3D E-Book Development

3D E-Кіруді Дамыту

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ABSTRACT

The main goal set by the degree project is for students to explain with the help of an animated film based on a systematic approach to the themes of geometry and develop knowledge through assignments and tests. The degree project comprises: explanatory video tutorials, quizzes to test students' knowledge, along with the introduction of its data at the entrance to the site are able to view all the results and rankings.

After explaining the theme of the lesson time, students can individually himself to train and develop their knowledge. There are several exercises for development of this theme at the end of explanations.

The diploma project is designed to test the level of students in special education. There are two categories with a choice of easy and hard questions at the beginning of the test. They can reduce and increase the number of questions in the depending on the level of the student.

The structure of the degree project consists of an animated video lessons, pages of e-books, special assignments after each explanation, random tests to check the level of education.

Keywords: IT, Adobe Flash, ActionScript, e-book, PC, Internet, multimedia, animation.

АҢДАТПА

Дипломдық жобада алға қойған негізгі мақсат – оқушыларға геометрия тақырыптарын анимация арқылы жүйелеп түсіндіру және тапсырмалар мен тесттер арқылы білімін шыңдау. Дипломдық жобаның құрамына: тақырыпты түсіндіретін бейне сабақтар, оқушының білімін тексеруге арналған тесттер, сайтқа кіре берісте өзінің деректерін енгізумен қатар, барлық нәтижелері мен рейтингін көру мүмкіндігі бар.

Мұғалімнің сабақ барысында түсіндірілген тақырыптарын жеке өзі анимациялық бейне сабақтар арқылы білімін толықтыра алады. Түсіндірмеден кейін арнайы сол тақырырыпқа байланысты тапсырмалар топтамасы бар.

Дипломдық жобадағы тест арнайы оқушылардың білім деңгейіне байланысты құрастырылған. Тестке кіру барысында алғашқы бетіне екі таңдау санаты шығады. Оңай және қиын сұрақтарды өз деңгейіне байланысты оқушы сұрақ санын көбейтіп, азайта алады.

Дипломдық жобаның құрылымы анимациялық бейне сабақтардан, кітаптың электронды беттерінен, әр сабақтың арнайы тапсырмаларынан, білім деңгейін тексеру тесттерден тұрады.

Кілт сөздер: IT, Adobe Flash, ActionScript, электронды кітап, компьютер, Интернет, мультимедиа, анимация.

The term "technology" has the Greek roots and in translation means science, set of methods and methods of processing of materials, semi-finished products, products and their transformation to consumer goods and etc.

Information technologies- process using set of means and methods of collecting, processing and data transmission for obtaining information of new quality on a condition of object, process or the phenomenon.

Personal Computer - any kind of computer equipment, which we use.

The relevance of research. Quite recently the PC not was so important thing, and people used only needs . But distribution of IT day by day, nowadays PCs is significant tool, and is essential part of our life. IT technologies, not just narrow sphere for IT specialists. Today representatives of different professions are active users of computers, opportunities, which can present of PC, and problems which are solved very simplify our life and our works. It should be noted also important in education. Many education institutions, especially schools use homework diary, and electronic books, as we can see even teaching profession is no exception.

These books can give opportunities for pupil with interest, and learn more detail subjects. Use both animation and synchronous voice and help to faster to master received information, tasks and tests consolidate knowledge. Automatically assessment allow of test were justly. However, time goes fast, and today it requires not only skills of the pupil, also teacher. Tutorials, test systems, web-resources, electronic databases and reference books - all the new information environment in which modern education is to develop, and to which students and teachers are adapting. Flash technology is one of the technologies, when you can create applications. In order to successfully complete project, and get a tangible practical result need to master theoretical and practical knowledge about the method of creating flash animation. This method based on basic knowledge of design, development of cognitive skills, the development of critical and creative thinking.

Objectives of the study:

✓ Defining the main concepts of flash-technologies.

✓ Considering the examples of the use of flash-technologies in mathematics lessons.

✓ Identifying the advantages and disadvantages of using flash-technology

Objectives of the study:

✓ To characterize the concepts of flash-technologies;

✓ To create animations to solve combinatorial using of flash-technology.

The importance of the work is presentation of materials in the form of animation using flash technologies will make the process of learning interesting for pupil, and results may help teachers in conducting classes.

Purpose of our work: get a result, which will helpful for both teacher and pupil, and may be maximum to convey the meaning of the information

Adobe Flash is a multimedia and software platform used for creating vector graphics, animation, browser games, rich Internet applications, desktop applications, mobile applications and mobile games. Flash displays text, vector and raster graphics to provide animations, video games and applications. It allows streaming of audio and video, and can capture mouse, keyboard, microphone and camera input.

