

Graduation Projects

Academic Year

2022–2023

College of Computer Science
and Information Systems



مشاريع التخرج

العام الجامعي

1444–1445 هـ

كلية علوم الحاسب
ونظم المعلومات

These pages present the graduation projects completed by students of the College of Computer Science and Information Systems at Najran University in the academic year 1444–1445 AH (2022–2023).

The graduation project is the capstone of the Bachelor of Science in Computer Science. Over two consecutive courses, Graduation Project 1 and Graduation Project 2, student teams work under the supervision of a faculty member to define a problem, design and build a solution, and present it to an examination committee.

Each page presents one project: its aim, how it works, its main features and the technologies the team used, with an image taken from the team’s own documents. The texts are editorial summaries of each team’s final report and presentation, prepared by the Graduation Projects Unit.

تعرض هذه الصفحات مشاريع التخرج التي أنجزها طلاب وطالبات كلية علوم الحاسب ونظم المعلومات بجامعة نجران في العام الجامعي 1444-1445 هـ (2022-2023م).

يمثل مشروع التخرج الخبرة الختامية في برنامج البكالوريوس في علوم الحاسب؛ إذ يعمل الطلاب في فرق على مدى مقررین متتاليين، مشروع التخرج 1 ومشروع التخرج 2، بإشراف عضو من هيئة التدريس، فيحددون مشكلة ويصممون لها حلاً وينفذونه، ثم يعرضونه أمام لجنة مناقشة.

تعرض كل صفحة مشروعًا واحدًا: هدفه، وطريقة عمله، وأبرز خصائصه، والتقنيات التي استخدمها الفريق، مع صورة من وثائق الفريق نفسه. والنصوص ملخصات تحريرية للتقرير النهائي والعرض التقديمي لكل فريق، أعدتها وحدة مشاريع التخرج.

COLLEGE VISION

Leadership in Computing Education and Research and Active Contribution

COLLEGE MISSION

Preparing distinguished graduates through high-quality and continuously developed programs

DEPARTMENTS

الأقسام العلمية

Computer Science	علوم الحاسب
Information Systems	نظم المعلومات
Network and Communications Engineering	هندسة الشبكات والاتصالات

The year at a glance

العام في سطور

Projects by domain

Number of projects in each domain

Business, Commerce & Finance



Accessibility & Inclusion



Campus & University Services



Cybersecurity & Privacy



Government & Community Services



Health & Wellbeing



المشاريع حسب المجال

الأعمال والتجارة والمالية

الوصول الشامل والدمج

الخدمات الجامعية

الأمن السيبراني والخصوصية

الخدمات الحكومية والمجتمعية

الصحة والرفاه

Most-used technologies التقنيات الأكثر استخدامًا

Number of projects for each technology used in 2 or more projects

PHP



CSS



HTML



MySQL



JavaScript



Android Studio



Dart



Flutter



Python



XAMPP



7

Projects

المشاريع

29

Students

الطلاب والطالبات

7

Supervisors

المشرفون

6

Application domains

مجالات التطبيق

Department and campus

Number of projects

القسم والشرط

DEPARTMENT	FEMALE	MALE	TOTAL
Computer Science علوم الحاسب	6	1	7

Computer Science		علوم الحاسب		
01	Ainak	6	04	Intellectual Property Management System 9
02	AndroSight	7	05	Najran Discount Tracking App (Your Chance) 10
03	Animal Reporting	8	06	Organ Donation System 11
			07	Supporting Investment Projects 12

Computer Science

علوم الحاسب

7

Projects مشاريع

29

Students طالبًا وطالبة

Projects 01–07 · pages 6–12

المشاريع 01–07 · الصفحات 6–12

01

Ainak

Voice-controlled object finder for blind users

An Android app that finds a spoken object through the camera and tells blind and visually impaired users where it is.

People with visual impairment struggle to recognize their surroundings, which makes everyday activities harder to do independently. The team reviewed existing assistive systems, including wearable and Raspberry Pi based detectors and general apps such as Be My Eyes, and found that they do not let a user search for a specific object, track it and hear where it is.

The team built Ainak, an Android application written in Java with Arabic voice support. The user speaks the name of an object, the camera opens, and a TensorFlow object detection model trained on the COCO dataset looks for it. Text-to-speech then announces the object and its location. The team checked performance with Android Profiler, scanned the app with MobSF, which reported a score of 100/100, and ran a System Usability Scale test that averaged 92.5.

