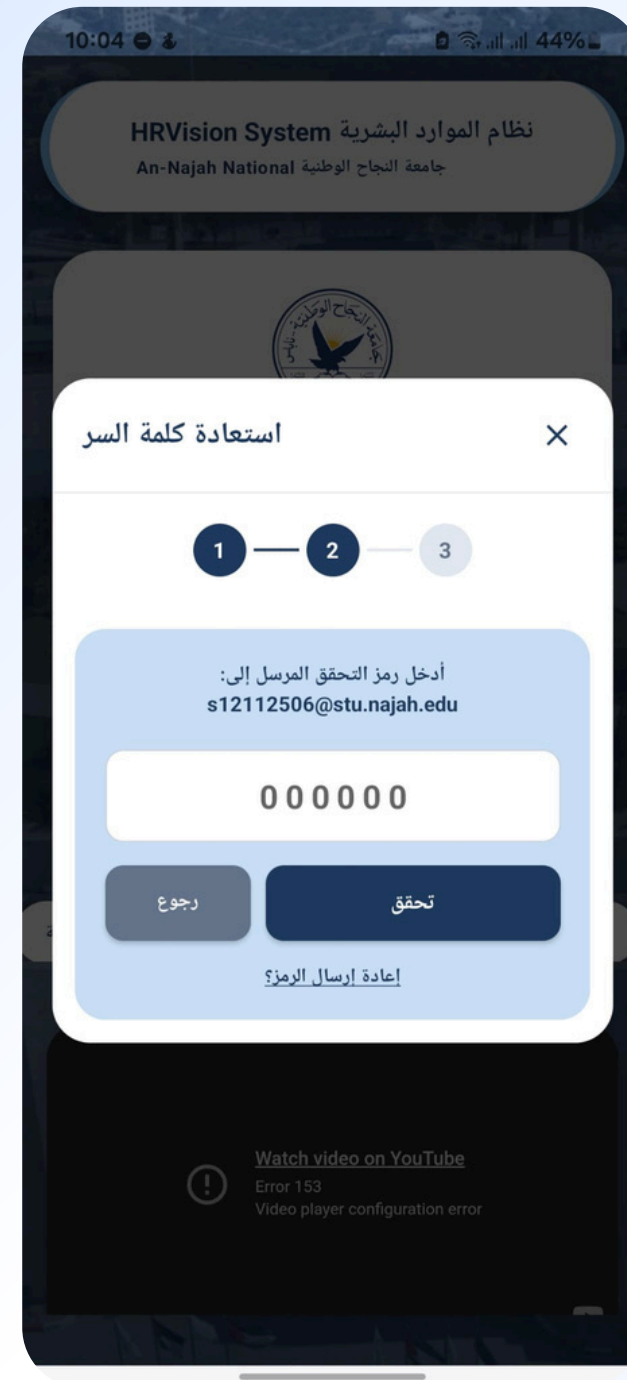
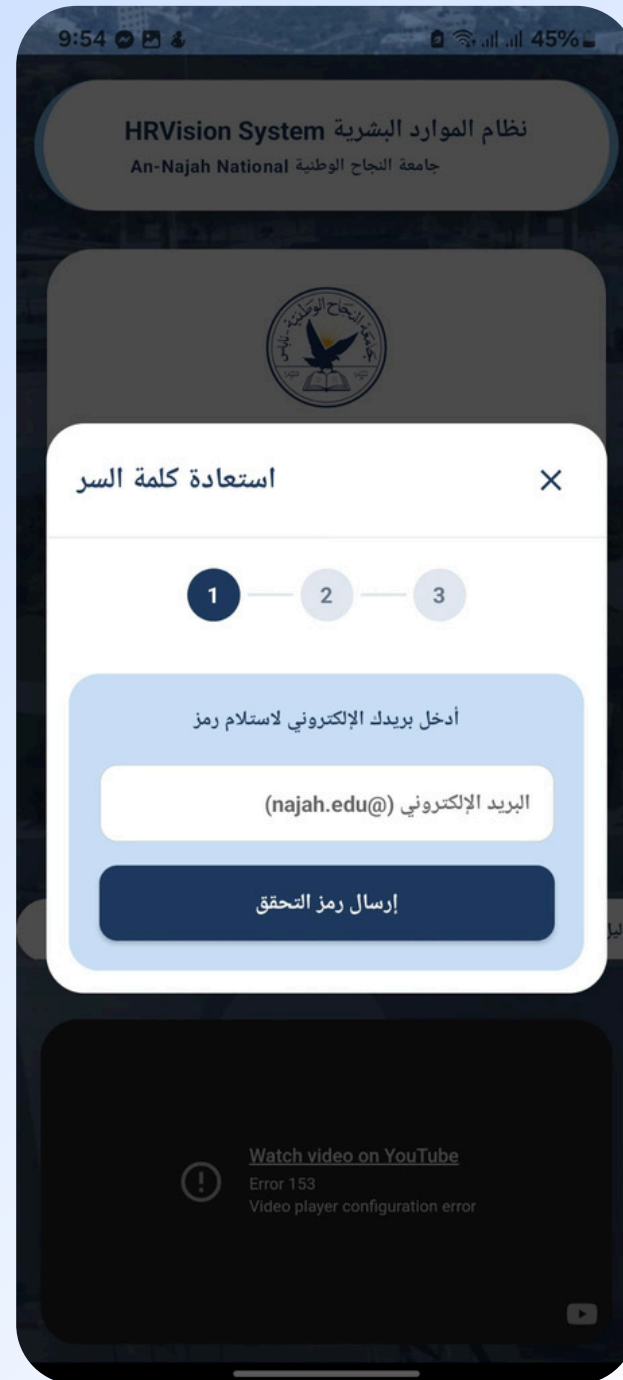
هل نسيت كلمة السر؟

دخول

مسافر الخطة الدراسية دليل الطالب

Watch video on YouTube
Error 153
Video player configuration error

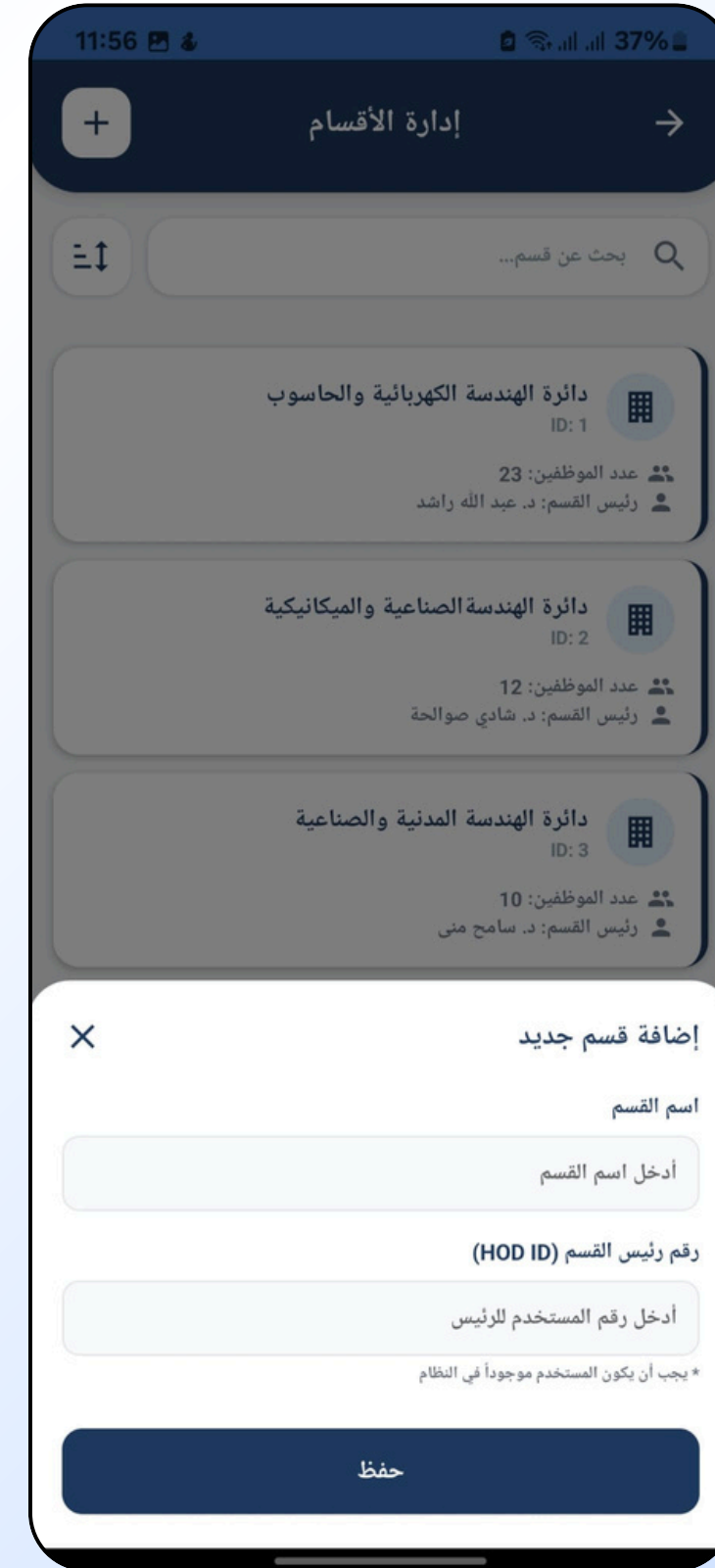
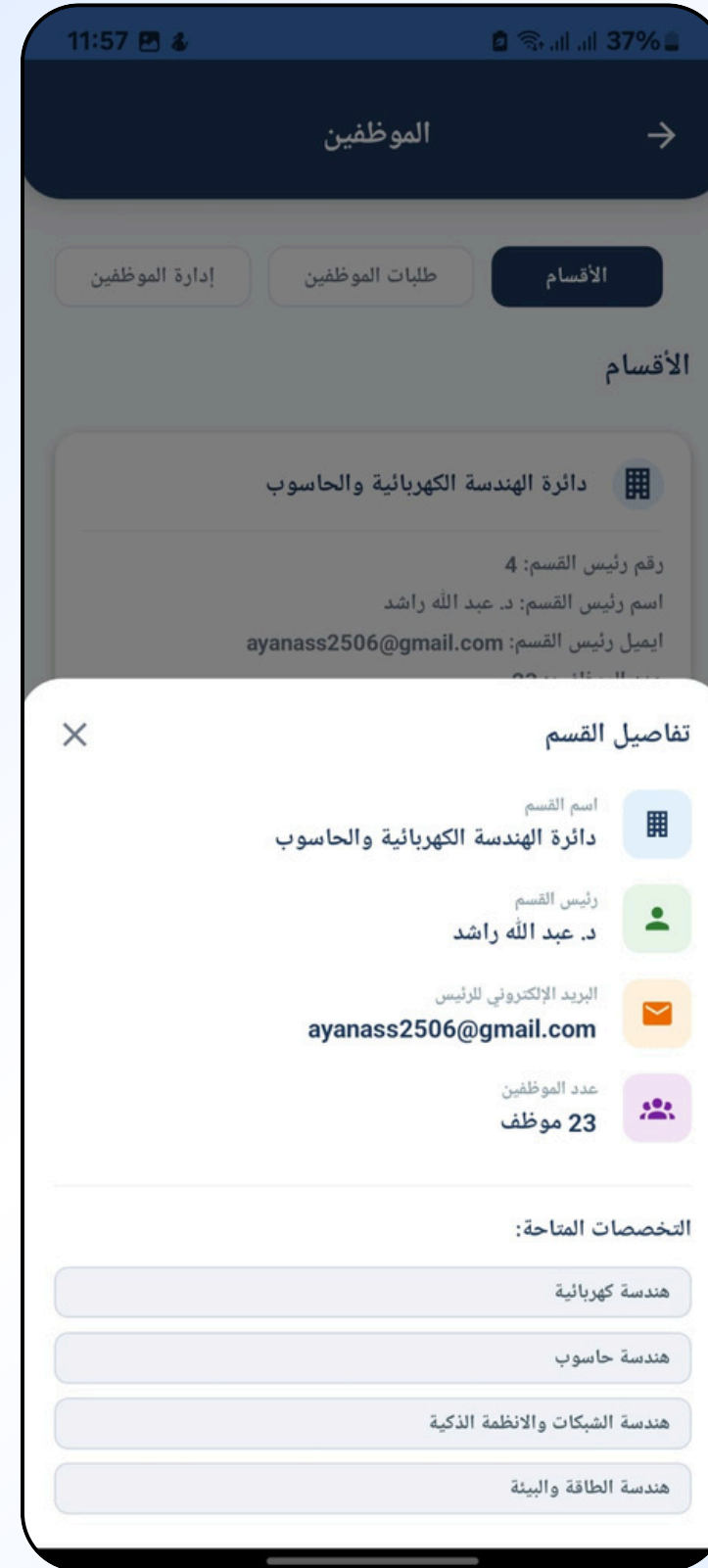
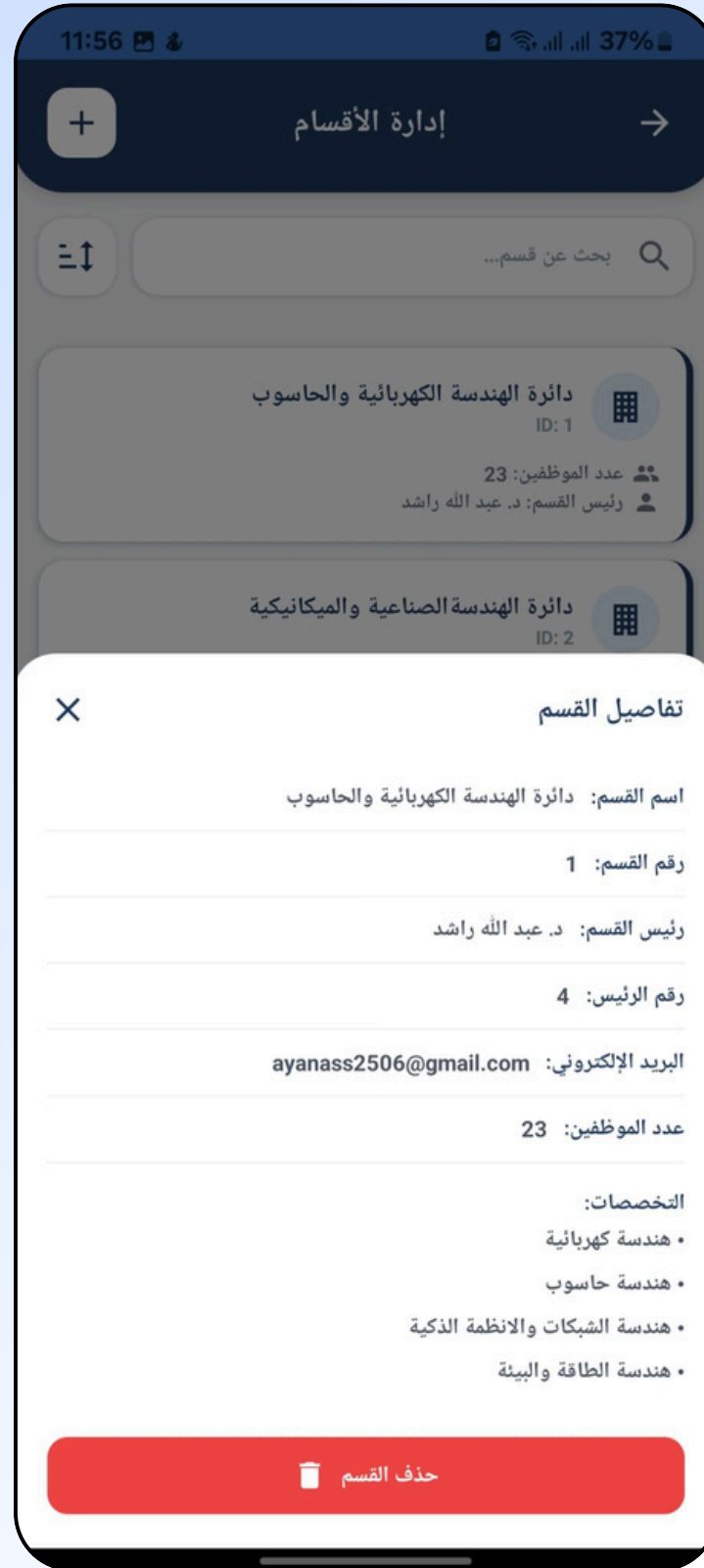
OTP verification





