University of Jaffna, Sri Lanka
Bachelor of Science Degree Examination in Computer Science, Level 3S - 2022
Bachelor of Science Degree Examination, Level 3G - 2022

(End of Semister Examination)

CSC302S2/CSC302G2: Computer Programming III

Part I: Graphics and Visual Computing

Answer All Questions

This paper has 1 questions in a total of 1 pages

Time allowed: One Hour and 30 Minutes

---

1. *Liang-Barsky Line Clipping* and *Mid-Point circle algorithm* are used in computer graphics to clip line segments outside a Window and to draw circles, respectively.

   (a) Implement these two algorithms as functions in the given code "clip.cpp". [45%]

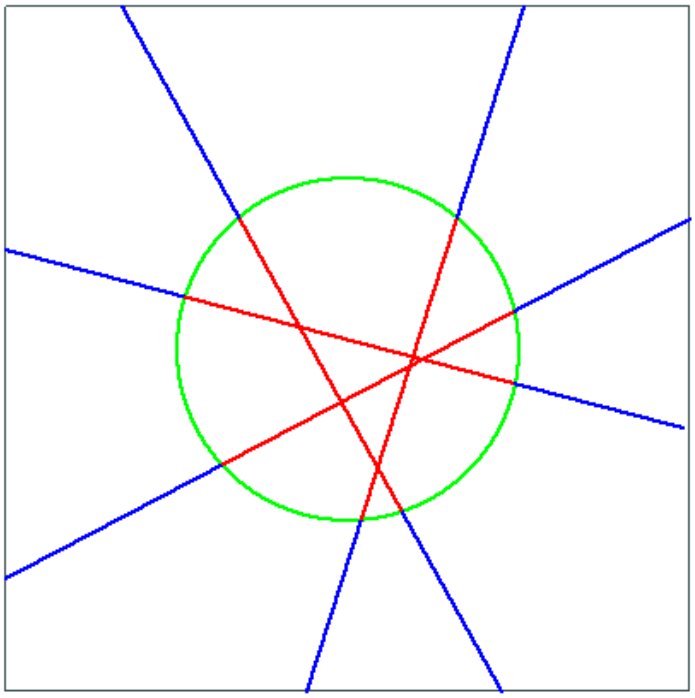
   (b) Using the provided *Bresenham Line* algorithm code, draw the Window with the following coordinates: Bottom-left coordinates (100, 100) and top-right coordinates (500, 500). [05%]

   (c) Using the *Mid-Point circle* function to draw a circle inside the window. The radius of the circle is 100 and the center coordinates are (300, 300). [05%]

   (d) Modify your program to clip the lines outside the Window. You need to consider the following to produce the clipped lines.

      i. The clipped lines should match the shape, size, background, and foreground colors of the output obtained from 'clip.exe'. A sample output is given in the following figure. [35%]

      ii. The output window should be closed if you press the 'Q' or 'q' keys. [10%]



[100 marks]

End

26 February 2024