BUILT WITH

Java

Android Studio

TensorFlow Object Detection API

COCO dataset

Gradle

Android text-to-speech

TEAM

Reem Alsgour

Reem Al-Zamanan

Alanood Alkhalaf

Rawan Alsaad

SUPERVISOR

Dr. Adel Alsulaiman

SERVES

Blind and visually impaired people

6

Female Campus
Third Semester

Home screen with the microphone button for Arabic voice commands

KEY FEATURES

- ◆ Spoken commands to start and exit
- ◆ Real-time object detection through the camera
- ◆ Object tracking in the camera view
- ◆ Voice feedback announcing the object's location

02

AndroSight

Android app security analysis framework

A framework that combines existing Android analysis tools so ordinary users can scan APK files and read the results in Arabic.

Many Android users never scan their apps. Anti-malware tools often need technical knowledge or present their results in English only, and the team's own survey pointed to complexity and language as the main barriers. Existing analysis tools such as AndroPyTool target advanced users, and combining static and dynamic results means running several tools separately.

The team designed AndroSight as a single pipeline that filters APK files, queries VirusTotal, unpacks the app with Apktool and plans dynamic analysis with DroidBox. They built a working first version: a web page written in HTML, CSS, PHP and JavaScript accepts an APK upload and runs Python scripts that call VirusTotal, extract the permissions and clear the working folder. The VirusTotal verdict maps the number of flagging engines to safe, possibly dangerous or dangerous. The report lists dynamic analysis, a translated database and deeper manifest analysis as future work.

BUILT WITH

Python

PHP

JavaScript

HTML

CSS

VirusTotal

Apktool

02

Cybersecurity & Privacy

الأمن السيبراني والخصوصية

KEY FEATURES

- ◆ Upload an APK from a web page
- ◆ VirusTotal scan with a three-level risk verdict
- ◆ APK unpacking with Apktool for static analysis
- ◆ Permission extraction from the app manifest

TEAM

Abdullatif Ahmed
Saleh Hadi Al Qorad

Abdulmajeed Al Naseeb

SUPERVISOR

Dr. Hani Alshahrani

SERVES

General Android users

7

Male Campus
Third Semester

03

Animal Reporting

Mobile app for reporting predatory and homeless animals

A mobile app where residents report predatory or homeless animals on a map and environmental-security authorities verify and confirm each report.

Predatory and homeless animals in residential neighborhoods can spread disease and attack residents, and residents have no direct channel for telling the responsible authorities where these animals are. The project proposed an application that lets community members report such animals and see where they have been reported, in line with the Saudi Vision 2030 aim of protecting nature and biodiversity.

The team built Animal Reporting, a mobile app with a Flutter and Dart front end and a Django REST back end on an SQLite database. Users register, photograph an animal, mark its location on Google Maps, add notes on its condition and submit the report. Environmental-security staff review and act on each report. Administrators manage accounts and reports through the app and the Django admin site. The finished app maps all submitted reports and sends the reporter a confirmation message once a report is processed.

