Report On

CIRCLE DESIGNING

Submitted in partial fulfillment of the requirements of the Course project in
Semester III of Second Year Artificial Intelligence and Data Science

by
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CERTIFICATE

This is to certify that the project entitled “Circle Design” is a Bonafide work of "Saloni Sutar (Roll No. 58), Sakshi Patil (Roll No. 44), Rutuja Pednekar (Roll No. 47)" submitted to the University of Mumbai in partial fulfillment of the requirement for the Course project in semester III of Second Year Artificial Intelligence and Data Science engineering.

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ABSTRACT :

The Circle Designing aims to develop an interactive project for creating and manipulating circles in a digital environment. This project leverages advanced graphics algorithms and user-friendly interfaces to empower users with a versatile tool for designing circles with precision and creativity. This provides a range of features including circle creation, resizing, rotation, color customization, and pattern filling. It also offers options for applying various geometric transformations such as translation, scaling, and rotation, allowing users to manipulate circles in a dynamic and intuitive manner. Additionally, the project incorporates real-time feedback mechanisms

to enhance the user experience and facilitate seamless circle designing.

PROBLEM STATEMENT :

The Circle Designing aims to tackle several critical challenges in the realm of digital circle manipulation. Existing graphics software often lack intuitive interfaces for precise circle adjustments, leading to difficulties in tasks like resizing and rotation. Additionally, customization options such as color selection and pattern filling are often limited. The project also addresses performance concerns by optimizing computational processes and leveraging hardware acceleration to ensure smooth rendering, particularly in scenarios involving complex designs or multiple circles. Real-time feedback during circle manipulation is another key area of focus, as immediate visual updates are crucial for a seamless user experience. Compatibility across various operating systems is a priority, as is the provision of comprehensive documentation and tutorials to cater to users of varying skill levels.

DESCRIPTION AND WORKING:

A computer graphics circle drawing project is a programming task that involves creating a series of circles, where each circle having different center point. These circles are arranged in such a way that they appear to be nested within one another, forming a series of concentric circles.

1. Graphics Library or Framework:

You will typically use a graphics library or framework in your chosen programming language to create and render the concentric circles. Common libraries include OpenGL, DirectX, HTML5 Canvas, or WebGL. These libraries provide functions and tools for rendering graphics on a screen.

2. User Interface:

Depending on the complexity of your project, you may create a graphical user interface (GUI) that allows users to interact with your program. The interface might include options for setting parameters like the number of circles, their radii, colors, and other visual settings.

3. Drawing Concentric Circles:

To draw concentric circles, you'll typically use a loop to draw multiple circles, each with a slightly larger radius than the previous one. The center point remains constant for all circles. You can choose various methods to draw these circles, such as using functions to draw ellipses or circles, or by specifying the coordinates and radii of each circle manually.

4. User Interaction:

If you have a user interface, you'll need to handle user interactions. For instance, you might allow users to click and drag circles, change their radii, or dynamically change colors. These interactions can make your project more engaging and interactive.

5. Rendering:

Utilize the graphics library's rendering capabilities to display the circles on the screen. Ensure that the circles are drawn accurately, appear concentric, and adhere to the user's specified settings.

6. Optional Features:

Depending on your project's complexity, you can add features like animation, where the circles can move, grow, or change over time. You might also allow users to export the resulting image to a file or adjust the rendering quality.

7. Testing and Debugging:

Thoroughly test your program to ensure that it functions as expected. Verify that the concentric circles are drawn accurately and that user inputs are correctly processed. Debug and fix any issues you encounter during testing.

MODULE DESCRIPTION :

In this project, you will develop a computer program that draws a series of concentric circles on a graphical window or canvas. The project will involve using a programming language or graphics library, such as OpenGL, DirectX, or a web-based framework like HTML5 Canvas or WebGL.

- User Interface: Depending on your choice of platform, design a simple user interface where users can specify parameters like the number of circles, their radii, colors, and position.

- Graphics Library: Choose a suitable graphics library or framework to render the concentric circles. You'll use functions or methods from the library to draw and manipulate the circles.

- Concentric Circles: Write code to draw the circles. To create concentric circles, you can start with the center circle and then draw subsequent circles with increasing radii. The number and size of circles can be specified by the user.

- Colors: Allow users to select colors for the circles. You might provide a color palette or a color picker.

- Animation (Optional): For an advanced project, you can add animation effects like rotation or scaling to the concentric circles.

- Save/Export: Give users the option to save or export the resulting image, possibly in different formats (e.g., PNG, JPEG).

Once you've completed the basic project, you can consider extending it with more advanced features, such as:

Interactive resizing and dragging of circles.
Adding other geometric shapes, like ellipses or lines.
Implementing more complex rendering techniques, like shading and textures.
This project is an excellent way to learn about computer graphics, user interface design, and interactive programming. It can be tailored to various skill levels, from beginner to advanced, depending on the complexity and features you choose to implement.

DESCRIPTION OF SOFTWARE AND HARDWARE USED:

- **SOFTWARE:**

Adobe Illustrator: A versatile vector graphics software that allows you to create precise and customized circular designs.