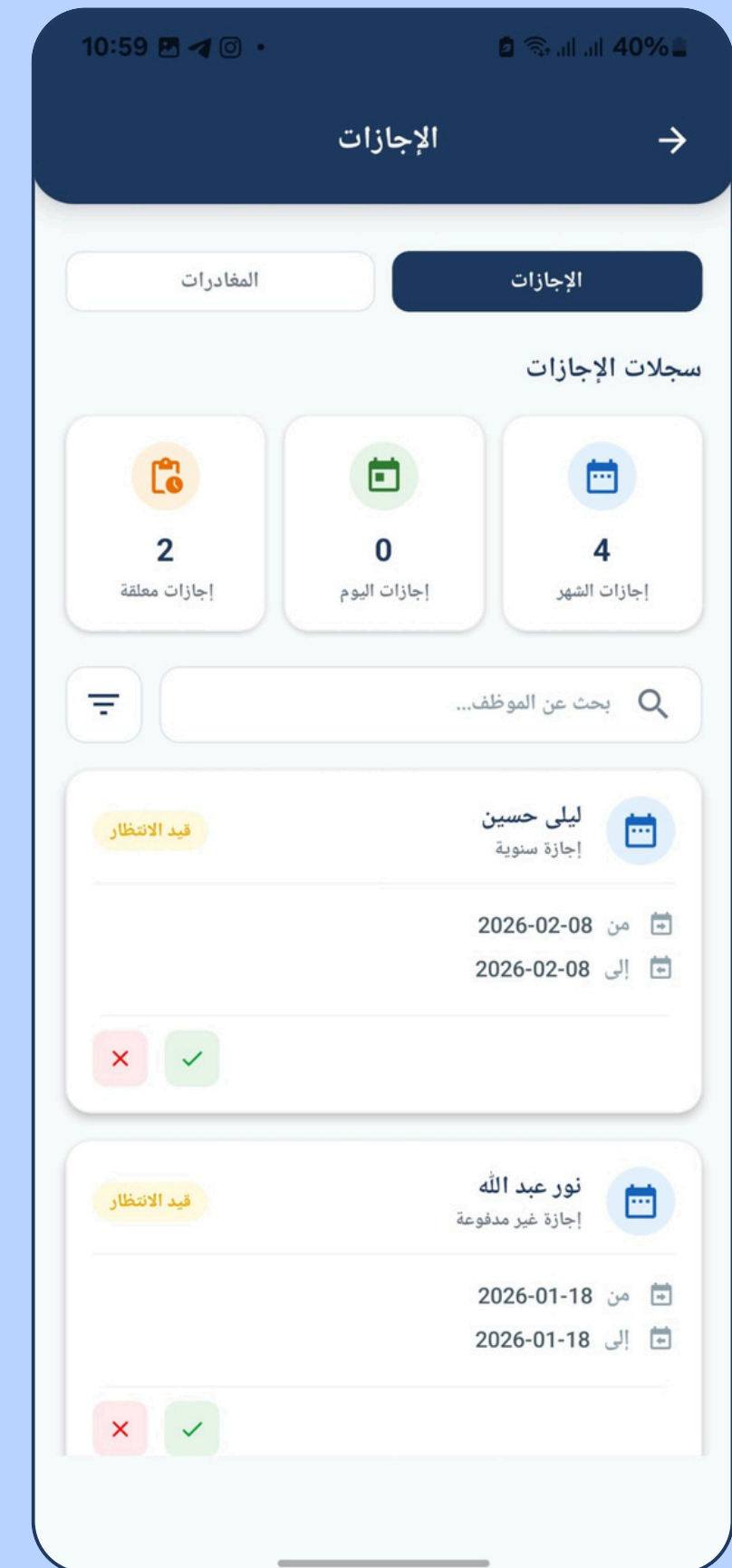
Department Management

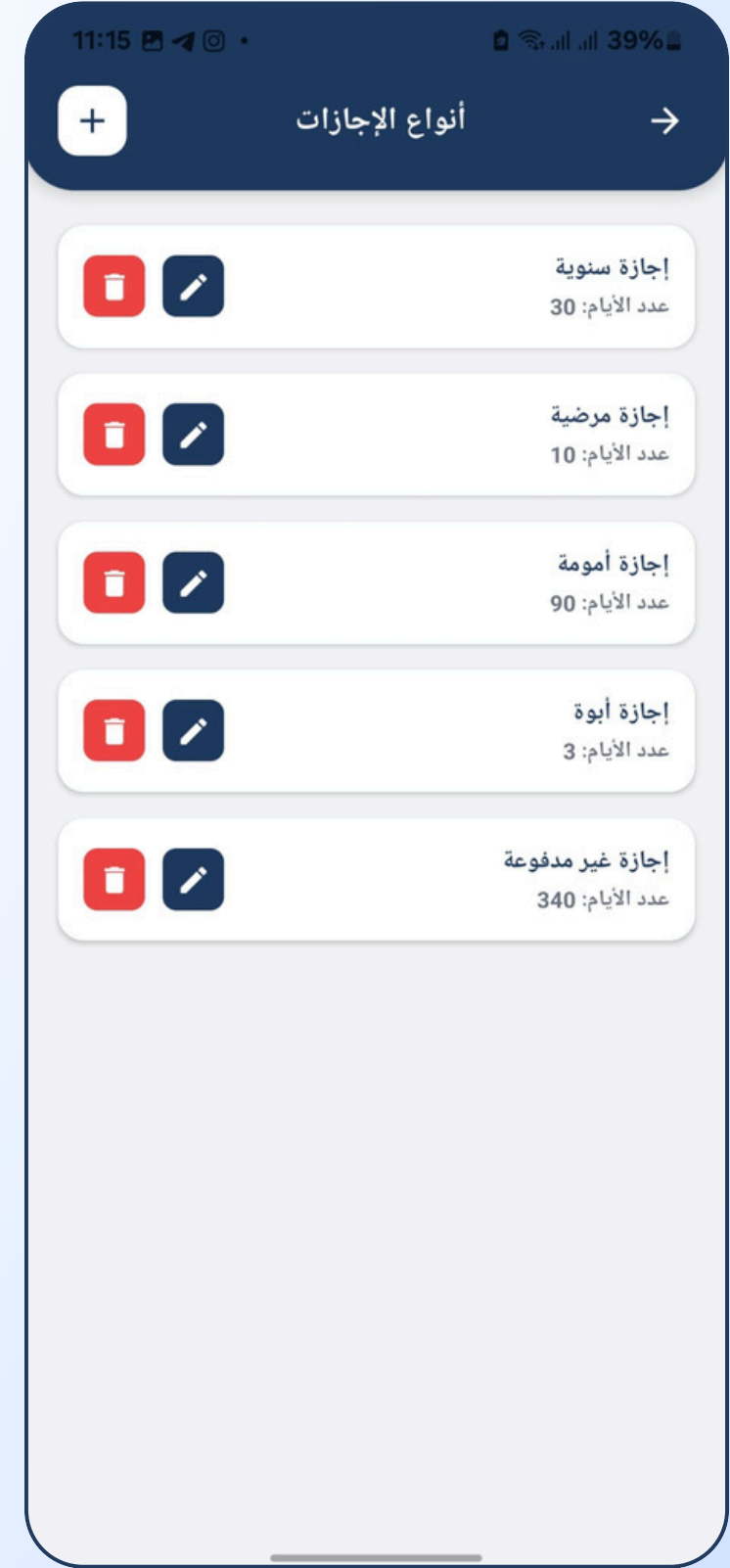
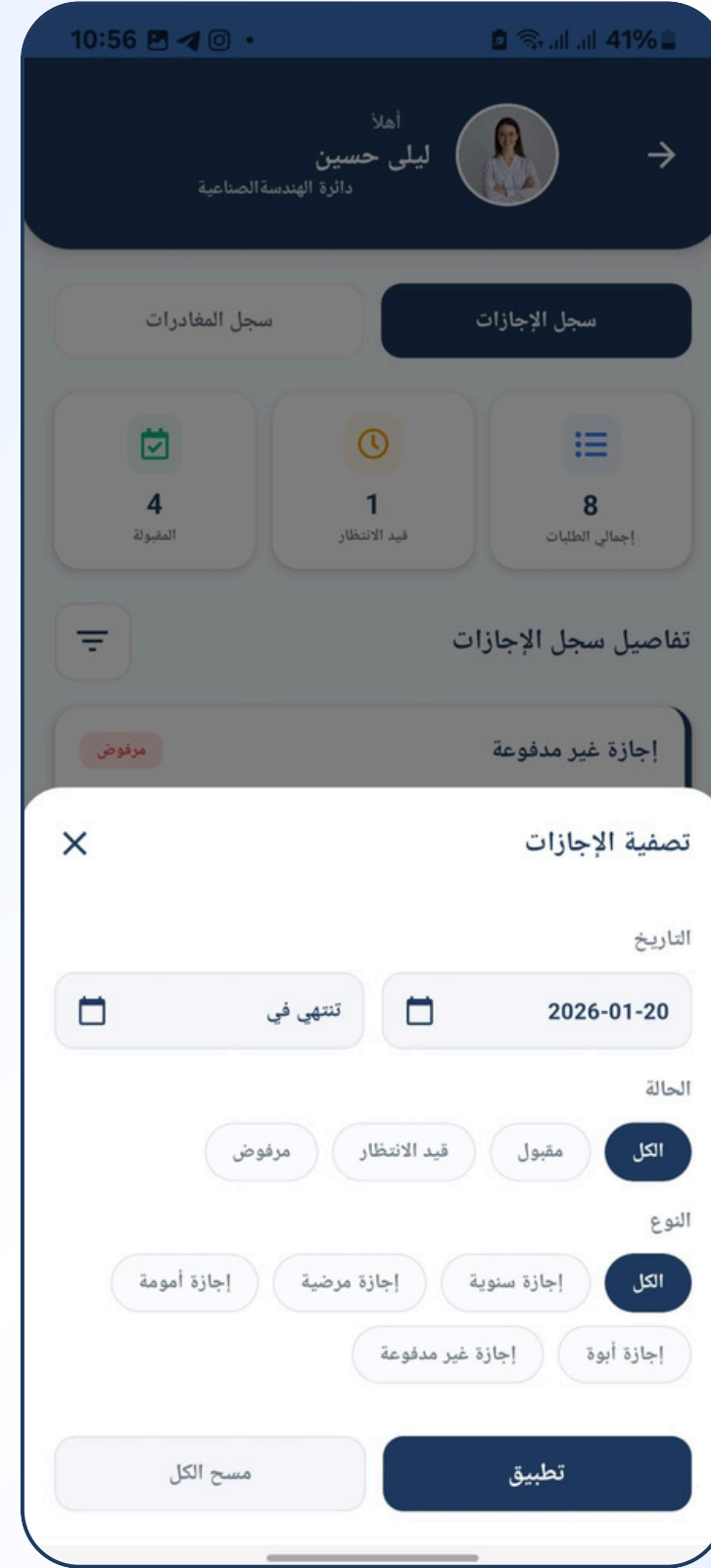
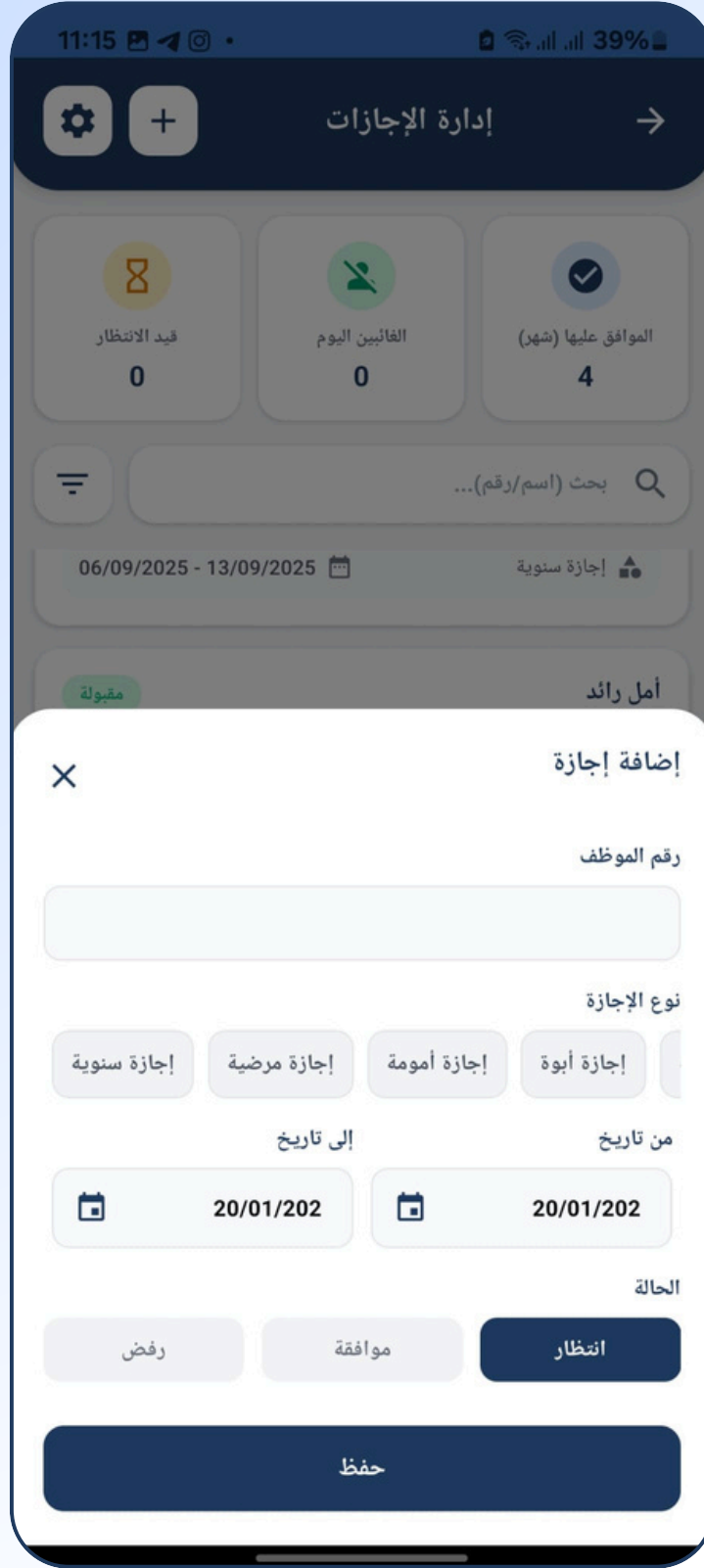
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Leaves management

- The system tracks all TA leave requests and enforces leave balance limits.
- Each leave request follows a two-stage approval process.
- The request is first reviewed by the Head of Department (HOD).
- If rejected by the HOD, the request is closed and the TA is notified.
- If approved by the HOD, the request is sent to HR for final approval and the TA is notified.

