SUMMARY

The assignment covered the basic transformations in OpenGL and a head start for using graphics libraries. The glut libraries were used along with OpenGL for the windowing.The Bezier and Lagrange curves where plotted using the curve generating functions. It was obeserved that bezier curve passes only through first and last point but is a smoother curve, while lagrange curve passes through all the points, but will have large ripples if two point are closer in the x direction. The code was seperated out into different files . There are 3 header and source files which has function dealing with basic dispaly,structure declarations ,transformation and curve generation. Code redundancy was avoided to the maximum and most the functionalities were generalised.Since it was a 2D rendering assignment , gluOrtho2D function was used which defines the persepective as Orthographic projection. More of the time was given to make the add/delete functionality more convenient. The uses of each functionality in OpenGL library was learnt.

Lesson's learnt:

***** Calling gluOrtho2D(0,width,hieght,0) instead of gluOrtho(0,width,0,hieght) will take care of the nverted screen cordinates issue. Also gluOrthO makes sure the screen cordinate and opengl cordinate cordinate have direct matching.

***** Using #ifndef construct in the header file to avoid redeclaration of the structure declarations.

*****Glut handles arrow certain key inputs seperately and therefore needed to register a additional callback for handling special inputs from keyboard(eg. arrow keys).

*****C++ classes and operator overloading .(eg. = operator was overloaded).

***** Creating and using makefile.

***** Importance of translating the object before rotations and scaling.

References:

1.www.stackoverflow.com -for debugging
2.www.wikipedia.org – for curve generating functions
3. opengl_programming_guide_8th_edition- The redbook -for OpenGL library functions
4.www.youtube.com/watch?v=aw9wHbFTnAQ -for creating makefiles
5. Lecture videos by Ken Joy in youtube channel UC Davis Academics