

Registration No: Ehmaan Shafgat

Full Name: 03-3-1-013-2022

Problem 1) Refer to your semester project as outlined below:

What are the necessary security features of your semester project? After identifying the security features of your project, prepare a list of at least 07 security features and write a brief description about each of them?

Security Features:

Authentication

Description: Ensures only authorized users (admin, employees, customers) can access the system based on their roles.

Implementation:

Role-based access control (RBAC) to restrict unauthorized actions (e.g., only admins can add artworks).

Authorization

Description: Only registered user can access website.

Implementation:

Login system with username & password.

Session-based authentication to track logged-in users.

Password Encryption (Hashing)

Description: Protects user passwords from being exposed in case of a database breach.

Implementation:

Passwords stored as hashed values (**SHA-256**)

SQL Injection Prevention

Description: Protects against malicious SQL queries that could manipulate or steal data.

Implementation:

Parameterized queries: (SqlCommand.Parameters) instead of string concatenation.

Stored procedures where applicable.

Session Management & Timeout

Description: Prevents unauthorized access if a user leaves their session open.

Implementation:

Session expiration (e.g., 30 minutes of inactivity).

Secure session tokens (no predictable session IDs).

Secure File Upload Handling

Description: Prevents malicious file uploads (e.g., .exe, .php files disguised as images).

Implementation:

Restrict file extensions (only .jpg, .png, .gif).