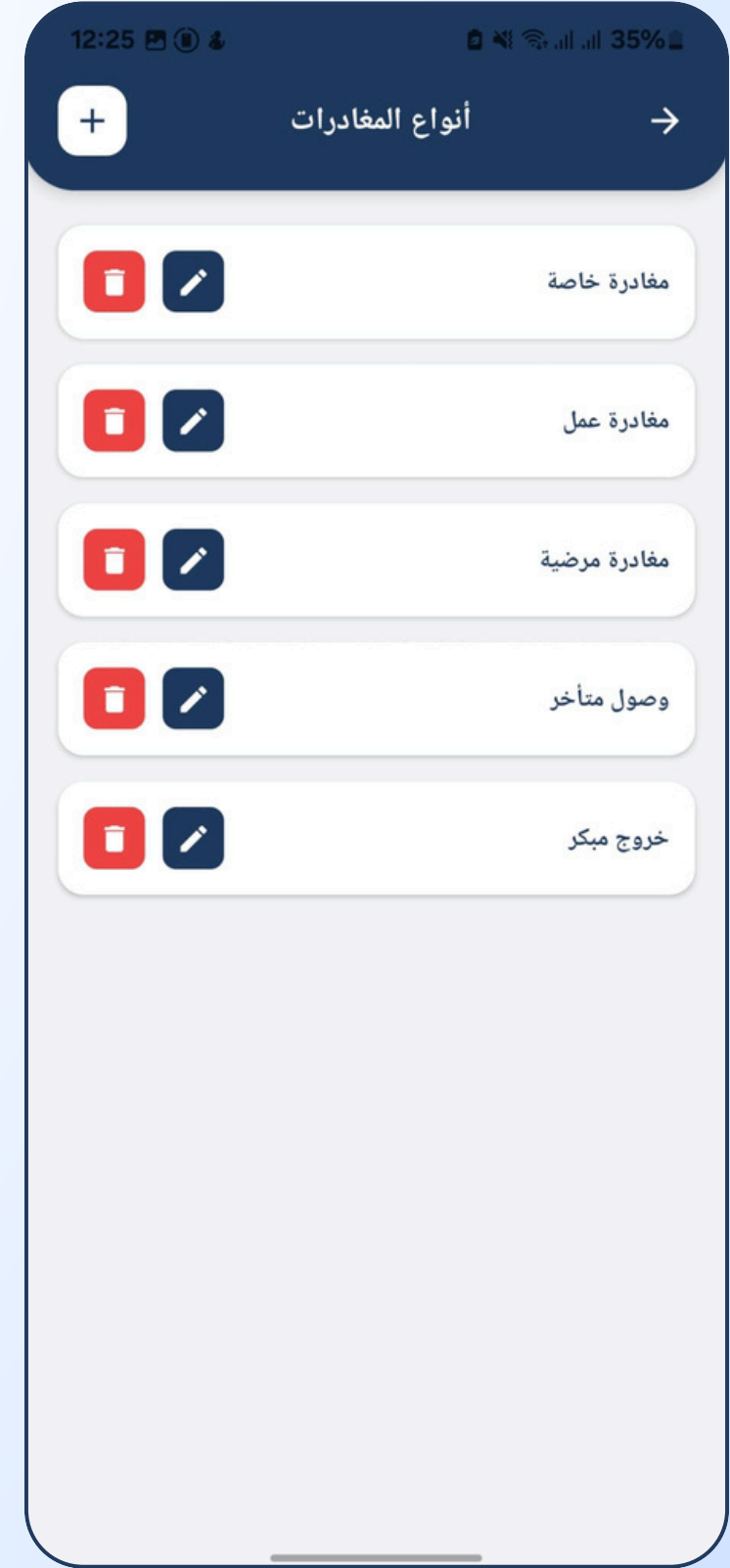
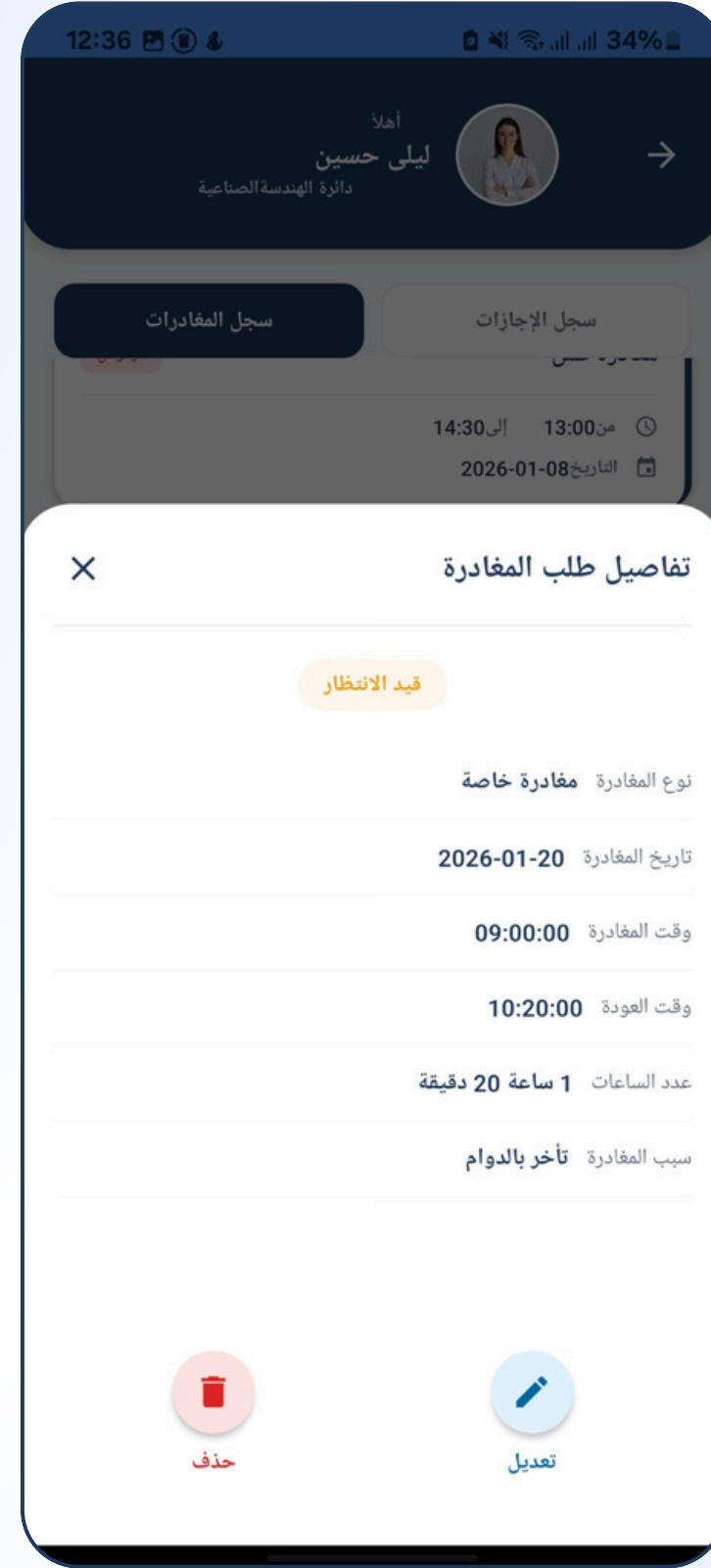
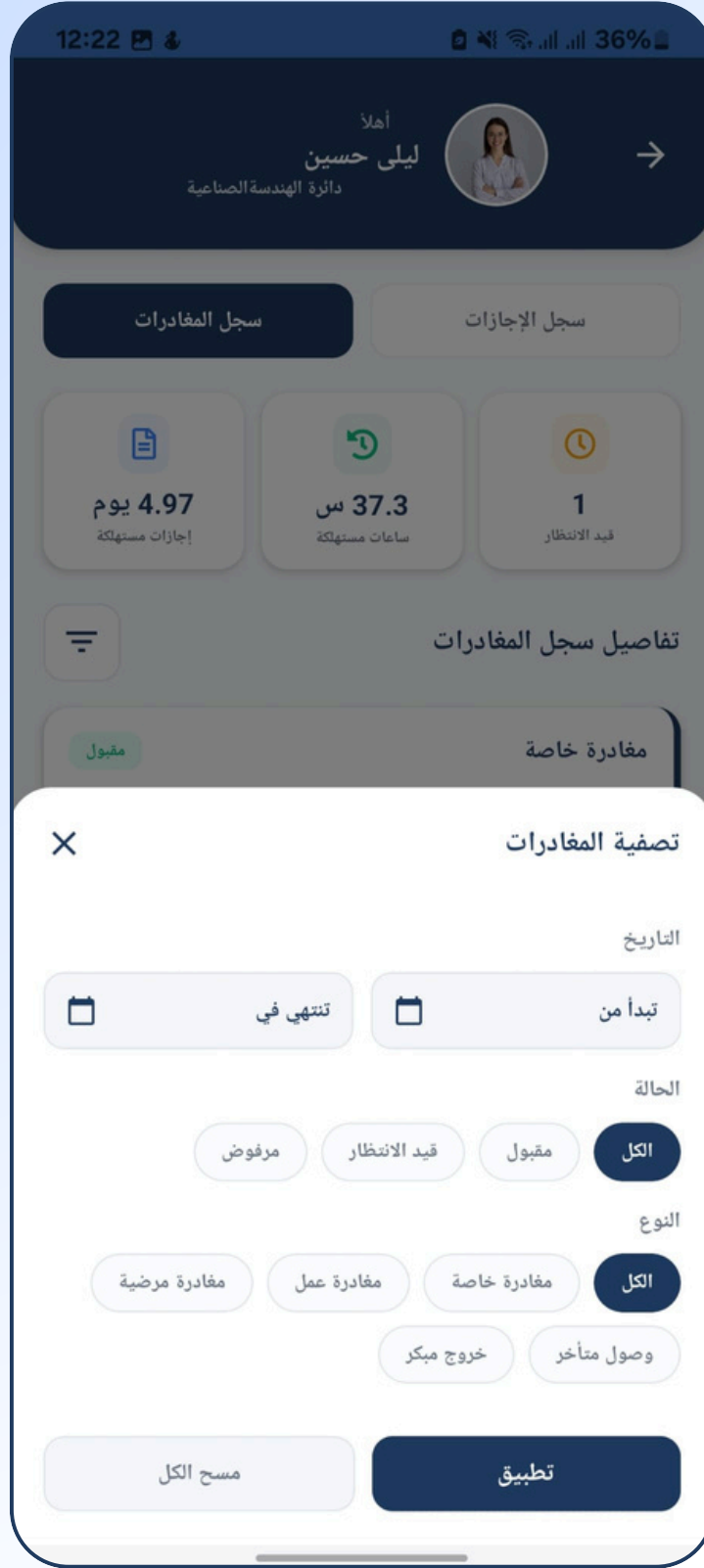