Flash graphics and animation are designed using a variety of Flash editing software, such as Adobe Flash Builder, Adobe Animate, FlashDevelop, or any text editor when used with the Apache Flex SDK. Content may be viewed by end-users using Flash Player (for web browsers), AIR (for desktop

or mobile apps) or third-party players such as Scaleform GFx (for video games). Adobe Flash Player enables end-users to view Flash content using web browsers, and is supported on Microsoft Windows, Mac OS X and Linux. Adobe Flash Lite enabled viewing Flash content on older Smartphone, but has been discontinued and superseded by Adobe AIR.

The ActionScript programming language allows creation of interactive animations, video games, web applications, desktop applications and mobile applications. Flash software can be developed using an IDE such as Adobe Animate, Adobe Flash Builder, FlashDevelop and Powerflasher FDT. Adobe AIR enables full-featured desktop and mobile applications to be developed with Flash, and published for Microsoft Windows, Mac OS X, Google Android, and iOS.

Flash is frequently used to display streaming video, advertisement and interactive multimedia content on web pages and Flash-enabled software. However, after the 2000s, the usage of Flash on Web sites has declined;[1] as of 2015, Flash is primarily used to build video games for mobile devices with Adobe AIR.

Currently, the textbooks meet the following requirements: structured, easy handling, presentation of the material. To meet the above requirements, it is advisable to use hypertext technology.

Multimedia - a set of hardware and software designed to bring together in a single user product text, graphics, audio and video. Multimedia can significantly enrich the learning material due to activation of all the ways of perception.

There are three principal modes of operation of electronic textbooks:

✓ test control, designed for total control of knowledge with the rating items.

✓ training with visual information, pictures and the accompanying sound effects;

✓ training without checking;

Multimedia e-learning tool (MEOS) - an electronic learning tool that contains a systematic presentation of the training course, which includes multimedia elements, which are an integral part of the teaching material.

The first computers did not have separate tools for working with graphics, but have been used for image acquisition and processing. Programming memory of the first electronic machines that are based on the matrix of lamps could get inwrought picture.

In 1961, a programmer S. Russell led the project to create the first computer game graphics. Creating games «Spacewar» («Space War") took about 200 man-hours. The game was created on the machine PDP-1.

In 1963, the American scientist Ivan Sutherland created a software and hardware system Sketchpad, which allows you to draw points, lines and circles on the tube a digital pen. Supports basic actions with primitives: moving, copying and other. In fact, it was the first bitmap editor implemented on a computer. Also the program can be called the first graphical user interface, with it being such even before the appearance of the term.

In the mid-1960s. Appeared in the development of industrial applications of computer graphics. Thus, under the direction of T. Moffett and N. Taylor company Itek developed digital electronic Drawing machine. In 1964, General Motors introduced the CAD system DAC-1, developed jointly with IBM.

In 1968, a group led by NN Konstantinov was created computer mathematical model of the motion of a cat. BESM-4, performing to write a program for solving differential equations, draw cartoon "Cat", which for its time was a breakthrough. Was used for the visualization of the alphanumeric printer. Substantial progress has experienced computer graphics with the advent of the opportunity to store images and display them on the computer display.

The software part - Adobe flash CS 5.5, DVDVideoSoft Free Studio, CorelDRAW GraphicsSuite X7, PROMT Professional 10, Irfan View, SunRavBookEditor, Aleo Flash Intro, Adobe Photoshop CS6.

Nowadays, students are often too lazy to carry textbooks, instead of them, they prefer to take their electronic handheld device such as tablets, smartphones, kindle, etc.

And with the help of my e-book "Geometry" students can learn to repeat the material, not taking with him an extra burden. Both at home and on the street, in parks and other places, have a great opportunity to use the e-book.

Previously, if a student does not have the book he copied whole paragraphs that would do homework, and now with the help of the e-book you need to send it in the mail and you're done.

When reading long books, readers at some point start to hurt your eyes, forcing stop. The book is accompanied by an audio effect until the individual points explanation, which in turn saves time.

Nowadays, one of the main problems is the ecology deforestation, for the use of paper, e-book solves this problem.

In our country, the sphere of e-books is very poorly developed compared to European countries, which in turn affects the education of today's youth, whose life is connected with the electronic device.

The purpose of this section is to assess the complexity and cost of creating and implementing programs developed and compare it with the cost of existing alternative means of training.

The main criterion on the basis of which you can really appreciate the value of creating a software tool can serve as the complexity of the value of its creation. As the program becomes a product of any type, the approach to its production must largely be similar approach to industrial production. Therefore become extremely important economic efficiency of their creation and use.

