**Project Objective**: To create and store a 3D object, apply transformations (rotate, scale, sheer), generate different projections, apply texture mapping, vanishing point for object, changing camera view/light source.

**Progress Report:**

Week 1 implementation: Creation of 3D object.

I have used the example of a house and created three elevations for it namely top view, front view and side view.

For implementing this I have used the salable vector graphics in html 5.

Week 2: 3D transformations

In this week I was able to implement translation on the house using the scalable vector graphics. Given the house (3D) the user can see its translation on the webpage upon clicking the translate button.

Week 3: 3D transformations (Continued)

In this week I was able to implement the remaining features like scaling,rotation,shear on the house using the scalable vector graphics. Given the house (3D) the user can see its translation, rotation,scaling and shearing on the webpage upon clicking the respective button.

Week 4: In this week I have implemented the texture/environment/bump mapping for the House.

Week 5: In this week I have implemented transform camera/light/viewer source for the House. For this I have used the Three.js framework for rendering of the 3D object as well as for the light shading.

Thus I have implemented most of the features of the project in the above mentioned timeline with incremental updates every week.

**Challenges faced:**

I had to learn the concept of scalable vector graphics(SVG) and all the elements associated with it and then had to implement the same.

Understanding the import export and embedding of the object along with the co-ordinates mapping for the transformation matrix.

I had to use a OpenGL framework for this and also had to learn new concepts of OpenGL coding and rendering. I had to see some tutorials for implementing the Three.js framework to incorporate the necessary modification in the library and also tweek the scripts to render my specific 3D object.

While coding I had to face many syntactical and semantic errors which made me learn new concepts and nuances in coding. I had to also learn new GUI libraries as I was new to OpenGL programming.

Following are the reference materials which helped me learn some concepts.

References:

1.https://developer.mozilla.org/en-US/docs/Web/SVG

2.https://developer.mozilla.org/en-US/docs/Web/SVG/Tutorial/Basic\_Shapes

3.https://css-tricks.com/transforms-on-svg-elements/

5.http://edutechwiki.unige.ch/en/Using\_SVG\_with\_HTML5\_tutorial

6.http://svgjs.com/importing-exporting/

7.https://threejs.org/examples/#webgl\_geometry\_shapes

8.https://threejs.org/

9.https://www.safaribooksonline.com/library/view/javascript-cookbook/9781449390211/ch15s08.html

10. https://www.w3schools.com/js/default.asp