OPPORTUNITIES TO USE THE GEOGEBRA PROGRAM IN THE EDUCATIONAL PROCESS

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A R T I C L E I N F O.	**Annotation**
Keywords: Geogebra, interactive geometry, calculation, technology, engineering, matcad, windows, platform, intellectual property.	The article provides information about the Geogebra program and its capabilities, the history of its creation, the directions of use of this program. There has also been extensive coverage of views and reflections on the Matcad program and its associated aspects with the geogebra program.

GeoGebra is an interactive geometry, algebra, statistics and calculus application designed to study mathematics science from elementary school to university level. GeoGebra is available on several platforms with applications for desktops (Windows and Linux), tablets (Android, iPad and Windows), and the web.

GeoGebra creator Markus Hoenwarter started the project in 2001 as part of his master's thesis at the University of Salzburg. After a successful Kickstarter campaign, GeoGebra had expanded its offering to include versions of the iPad, Android, and Windows Store apps. In 2013, GeoGebra included Bernard Parisse Xcas in its CAS appearance. The project is now free (with open source components) and multilingual, and Hohenwarter continues its development at Linz University.

GeoGebra included commercial and non-profit organizations working together from the head office in Linz, Austria to expand the software and cloud services available to users. In December 2021, GeoGebra was acquired by edtech conglomerate Byju's for approximately $ 100 million.

GeoGebra is a collection of interactive mathematical software designed to study and teach science, technology, engineering and mathematics from elementary school to university level. Structures can be implemented using points, vectors, segments, lines, polygons, cone sections, inequalities, hidden polynomials, and functions, all of which can then be dynamically edited. Items can be entered and changed through the mouse and touch controls, or through the input panel. A GeoGebra can store variables for numbers, vectors, and points, calculate derivatives and integrals of functions, and have a complete set of commands such as Root or Extremum. Teachers and students can use GeoGebra as an aid in the formulation and proof of geometric assumptions.

GeoGebra Materials was originally launched as GeoGebraTube in June 2011 and changed its name in 2016. As of April 2016, the service has over 1 million resources, of which 400,000 are public. "Materials" include interactive worksheets, simulations, games, and e-books created using GeoGebraBook. GeoGebra materials can also be exported in several formats such as SVG, Animated

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GIF, and Windows metafail, PNG, PDF and EPS. It will also be moved directly to the clipboard. GeoGebra can also develop code for use in LaTeX files.

The GeoGebra source code is licensed under the GNU General Public License (GPL) and all other non-software components are under Creative Commons BY-NC-SA. Commercial use was under a special license and cooperation agreement. The International GeoGebra Institute (IGI) is a non-profit chapter of the GeoGebra group. The Institute coordinates GeoGebra System Research, Development, translation, and deployment efforts across a global network of user groups at universities and non-profit organizations, providing certification to GeoGebra experts and trainers.

The MathCad-computer algebra system of the automated design system class, designed to prepare interactive documents with support for computing and visualization, is characterized by Ease of Use and application for teamwork.

MathCad was originally conceived and written in 1988 by Allen Razdov, a scientist at the Massachusetts Institute of Technology (MIT). He is the organizer of Mathsoftkompany, which since 2006 has been part of the PTS (Parametric Technology Corporation) comporation.

MathCad has a user interface that is intuitive and simple to use. Both the keyboard and a special panel of equipment can be used to enter the Formula and the given ones. One of the effective math packages that allows both the integration of mathematics and computer science and the study of classical mathematics is the Mathsad package. It is simple enough to be occupied by students and open enough to see the mathematical basis of the problem being solved after programming. The Mathcad package – a product of Mathsoft-consists of a universal mathematical package designed to perform engineering and scientific calculations. The main advantage of the package is that the language in which solvable issues are expressed is a natural mathematical language. On top of that, the package has a powerful graphics organizer. The text allows the editor to combine the possibilities of using a generalized mathematical language and graphic tools, to obtain a ready-made result document in a visually accessible form to the user. The use of the package only raises the efficiency of intellectual labor. The use of these programs in the educational process provides only facilities for users and facilitates their activities in the educational process. In such a period when current techniques and technologies have developed, the role of these programs is great, and it is considered possible to easily solve mathematical problems using the above programs.