Calculating the cost of developing software educational software "Geometry" will produce the following formula:

$$S = (n * Tr * Zro * ((1 + Krd) * (1 + Krs) + Kn) + Tmo * Er), (1)$$ where

S - the cost of the program;

n - the number of developers;

The program is developed by 1 people.

Tr - the time spent on the development of this program specific programmer man-months;

The development of this embodiment, the program took a total of 3 months.

Zro - basic wage, taking into account the regional coefficient, tg / month.

The basic wage programmer excluding regional coefficient equal to 15000. For our region, district coefficient is equal to 30% and 30% of the server. Thus, we obtain:

Zro = 15000 + 15000 * 0.3 + 15000 * 0.3 = 24000tg

Krd - coefficient taking into account additional payroll software developer, as a fraction of the basic salary.

The extra salary includes payment of the next, educational leave, days performing public duties, seniority.

Take KRD = 0.4.

Krs - unified social tax.

Take Krs = 26%.

Kn - coefficient taking into account the overhead of the organization, which developed the program (2.0 to 4.0).

Take Kn = 2.0.

Tmo - computer time computer for debugging a computer programmer, machine-hours.

About debugging program took 110 hours.

Er - operating costs for 1 h. The machine time, rub / mach-hours. Let us find the value of E, the formula for calculating the value of operating costs associated with the use of the program:

E = Tmv * Er, (2)

Therefore Er = E / Tmv, where

E- value of operating costs associated with the use of the program, p. / Year. In turn E can be found by the formula:

E = Aob + Wm + Ve, where

Aob - depreciation on equipment, tg. / Year. Since the approximate life of your computer is 5-years, and the average value of its parameters the computer is up to date 80000 tg, therefore, depreciation amount to 16000 tg. / Year.

Vm- costs of basic and auxiliary materials, tg. / Year. In the calculation of consolidated annual cost of basic and auxiliary materials (floppy disks, paper) shall be determined in the amount of 1% of the cost of basic equipment, ie, 600 n.

Ve - energy costs, n. / Year. Energy costs are determined on the basis of the annual fund-time TM and computer power consumption Rm (Rm = 400W.);

Ve = SkWtc * Rm * Tm, (3) where

SkWtc - the cost of 1 kWh of electricity, tg. (TSP = 11,2tg.)

The annual amount of work in the computer clock is defined as follows:

Tm = 253 * Tcr, where

Tcr - average loading equipment, h. (Computer of the third group of 6 hours);

253 - the average number of days of computers throughout the year.

Obtain Tm = 253 * 6 = 1518 hours.

In turn, Ve = 11,2 * 0,4 * 1518 = 6800,7 tg. / Year.

Then E = 16,000 + 600 + 765 = 17365 tg. / Year.

Tmv - machine time required to solve customer problems with this software, machine-hours / year.

We take Tmv = 253 * 3 = 759 machine hours / year.

Then Er = 6800,7 / 759 = 8,96 tg / mach-hours.

For this program, the following values:

n = 1

Tr = 3 months.

Zro = 24000tg. / Mo.

Tmo = 110 h.

Krd = 0,4

Kpc = 26%

Kn = 2

Er = 8,96 tg. / Hour

According to the above formula (1) the amount of the development costs of the program are as follows:

S = 1 * 3 * 24 000 * [(1 + 0.4) * (1 + 0.26) + 2)] * 8.96 + 110 = 271 008 + 985.6 = 271993.6 tg.

Calculating the cost of the product "educational software" Hydromechanical drive "will produce the following formula:

Z = S + 0,2 * S, (4)

Z - cost of the program.

Z = 271993,6 + 0,2 * 271993,6 = 326392,32 tg.

Based on the calculations, we can conclude that the use of the software educational software "Hydromechanical drive" facilitates the training of a large number of people at the same time, with a decrease in maintenance costs. Payback period of a software product less than one year.

Degree of development of modern communication resources has opened up new horizons reasonable humanity in the field of educational activities, but at the same time and set new goals. The decision of one of them - the essence of the work done.

The rapid development of information technology, a slow but steady transformation of a computer from the sacred object that is available only to a narrow circle of initiates, in the phenomenon of everyday routine, the emergence of Internet, etc. - All this sooner or later had to touch upon such a traditionally conservative area as domestic education. E-course was created to provide efficient access to large volumes of information necessary for students.

Stages discussed how to create a training course that provides storage and access to information. Of a variety of currently available remote sensing systems, was chosen as the optimal system CMS Moodle, as appropriate in the price category (distributed free of charge as a software open source Open Source licensed under the GNU Public License), and the convenience of implementation and operation.

The advantages of e-learning course include the ability to include a modern (including multimedia) ways of presenting information in the form of training programs, using, including animation tools, and the ability to include interactive controls and verification of knowledge, including and self-examination. Goals and objectives are met, and developed e-learning course is quite possible to apply.

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