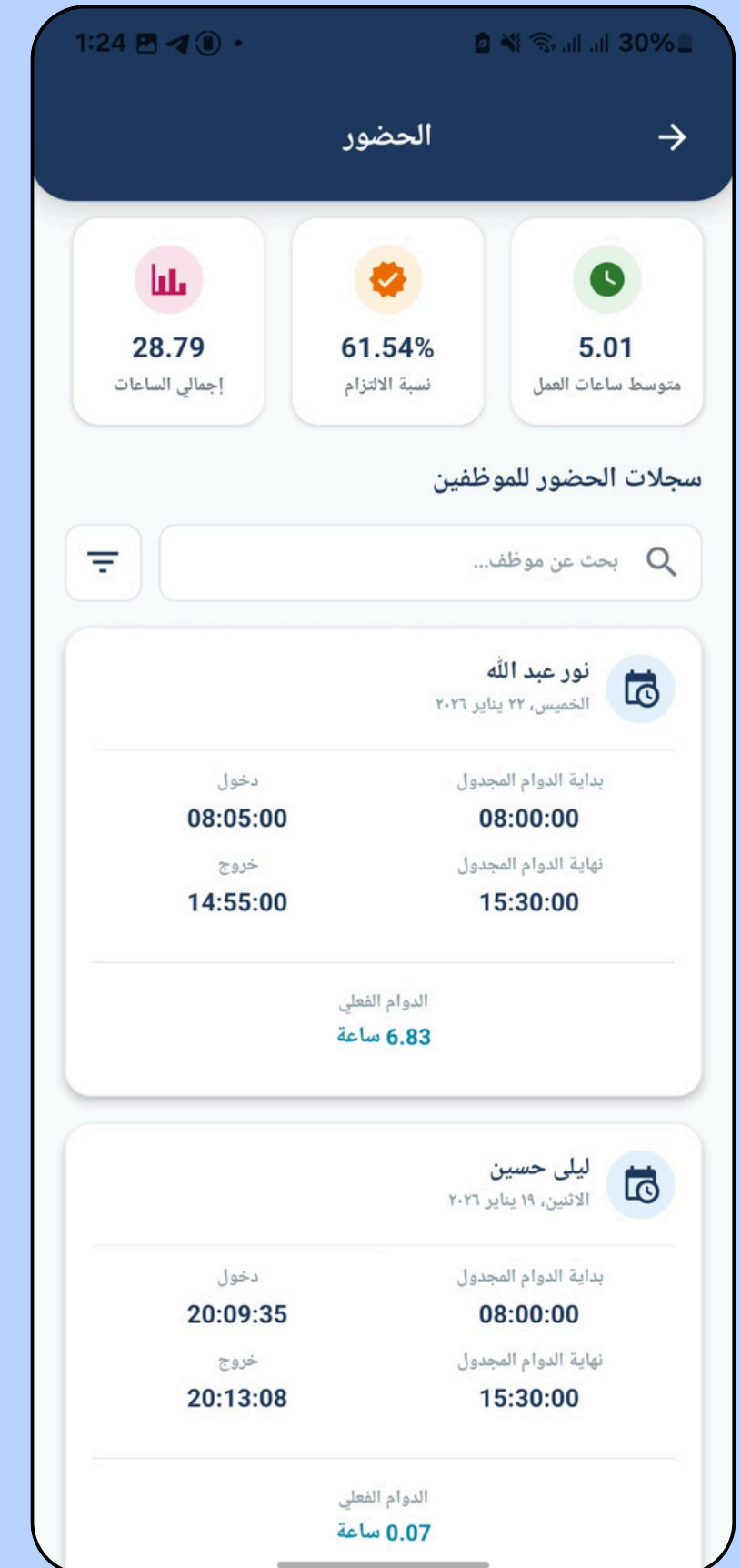
Exits management

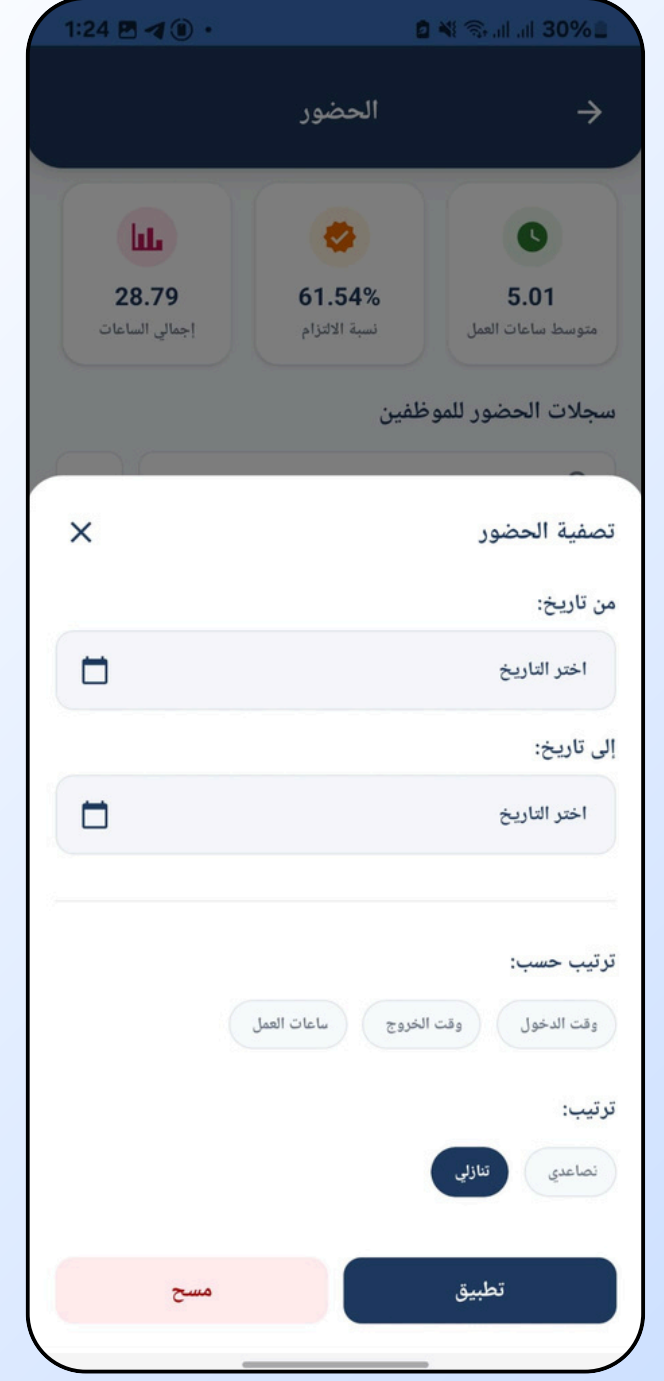
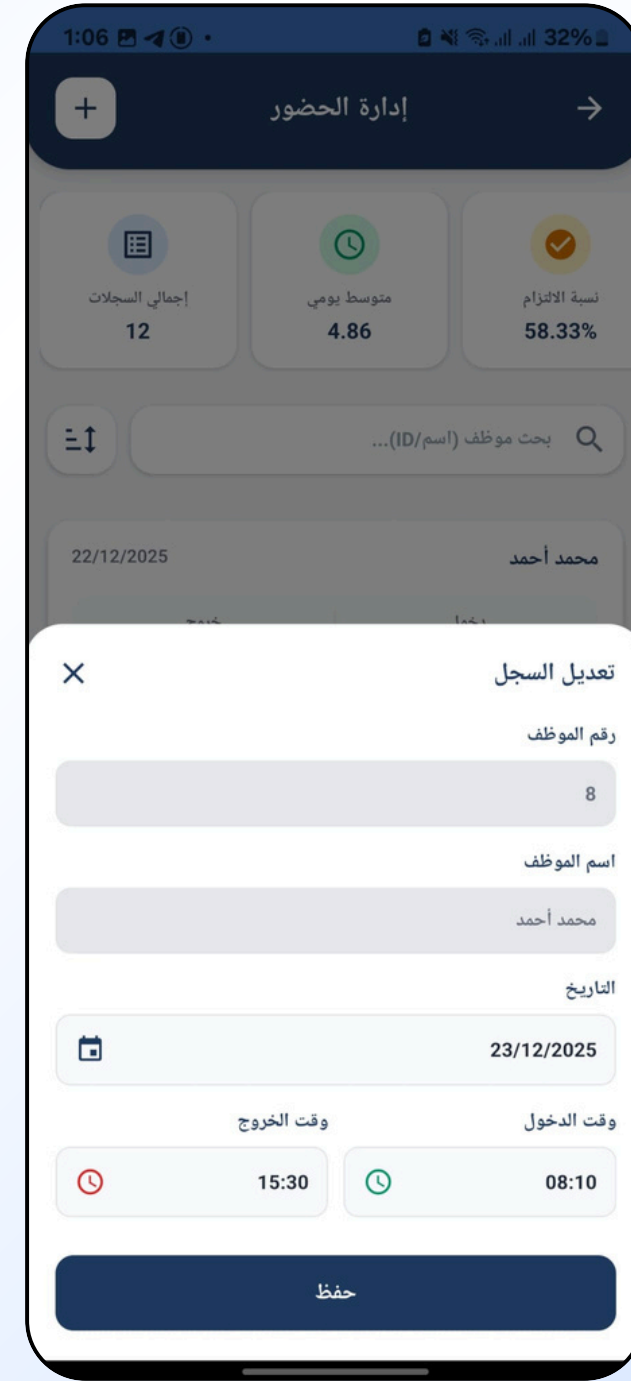
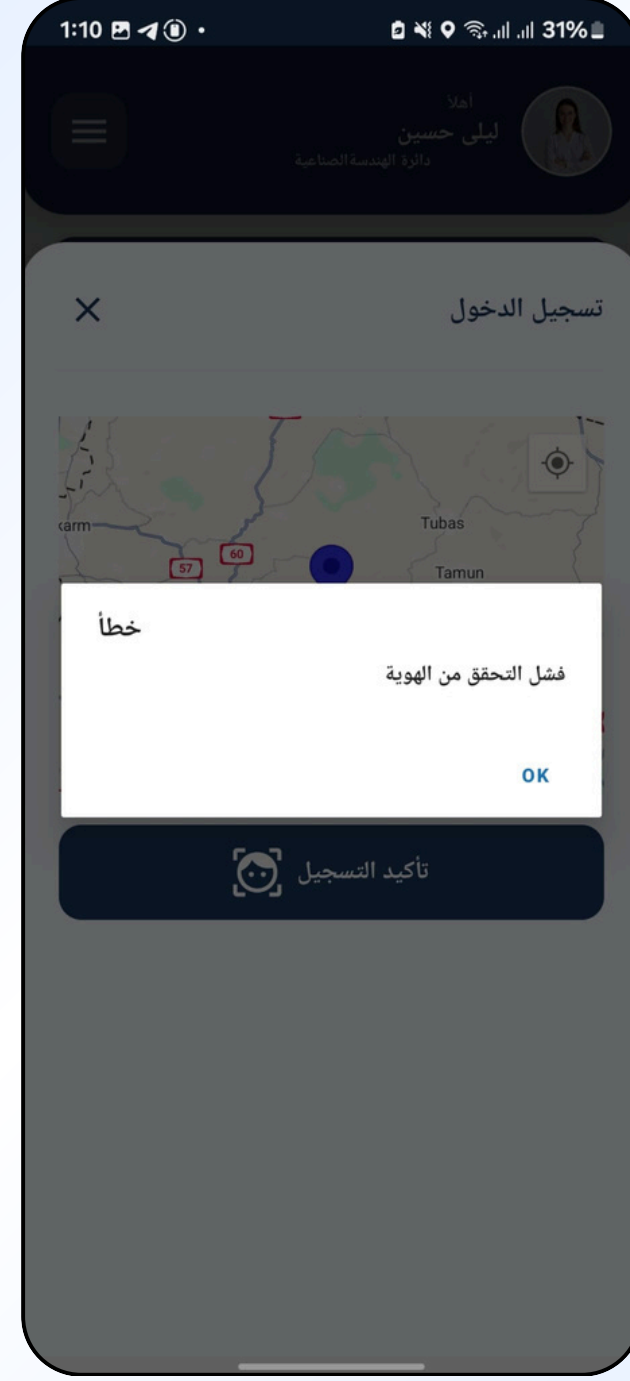
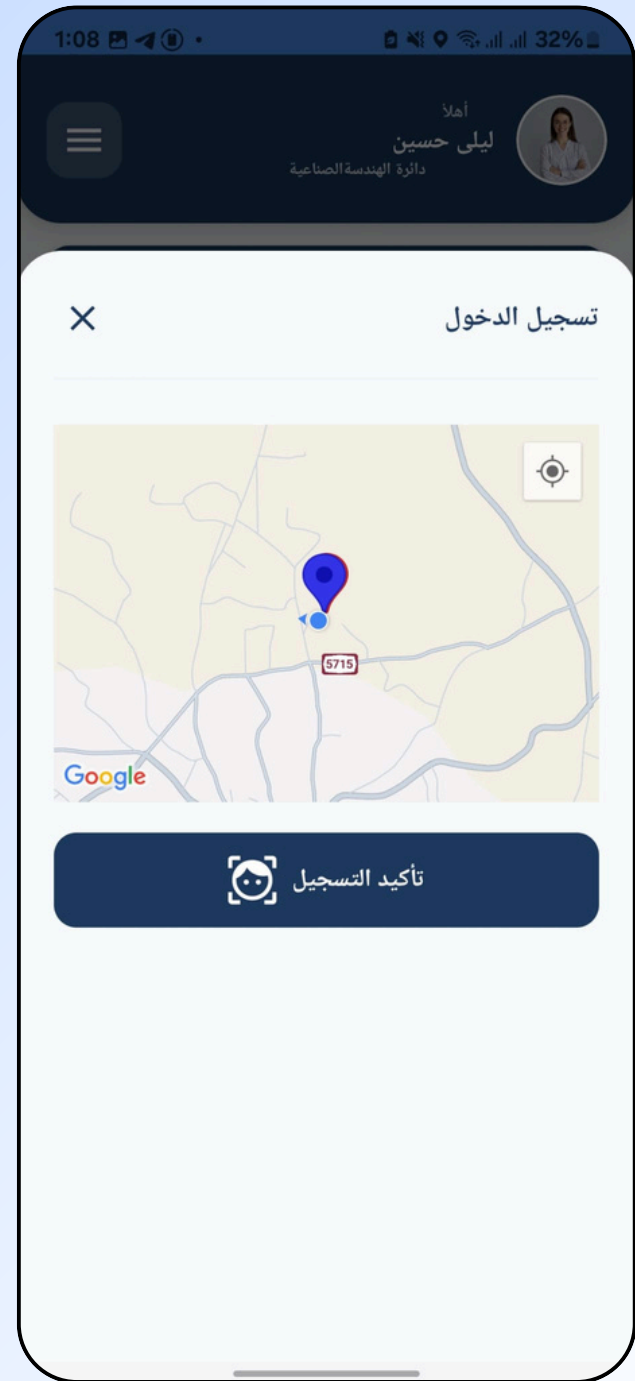
- Exits are short-term leaves during working hours, categorized into predefined types.
- TAs are allowed up to 4 exit hours per day.
- 7.5 cumulative exit hours are automatically deducted as one annual leave day.
- Exit requests follow a two-stage approval (HOD → HR) with notifications.
- Late arrivals (>15 minutes) and early departures are automatically tracked and added to exit hours.



Attendance management

- Represents TA arrival and departure times at the university.
- TAs record check-in and check-out only while on campus.
- Attendance is not recorded if the TA is outside faculty boundaries.
- Biometric verification is required to prevent false check-ins or check-outs.
- Administrators can edit or delete attendance records when needed.
- HR can view attendance records to analyze TA commitment and punctuality

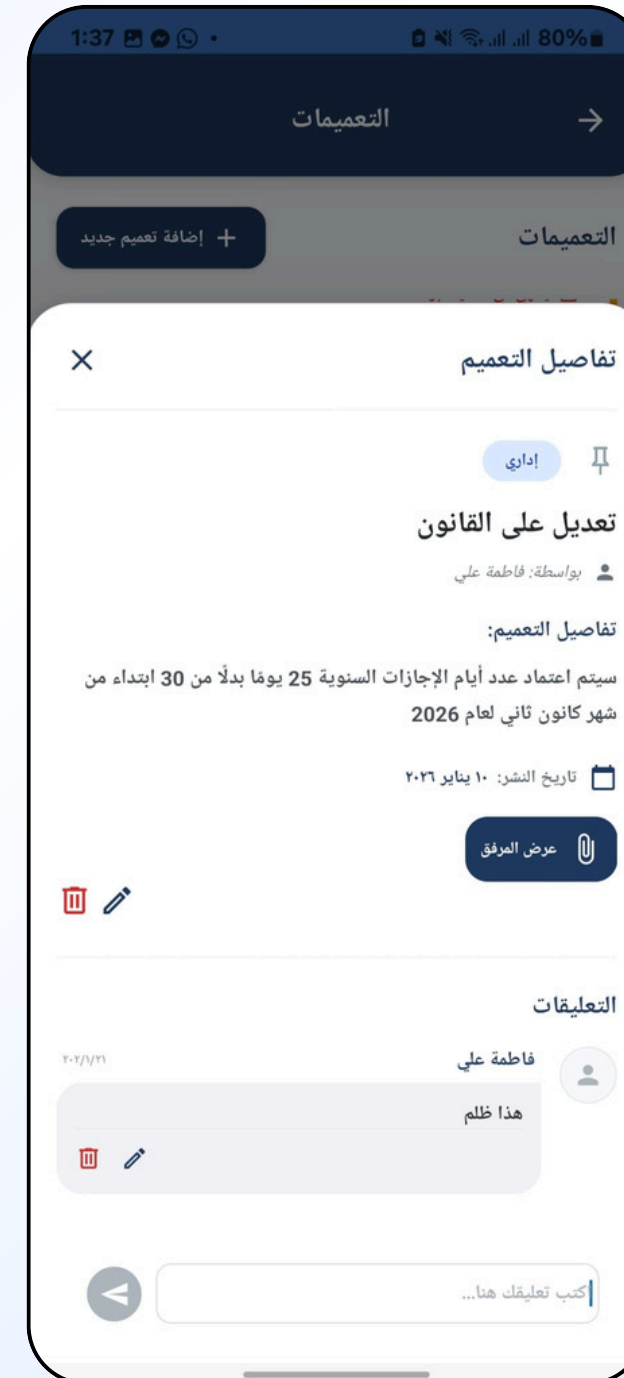
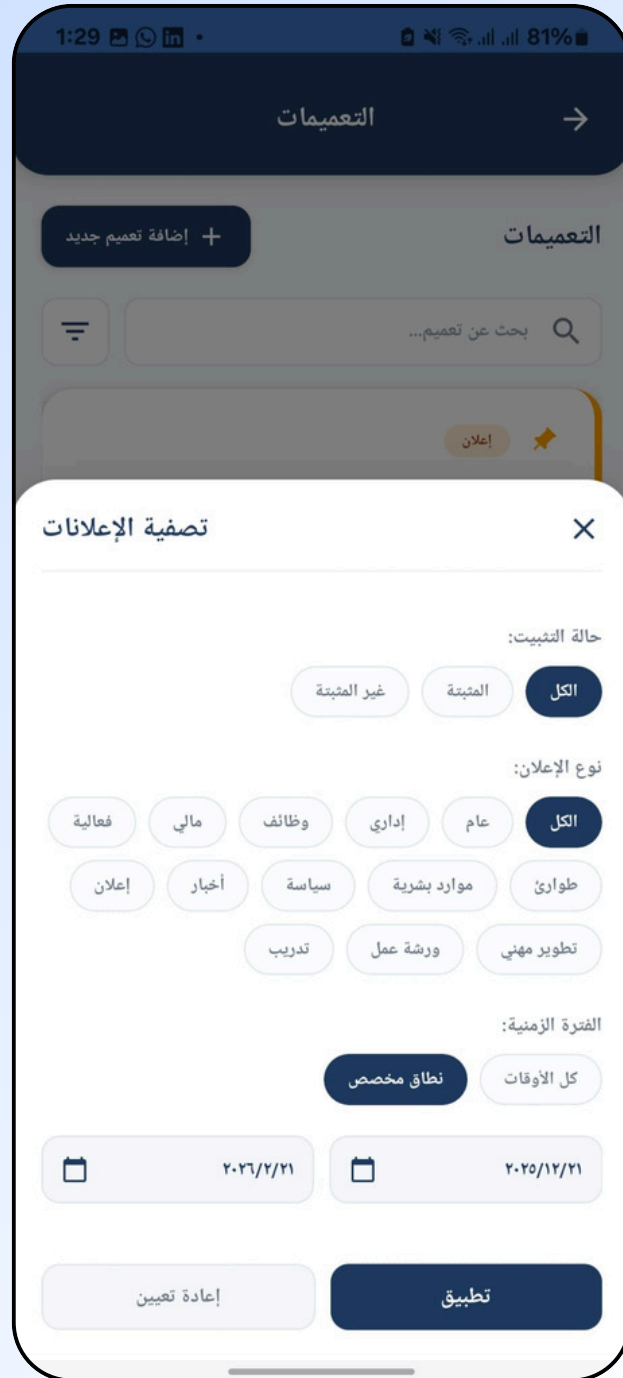