CorelDRAW: Another vector graphics software with features for creating circular designs, logos, and more.

Blender: A 3D modeling and animation software that can be used for creating 3D circular designs and patterns.

SketchUp: Ideal for 3D modeling of circular structures and designs, especially in architecture and interior design.

- **HARDWARE:**

Computer: A desktop or laptop computer with sufficient processing power and RAM to run the chosen design software smoothly.

Graphics Tablet (Optional): For more precise and hand-drawn circular designs, you may opt for a graphics tablet that allows you to draw directly on the screen.

Mouse or Graphic Pen: You'll need a standard mouse or a graphic pen if you're using a graphics tablet.

Monitor: A high-resolution monitor with good color accuracy is important for accurately visualizing and fine-tuning your circular designs.

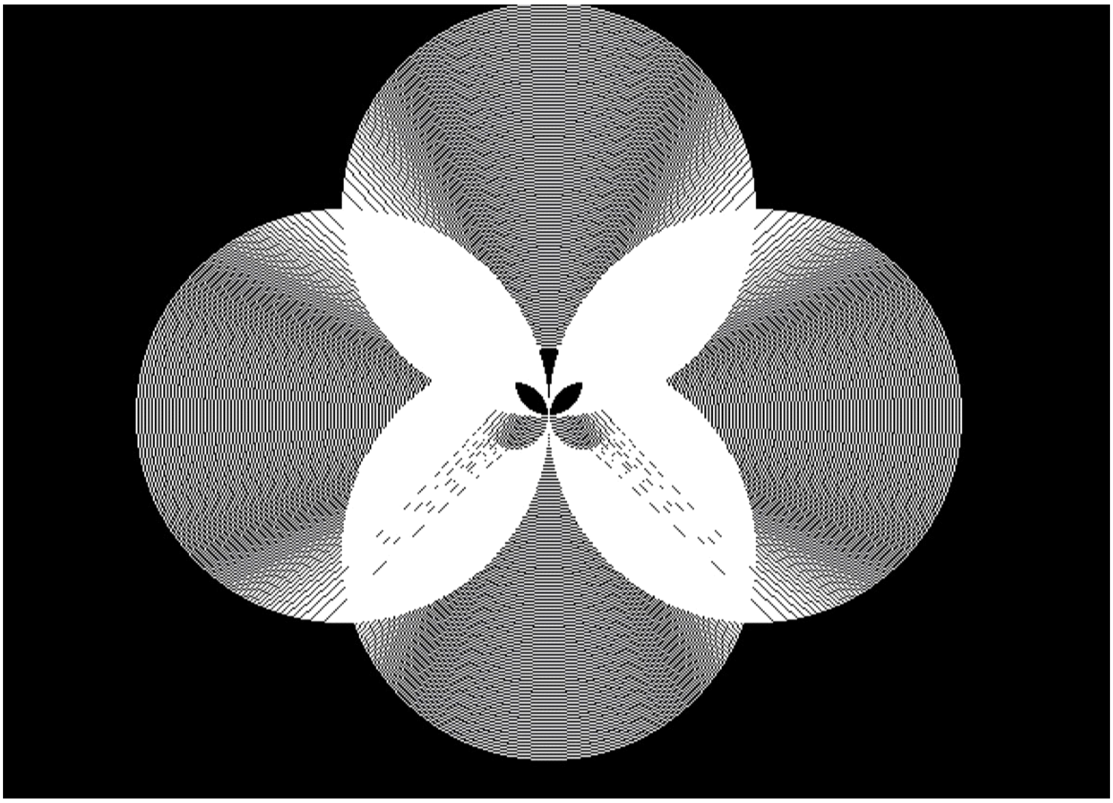
Printer (Optional): If you need physical copies of your circular designs, a high-quality color printer may be necessary.

Scanner (Optional): If you're incorporating hand-drawn elements into your circular designs, a scanner can help digitize your drawings.

3D Printer (if working with 3D designs): For 3D circular designs, you would require a 3D printer to bring your designs into the physical world.

PROGRAM AND OUTPUT :

```
#include <stdio.h>
#include <conio.h>
#include <graphics.h>
#include <dos.h>
void main()
{
clrscr
{
int gd=DETECT,gm,i;
initgraph(&gd,&gm,"C:\\TURBOC3\\BGI");
for(i=0;i<=100;i++)
{
circle(319,219-i,20+i);
circle(319,219+i,20+i);
circle(299-i,239,20+i);
circle(339+i,239,20+i);
delay(100);
}
getch();
}
}
```



RESULT AND CONCLUSION:

Circle designing is a creative process that involves the use of various software tools and, optionally, hardware to create circular patterns, graphics, and 3D designs. The choice of software and hardware depends on the specific design requirements and the designer's expertise. Whether you're working on logo design, architectural plans, illustrations, or 3D models, there are software options available to suit your needs. Additionally, having the appropriate hardware, such as a computer with adequate processing power, a graphics tablet for precise work, and other tools, can enhance your design capabilities. Ultimately, circle designing offers a wide range of possibilities and applications in art, graphics, engineering, and various other field.