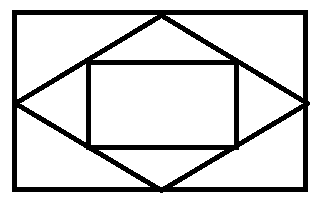
**1**

Write C++ program to draw the following pattern using Line drawing algorithms. Use Bresenham’s line drawing algorithms for square and DDA line drawing algorithm for diamond.

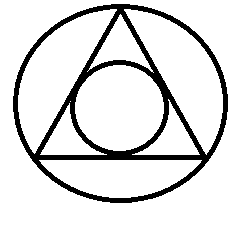


**OR**

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| --- |
| Write C++/Java program to implement Cohen-Sutherland line clipping algorithm for given window. Draw line using mouse interfacing to draw polygon |

**2**

Write C++ program to draw inscribed and Circumscribed circles in the triangle as shown in an example below. Use Bresenham’s Circle drawing algorithm for outer circle and DDA circle for inner circle. Use any Line drawing algorithm for drawing triangle



**OR**

|  |  |
| --- | --- |
|  | Write C++/Java program to generate Hilbert curve using concept of fractals. |

**3**

A Mandelbrot Set is a set of complex number z that does not diverge under the transformation with .Where, both X and z represent the complex numbers. Write C++/Java program to

a) Plot the Mandelbrot set for the threshold |x|= 2.

**OR**

Write C++ program to draw the polygons by using the mouse. Choose colors by clicking on the designed color pane. Use window port to draw. Use Bresenham algorithm for line drawing.

**4**

A Mandelbrot Set is a set of complex number z that does not diverge under the transformation with .Where, both X and z represent the complex numbers. Write C++/Java program to

b) Plot Julia set choosing z ≠ 0. Use 254 colors for plotting in both cases.

**OR**

Write C++ program to draw the polygons by using the mouse. Choose colors by clicking on the designed color pane. Use window port to draw. Use DDA algorithm for line drawing.

**5**

Write C++/Java program to draw 2-D object and perform following basic transformations,

a) Scaling

b) Translation

c) Rotation

Use operator overloading.

**OR**

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| Write C++/Java program to draw a convex polygon and fill it with desired color using Seed fill algorithm. Use mouse interfacing to draw polygon. |

**6**

Write C++ program to draw the polygons by using the mouse. Choose colors by clicking on the designed color pane. Use window port to draw. Use DDA algorithm for line drawing.

**OR**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Write C++/Java program to draw 3-D cube and perform following transformations on it using OpenGL. a) Scaling b) Translation c) Rotation about one axis.   |  | | --- | | **7**  Write C++/Java program for line drawing using DDA or Bresenham’s algorithm with patterns such as solid, dotted, dashed, dash dot and thick.  OR  Write C++/Java program to draw origin centred 2-D polygon and perform following basic transformations,  a) Scaling  b) Translation  c) Rotation w.r.t. arbitrary point  Use operator overloading. | | **8**  Write C++/Java program to draw a convex polygon and fill it with desired color using Seed fill algorithm. Use mouse interfacing to draw polygon.  **OR**  Write C++ program to draw the following pattern using Line drawing algorithms. Use Bresenham’s line drawing algorithms inner triangle and DDA line drawing algorithm for outer triangle. | | **9**  Write C++/Java program to implement Cohen-Sutherland line clipping algorithm for given window. Draw line using mouse interfacing to draw polygon  OR  **Using Bresenham's circle drawing algorithm, draw following shape.** | | **10**  Write C++/Java program to implement reflection of 2-D object about X axis, Y axis and about X=Y axis. Also rotate object about arbitrary point given by user.  OR  Write C++/Java program to implement Cohen-Sutherland line clipping algorithm for given window. Draw line using mouse interfacing to draw polygon | | **11**  Write C++/Java program to generate Hilbert curve using concept of fractals.  OR  Write C++ program to draw inscribed triangle in a circle as shown in example below. Use Bresenham’s Circle drawing algorithm for outer circle and DDA algorithm for drawing triangle. | | |
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| **12**  Write C++/Java program to draw 3-D cube and perform following transformations on it using OpenGL. a) Scaling b) Translation c) Rotation about one axis.  OR  Write C++/Java program to draw 3-D cube and perform following transformations on it. a) Scaling w.r.t. arbitrary point. b) Translation c) Rotation about one axis. |
| **13**  Write C++/Java program to simulate any one of or similar scene-   * Clock with pendulum * National Flag hoisting * Vehicle/boat locomotion * Water drop falling into the water and generated waves after impact * Kaleidoscope views generation (at least 3 colorful patterns)   OR  Write C++ program to draw inscribed triangle in a circle as shown in example below. Use Bresenham’s Circle drawing algorithm for outer circle and DDA algorithm for drawing triangle. |
| **14**  Write C++/Java program to simulate any one of the following scene-   * Clock with pendulum * National Flag hoisting * Vehicle/boat locomotion * Water drop falling into the water and generated waves after impact * Kaleidoscope views generation (at least 3 colorful patterns)   **OR**  Write C++/Java program to draw a convex polygon and fill it with desired color using Seed fill algorithm. Use mouse interfacing to draw polygon  **15**  A Mandelbrot Set is a set of complex number z that does not diverge under the transformation with .Where, both X and z represent the complex numbers. Write C++/Java program to  a) Plot the Mandelbrot set for the threshold |x|= 2.  **OR**  Write C++/Java program to implement reflection of2-D object about X axis, Y axis and about X=Y axis. Also rotate object about arbitrary point given by user. |