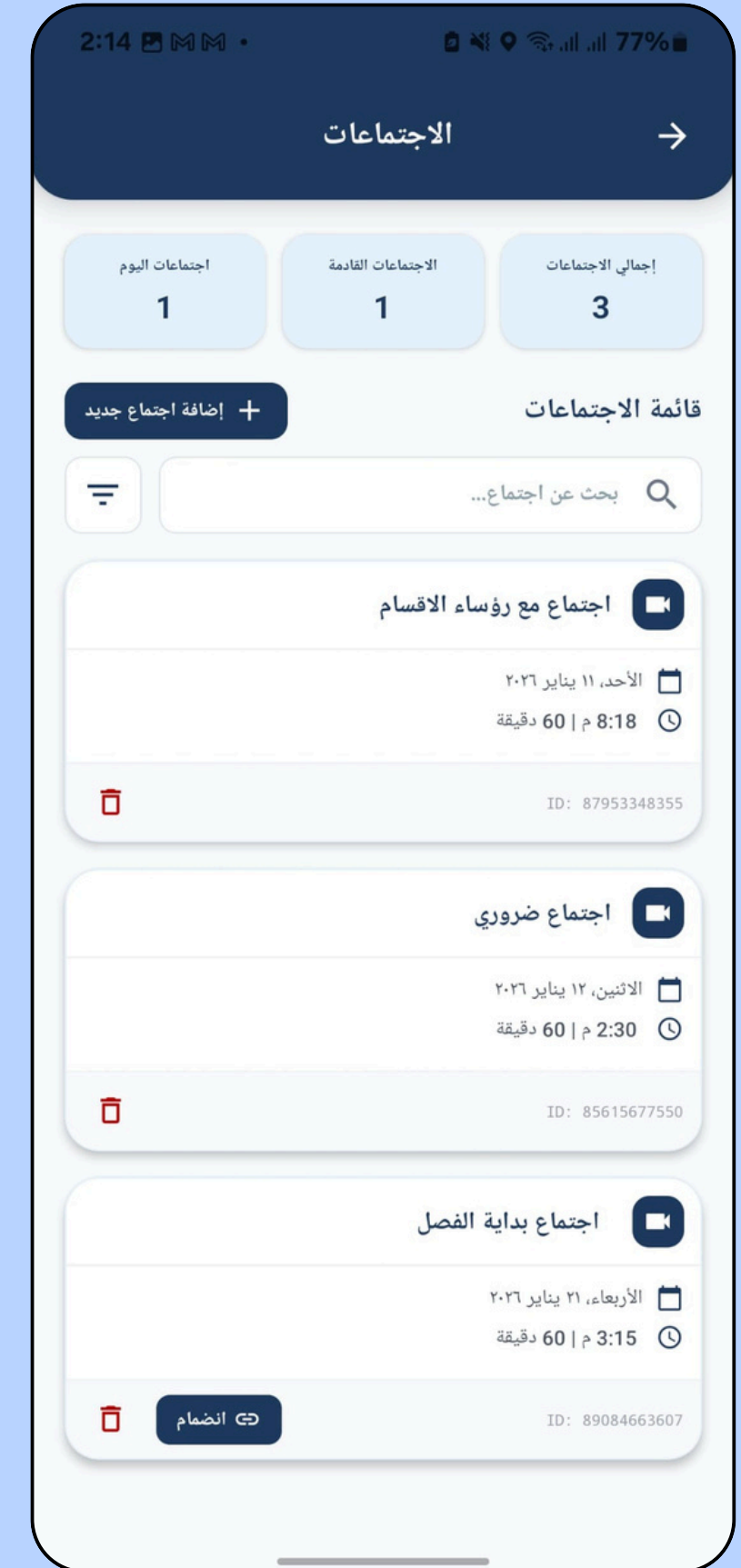
Announcements management

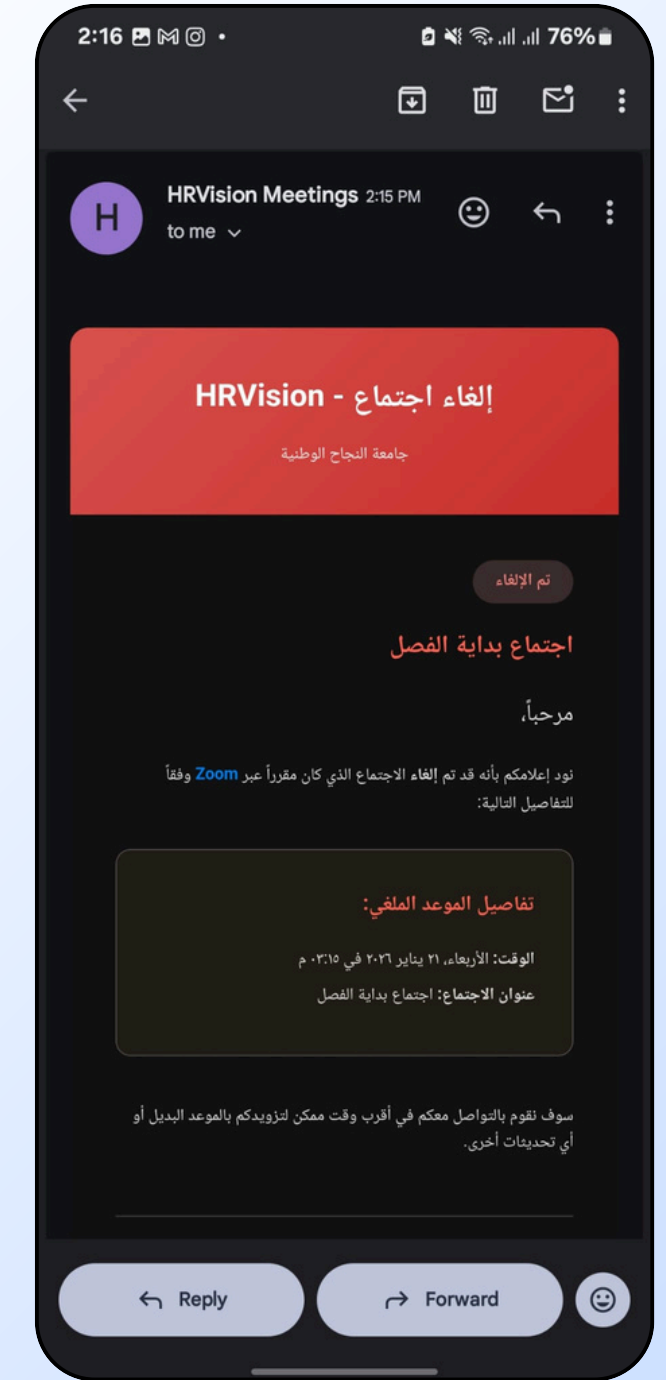
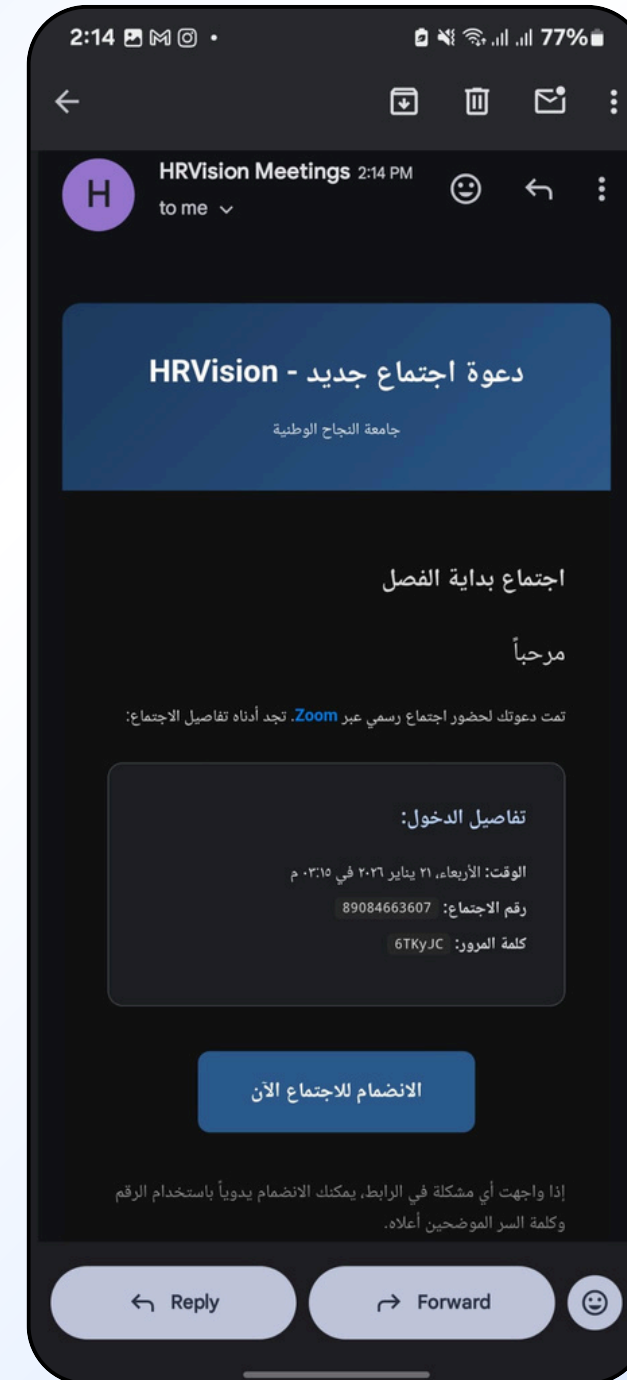
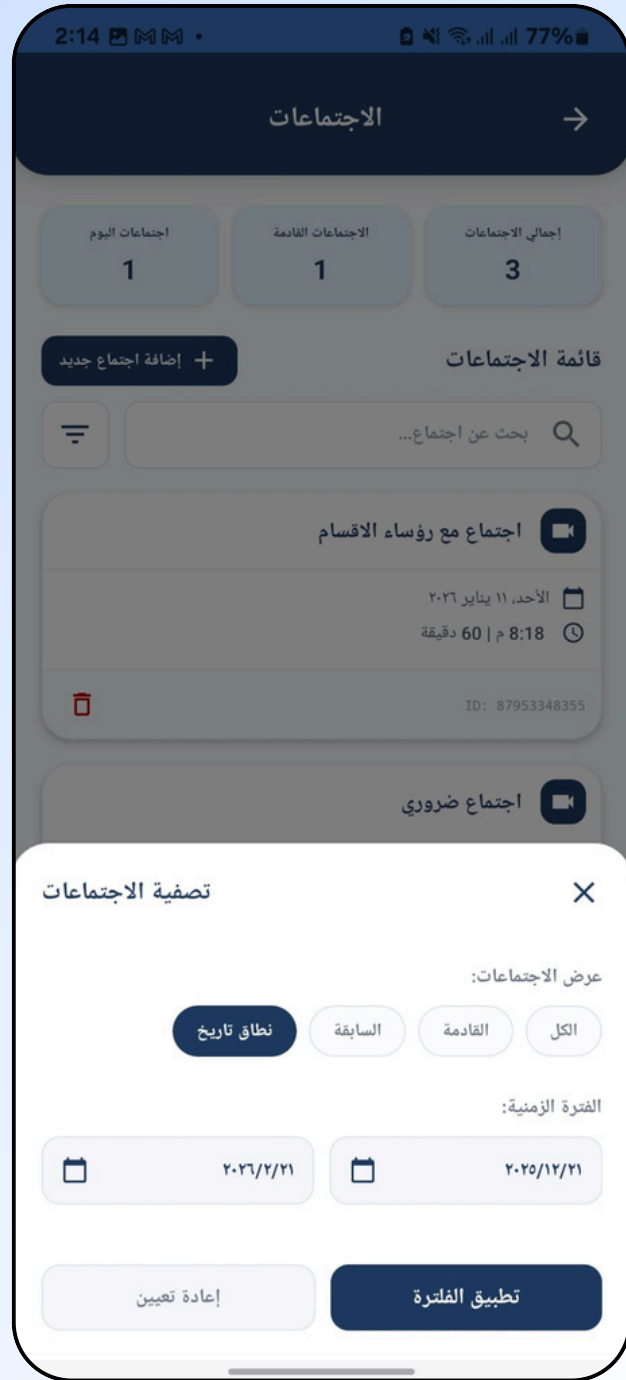
- The HR Vision System allows administrators and HR to send announcements to all departments or a specific department.
- Announcements are categorized and delivered to users based on their relevance.
- HR and administrators can pin or unpin announcements; pinned announcements appear on dashboards.
- They can also edit or delete existing announcements.
- Users are allowed to add, edit, or delete comments on announcements.
- Administrators have the authority to remove inappropriate comments when necessary.



HR meetings

- HR can create Zoom meetings directly from the HR Vision System.
- Meeting invitations are sent automatically via email.
- Meetings can target all departments or a specific department.
- HR can schedule meetings with HODs only or with all employees in the selected departments.
- When a meeting is canceled, a cancellation email is sent to all intended participants.