BUILT WITH

Flutter

Dart

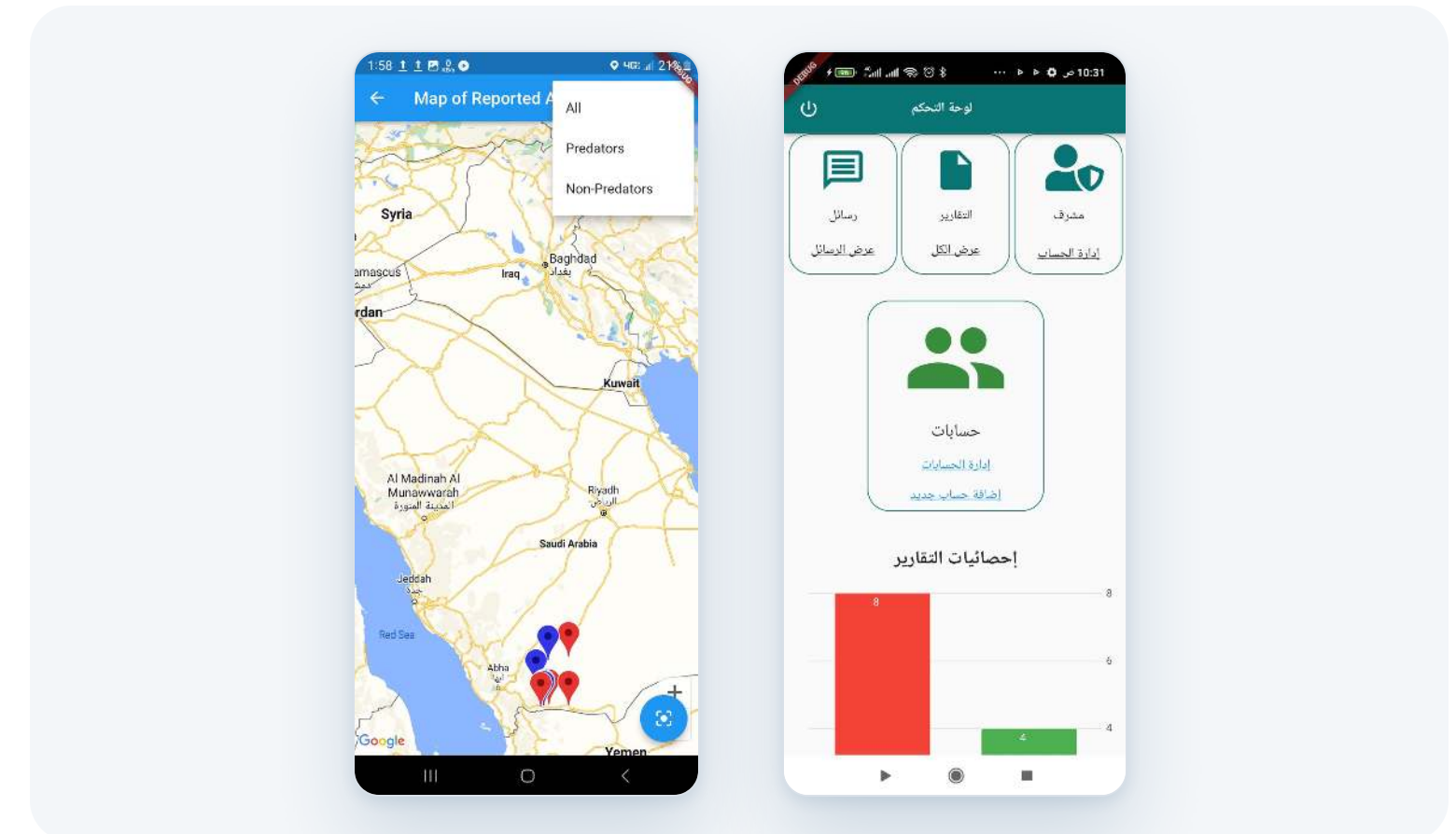
Django

Django REST Framework

Python

SQLite

Google Maps



- 1 Map of reported animals with predator and non-predator filter
- 2 Administrator dashboard with report statistics

KEY FEATURES

- ◆ Report an animal with photo, location and notes
- ◆ Map of reported predatory and homeless animals
- ◆ Confirmation messages from environmental-security staff
- ◆ Account and report management for administrators

TEAM

Bashayer Nasser
Raniya Hussain

Afrah Saleh
Nada Nasser

SUPERVISOR

Dr. Mohammad Alsulami

SERVES

Residents and environmental-
security authorities

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Female Campus
Third Semester

04

Intellectual Property Management System

نظام الملكية الفكرية

A bilingual web application where inventors and authors register patents and books with Najran University's Intellectual Property Office.

Najran University's Intellectual Property Office (IPO) protects and registers the work of university researchers and inventors. The team's report states that disclosures reached the office as paperwork, emails and in-person visits, a process the team set out to replace with a web application.

The team built the web application with Laravel, PHP and MySQL. Beneficiaries submit patent and book registration requests through online forms, and each request moves through statuses such as new, under review, approved, rejected and forwarded to a lawyer. Administrators, lawyers and beneficiaries have separate dashboards, add progress comments and attachments, and search the archive of registered work. The final presentation concludes that the system helps management follow new registrations.

