efficient memory management and optimizations that Python applies to classes and methods during execution. As noted by Gamma et al. [3], the use of object-oriented approaches and design patterns can significantly enhance software development efficiency, simplify the management of complex systems, and improve program execution performance. This supports our observations about the advantages of the class-based implementation for sorting algorithms.

The results confirm the hypothesis that the choice of implementation approach for sorting algorithms affects their performance. Thus, when developing high-performance applications that require efficient data sorting, it is recommended to prefer the class-based implementation of algorithms.

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DEVELOPMENT OF A MOBILE APPLICATION FOR MATHEMATICS LEARNING

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Over the past four years, the educational process has undergone significant digitization and has become a reality of our present day. This rapid spread is driven by a variety of factors: the rapid advancement of digital technologies; the shift to distance learning, initially triggered by the Covid-19 pandemic, and later by the events of full-scale Russian military invasion of Ukraine; the emergence of a new generation of learners in general secondary and higher education, who better perceive bright visualized information, as well as the practical functions of the educational process aimed at developing key competencies. However, the modern world is characterized by rapid development of innovative technologies, which are becoming increasingly

relevant in current conditions. Various gadgets (ranging from mobile devices with accessories to modern computers) and other informational products (applications, programs, video conferencing services, etc.) come to the aid of education. Mobile applications have become not only an integral part of everyday life, but also powerful tools for learning and developing mathematical skills. In the online environment, there is a wide variety of digital tools and online platforms that can be used both in math classes and extracurricular activities.

The most popular mathematical applications include:

- GeoGebra: Known for its ability to combine geometric, algebraic, tabular, and graphical representations of mathematical concepts. Its interface is intuitive, making it an ideal tool for learning and problem-solving.
- Photomath: Allows users to solve mathematical problems using a smartphone camera. A special algorithm for recognizing handwritten text enables reading and analyzing mathematical expressions.
- Khan Academy: Offers a wide range of math lessons available in mobile format. It promotes individual learning and allows students to learn at their own pace.

However, even with such a variety of mathematical packages (applications), there is still a problem of limited internet resources for solving problems in plane geometry. Therefore, in the thesis of the report, we will focus on creating a mobile application based on a mathematical library in the Android Studio environment.

After analyzing current trends in mobile technology development, it can be noted that creating educational content, including computational nature, is a promising direction. Thus, considering the above, as well as the relevance of expanding the functions of mathematical applications, we have developed an educational program «GeomLib», the dialog windows of which are shown in Figure 1.

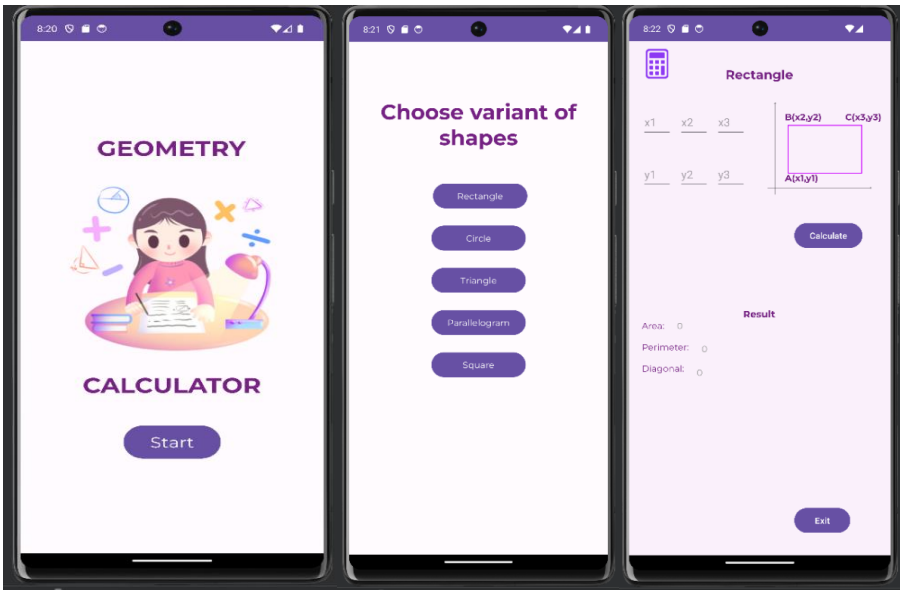

Figure 1 – Mobile application «GeomLib»

In this program, the required class (type of geometric figure) for testing is selected on the second page of the application using buttons, after which the page of the selected figure with graphic elements for calculating various parameters of the element opens. To calculate the parameters of a geometric object in text fields, you need to enter the coordinates of the figure's points. When the "Calculate" button is pressed, the calculation results will be displayed in the text fields of the "Result" block.

Conclusion. Therefore, using mathematical mobile applications to solve plane geometry problems is an important step in the development of education and preparing the younger generation for using modern information technologies.

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