How to set up Apache

1. Install apache link [https://httpd.apache.org/docs/2.4/configuring.html]

2. install httpd.exe -k install

3. Make sure Apache is running by looking up: http://localhost/

4. Create directory in htdocs

5. Create .php files and using localhost link like this: [http://localhost/CyberSecurity_Final/login.php]

Directory structure

- Root file: "C:\Users\emros\Apache24\Apache24\htdocs\CyberSecurity_Final"

/Classes/ - Course Management

Organized by subject areas with course-specific resources.

- Classes/
  ├── Networking/
  │   ├── NET101/ # Networking 101 course
  │   │   ├── Assignments/ # Course assignments
  │   │   ├── FacultyNotes/ # Instructor notes
  │   │   └── LectureNotes/ # Lecture materials
  │   └── NET202/ # Advanced Networking course
  │   ├── Assignments/
  │   ├── FacultyNotes/
  │   └── LectureNotes/
  │
  ├── People/
  │   ├── Faculty/ # Faculty member information
  │   └── Students/ # Student information
  │
  ├── Programming/
  │   ├── PRO101/ # Programming 101 course
  │   │   ├── Assignments/
  │   │   ├── FacultyNotes/
  │   │   └── LectureNotes/
  │   └── PRO202/ # Advanced Programming course
  │   ├── Assignments/
  │   ├── FacultyNotes/
  │   └── LectureNotes/
  │

```
├── Programming_A/
│   ├── Assignments/ # Programming alternative course
│   └── FacultyNotes/
│
└── Security/
    ├── SEC101/ # Cybersecurity 101 course
    │   ├── Assignments/
    │   ├── FacultyNotes/
    │   └── LectureNotes/
    └── SEC202/ # Advanced Cybersecurity course
        ├── Assignments/
        ├── FacultyNotes/
        └── LectureNotes/
```

Lib - Library & Dependencies

Python packages and site-packages directory for project dependencies.

```
Lib/
├── site-packages/ # Python installed packages
│   └── pip/ # Python package manager
│   ├── _internal/ # Internal pip modules
│   ├── cli/ # Command-line interface
│   ├── commands/ # Pip commands
│   ├── distributions/ # Distribution handling
│   ├── index/ # Index management
│   ├── locations/ # Path configurations
│   ├── metadata/ # Package metadata
│   ├── models/ # Data models
│   ├── network/ # Network operations
│   ├── operations/ # Package operations
│   ├── req/ # Requirements handling
│   ├── resolution/ # Dependency resolution
│   ├── utils/ # Utility functions
│   ├── vcs/ # Version control systems
│   └── _vendor/ # Vendored dependencies
└── Scripts/
├── pip.exe # Pip executable
├── pip3.exe # Pip 3 executable
└── pip3.14.exe # Pip 3.14 executable
```

File Organization

Each course section directory has:

- **Assignments/** - Course assignments and projects
- **FacultyNotes/** - Instructor-created study materials
- **LectureNotes/** - Lecture slides and notes

People [groups]

- **Faculty/**: Faculty member profiles and information
- **Students/**: Student profiles and enrollment data
- **Public/**: Accessable to anyone

Permissions and groups:

- Group 1: Students [students.php] only have assess to things based on their student credentials (They have Read & Execute access to classes they are added to. If they have access to the class, they have read, execute and write permissions)
- Group 2: Teachers [teacher.php] only have assess to things based on their teacher credentials (They have Full permissions)
- Group 3: Public [public.php] only have access to what people with no credentials can see (Only have read and execute permissions)

Security:

Authentication & passwords:

- `hashing.php` and `users_hashed.json` Keep passcodes safe & hidden
- `login.php` / `Logout.php` allows for a fixed begining and end of a session [`session_regenerate_id()`]
- Correct role, password and username is required to access specific directories and interact with them.

Other information

1. User Roles
   Student: See THEIR classes, see/submit assignments, see lecture notes
   Teacher: See all classes, add students to classes, upload and see assignments/lecture notes/faculty notes
   Other: View public files

2. Steps to Complete
   Set up Apache with PHP and pip
   Make folders
   "C:\Users\emros\Apache24\Apache24\htdocs\CyberSecurity_Final\Classes"
   "C:\Users\emros\Apache24\Apache24\htdocs\CyberSecurity_Final\Classes\Networking"
   "C:\Users\emros\Apache24\Apache24\htdocs\CyberSecurity_Final\Classes\Programming"
   "C:\Users\emros\Apache24\Apache24\htdocs\CyberSecurity_Final\Classes\Security"
   ** Section folders→ in subfolders: Assignments, Faculty Notes, Lecture Notes

3. Groups

- see Stripling_Web_Final.pdf
- see Stripling_Web_Final(1).pdf

4. Authentication & Authorization & Role-Based Access Control (RBAC)

Hashing implemented

User name + password + role → stored in .json file [sqlite3 is something I wanted to use]

Access to student.php or teacher.php is based on role in .json file

Faculty: 'Teacher.php' special version of 'assigment.php', 'upload.php', have to add students to classes before they can see. Can upload and see faculty notes on a class.

All based on a specific Section of a class.

Student: Can see the classes the teacher added them to. Can see + upload assignments for classes they've been added to. Can see lecture notes for classes they've been added to

Others: Just portal with public uploads that don't need a username or passcode

Used if-else statements to ensure role specific access for each session.

 5. Functional Requirements

Login: see hashing.php, login.php, users.json, users_hashed.json, Logout.php

Role based nav: see student.php, teacher.php, public.php

File Upload & Download: See upload.php, assignment.php, faculty_notes.php, lecture_notes.php, student_upload.php

File Listing: Students can see classes based on: teachers adding to Classes.php and see_classes.php, class_students.json

Security Measures: permissions by group. Permission by role. URL hidden

5. Extra credit?

Hashing through hashing.php → user.json → output of users_hashed.json

Uploads/downloads in folders of directory → uploads shown

Search: All tabs have searching by class and section

All sections have searching based on assignments, lecture notes or faculty notes based on access.