

The following assignment is based on the code package for Homework 4. The questions are asking about the code provided for the assignment, not about code written as part of the solution. In other words, you can answer these questions without having yet solved Homework 4.

Problem 1: Compare the amount of data sent from CPU to GPU in Methods 1 and 2 from the Homework 4 code. (This question is based on the original code, not code written as part of the solution.)

Let n denote the number of balls (`chain_length`) and s the number of segments (`opt_segments`). Determine the amount of data, in bytes, sent to the GPU per frame for Method 1 and Method 2.

Problem 2: Consider the amount work to compute vertex coordinates and normals done by `render_spiral1` and by the vertex shader `vs_main`. The vertex shader is actually computing things multiple times that the code in `render_spiral1` computes just once. Identify such redundant computation. *Hint: It happens in two different ways, one way results in things computed twice, another way results in things computed s times.*

Problem 3: Explain how some of the problems above could be avoided if the CPU specified vertices using line strips and the geometry shader used lines as inputs. Of course, the geometry shader's output would be triangles.

Each point on the line would correspond to a `p` in the `t` loop in the `render_spiral1` routine.