LITERATURE USED:

1. Aripov M., Tillaev A. Distance education // Physics, mathematics and informatics. - Tashkent, 2002 - #2. - B. 12-18.

2. Abdukadirov A.A. Distance learning models and their classes // Physics, mathematics and computer science. - Tashkent, 2000. - No. 5. - B. 50-56.

3. Ergasheva, X. "FUNKSIYALARNI TEKSHIRISHNING ALGORITMLARI VA DASTURIY VOSITALARI." *International Scientific and Practical Conference on Algorithms and Current Problems of Programming*. 2023.

4. Ergasheva, Xiloloxon. "BOZOR IQTISODIYOTI SHAROITIDA MODELLASHTIRISHNING AHAMIYATI." *Interpretation and researches* 1.1 (2023).

5. Ergasheva, Xilolaxon. "FUNKSIYALARNI TEKSHIRISH VA ULARNING GRAFIKLARINI YASASH ALGORITMLARI VA DASTURIY VOSITALARI." *Interpretation and researches* 1.1 (2023).

6. Turdaliyev, SM va boshqalar. "Axborot xavfsizligini biznes uchun strategik qilish." *ACADEMICIA: Xalqaro multidisipliner tadqiqot jurnali* 11.4 (2021): 1019-1021.

7. Akhmedova, Z., and Sodiqjon Muminjonovich Turdaliyev. "ORGANIZATION OF COMPUTER

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SCIENCE BASED ON MODULE TECHNOLOGY." *Galaxy International Interdisciplinary Research Journal* 10.11 (2022): 671-675.

8. Турдалиев, Содиқжон Муминжонович. "КОМПЬЮТЕР ЎЙИНЛАРИНИНГ ЎСМИР ШАХСИГА КЎРСАТАДИГАН ИЖОБИЙ ВА САЛБИЙ ТАЪСИРЛАРИ." *" USA" INTERNATIONAL SCIENTIFIC AND PRACTICAL CONFERENCE TOPICAL ISSUES OF SCIENCE*. Vol. 8. No. 1. 2023.

9. Iloyovich, D. I. (2022). INFORMATION SECURITY AND CYBERSECURITY TRAINING IN THE HIGHER EDUCATION SYSTEM. *Open Access Repository*, *9*(12), 14-16.

10. Muydinjonov, D., Muydinjonov, Z., & Djurayev, I. (2023). SUN'IY INTELLEKT TIZIMINI INSON TAFAKKURIDAN FARQI VA TARIXI: ASOSIY SANALAR VA NOMLAR. *Interpretation and researches*, *1*(1).

11. Ilyosovich, DI (2022). MOBIL ILOVALAR ORQALI O'ZI-O'ZINI TA'LIM. *XALQARO TADQIQAT, IT, MUHENDISLIK VA IJTIMOIY FANLAR JURNALI ISSN: 2349-7793 Impact Factor: 6.876*, *16* (5), 109-113.

12. Xakimova, Y. T. (2022). OLIY TA'LIM MUASSASALARIDA MASOFAVIY TA'LIMNI JORIY QILISH BOSQICHLAR. *Евразийский журнал академических исследований*, *2*(6), 1139-1142.

13. Xakimova, Y. T. (2023). MASOFAVIY TA'LIM JARAYONIDA INFOGRAFIKADAN FOYDALANISH VA UNING AFZAL TOMONLARI. *Conferencea*, 116-119.

14. Hakimova, YT (2023). MASOFIY TA'LIM JARAYONIDA BULUT TEXNOLOGIYALARIDAN FOYDALANISH "INFORMATIKA METODIKASI" FANINI O'QITISH METODIKASI. *Ochiq kirish ombori*, *9* (6), 238-240.

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