ABSTRACT

SOFTWARE TOOLS FOR CENTRALISED STORAGE AND GENERATION OF EXAMINATION TICKETS OF THE EDUCATIONAL INSTITUTION SUKHOI STATE TECHNICAL UNIVERSITY: diploma project / Ilyass Amrane. – Gomel: P.O. Sukhoi State Technical University of Gomel, 2026. – Diploma project: [88] pages, [14] figures, [4] tables, [15] sources, [4] appendices.

Keywords: examination management system, examination ticket generation, desktop application, C#, Windowss Forms, Microsoft SQL Server, Microsoft Word Interop, educational management, question repository, task repository, document management, image management, automated exam generation.

The object of development is a desktop application designed to assist educational institutions in managing examination materials, including questions, practical tasks, images, and documents, as well as generating examination tickets automatically.

The aim of the work is to develop a comprehensive software solution that simplifies the organization, storage, and generation of examination materials used in higher education institutions. The system is intended to reduce the time required for examination preparation, improve the management of educational resources, automate examination ticket generation, and provide a convenient and user-friendly interface for instructors and administrators.

The stages of the work include conducting an analysis of existing examination management solutions, selecting appropriate development technologies and tools, designing the software architecture and database structure, implementing modules for question management, task management, image and document repositories, developing examination ticket generation functionality, integrating Microsoft Word document generation capabilities, implementing validation and security mechanisms, and performing testing to verify system functionality and reliability. Additional consideration was given to software maintainability, scalability, and future expansion possibilities, including user account management and role-based access control.

The developed system was implemented using C# and Windows Forms within the Microsoft .NET Framework environment. Microsoft SQL Server was used as the database management system for storing questions, tasks, images, and document metadata. Microsoft Word Interop technology was utilized to automate the creation of examination tickets and formatted examination documents. The application follows a modular architecture based on User Controls, repository classes, and object-oriented programming principles to ensure maintainability and extensibility.

The diploma student confirms that the diploma project was completed independently. The material presented objectively reflects the state of the developed software system. The explanatory note was checked using the plagiarism detection service "gstu.antiplagiat.ru" using the link (https://gstu.antiplagiat.ru/). The percentage of text originality is 94.41%. All theoretical and methodological provisions, concepts, and materials borrowed from scientific, technical, and literary sources are accompanied by references to the corresponding sources included in the list of references.