

# User Authentication and Authorization Module Outline

## 1. Authentication

### 1. Registration

- User input validation
- Email verification
- Password policies

### 2. Login

- Username/password authentication
- Multi-factor authentication (optional)

### 3. Session Management

- Token/session generation
- Session timeout and renewal

### 4. Password Recovery

- Forgot password workflow
- Password reset token/email

### 5. Logout

## 2. Authorization

### 1. User Roles

- Role creation and management
- Role assignment to users

### 2. Permissions

- Permission definitions
- Mapping permissions to roles

### 3. Access Control

- Route/endpoint protection
- Resource-level restrictions

## 3. Security Features

- Input validation and sanitization
- Password encryption and storage
- Account lockout on failed attempts
- Audit logging of authentication events

## 4. Administration

- User account management
- Role and permission audits
- Activity monitoring

