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## DEVELOPING A SYSTEM FOR AUTOMATING THE PROJECT-BASED DIDACTIC METHOD OF ACTIVE LEARNING IN THE EDUCATIONAL PROCESS

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Nowadays, the application of the project method is becoming more and more relevant in the context of the Bologna Process, when the education system is oriented towards training specialists capable of self-learning and self-education throughout their life cycle. Automated systems that enable the organisation of project activities help to implement this method more widely and flexibly in the educational process. And this is one of the didactic methods that the MaCICT project (Modernisation of Master Curriculum in ICT for Enhancing Student Employability) is considering to improve the quality of education.

The aim of the study is to automate the process of project-based didactic method of active learning in the educational process and allow projects to be carried out remotely through the development of an appropriate information system.

**Material and methods.** The client-server model of the application was chosen to create the information system. For development of the server part, platform-independent programming language Java and Spring Boot framework, one of the most popular distributed application development technologies, are used. The MySQL relational database and Hibernate technology are used to store information.

The client side is a web page implemented using HTML markup language.

The FreeMarker templating engine is used to communicate between client and server. FreeMarker reads template files and combines them with Java objects to generate output HTML pages that are stored in FTLH files. By generating the user interface in FTLH files, we decouple the web pages' appearance from the program code. It becomes possible to modify the UI in a markup template file without having to change the program code.

The development environment used is Intellij IDEA.

**Results and discussion.** Project-based learning method is one of the effective methods of practice-oriented technology, which allows to rationally combine theoretical knowledge and its practical application to solve specific problems of the surrounding reality. It is fundamentally different from the classical method, as students independently set a goal and determine the ways to achieve it, search, select, summarise and analyse the information they need. The teacher acts as a consultant in this teaching method. Students' activities are organised as teamwork. The organisation of the project method of education is provided by a sequence of stages, which are limited by a specific time period (figure 1). The project method in education is used by teachers, but there are possible problems in the organisation of project-based learning methods in educational institutions: in case the teacher does not have the necessary knowledge and experience, also such projects are not scalable. Thus, there is a need for an automated system that would allow organising and supporting the project method in the educational process.

The information system under development allows to automate the organisation and remote execution of project method tasks. The application supports the division of users into three roles: administrator, teacher and student.

Common functions are implemented for each role:
- registration and authorisation in the system;
- activation in the system;
- viewing and editing your profile;
- subscribing and unsubscribing to other users' profiles for tracking purposes.

The following functions are available to the administrator:
- view the admin dashboard;
- view and manage users.

The following functions are available to the student:
- view all projects;
- view all your projects;
- viewing the project, the project teams, the stages of the teams on the project;
- changing the status of the project team stage (if the student is team captain);
- change of project team captains (if a student is team captain);
- sending the results of the project to the team at each stage;
- view your project statistics and history;
- viewing and chatting about their projects;
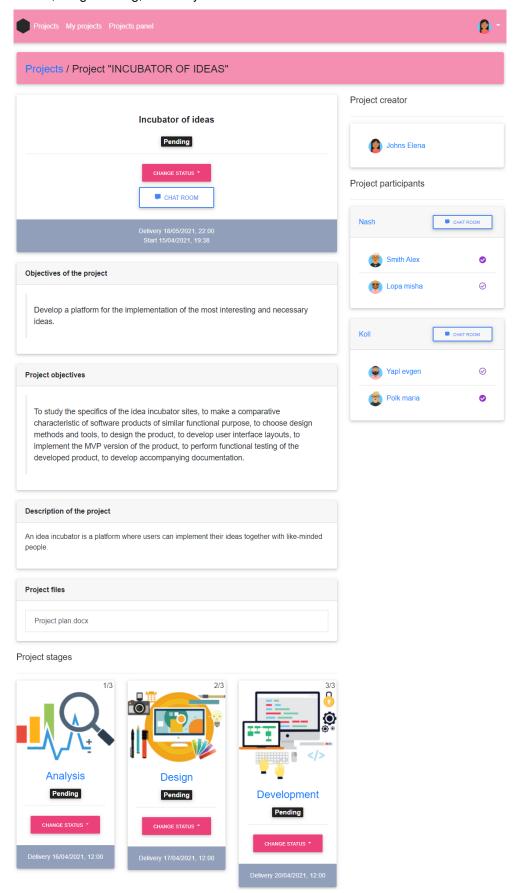- viewing and communicating in team chats about their projects.

Figure 1. – Project Method web page

The following actions are available to the teacher:
– view all projects;
– view all your projects;
– viewing the project, the project teams, the stages of the teams on the project;
– creating projects;
– creating the stages of the project;
– the creation of teams of project participants;
– changing project statuses, project phase, project team phase;
– the appointment and change of project team captains;
– assess the results of the project for the teams at each stage;
– view your project statistics and history;
– viewing and chatting about their projects;
– viewing and communicating in team chats about their projects.

The information system automates the project-based didactic method of active learning in the educational process.

**Conclusion.** The application of this automated system in the educational process will make it possible to organise and support the project method for training specialists ready for independent practice. The development of this information system is currently underway:
– establishment of a database of project methods in various disciplines;
– refactoring and optimising the application code;
– functionality testing;
– increasing the security of the application through protection against internet bots, hashing and creating strong passwords.

It is also planned to conduct user testing of the application and investigate the possibility of using other technologies to develop the client side of the application.

The application can be used both within the MaCICT project and in other training courses

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