The application is a multiuser application so it consists of 3 types of users which are patient, personal and administrator. Because of this, the application will provide different interfaces for each user type.

First, administrator will login to the system with the belonging interface, and do admin's own duties about the system such as adding, updating, editing, deleting etc. By the way, registration is not needed for the administrator via the system's website, because administrator's information will be entered to the database manually in the beginning of the system and administrator is the authority who will access database directly. The registration process of personnel which is another type of user will be done by administrator too. Personal is responsible with the registration of doctors. As a summary, administrator does not need to register, because he/she is initially registered to the database and system. Administrator makes the registration of personals, and personals make the registration of doctors. Every registration process included personnel registration done by administrator, will be done with system user interfaces. The system will save all information to the database and in login processes again the system will use them by fetching data from database. The information from database will be used both confirmation and system usage for users. All of the user types have to login to the system with their personal id as username and password.

After these steps, the system will be ready for patient appointment. Normal users such as patients will register to the application, and system will add a new user to the database. Then, patients will login to the system with their information such as patient number and password. During login procedure, data from the user database table will be fetched and compared with the data entered by the user. Since this operation requires a read-only access to the database, it can be performed from different points of access simultaneously.

During registration, the filling of the fields requires no database access, whereas finalizing the process requires data to be written to the database which requires read-write access to the database. In that case, necessary fields of the database will be blocked and simultaneous access from multiple users will be denied.

For some situation like updating or deleting information requires updating one of the tables in the database in its finalization phase and therefore must be handled with greater care since multiple users may be cause to update the table at the same time. This will also be prevented by blocking.

Finally, viewing of the information or lists requires again a read-only access to the database. Therefore, multiple user access imposes no problems and new restrictions.

Lastly, the usernames and passwords for users will be stored in user table. No one else accept administrator can access this information.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Actors/  Classes | User | Authentication | Appointment | Policinic |  |
| Admin | <<create>>  listPersonnel()  UpdatePersonnel()  AddPersonnel()  listDoctor()  UpdateDoctor()  AddDoctor()  listPolicinic()  UpdatePolicinic()  AddPolicinic() | Login()  logout() |  | ListPolicinic ()  updatepolicinic()  addpolicinic () |  |
| Personnel | <<create>>  EditAnAppointment()  ScheduleDoctor()  EnterLabResult()  EditLabResult() | Login()  logout()  resetPwd() | EditApp()  saveApp()  setDate() |  |  |
| Patient | <<create>>  createPatient()  updateInfo() | register()  login()  logout()  resetPwd() | bookApp()  listApp()  cancelApp()  ViewLabRe sult() |  |  |

**3.6 GLOBAL SOFTWARE CONTROL tamamlandı**

External Control Flow (Between Subsystems): Control flow of the LHS (Life Hospital System) has the simple characteristic defined by web applications. Web server processes requests submission of data from the user. Since the system is multiple users, concurrent runs may happen. However, control flow of a single user’s has a predefined shape. After the login step, the system has a tree-shaped web page structure formed of links or buttons.

Concurrent Control: Since the application is web based, all subsystems and components can run concurrently for different users in the application.

Internal Control (Within a Single Process): Process control will be implemented by the designed forms on the web. The system is based on the request page - show page structure. This makes the designed procedures simple and mostly linear. However, there can be procedure calls to other subsystems or current subsystem. Threads or multiple processes for a process can be needed.The system uses a database, so the response time from the database should minimize too.

User Interface: The user interface of the system will be done through web pages. Control of next step is up to the user. In addition to this, the flow is implemented within the web page. Most of the subsystems have a different web page, thus they are regarded as having different interfaces. Due to the event driven design of the system, subsystems cannot be thought to have their own event loop. However, the events are controlled by the web pages and are considered to form a global event system.

**3.7 BOUNDARY CONDITIONS**

3.7.1 Initialization

3.7.1.1 Dynamic Model of the System Startup

For the system to start working properly the system should be installed on the web server and the database should be installed on the Data Server. The login subsystem has to start functioning before the others, which may be started concurrently. Since they all request service from the user subsystem, it will be enough if the login and user subsystem is started before the others, both in the case of installation and after backups.

3.7.1.2 Description of Data Accessed at Startup

Since the system has operations related with user information’s, these should be gathered at the startup. All the subsystems except the users’ subsystem need to access information about the users, which makes it necessary for the user tables to be available at startup. This is particularly important to keep the response time shorter.

3.7.1.3 User Interface at Startup

Startup requires the web pages to be displayed on internet for all types of users. They will have the option of registration, modification of profile, logout etc. using the links and buttons on these pages.

3.7.1.4 Presentation of System to the User

The system is presented to the user through web pages which are categorized in two groups. First the pages that can be visited by patients will be reached through following the links from the entrance page of the system.

The program behind the web pages will all be transparent to the patients, who will know nothing about the internal working of the application while performing the necessary operations, such as registration, login, logout and modification of information. Patients will use the objects on the web page, such as button, combo box, dropdown box, single or multiline entry field in order to enter necessary information which will later be processed. The second group is the personnel side of the program. The login page of the personals will be reached through specifying the corresponding URL from the web browser and the next pages that can be visited by the personals will be reached through following the links from the entrance page after login process. Similar to that in the patient side, personals will not have the access to the whole program but simply use the web pages for performing necessary operations.

3.7.2 Termination

The application is designed to be worked online all the time without interruptions from the internet. Termination of one or more of the subsystems or the whole application is not anticipated except in the case of taking backup. Backups will be taken at the time when the user access is statically at its lowest and downtime will not damage the user satisfaction. Therefore, the exact time of backup taking will be performed after the first statistics are taken following the opening of the system's web site on the internet.

User will be informed about the termination in the case of backups in advance and interactions with the web site will be banned by replacing the web pages with those that give information about the expected downtime. After letting some time for the current processes to finish, the system will be terminated as a whole. Still, no termination for single subsystem is possible.

# Subsystem Services

User Subsystem:Provides services for users(doctor,patient,personnel and admin).Users access main page,login page and etc.Also provides to register of patient.

Database Subsystem:Database sent different information according to user’s request.İnformations can be updatable on database.

Book an appointment Subsystem:This subsytem provides to get an appointment according to their preferences and needs.

Admin Subsystem:Provides admin operaions

Personnel Subsystem:Provides personnel operaions.

Doctor Subsystem:Provides doctor operaions