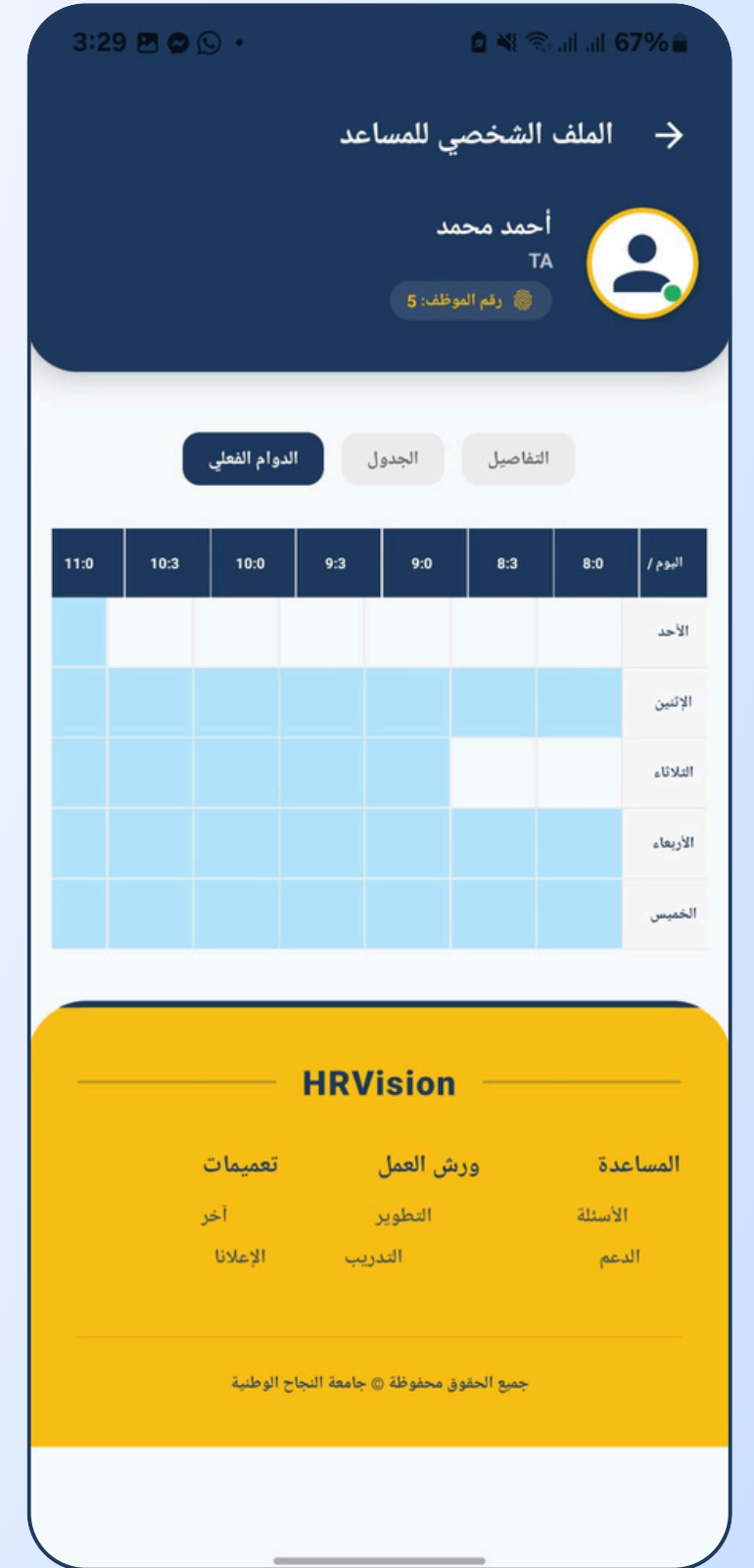
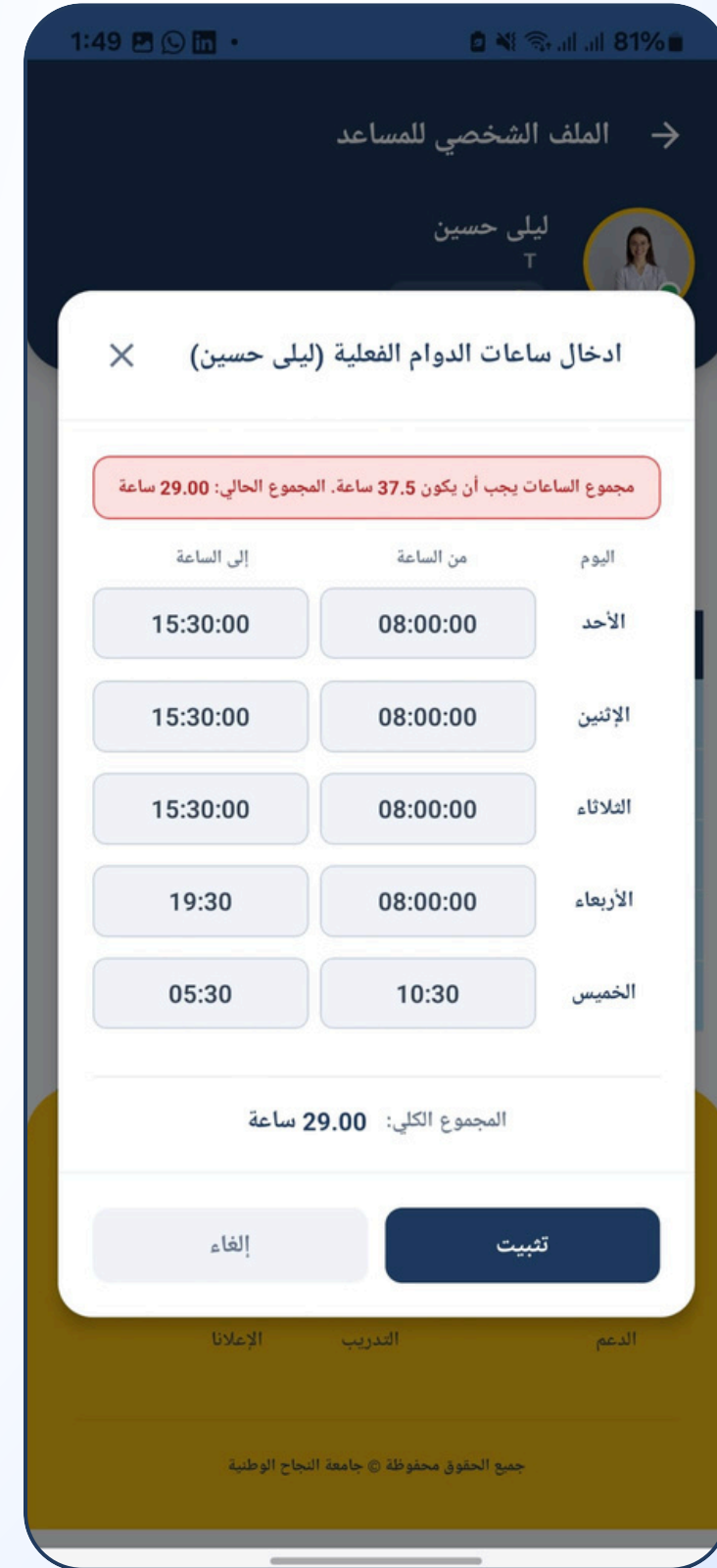
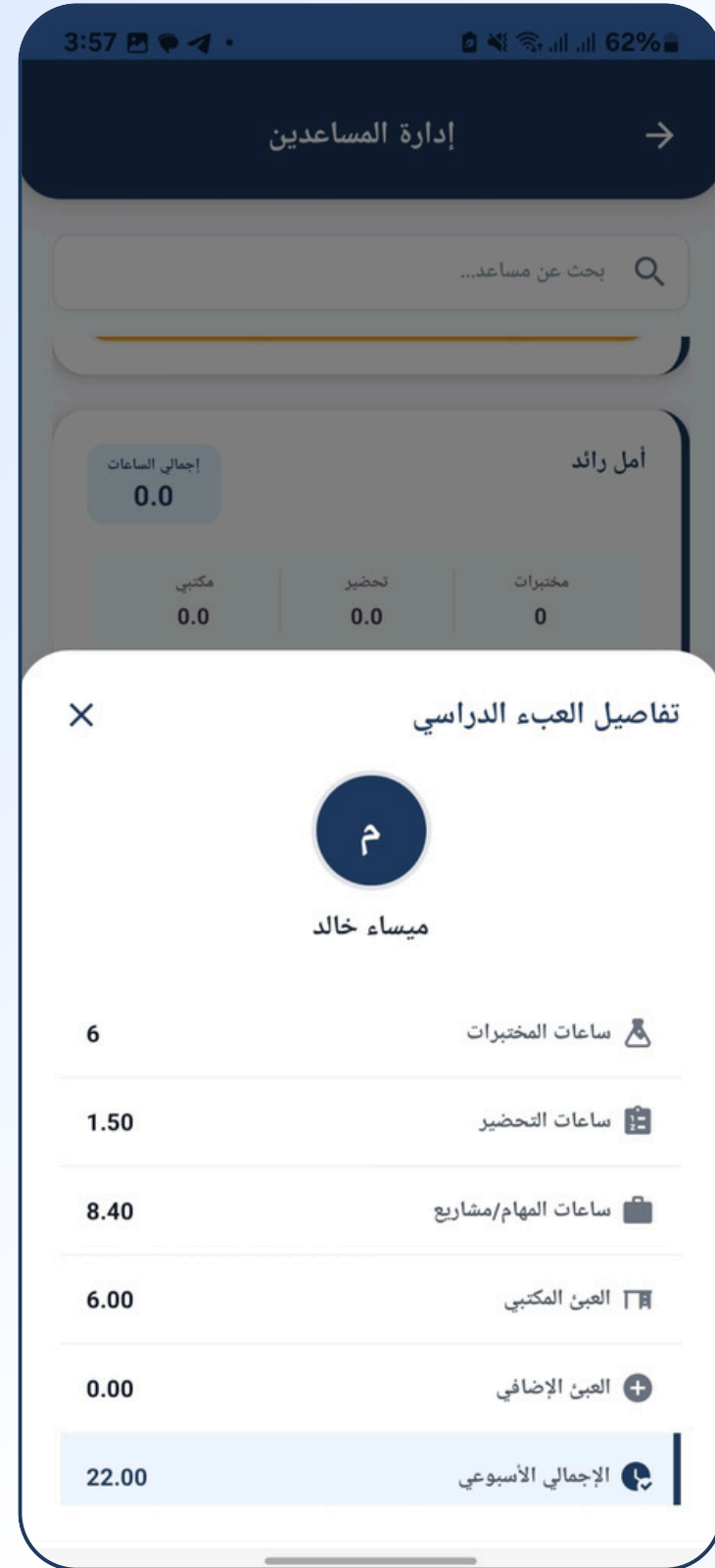
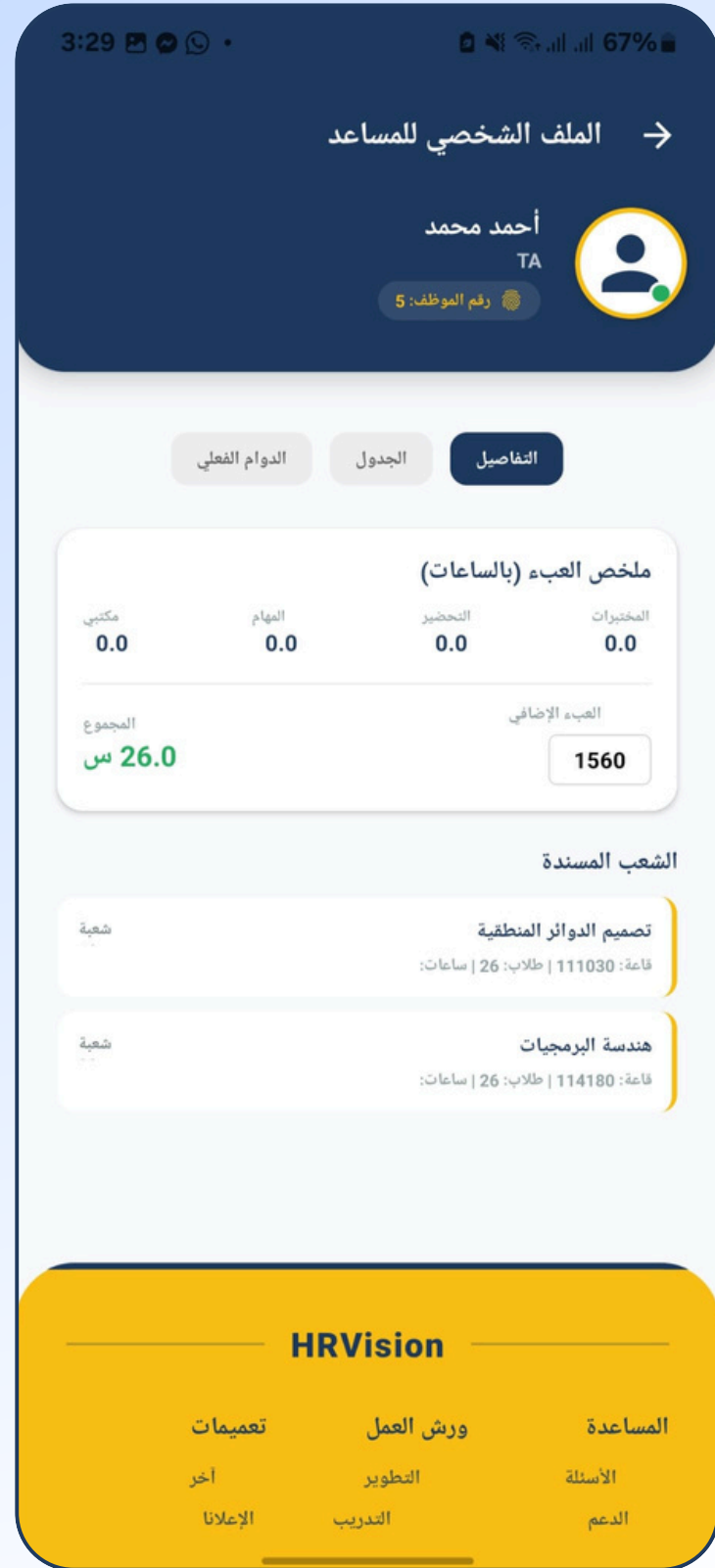






TA management

- The HR Vision System monitors and manages the teaching workload of Teaching Assistants to ensure fairness and efficiency.
- It tracks the weekly teaching hours assigned to each TA and enforces predefined maximum workload limits to prevent overload.
- The system provides visibility into workload distribution across departments, helping decision-makers balance assignments effectively.
- It also records the number of course sections assigned to each TA and automatically detects overload situations.
- The system identifies scheduling conflicts and overlapping assignments to support accurate and conflict-free scheduling decisions.



