EXAM
DH2320 Computer Graphics and Visualization
2012-06-07
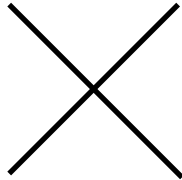
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Aids: None

The exam consists of 10 questions. The number of points awarded for a correct answer is stated next to each question. The maximum score is 22. To pass the exam, you need at least 12 points.

Write legibly! Answers that I cannot read will receive 0 points! When explaining, try to be as concise and clear as possible! Answers that I cannot understand will receive 0 points! Feel free to use figures/sketches to complement your written explanations.

Good luck! /Marcus

Question 1 (2p): With pseudo Open GL code draw two lines that looks like below. One should be red and the other one green!

Question 2 (2p): This excerpt from an OpenGL program transforms an object. Explain (preferably with a sketch) how it will move!

```
float anim = 0.0f;
void idle()
{
  anim += 1.0f;
  glutPostRedisplay();
}
void draw()
{
  ...
  glMatrixMode(GL_MODELVIEW);
  glLoadIdentity();
  glRotatef(anim, 0.0f, 1.0f, 0.0f);
  glTranslate(0.0f, 0.0f, -5.0f);
  glRotatef(2.0f * anim, 1.0f, 0.0f, 0.0f);
  glutSolidCube(1.0f);
  ...
}
```

Question 3 (2p): Describe the difference between a local illumination algorithm and a global illumination algorithm!
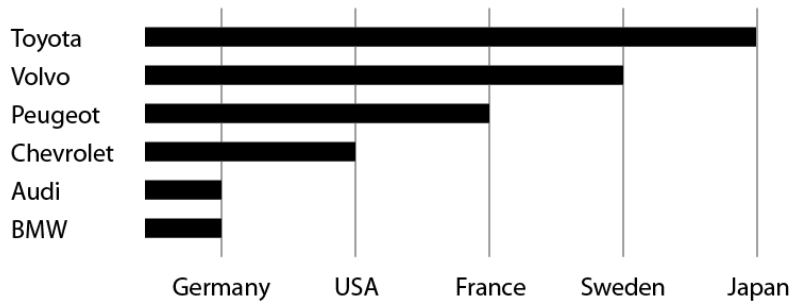
Question 4 (2p): In hidden surface removal in computer graphics, what is z-fighting? Explain why it arises!

Question 5 (2p): Describe the difference between an interpolating spline and a Bezier spline!

Question 6 (2p): In animation, what is a key frame? Describe how they are used!

Question 7 (2p): What geometrical shape is important for natural looking movement in animation and why is it important?

Question 8 (2p): Explain why is this graph an example of poor information design? Describe how it could be improved!

Question 9 (2p): Why is the rainbow color map often a poor choice for encoding data in visualization?

Question 10 (4p): Explain the difference between nominal, ratio, interval, and ordinal data!