BUILT WITH

PHP

Laravel

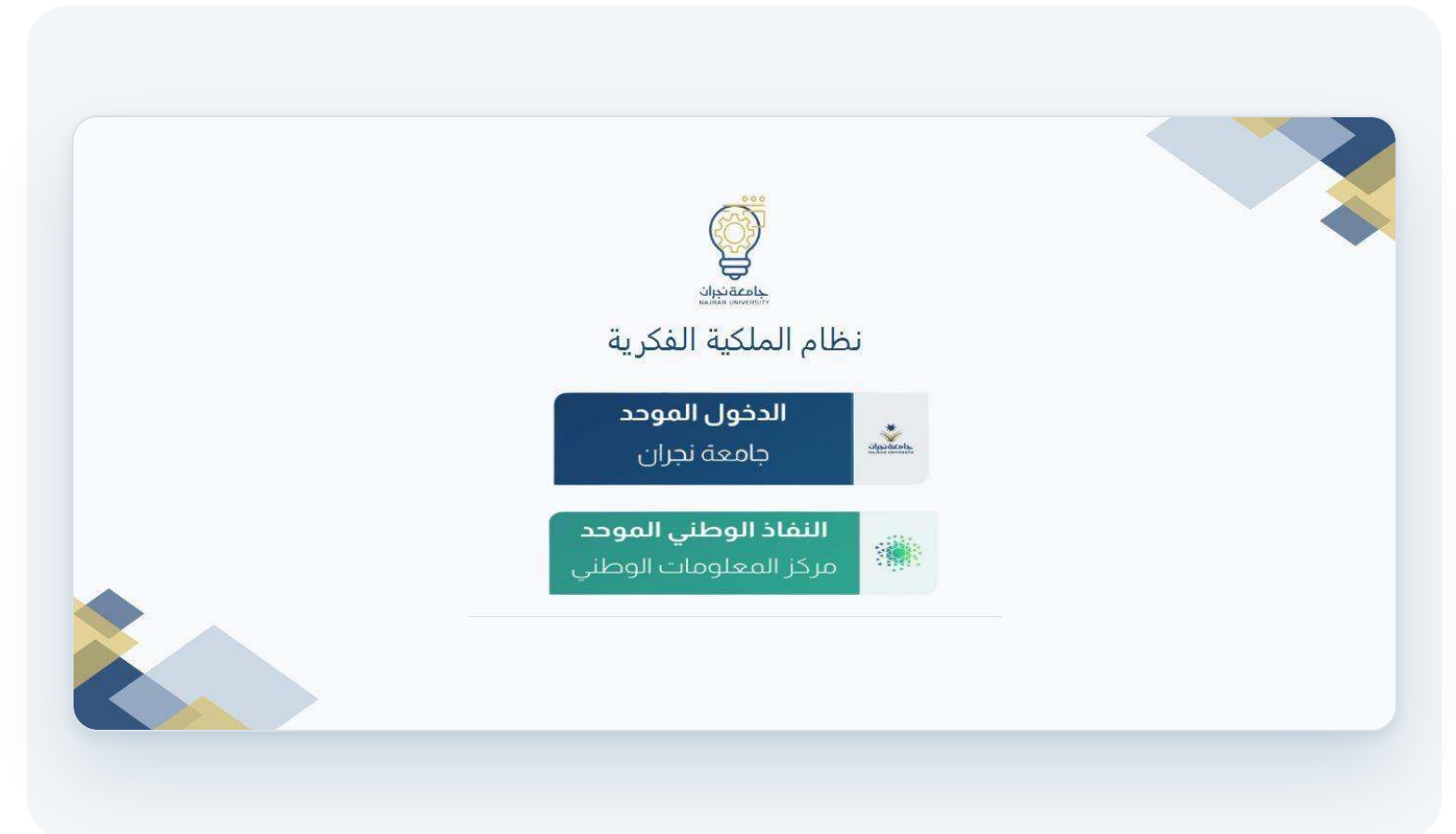
MySQL

Bootstrap

JavaScript

HTML/CSS

XAMPP



Login page of the Intellectual Property Management System

KEY FEATURES

- ◆ Online patent and book registration forms
- ◆ Request tracking from review to approval
- ◆ Role-based dashboards for admin, lawyer and beneficiary
- ◆ Searchable archive in Arabic and English

TEAM

Sharefah Mohammed
Atheer Assaf

Amani Mahdi
Afnan Husain

Modi Mohammed

SUPERVISOR

Dr. Abdullah Khanfor

SERVES

Inventors, authors and IPO staff

PARTNER

Najran University
Intellectual Property Office

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Female Campus
Third Semester

05

Najran Discount Tracking App (Your Chance)

A mobile app that shows Najran shoppers the discount codes and brochures of local stores, restaurants and pharmacies in one place.

