Week 7 Assignment 7

Due on 2020-11-04, 23:59 MST

1. In computer science, password security is crucial. Describe the importance of password security and suggest strategies to enhance it.

2. In computer science, the use of floating-point numbers can lead to errors. Discuss the concept of floating-point errors and how they can be minimized.

3. The image of an object is represented by an array of pixels. The light intensity values of the different pixels are given by a list.

   The pixel values corresponding to the original and transformed versions are stored in two arrays. Let $a$ and $b$ be defined by the neighboring averaging of two $x$-by-$y$ matrices, $A$ and $B$, with $A$ being the original image and $B$ being the transformed image.

   a. Derive the formula for the average of two matrices $A$ and $B$.

   b. Explain how this formula is applied in the context of image processing.

4. Match each of the following sentences to a correct computer science concept.

   a. A graph in computer science refers to a collection of vertices connected by edges.

   b. The concept of a stack in computer science is used in the implementation of recursion.

   c. A queue in computer science is used for prioritizing tasks.

5. In a computer graphics, the use of slicing can be used for rendering. Discuss the benefits and drawbacks of using slicing in computer graphics.

6. In a computer graphics, the use of clipping can be used for rendering. Discuss the benefits and drawbacks of using clipping in computer graphics.

7. In a computer graphics, the use of surface modeling can be used for rendering. Discuss the benefits and drawbacks of using surface modeling in computer graphics.

8. In computer graphics, the use of volume rendering can be used for rendering. Discuss the benefits and drawbacks of using volume rendering in computer graphics.

9. In computer graphics, the use of texture mapping can be used for rendering. Discuss the benefits and drawbacks of using texture mapping in computer graphics.

10. In computer graphics, the use of ray tracing can be used for rendering. Discuss the benefits and drawbacks of using ray tracing in computer graphics.

11. In computer graphics, the use of antialiasing can be used for rendering. Discuss the benefits and drawbacks of using antialiasing in computer graphics.

12. In computer graphics, the use of normal mapping can be used for rendering. Discuss the benefits and drawbacks of using normal mapping in computer graphics.

13. In computer graphics, the use of bump mapping can be used for rendering. Discuss the benefits and drawbacks of using bump mapping in computer graphics.

14. In computer graphics, the use of displacement mapping can be used for rendering. Discuss the benefits and drawbacks of using displacement mapping in computer graphics.

15. In computer graphics, the use of transparency can be used for rendering. Discuss the benefits and drawbacks of using transparency in computer graphics.

16. In computer graphics, the use of shadow mapping can be used for rendering. Discuss the benefits and drawbacks of using shadow mapping in computer graphics.

17. In computer graphics, the use of global illumination can be used for rendering. Discuss the benefits and drawbacks of using global illumination in computer graphics.

18. In computer graphics, the use of post-processing can be used for rendering. Discuss the benefits and drawbacks of using post-processing in computer graphics.

19. In computer graphics, the use of pre-processing can be used for rendering. Discuss the benefits and drawbacks of using pre-processing in computer graphics.

20. In computer graphics, the use of rendering can be used for rendering. Discuss the benefits and drawbacks of using rendering in computer graphics.