**SDLC for the Application**

**1. Requirements Gathering**

* **Objective:** Develop a leave and permission management system.
* **Stakeholders:** HR team, employees, and IT admins.
* **Functional Requirements:**
  + Admin and employee login.
  + CRUD operations for admins and employees.
  + Request submission and management.
* **Non-functional Requirements:**
  + Scalability to handle 100+ records.
  + Secure authentication.

**2. System Design**

* **Structs:**
  + **Admin:** Holds admin ID and password.
  + **Employee:** Contains personal and professional details.
  + **Request:** Captures leave/permission requests.
* **Flow Diagram:**
  + Login -> Menu -> Operations (CRUD or Requests).
  + Requests -> Status Update -> Notifications.

**3. Implementation**

* **Language:** C.
* **Key Modules:**
  + Authentication: authenticate\_admin, authenticate\_employee.
  + Admin Management: add\_admin, remove\_admin, etc.
  + Employee Management: add\_employee, update\_employee, etc.
  + Request Handling: submit\_request, manage\_request.

**4. Testing**

* **Unit Testing:** Validate individual functions (e.g., add\_admin, submit\_request).
* **Integration Testing:** Test workflows (e.g., employee login -> submit request -> admin approves).
* **Edge Cases:**
  + Adding beyond capacity.
  + Invalid credentials.
  + Requests for non-existent employees.

**5. Deployment and Maintenance**

* **Deployment:**
  + Compile the C program and deploy it as an executable.
  + Provide user documentation.
* **Maintenance:**
  + Address user feedback.
  + Regularly update records.
  + Monitor system performance.