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COMPUTER GRAPHICS AND ITS TYPES

Fayziyeva Salomat Gaybullayevna
Intern teacher of the department, Termiz State Pedagogical Institute "Fine arts and engineering graphics", Uzbekistan

ABOUT ARTICLE

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Abstract: In other words, computer graphics in this article refers to the use of computers in graphic design and images. Below is information about several types of graphical methods and types of this area.

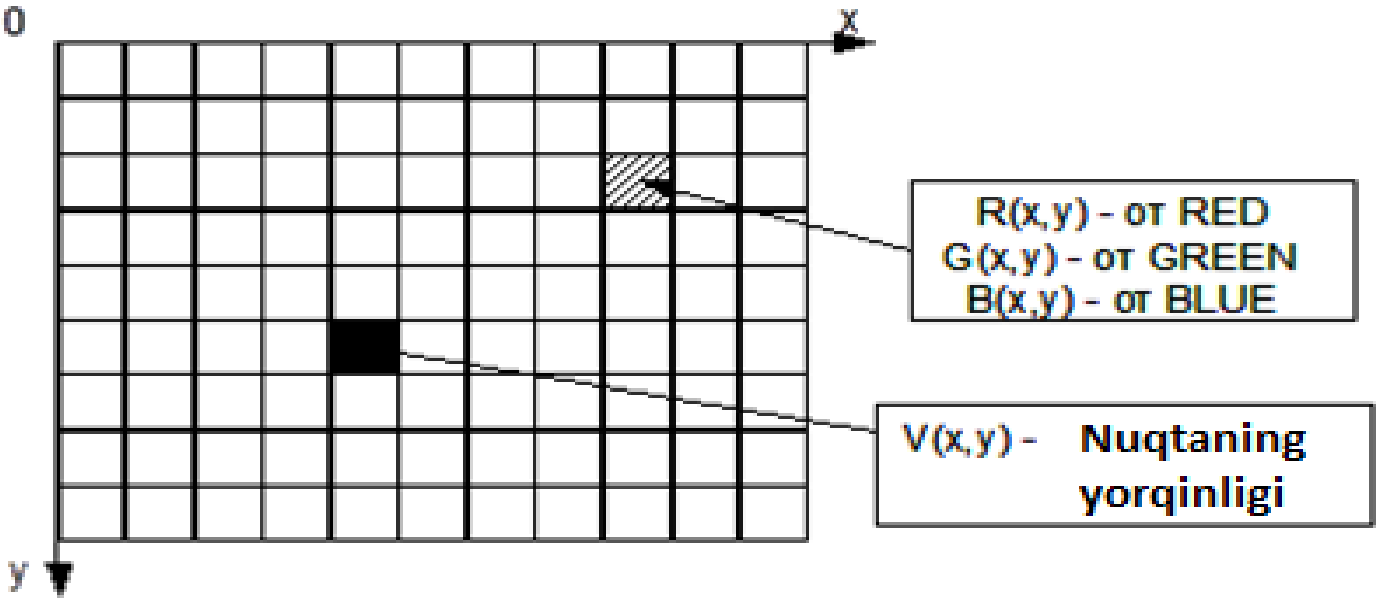
INTRODUCTION

The progress of science and technology has turned our society into an information society. Most of the people working in this society are busy with the production, storage, processing and implementation of information. It is difficult to do such things without modern computers. If the processing of the data in them is carried out with the help of machine graphics, it will bring great convenience to the user.

Computer graphics is the science of creating, storing and processing models and images using a computer. Computer graphics usually means automation of the processes of preparing, processing (building), storing and displaying graphic data by means of a computer, while graphic data means objects, models and images. There are three types of computer graphics: raster, fractal, and vector graphics.

Raster graphics. Raster images appear as a rectangular matrix, each cell consisting of a colored dot. The basis of raster graphics is a pixel (point), which is represented by color. The image is reflected as a collection of points, the more they are, the clearer and better the image is, and the file takes up more