Shoppers in the Najran region follow store deals, but many discounts are hard to find because stores are far away, marketing is limited and offers appear at unexpected times. Stores with offers, in turn, need a direct way to reach more customers.

The team built Your Chance, a Flutter mobile app written in Dart, with a PHP and MySQL back end run on XAMPP. Customers register, browse categories such as market, restaurant, pharmacy and supermarket, view discount codes and brochures, save favorites and rate the app. Business owners add and delete coupons and sub-categories, and administrators manage users, categories and the FAQ chatbot. The team added CAPTCHA verification at login and states that it guards against SQL injection. Testing was partial: the report documents an integration test of the login screen and lists the remaining testing as future work.

BUILT WITH

Flutter

Dart

PHP

MySQL

XAMPP

Android Studio

TEAM

Wajnah Al Mutyif
Muhra Al Harthi

Mahla Al Harthi
Ghaida Al Shahi

SUPERVISOR

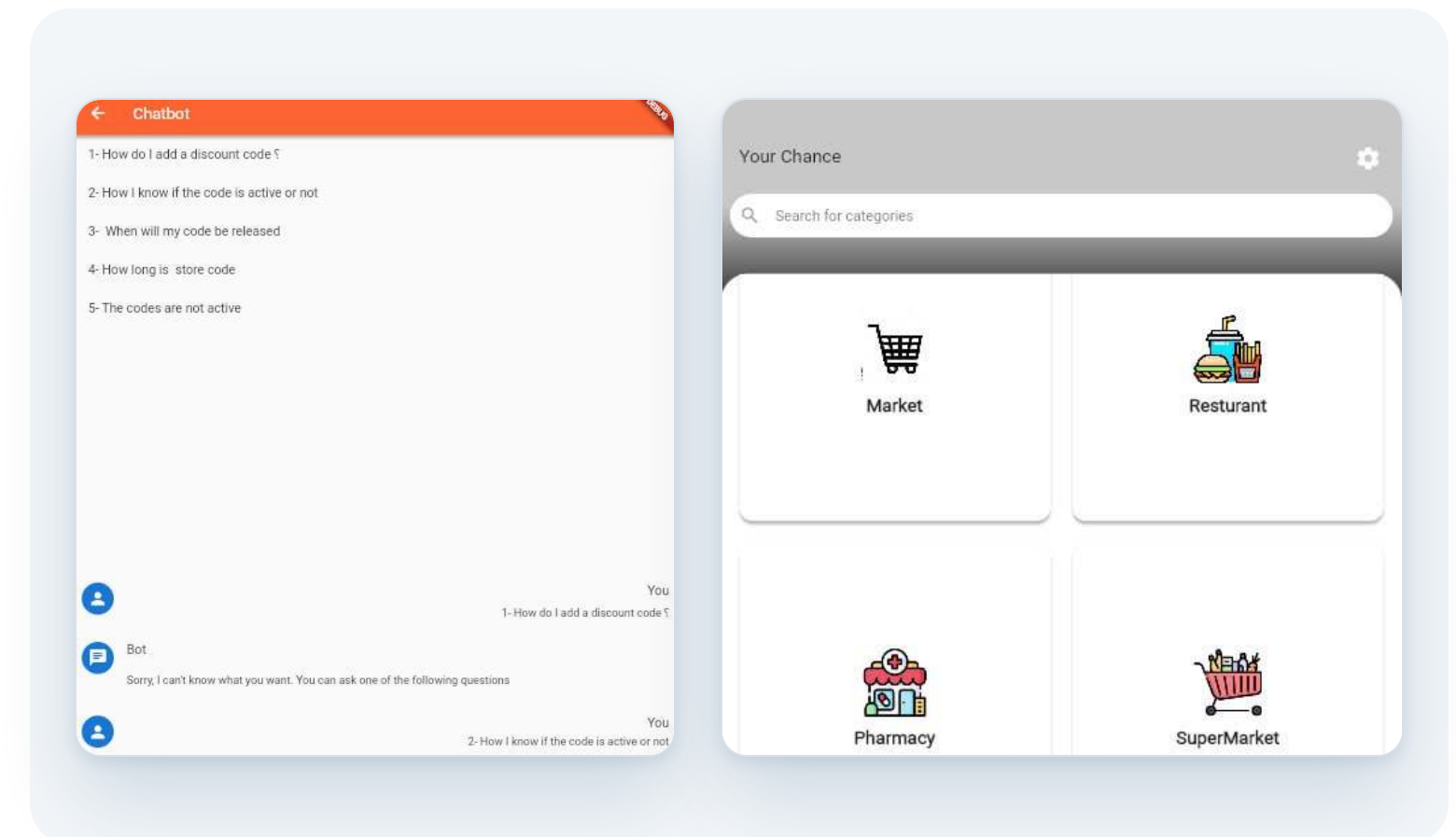
Dr. Mohammed Alshehri

SERVES

Najran shoppers and local
retail business owners

10

Female Campus
Third Semester



- 1 FAQ chatbot screen of the Your Chance app
- 2 Category screen: market, restaurant, pharmacy, supermarket

KEY FEATURES

- ◆ Discount codes and brochures by category
- ◆ Separate customer, business owner and admin roles
- ◆ FAQ chatbot managed by administrators
- ◆ Favorites and app rating

06

Organ Donation System

A web application where patients needing organs and willing donors register, and doctors or hospital staff manage their records.

Appeals for blood and organ donors circulate on social media, where people look for donors and spread posts on their own. The team found no official application that shows donors and patients on one platform and lets them communicate. To gauge awareness, the team ran a questionnaire answered by 130 people.

The team built a PHP and MySQL web application using HTML, CSS and JavaScript, developed in Visual Studio Code and run locally on WampServer. Patients register as organ recipients and donors register as donors, choosing blood type and organs. Patients can agree to let registered donors see their needs. An administrator role, held by a doctor or hospital staff member, manages patient and donor data. The team followed the waterfall model and tested the site step by step with gray-box testing while writing the code. The final presentation describes the site as still under testing.

