

# SOFTWARE DEVELOPMENT CYCLE STAGES

Vinnytsia National Technical University

## **Анотація**

*У статті розглянуто один із шляхів проектування та створення програмного забезпечення. Запропоновано порядок, за яким компанії та окремі люди створюють програмне забезпечення.*

**Ключові слова:** програмне забезпечення, планування, проектування, розробка, командна робота.

## **Abstract**

*The article considers one of the ways of designing and creating software. The order in which companies and individuals create software is suggested.*

**Keywords:** software, planning, design, development, team work.

## **Introduction**

Today software is used in every sphere of our life. People like software because it makes their life much easier. Almost all of the processes in the world from manufacturing to shopping are fully automated. The profession of software engineer is one of the most wanted and desired for new generations. And one of the most important things they should know is development cycle.

## **Basics**

Computer software, or simply software, is a collection of data or computer instructions that tell the computer how to work. This is in contrast to physical hardware, from which the system is built and actually performs the work. In computer science and software engineering computer software is all information processed by computer systems, programs and data. Computer software includes computer programs, libraries and related non-executable data, such as online documentation or digital media. Computer hardware and software require each other and neither can be realistically used on its own [1].

Nowadays 80% of people own smartphones and computers. Most of them are active users that use these gadgets to access Facebook and Instagram, play games such as Angry Birds and Fruit Ninja, to be in connection with friends and relatives with the help of Viber and Telegram, watch videos on YouTube. All of the above programs are sophisticated examples of software. So as we can see creation of software is really popular and profitable sphere of activity. But if we want to create something so complex as software we need to have the procedure of creating these projects.

Depending on the type, scope and needs of the project, the development process is determined. It will be slightly different for developing mobile applications, firmware, automation solutions and database, but the general sequence of actions for creating software is universal: preparation, planning, creation, support. Creation consists of design, coding, testing, creation of documentation. Support involves implementation and maintenance[2].

The development of app, website, or software is a complex process and a wrong step in any stage of software development will cause the inevitable outcomes both for the quality of product and the entire business. It involves hard work, dedication and expertise in software development. Software development process is lengthy and needs step-by-step techniques following. So let's consider in detail some of the most important stages of software development process to understand this important IT fundamental.

As an example there can be suggested one of the university course projects named "Space shooter" completed by undergraduates of software engineering spatiality.

Planning is the phase of brainstorming when specialists gather requirements and analyze all the aspects of a future software product. The developers should understand the clients' requirements, namely, what exactly they want and what issues can occur in the development process. This stage involves communication between stakeholders, project team and users. Before students started making the project they got several requirements from the teacher to be realized in their research. After that they began searching the subject of the project representing a specific interest and meeting the requirements realizable[3].

The software design is the major aspect of software development services cycle. Design should be creative and clear. It involves overall product design along with data structure and database design. Software designing uses many different strategies. In student's case design was one of the most interesting parts of the future projects. Some renders on paper to visualize the game were created and the objects to be seen were written. After that the pictures for all of the objects were made and the next work stage began.

Programming is the critical phase of SDLC. A lot of brains work for coding and deliver the desired software. Usually, a company assigns a team of programmers for a particular project. The tasks are subdivided into sub-phases called Task Allocation, so every coder has their own task. The students had to choose whether to work in teams or work by themselves. Developers decided to work individually because they wanted to create something specific. The process of coding was about 26 hours, 70% of the time being spent on working with main mechanics of the game and the next 10% spent on adding new features like slow motion, boosts, menu etc. And the final 10% was devoted to fixing the major bugs to prevent game from crashing.

After completing coding, the software is sent to the testing department. The work of testers plays the crucial role for the quality of software and its performance. Quality Analysts test software using various test cases. Before launching a product needs verification which includes software testing and debugging done by testers. When testing department ensured that software is error-free, it goes to the next stage.

In the project the role of testing department was made by the groupmates as they were greatly interested in the subject of the project, game about space in particular. They analyzed the game having tested it and informed the developer about the main problems with balance to make the difficulty of the game more friendly for new gamers.

Finally, the software is handed over to the clients to be installed on their devices. After the installation, if the client needs any modification, the product is to come under the maintenance process.

The featured stages of software development procedure are followed by the majority of IT companies in order to provide high-quality services in the development of all sorts of software. SDLC can be shaped depending on the project requirements. Agile methodologies and Scrum offer the bigger amount of flexibility and cross-functional teams

### **Conclusion**

Nowadays software development is one of the most perspective and profitable sphere. People all around the world have always been using software in their purposes. Software became something more than an enormous number of zeros and ones. Due to the importance of software for people, developers should know basic steps of software creation.

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Рудницька Тетяна Григорівна – старший викладач кафедри іноземних мов, Вінницький національний технічний університет, e-mail: rudnytska@vntu.edu.ua

Наумук Денис Олегович — студент групи ІІІ-186, Факультет інформаційних технологій та комп'ютерної інженерії, Вінницький національний технічний університет, м. Вінниця

Rudnytska Tetiana Hryhorivna – an Assistant Professor of Foreign Languages Department, Vinnytsia National Technical University, e-mail: rudnytska@vntu.edu.ua

Naumuk Denys Olegovych — student of group ІІІ-186, Faculty of Information Technologies and Computer Engineering, Vinnytsia National Technical University, Vinnytsia