Course Management

- Provides a comprehensive catalog of all faculty courses
- Links each course to its corresponding academic major
- Organizes courses by department for efficient administration
- Supports clear curriculum structure and study plans
- Enables HODs to assign TAs to specific course sections
- Ensures accurate workload tracking and coordination between departments and TAs





البرمجة 1

التصاعدي حسب الترتيب حسب

اسم مساعد البحث والتدريس	عدد الساعات بالأسبوع	مجموع المختبرات للفصل (بالدقائق)	مجموع المهام والمشاريع للفصل (بالدقائق)	العبئ المكتبي	التحضير للمختبر (بالدقائق)	ساعات المختبر	عدد المشاريع	عدد المهام	رقم القاعة	عدد الطلاب	عدد الساعات	رقم الشعبة	رقم المساق
سليمان محمد	0.155556	0	140	0	0	0	2	4	111170	29	3	1	1
ليلى حسين	0.133333	0	120	0	0	0	2	3	111180	33	3	2	1
خالد زياد	0.133333	0	120	0	0	0	2	3	111020	25	3	3	1

تثبيت للكل

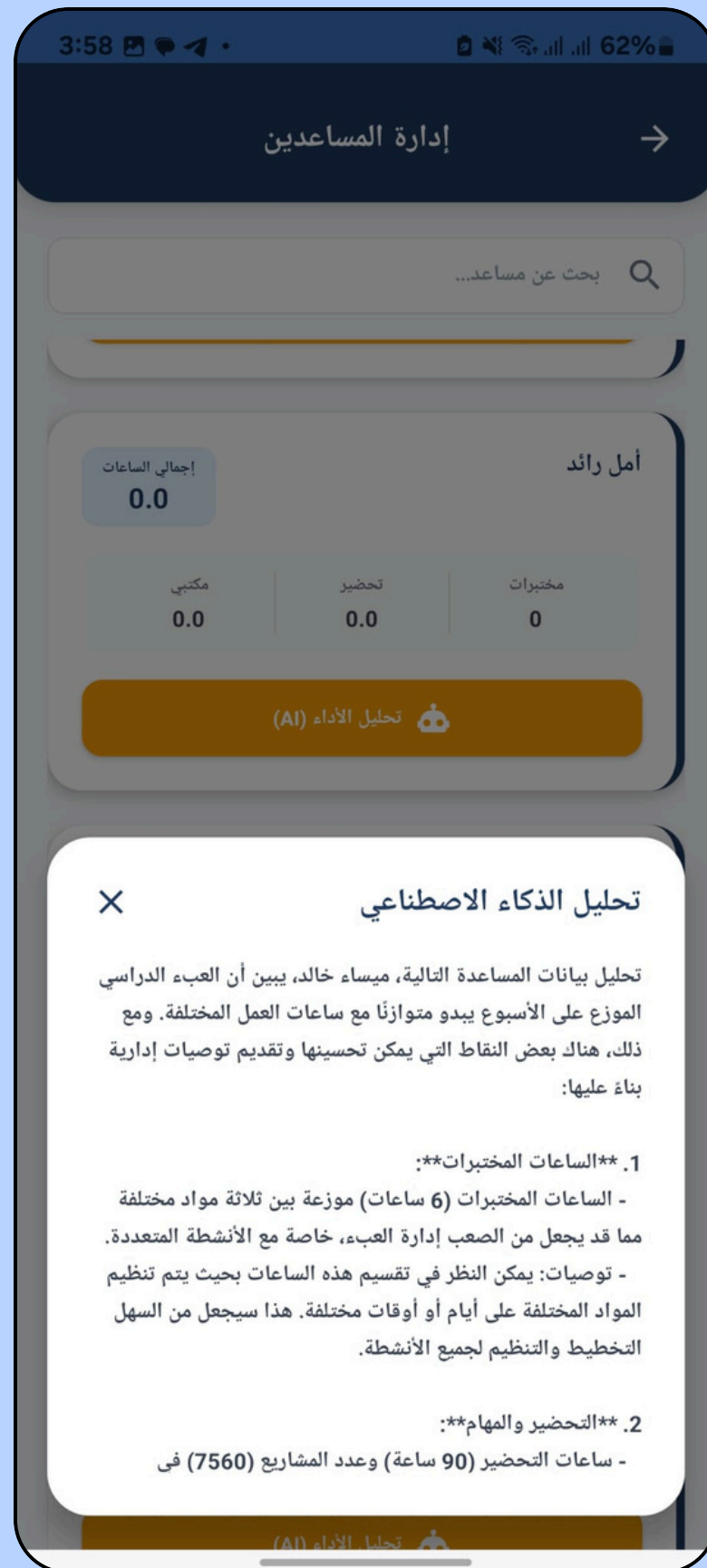
ساعات المختبر لجميع الشعب:

عدد المشاريع لجميع الشعب:

عدد المهام لجميع الشعب:

← العودة

حفظ التغييرات



AI Analysis

- Aggregates teaching hours, preparation time, administrative duties, attendance, leaves, exits, and schedule gaps to form a complete TA workload profile.
- Processes all sensitive academic data locally using a hosted LLM (qwen2.5:3b), ensuring privacy and preventing external data exposure.
- Suggests optimal TA-course assignments by combining AI reasoning with rule-based scheduling logic, ensuring balanced loads and conflict-free schedules.
- Analyzes TA performance and commitment using attendance consistency, leave frequency, and exit patterns.

AI Schedule Suggestions

						مختبر تنظيم الحاسوب 28 شعبة ▼ سليمان محمد	الثلاثاء
						مختبر الذكاء الاصطناعي 45 شعبة ▼ هبة ناصر	
						مختبر البرمجة 2 9 شعبة ▼ d	الاربعاء
						مختبر الالكترونيات 17 شعبة ▼ هبة ناصر	
						مختبر البرمجة 2 10 شعبة ▼ آية جميل	
						مختبر الالكترونيات 18 شعبة ▼ دانا سمير	
						مختبر الدوائر الكهربائية 14 شعبة ▼ userAdmin	الخميس
						مختبر تصميم الدوائر المنطقية 22 شعبة ▼ d	
						مختبر الدوائر الكهربائية 13 شعبة ▼ أمل راند	
						مختبر تصميم الدوائر المنطقية 21 شعبة ▼ ليلي حسين	

موافقة وتطبيق الاقتراح

إنشاء اقتراح الذكاء الاصطناعي

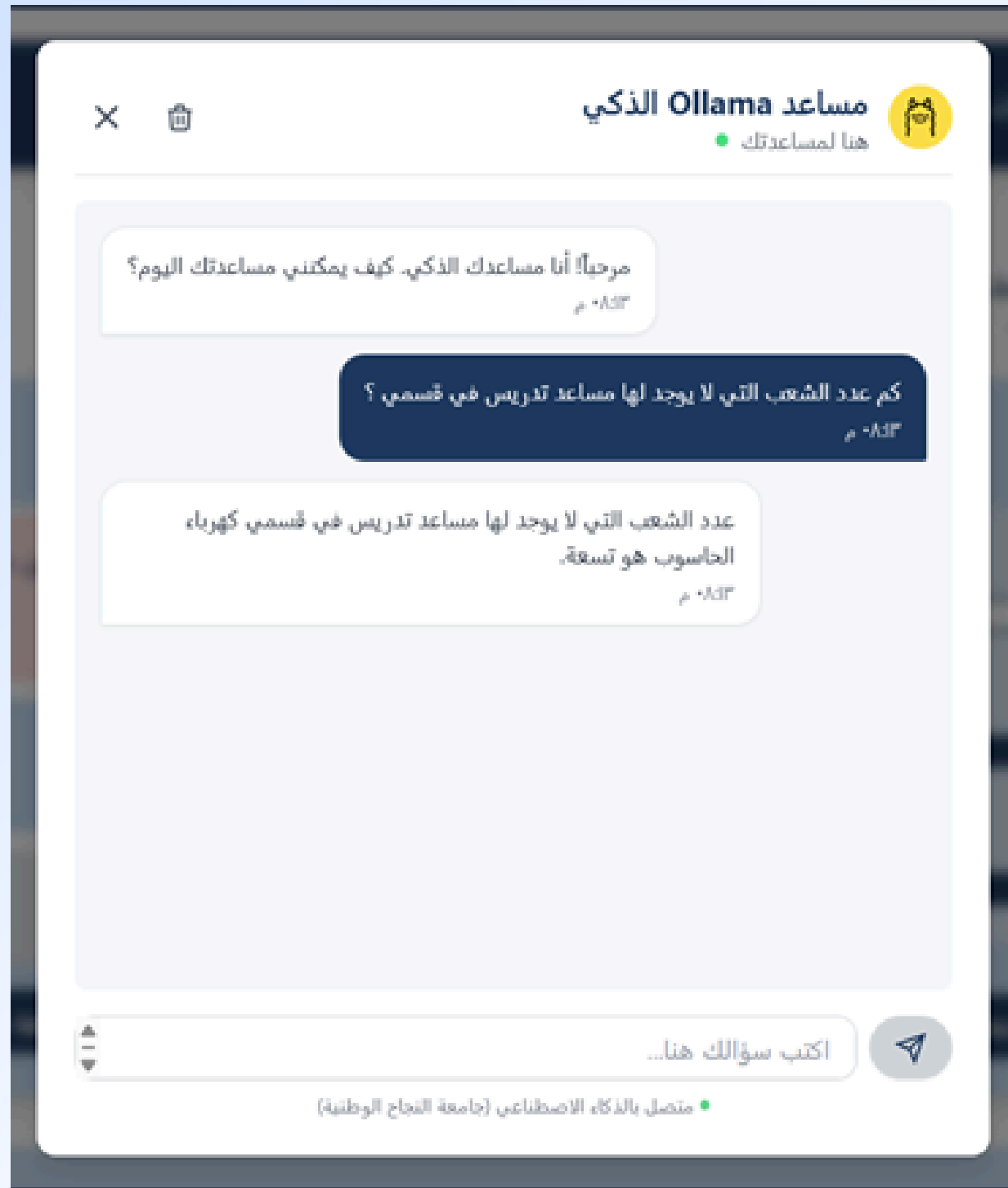
جدولة المسابقات باستخدام الذكاء الاصطناعي

اقتراح الذكاء الاصطناعي

تم اقتراح توزيع 13 مساق على المساعدين بشكل متساو
 يمكنك مراجعة الاقتراح أدناه والموافقة عليه أو تعديله يدوياً

3:30	3:00	2:30	2:00	1:30	1:00	12:30	12:00	11:30	11:00	10:30	10:00	9:30	9:00	8:30	8:00
														البرمجة 1 1 شعبة ▼ سليمان محمد	
														البرمجة 2 7 شعبة ▼ سارة محمود	

Smart Chat Assistant (AI Chatbot)



HOD

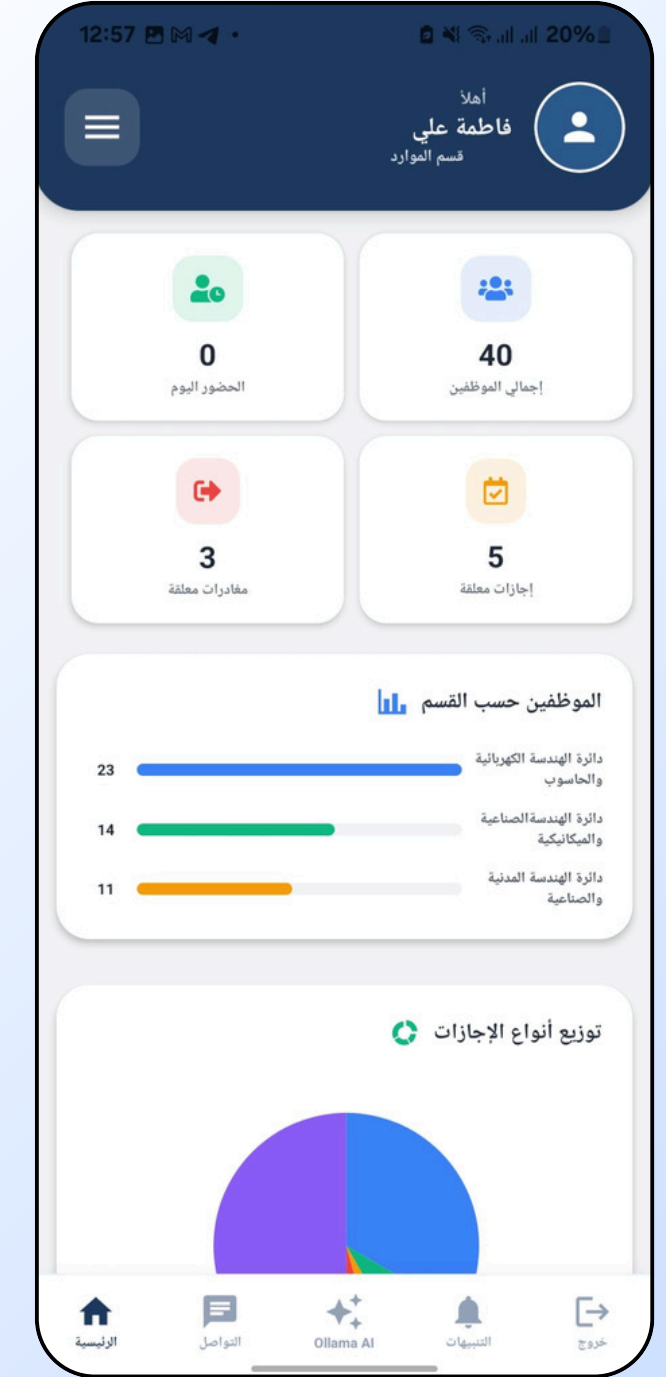
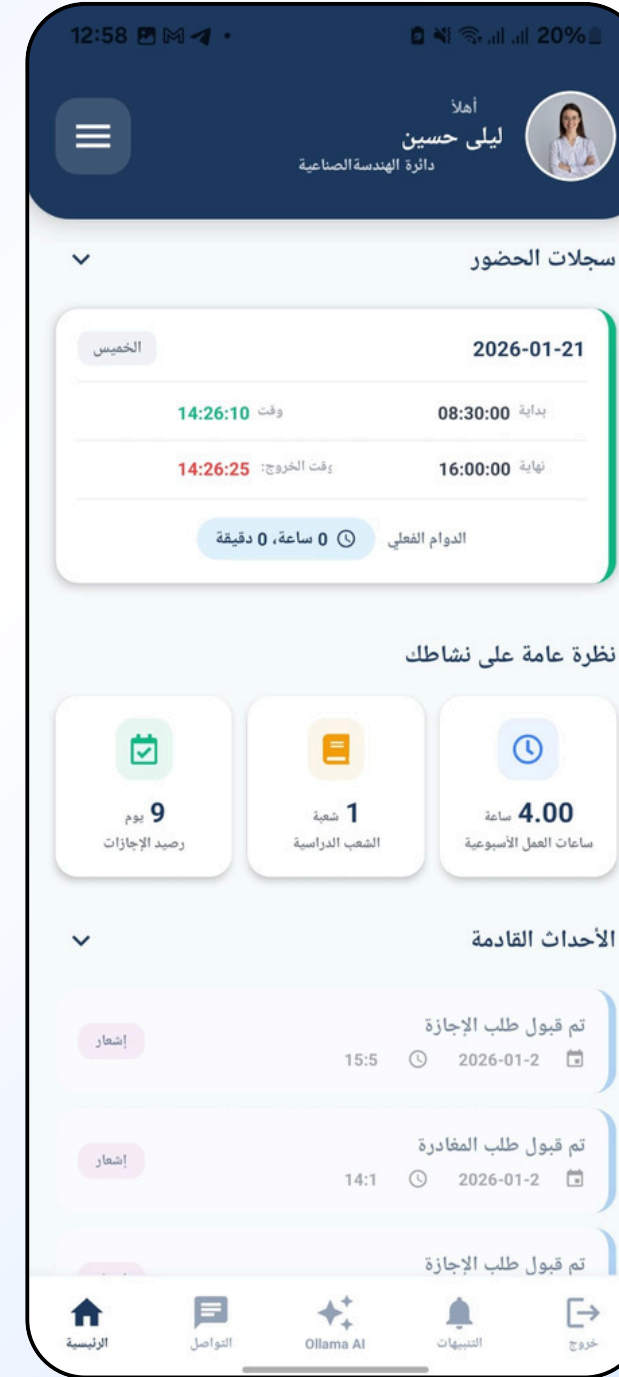
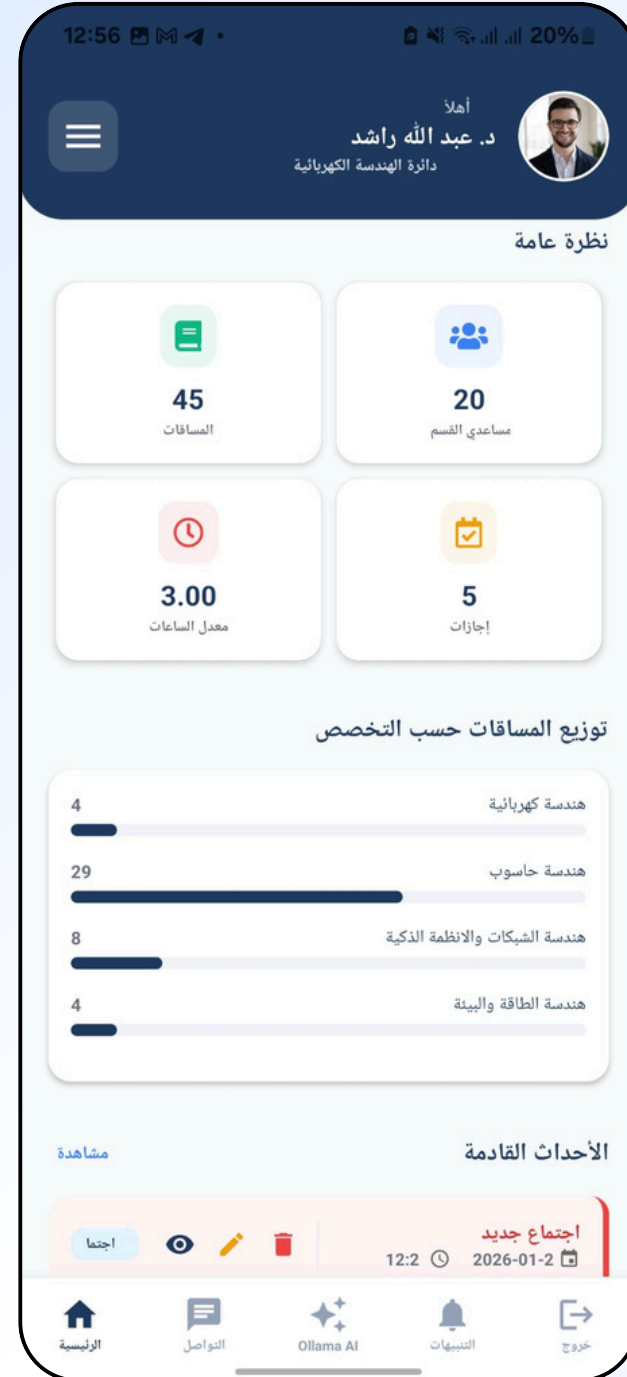


