Computer Graphic

Assignment No.3

Name and student ID: _____

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Deadline: 2021.11.16, 11:59 PM
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1. **(3D rotation): 1 point**
   Given a homogeneous point (4, 2, 3). Apply rotation 180 degree towards X, Y and Z axis and find out the new coordinate points.

2. **(Perspective projection): 1 point**
   Find the canonical perspective projection of the point (12,1,3) in the case when n = 6.

3. **(3D Reflection): 2 point**
   Given a 3D triangle with coordinate points A(3, 4, 1), B(6, 4, 2), C(4, 6, 3). Apply the reflection on the XZ plane and find out the new coordinates of the object.

4. **(Diffuse shader): 1 Point**
   A triangle with vertices P = (5,8,8), Q = (8,11,14), R = (0,17,5) has the color (193,67,97) at normal incidence. If the light direction is L = (0,4,1), what the diffuse color of the triangle?

>> Submit your answer by the deadline

• If you want to do it by hand (maybe on the computer or on paper), please don't forget that you should write the equations that you used, if the question is too easy to do (for example draw the line by hand or just transfer the point to other position), it's not meaning do it like simple drawing, you should use the methods and equation that newly learned, and make your answer by using them. And please don't skip the steps, write all of them

• If you want to submit the code, please don't forget that your code should be runnable without error and also contain reasonable comments and it would be great if you make a document for your code but it's not mandatory!

Good Luck! 😊