



Course Name:		Capstone Project
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Section:		101
No.	Student ID	Student Name
1	392902969	Mohammed Alhammad
2	441101144	Salem Almahri
3	401902187	Aseeel Alghamdi
4	431100087	Sulaiman Alfuhaid
5	421900615	Ibraheem Alnahdi
6	401900570	Hatem alqahtani
Group:		3
Supervised by:		ABDULRAHMAN BANDAR ALHARBI

Agenda

- Application Architecture
- Network Architecture
- System Controls
- User Interface Design





Application Architecture



Application Architecture

Hafez is a web-based system accessible through any browser or device via the internet. It is built using a **three-tier client-server architecture** consisting of:

- **1. View Layer** The user interface, developed with HTML, CSS, and JavaScript, which allows users to interact with the system.
- **2. Business Layer** Handles data processing using web and application servers, secured with HTTPS and a cloud firewall.
- **3. Data Layer** Manages data storage and processing using SQL and PHP on a database server.
- The system leverages **cloud computing**, providing enhanced accessibility, scalability, reliability, and security. Unlike traditional hosting, it uses a network of connected physical and virtual cloud servers, which increases performance and cost efficiency.

Network Architecture



Network Architecture

The **network architecture** of the Hafez system illustrates the interaction between its three layers: the **view layer**, **application layer**, and **database layer**. It supports various devices (phones, tablets, laptops, desktops) and browsers (e.g., Chrome, Safari), ensuring accessibility via the internet.

- •A cloud firewall (provided by GoDaddy) protects against cyber threats like hacking and malware.
- •The web server handles user requests and delivers content (HTML, images, etc.).
- •The **application server**, positioned between the web and database servers, manages logic, security, and communication.
- •The database server securely stores data and restricts access to authorized users only. It uses MySQL and is hosted on the cloud for scalability and flexibility.

All servers operate in a **cloud environment**, improving performance, scalability, and cost-efficiency.

System security and controls



The Hafez system includes two main types of controls to protect data and ensure secure operations: **Integrity Controls** and **Security Controls**.

Integrity Controls

These ensure accurate data input/output and protect against errors or unauthorized access.

1- Input Controls

- value limit: Reject unreasonable input values (e.g., too long passwords.).
- Completeness: Ensures all required fields are filled before proceeding.
- -Data validation: validated identifiers like country codes.



System Controls

2- Transaction Logging

Records database actions to detect fraud and support recovery from errors.

3- Complex Update Control

Prevents issues from simultaneous data updates or multi-step transactions.

4- Backup Recovery

Creates data copies to restore information after failures or attacks.

5- Output Control

Ensures outputs (e.g., reports) are correct, timely, and well-formatted, including the Hafez logo.



System Controls

Security Controls

These protect the system from external threats and ensure a safe user experience.

1.1- Access Controls

- Authentication: Checks email, password, and user type.
- Authorization: Defines roles (Admin, Vendor,

Customer) with specific access rights.

2- Secure Transactions

- Uses SSL encryption (HTTPS) to protect data during transmission.
- Implements session timeouts to log out inactive users.

3-Data Encryption

Uses hashing to secure sensitive data (like passwords), making it unreadable to unauthorized users.



System Controls



User Interface Design





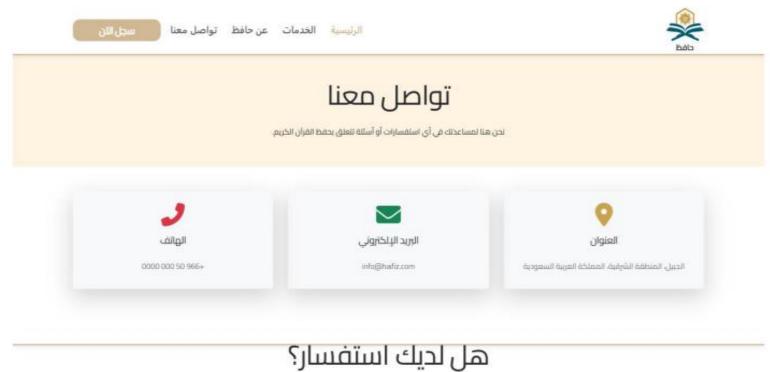
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0000 000 50 966+ 🤳



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Thank you

