DATA ANALYSIS IN DEVELOPING MED CARD SYSTEM SOFTWARE ARCHITECTURE AND DATABASE

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Annotation :

If   a medical institution has a medical information system that allows you to maintain a Med card, data from examinations, studies, and immunizations will be exported to the existing database. Thus, maintaining a Med card will allow you to analyze population data according to all the criteria of a medical card. Consistent filling of data by all institutions involved in assessing a person's health and treatment will allow doctors to have a complete basis for analysis and decision-making, and will eliminate the shortcomings associated with the loss of medical data, information about vaccinations, past diseases, etc.

Keywords: Database, SQLite, NoSql, base, architecture, UML, Use Case, Object diagram.

Introduction

In today's world, where medical science and technology continue to advance at an astonishing rate, tracking patient records plays a key role in providing quality and effective medical care. Medical records are an integral part of health, providing a valuable source of information about the health of each patient. In society, the relevance of studying patient medical records is especially acute, given not only the rapid pace of development of medical science and technology, but also a number of challenges facing the healthcare system. The development of medical information systems is a complex process that includes several key stages. Each stage has its own specificity and importance, and their correct implementation ensures the creation of effective and reliable software that can meet the needs of healthcare institutions and patients. It is important to consider that such systems must not only provide convenient access to medical information, but also ensure high data security and compliance with various standards and regulatory requirements.

Main Part

Below are the main stages of developing medical information systems that must be completed to achieve a successful result.

1. Define requirements

The first stage is the collection and analysis of system requirements. At this stage, it is necessary to understand what functions the system should perform, what data will be processed and how the interaction between the various components of the system will take place.

User Needs Analysis: Includes interviews with physicians, administrators, and patients to understand their needs and expectations.

Defining functional requirements: Listing required functions such as patient registration, medical history, report generation, etc.

Definition of non-functional requirements: Includes requirements for security, performance, reliability and usability of the system.

2. System design

At the design stage, the system architecture is developed, technologies and tools that will be used for development are determined.

Architectural design: Development of the overall system architecture, including client and server parts, databases and APIs.

User Interface Design: Create layouts of screens and interfaces to ensure ease of use.

Technical Design: Determining the technologies, programming languages, frameworks and libraries that will be used in the project.

3. System development

At the development stage, the actual writing of code, the creation and configuration of a database, as well as the integration of all system components take place.

Client side development: Creation of a desktop application for medical staff and a mobile application for patients.

Server side development: Creating a backend using the selected Django technology stack and Django Rest Framework.

Integration and Testing: Integrating all system components and conducting testing to identify and correct errors.

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4. System testing

Testing is a critical step to ensure that the system operates correctly and meets all requirements.

Functional Testing: Testing all system functions to ensure they meet requirements.

Non-functional testing: Testing performance, security, reliability and usability.

User Testing: Conducting testing with end users to obtain feedback and identify potential problems.

5. System implementation

After successful completion of testing, the system is ready for implementation in a medical institution.

Deployment: Installing and configuring the system in a production environment.

User training: Conducting training and preparing educational materials for medical staff and administrators.

Support and Maintenance: Provide technical support and regularly update the system to fix errors and add new features.

6. Support and development

After the system has been implemented, the support and development stage begins, which includes regularly updating the system, adding new functions and ensuring its stable operation.

Technical Support: Provide assistance to users when problems arise.

Updates and improvements: Regular system updates taking into account user feedback and changes in legislation and standards.

Monitoring and Analysis: Continuously monitor system performance and analyze data to identify opportunities for improvement.

One of the purposes of UML is to serve as a means of communication within the team and when communicating with the customer. Let's look at some possible uses for charts.

- Design. UML diagrams will help with modeling the architecture of large projects , in which you can assemble both large and smaller details and draw a skeleton (diagram) of the application. The code will subsequently be built on it.
- Reverse engineering - creating a UML model from existing application code, reverse engineering. Can be used, for example, on support projects where there is written code, but documentation incomplete or missing.

- Text information can be extracted from models and relatively readable texts can be generated—documented. Text and graphics will complement each other.

Conclusion

Based on our research and development, it can be concluded that this desktop application has enormous potential for use in healthcare settings to help improve healthcare delivery processes. Further development and improvement of the application will contribute to further progress in the field of digitalization of healthcare and improve the quality of life of Pasitins.

References

1. Morin, O. J. "Design and operating comparison of MSF and MED systems." *Desalination* 93.1-3 (1993): 69-109.

2. Lechleitner, Georg, et al. "Cerner Millennium™: the Innsbruck experience." *Methods of information in medicine* 42.01 (2003): 08-15.

3. Atanazarovich M. S., Durdona X. TIBBIYOTDA AXBOROT TEXNOLOGIYALARI MUAMMOLARI //Komputer texnologiyalari. – 2022. – T. 1. – №. 10.

4. Unfricht, D., and John Enderle. "Automating the pharmacy: implementing Cerner's Millenium Pharmnet System." *Proceedings of the IEEE 26th Annual Northeast Bioengineering Conference (Cat. No. 00CH37114)*. IEEE, 2000.

5. Cordasco, Kristina M., et al. "Cerner Millennium's Care Pathways for Specialty Care Referrals: Provider and Nurse Experiences, Perceptions, and Recommendations for Improvements." *Journal of General Internal Medicine* 38.Suppl 4 (2023): 1007-1014.