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Modern methods of information exchange in polyclinic conditions

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ABSTRACT

The purpose of this study is to develop an application in the field of medicine based on the perspective of patients in polyclinics of the Republic of Uzbekistan. In the medical field, the software development process has been ongoing since technology has partnered with it. Therefore, the author decided to develop two programs. One is a mobile app and the other is a web app. Two programs for patients.

This research is divided into four stages of work. First, it examines the stage of requirements for applications with local polyclinics. Second, determine the program design based on the results of the requirements phase. Third, the user design and programming code are applied to the software prototypes, and there is also a testing phase to find some bugs. At the end of the phase, the final apps will be released and the final version will be the testing phase to make sure the apps work well.

The results of the study show that applications perform well with features that match the stage of requirements. The presence of applications can be changed enough to improve functionality.

Keywords:	Polyclinics, programs, patients, medical diagnosis, technology, Rapid application development (RAD)

1. Methodology

1. Mobile application development methodology uses rapid application development (RAD). Agile application development is a form of development designed to achieve faster development and better results than the traditional life cycle.
   According to James Martin's approach, there are four stages of RAD, namely:
2. Requirements planning
   In this phase, the stakeholders of this project discuss and agree on the business needs, project scope, constraints and system requirements. It ends when the team agrees on key issues and receives permission from management to proceed.
3. Special design
   Users interact with system analysts to develop models and prototypes that represent all system processes, inputs, and outputs. User design is an ongoing interactive process that involves understanding, modifying, and ultimately validating a workable system model.
4. 4. Construction stage
   This phase focuses on curriculum and application. However, users can suggest changes or improvements while the reports are being developed. At this

stage, a prototype is created, but it is modified in subsequent designs until the final fit of the working system is achieved.

5. Switching stage
   This phase is the final phase, which includes data transformation, testing, migration to the new system, and user training. Compared to traditional methods, the whole process is compressed. As a result, the new system can be built, delivered and put into operation much faster.

2. Results And Discussion

The application uses the work of two components such as Client and Server. The server is needed to provide functions used to interact with the client. These applications require an Internet connection to store and transfer application data. User authentication is required to access data. For this, the patient must register an account.

Android devices access the JSON message issued by the administrator to retrieve data from MySQL. Also, if the mobile app can send data to the server through the API, such as new user registration data, the API will process the data and insert it into MySQL over the network. The features required in this application are:

- Login and registration activities
- Sending data to the database server.
- Display information in the client interface.

Database table structure

The patient table is used to store patient information. This information is used in almost all parts of the mobile application system.

Physician Schedule Table, this table is used to store information about the physician schedule for which polyclinic specialists are available.

Reservation Table This table is used to store information about new visits. Also, this table is used to display the list of views.

Prescription Table This table is used to store prescription information for all patients.

Diagnosis table, this table is used to store diagnosis information for all patients.

User table, this table is used to store the login information for the web application.

_session Table, this table is used to store the session login information for the web application.

The mobile app has two user interface designs for the patient and the web app for the administrator. The user interface for the mobile application is built according to the Android scheme.

Design using XML language. The user interface design for the web application is built using PHP and CSS.

Android UI design

- **Login screen.**

When you launch the app, the first thing you see is the login screen. The login screen has two text input fields and 2 buttons. Two text input fields for Patient ID (NIP) and Date of Birth. There are two buttons, register button and login button. The signup button links directly to the signup screen. The login button connects to the main menu screen.

- **Registration screen**

The registration screen has a registration form with fields to enter any type of information required by the system. There are two buttons, a register button and a cancel button. The registration button processes the entered data to the server.

If the registration is successful, the system will provide the patient ID.

- **Main menu screen**

The main menu contains all the functions available in the mobile application. There are six image buttons representing the menu. Each image button has its own link to each action. This screen shows the page that appears after the user has successfully logged in with a valid account.

- **New review**

This feature includes three user interfaces: Lookup Table, Table List, and Table Details. The search graph has a single input text that, if the user clicks on it, opens a date dialog, as well as a spinner representing clinic services and a single search button.

The Scheduled Doctors List screen has a list view that contains information from the Scheduled Doctors database. Each table has a link to the detailed table screen. The "Schedule Details" screen displays text containing

information about the doctors on the schedule. There is a button for the schedule book process. After that, there will be a token number assigned by the system.

• List view screen

This screen is a template for the three functions of the mobile application. Three functions: prescription list, prescription list and diagnosis list. The three functions have the same screen layout. Screen layouts include a list view that contains a list of data from the database. The appointment list shows appointment dates that have not yet been applied for. The list of prescriptions shows the date of the prescriptions. The list of diagnoses contains information about the patient's diagnoses.

Web user interface design

• Login screen

The web application login page is a standard page that displays the username and password fields that must be filled in to access the main menu system. Like any other web page, this page has two entry fields and a button to continue the process. After clicking the "Login" button, the program checks whether the username and password match the database.

After that, the login verification page will appear. This page is for username verification and will be displayed to the administrator if the current username remains elsewhere.

• Home page

The home screen is the screen page that appears after an administrator successfully logs in. This page has 5 main menus, each with several sub-menus. The main menu is presented in the main tab, and the sub-menu is presented in the sub-tab. All menus have a table that provides information for each menu. There are several action buttons on the table, the function of which depends on the selected menu.

3. CONCLUSION

This study proves that a mobile application can use linked files from a web application to support application functionality. Data transfer can be more visual and convenient when using an Android device.

Based on the results of system development and testing, several conclusions can be drawn from applications:

1. An Android app may use some files on the Internet to support app functionality.
2. Android application gets information easily, quickly and flexibly.
3. All information is displayed based on the user logged into the application.
4. A web application helps manage the data going in and out of the mobile application.

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