CSE 423
Assignment 2

1. Find the following composite transformation matrices as instructed:
    a. A 3D rotation of 90 degree clockwise about y-axis with respect to the point $(a,\ b,\ c)$ followed by a translation of $(a,\ b,\ c)$.
    b. A reflection about the line $ax\ -\ by\ +\ c\ =\ 0$ followed by a scaling "e" times with respect to the point $(a,\ b)$.
    c. A 3D rotation of 45 degree counterclockwise about z-axis with respect to point $(d,\ e,\ f)$ followed by a uniform scaling of factor 3 with respect to point $(d,\ e,\ f)$ and lastly followed by a translation of $(a,\ b,\ c)$.

2. Consider a scenario of two lights of intensity 'd' and 'e' at position $(a,\ b,\ c)$ and $(d,\ e,\ f)$ respectively. First source has diffuse and specular coefficients of 0.5 and 0.7 respectively. For the second light, the specular component is negligible, and the diffuse coefficient is found to be 0.3. The environment lacks any ambient light. Now you are told to calculate the total reflected light intensity according to phong's model at point $(c,\ e,\ a)$ of zx-plane for the camera position at $(f,\ b,\ d)$. Consider attenuation factor negligible for the above model.

N.B. The actual values of the parameters a, b, c, d, e, f can be found in your continuous assessment sheet in the 'Assignment-2 Input' tab.

Deadline: 1st April, 2023 Saturday in class time