1. Write a Program to Implement:
   1. 3D Translation
   2. 3D Rotation
   3. 3D Scaling

(Consider any three-dimensional shapes given by your graphics and library and Perform these Transformations.)

1. ***3D Translation***
2. Given, vertices of the 3D shape *(x1, y1, z1), (x2, y2, z2), …, (xn, yn, zn)* and, *tx, ty* and *tz* as translation distances on x-axis, y-axis and z-axis respectively.
3. Find the transformation matrix as:
4. For each *(xi, yi, zi),* perform the following:  
   a) Calculate: b) Plot *(xi’, yi’, zi’).*
5. ***3D Rotation***
6. Given, vertices of the 3D shape *(x1, y1, z1), (x2, y2, z2), …, (xn, yn, zn)* and, *θ* as angle of rotation.
7. Find the transformation matrix as:  
   If (Rotation on X-axis)  
   If (Rotation on Y-axis)  
   If (Rotation on Z-axis)
8. For each *(xi, yi, zi),* perform the following:  
   a) Calculate: b) Plot *(xi’, yi’, zi’).*
9. ***3D Scaling***
10. Given, vertices of the 3D shape *(x1, y1, z1), (x2, y2, z2), …, (xn, yn, zn)* and, *Sx, Sy* and *Sz* as scaling factors on x-axis, y-axis and z-axis respectively.
11. Find the transformation matrix as:
12. For each *(xi, yi, zi),* perform the following:  
    a) Calculate: b) Plot *(xi’, yi’, zi’).*