BUILT WITH

PHP

MySQL

HTML

CSS

JavaScript

WampServer

Visual Studio Code

TEAM

Amjad Ali Alghanem
Taif Mahdi Alqannass

Abeer Ali Alsaiari
Dalal Ahmed Alyami

SUPERVISOR

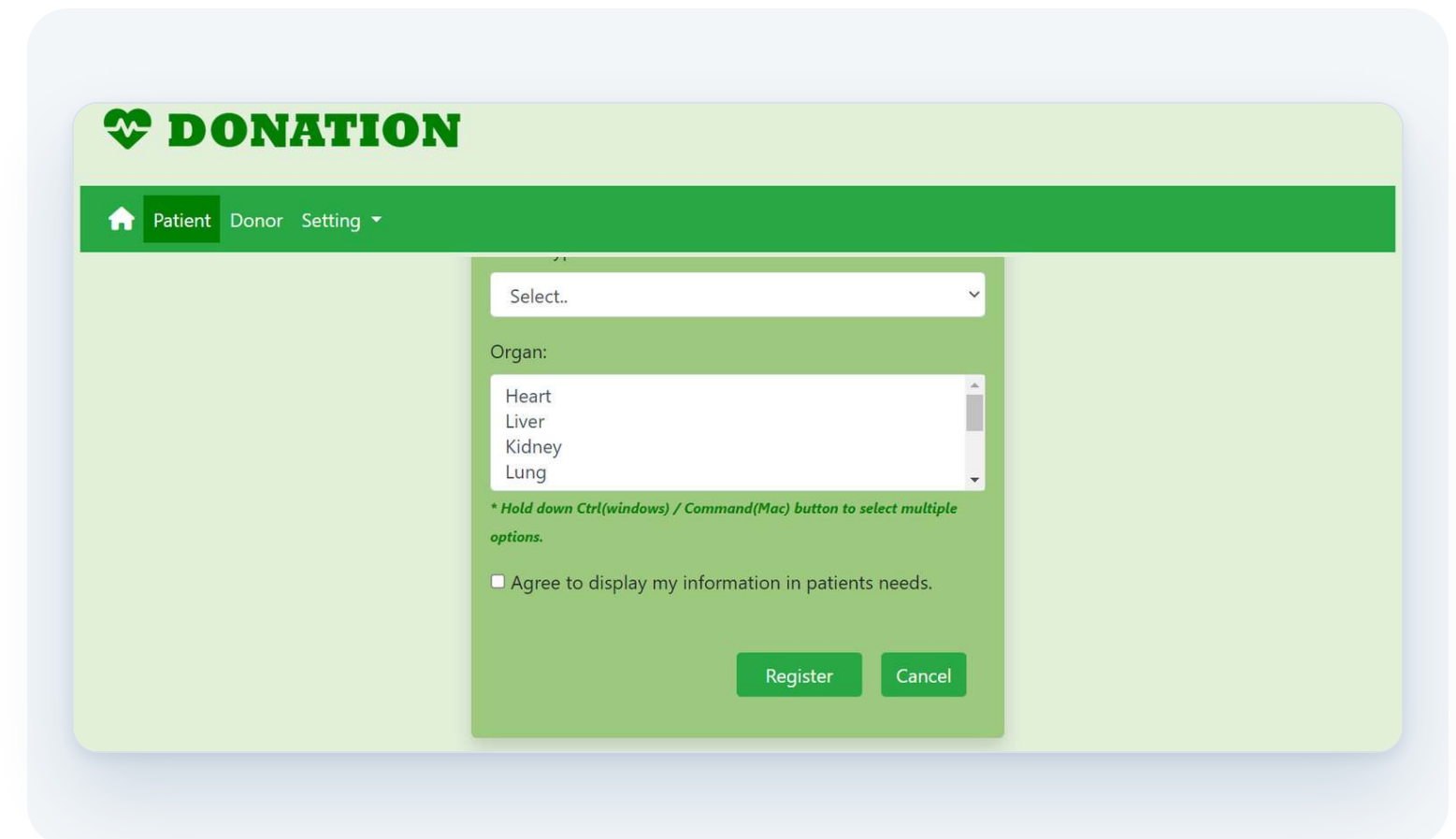
Dr. Adel Rajab

SERVES

Patients, donors, doctors
and hospital staff

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Female Campus
Third Semester



The screenshot shows a web application titled "DONATION" with a green header. Below the header is a navigation bar with "Patient", "Donor", and "Setting" options. The main content area displays a registration form for a patient. The form includes a "Select.." dropdown menu, an "Organ:" section with a list of organs (Heart, Liver, Kidney, Lung), a note about holding down Ctrl/Command for multiple selections, a checkbox for "Agree to display my information in patients needs.", and "Register" and "Cancel" buttons.

Patient registration form with organ selection and consent to display needs

KEY FEATURES

- ◆ Patient registration as organ recipient
- ◆ Donor registration with blood type and organs
- ◆ Patient needs shown to donors, with consent
- ◆ Administrator management of patient and donor data

07

Supporting Investment Projects

Social network linking idea owners and investors

A social-network website designed to connect people who have business ideas with investors who can fund them and become partners.

Many people have investment ideas but lack money, while investors with capital lack ideas and find it hard to locate reliable partners. The team compared four existing investment platforms and found that each offers only part of what is needed, such as presenting ideas, forming partnerships or private chat.

