

CS 462: Computer Graphics Lab (final assignment)

Instructions:

- 1. I'll check the assignment (no TA evaluation). This evaluation carries 50% of the lab component.**
- 2. Both the members of a group are supposed to know everything about the implementations and should be ready for questions. Excuses like "I have done this part etc." will not be considered.**
- 3. Copying is strictly prohibited. If I find any case of copying, both the group members will get 0 in the entire lab component.**
- 4. You can show the assignment either at my office or at your lab, by 30/11/13. There is no fixed time for checking. You can inform me whenever you are ready (within due date).**

Consider the following description of a scene in the world coordinate (right-handed system).

Object 1: A cube with side length 10 and one corner at origin. The surfaces are transparent and penetrable.

Object 2: A block having length 1 unit, breadth 1 unit and height 9 units. The top 1/3 the block is having red color, the middle 1/3 blue color and the bottom 1/3 green color.

The view volume is defined by Object 1. Assume object 2 is "pushed" through (any) one surface of object 1. Use a key press (any key of your choice) or mouse click event to simulate the process. With each key press, 1/3 of obj 2 gets into obj 1. Implement the scene after first push (green part inside), second push (blue part inside) and third push (red part inside). Your program should show the two objects at first and then the cube boundary with the part of obj 2 inside after each "push" (for each of top, front and side view).

Note:

- 1. You should write your own procedure for clipping (Cohen-Sutherland algorithm), HSR (z-buffer algorithm) and scan conversion (Bresenham's algorithm).**
- 2. You should implement the program by calling the library functions you designed so far.**
- 3. You should also implement the above using OpenGL functions for comparison.**
- 4. You can make reasonable assumptions, if required (I'll decide if your assumptions are reasonable).**