**16**

A Mandelbrot Set is a set of complex number z that does not diverge under the transformation with .Where, both X and z represent the complex numbers. Write C++/Java program to

b) Plot Julia set choosing z ≠ 0. Use 254 colors for plotting in both cases.

**OR**

Write C++ program to draw the following pattern using Line drawing algorithms. Use Bresenham’s line drawing algorithms inner triangle and DDA line drawing algorithm for outer triangle.

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| **17**  Write C++/Java program to generate Hilbert curve using concept of fractals.  OR  A4. Write C++/Java program to draw 2-D object and perform following basic transformations,  a) Scaling  b) Translation  c) Rotation w.r.t. arbitrary point.  Use operator overloading. |

**18**

Write C++/Java program to simulate any one of the following scene-

* Clock with pendulum
* National Flag hoisting
* Vehicle/boat locomotion
* Water drop falling into the water and generated waves after impact
* Kaleidoscope views generation (at least 3 colorful patterns)

OR

Using DDA for line & Bresenham's algorithm draw following shape.

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| **19**  Write C++ program to draw the following pattern using Line drawing algorithms. Use Bresenham’s line drawing algorithms for square and DDA line drawing algorithm for diamond.    OR  Write C++ program to draw the following pattern using Line drawing algorithms. Use Bresenham’s line drawing algorithms for inner square and DDA line drawing algorithm for remaining lines.(Filling is not mandatory) |
| 20.  Write C++ program to draw inscribed and Circumscribed circles in the triangle as shown in an example below. Use Bresenham’s Circle drawing algorithm for outer circle and DDA circle for inner circle. Use any Line drawing algorithm for drawing triangle  OR  **Using Bresenham's circle drawing algorithm, draw following shape.** |
| 21  Write Java program to draw 2-D object and perform following basic transformations,  a) Scaling  b) Translation  c) Rotation  Use operator overloading.  OR  **Using Bresenham's circle drawing & DDA line drawing algorithm, draw following shape(filling not mandatory)** |
| 22  Write C++ program to draw the polygons by using the mouse. Choose colors by clicking on the designed color pane. Use window port to draw. Use DDA algorithm for line drawing.  OR  **Using Bresenham's circle & line drawing algorithm, draw following shape.** |

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| 23  Write C++/Java program for line drawing using DDA or Bresenham’s algorithm with patterns such as solid, dotted, dashed, dash dot and thick.  OR  **Using Bresenham's circle drawing & DDA line drawing algorithm, draw following shape(filling not mandatory)** |
| 24  Write C++/Java program to draw a convex polygon and fill it with desired color using Seed fill algorithm. Use mouse interfacing to draw polygon.  OR  Using **Bresenham's circle drawing algorithm, draw following shape(filling with different colors is mandatory)**  Image result for logos |
| 25  Write C++/Java program to implement Cohen-Sutherland line clipping algorithm for given window. Draw line using mouse interfacing to draw polygon  OR  Using Brsenham line drawing, draw following shape. |
| 26  Write C++/Java program to implement reflection of2-D object about X axis, Y axis and about X=Y axis. Also rotate object about arbitrary point given by user.  Or  **Using Bresenham's circle drawing & DDA line drawing algorithm, draw following shape** |
| 27  Write C++/Java program to generate Hilbert curve using concept of fractals.  OR  **Using Bresenham's circle drawing algorithm, draw following shape** |