The team designed a social-network website that links idea owners with investors. Owners register, present, update and delete ideas and can submit an idea to a chosen investor. Investors, who must hold a commercial register, search for ideas, book them, chat with owners and request partnerships. An administrator approves or rejects ideas and manages users and privileges. The team modeled the system with use-case, activity, sequence, class and ER diagrams, then built part of it as a website and presented test cases for login, sign-up and idea reservation.

BUILT WITH

PHP

MySQL

HTML

CSS

TEAM

Bashir Hadi Mahdi
Raznah Khorssan Salem

Ftoon Mohammed Yahya
Reem Talea Alqasimi

Manar Moghadi Al-Wadei

SUPERVISOR

Dr. Abdulwahab Alazeb

SERVES

Idea owners and
investors in Saudi Arabia

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Female Campus
Third Semester

07

Business, Commerce & Finance
الأعمال والتجارة والمالية

KEY FEATURES

- ◆ Idea presentation by owners
- ◆ Private chat between owner and investor
- ◆ Partnership requests and confirmation
- ◆ Administrator approval of ideas

Project supervisors

المشرفون على المشاريع

SUPERVISOR	المشرف	PROJECTS	المشاريع
Dr. Abdullah Khanfor		04	
Dr. Abdulwahab Alazeb		07	
Dr. Adel Alsulaiman		01	

SUPERVISOR	المشرف	PROJECTS	المشاريع
Dr. Adel Rajab		06	
Dr. Hani Alshahrani		02	

SUPERVISOR	المشرف	PROJECTS	المشاريع
Dr. Mohammad Alsulami		03	
Dr. Mohammed Alshehri		05	



تعليمنا يُحقق الرؤية

College of Computer Science and Information Systems
كلية علوم الحاسب ونظم المعلومات

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