# Program Documentation

## 1. Introduction

This document describes the internal structure and implementation of the web application developed as part of the project.
 The application is written mainly in PHP, uses MySQL as a database, and follows a simple procedural architecture with shared helper functions.

The source code is documented using PHPDoc/Doxygen comments, from which the API documentation can be automatically generated.

## 2. Technologies Used

- **Backend:** PHP

- **Database:** MySQL

- **Frontend:** HTML5, CSS3, JavaScript

- **Documentation:** Doxygen (PHPDoc style comments)

- **Security:** CSRF tokens, password hashing (password_hash)

## 3. Project Structure

```
/connection.php      Database connection
/functions.php       Shared helper functions
/login.php           User authentication
/signup.php          User registration
/logout.php          Logout handler
/profile.php         User profile & avatar upload
/forum.php           Forum with posts and comments
/admin_users.php     Admin user management
/tests/              Tests and results logic
```

## 4. Authentication and Authorization

- User authentication is handled via PHP sessions.

- Function check_login() verifies user login state.

- Admin-only pages use require_admin() to restrict access.

- User roles are stored in the database (role column).

## 5. Security Measures

- **CSRF protection:**
  Every form includes a CSRF token stored in the session and validated on submission.

- **Password security:**
  Passwords are hashed using password_hash() and verified with password_verify().

- **SQL Injection prevention:**
  Database queries use prepared statements (mysqli_prepare).

- **XSS protection:**
  User content is escaped on output using htmlspecialchars().

## 6. Forum Module

- Logged-in users can create forum posts.

- Admin users can add comments to posts.

- Posts and comments are stored in separate database tables.

- Content is stored raw and escaped only during output.

## 7. Test System

- Tests consist of questions and answers stored in the database.

- Each answer contributes to a result_key.

- After submission, answers are evaluated and the best matching result is selected.

- Results can redirect to a custom URL or to an internal result page.

# 8. Documentation Generation

The project is documented using Doxygen.
 All PHP files contain file-level and block-level documentation comments.

Generated documentation includes:

- File descriptions

- Function descriptions

- Parameter and return value descriptions