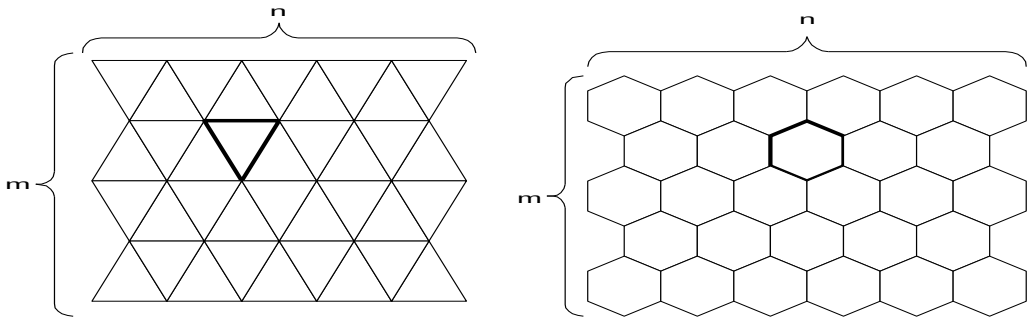
space. That is, exactly one image can be of high or low quality, depending on the unit of measurement, there are more or less dots (usually defined as the number of dots per inch - dpi or the number of pixels - ppi). . A raster is an ordered arrangement of points.



A rectangular raster.

Figure 1

Figure 1 shows a raster whose elements consist of rectangles. Such rasters are called rectangular rasters. Basically, these types of rasters are common. Also, rasters of other geometric shapes can be used. For example: triangle, hexagon (Fig. 2).



a) Triangular raster **b) Hexagonal raster**

Figure 2

Only they must meet the following requirements:

- all geometric shapes must be the same;

- geometric shapes should completely cover the surface of the plane without leaving an open space and without blocking each other.

Common formats of program graphics: *.tif, *.gif, *.jpg, *.png, *.bmp, *.pcx, etc.

Fractal graphics. Fractal graphics are mainly used in creating graphic compositions based on mathematical operations. Today, the role of fractal graphics in creating videos, clips, video games is incomparable. Fractal graphics are widely used to create complex compositions of the environment (forests, mountains, cityscapes, etc.) in fantasy movies or computer games.

Fractals can be created by constantly reducing and simulating a simple figure. For example: A simple section is divided into three equal parts (Fig. 3

-a). A new section equal to the middle section is added and a broken line consisting of four sections is formed (Fig. 3 -b). At the next stage, each of the four sections is again divided into thirds and new sections equal to the middle part are added (Fig. 3-c). When this situation is repeated again, a beautiful composition of the pattern results (Fig. 3-d). If at each stage the pieces are reduced in size and their direction is changed, a different composition will result.

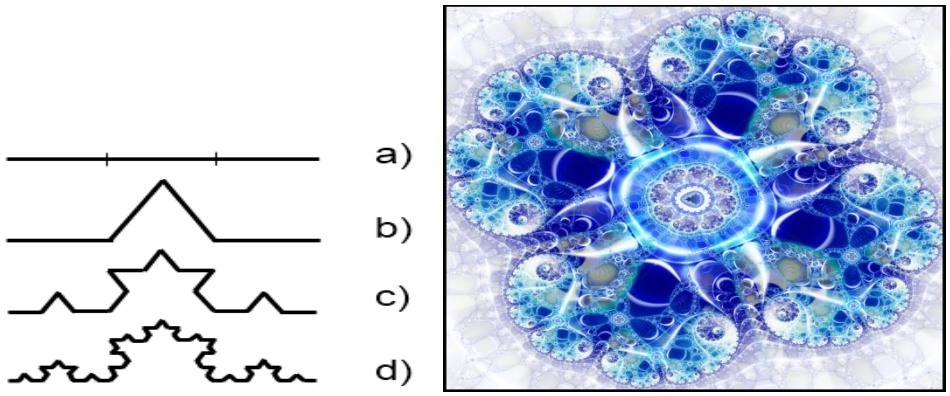


Figure 3. The structure of a simple fractal Fig.

4. Fractal composition

Common formats of fractal graphics: *.frp; *.frs; *.free; *.fro; *.fr3, *.fr4 and h.

Vector graphics. In vector graphics, the image is built on the basis of lines known as vectors, and various parameters are assigned to them - color, line thickness and location (position).

Since the main logical element in vector graphics is primitives, the main attention is paid to their parameters when constructing primitives. For example, closed polygon sides can be equilateral or arbitrary, closed regions can be built on the basis of a circle, ellipse or arbitrary curve.

CONCLUSION

In short, the rapid development of computer graphics and the updating of its technical and software tools require the continuous improvement of this course and the continuous study of new directions in this field. In recent years, there have been huge changes (shifts) in this field, that is, displays that can reflect more than 16 million colors and types of colors, devices for entering graphic information - scanners, and in the field of software tools, a real computer. practical programs that can explore the world have emerged, and by using these changes wisely, there is an opportunity to make great reforms for the development of science and technology.

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