TA

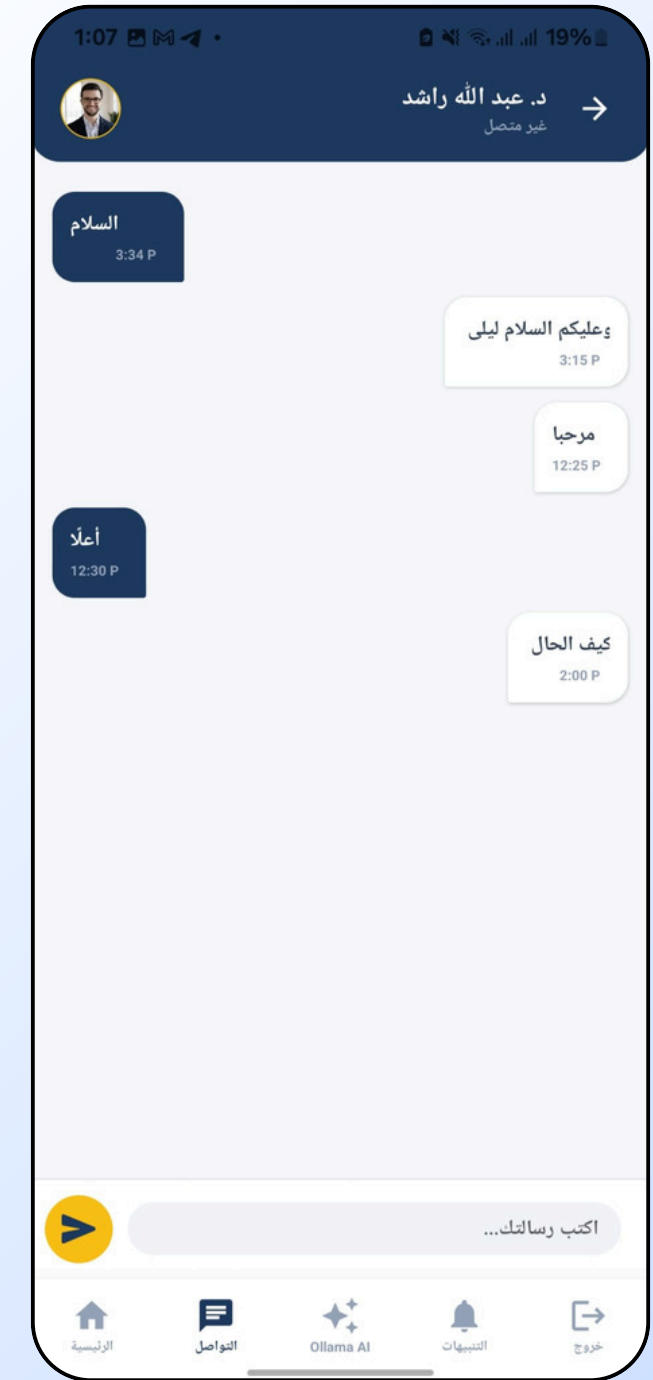
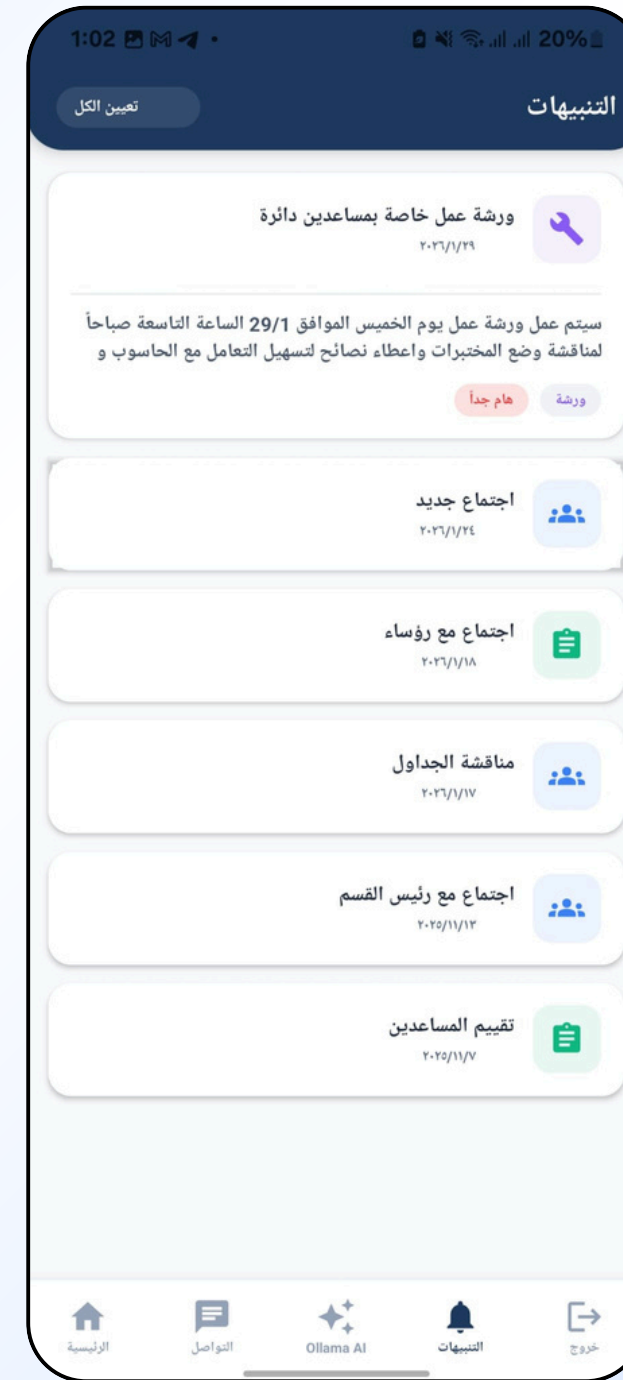
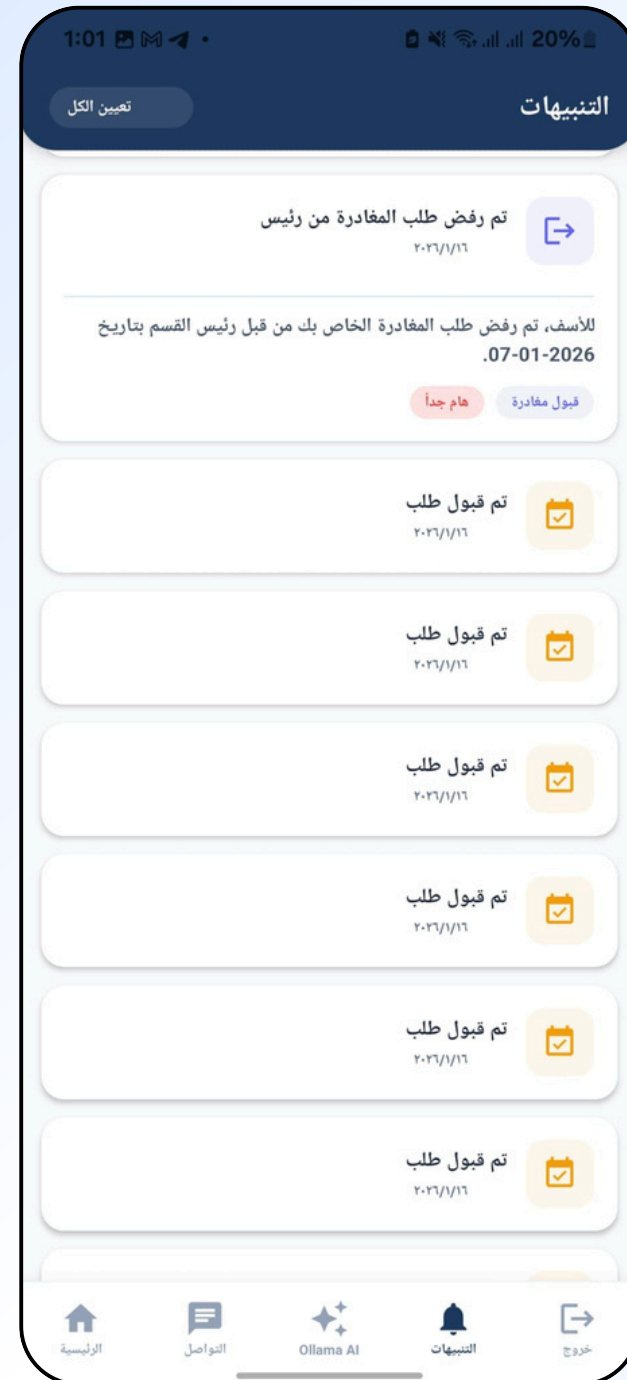
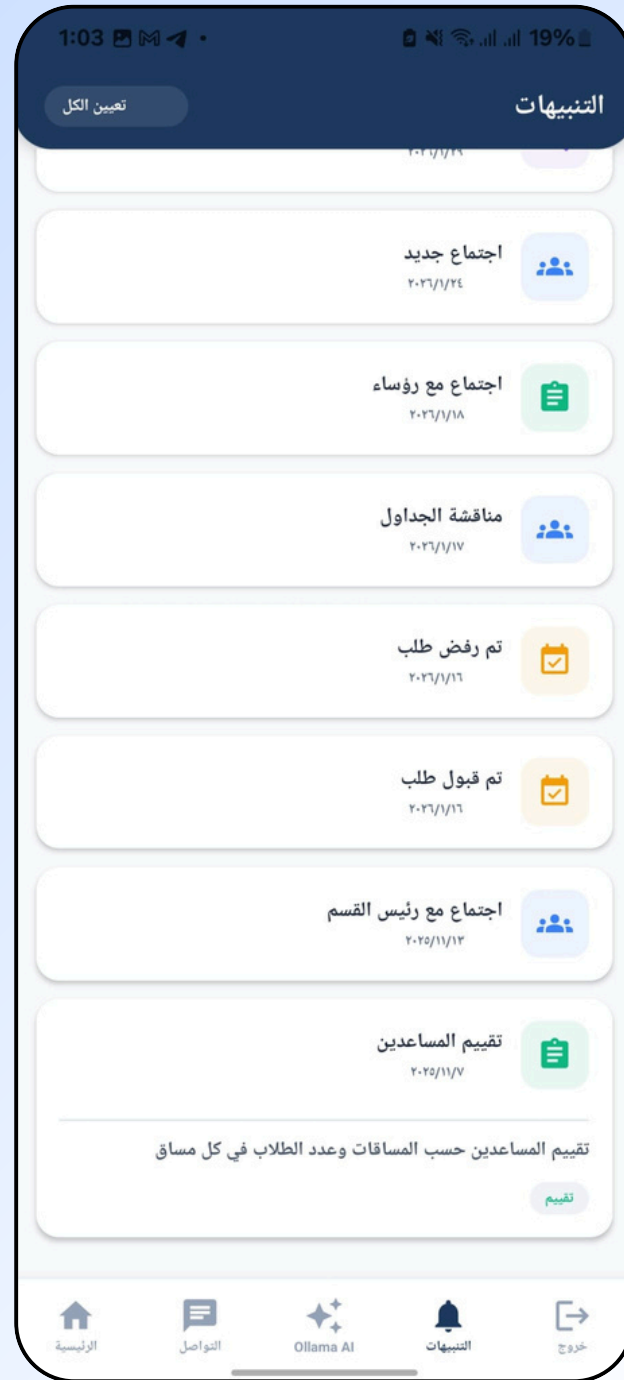
AI Performance Analysis



Users Dashboard



Notifications & Chatting System



Limitations

- 01** The accuracy of AI-based recommendations depends on the quality and completeness of the input data.
- 02** The current AI implementation relies on a local Ollama server. This requires the host server to have sufficient RAM and processing power.
- 03** Direct access to official university APIs for courses, sections, and faculty data was not available. therefore, a virtual API was developed to represent this information within the system.
- 04** Official workload calculation mechanisms were not accessible, which required implementing custom workload calculation logic based on available requirements and assumptions.

Future Work

- 01** Implement AI-driven forecasting to predict future TA requirements based on historical registration trends.
- 02** Transition to cloud-based LLMs (e.g., GPT-4 or Claude) for enhanced reasoning and performance, while maintaining a local fallback.
- 03** Generate comprehensive PDF/Excel reports for departmental reviews and accreditation purposes.
- 04** Integrate direct access to official university APIs for courses, sections, and faculty data once they become available, eliminating the need for the current virtual API.
- 05** Replace the custom workload calculation logic with officially approved workload calculation mechanisms to improve accuracy and alignment with university policies.



Thank You