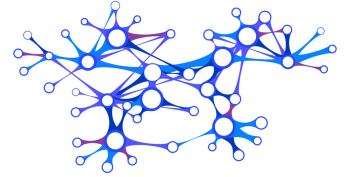


Level 3 Special Project

Graphs



Prerequisite Concepts	Concept 12
Key Concepts	Concept 15

The graph shown in Figure 1 consists of $8 * 4 + 1 = 33$ vertices and $8 * 4 = 32$ edges. It contains 1 centrally located vertex, c , and 32 peripheral vertices p_0, \dots, p_{31} . In this graph, c is connected to every peripheral vertex.

Write a Bricklayer program that creates a graph similar to the one shown in Figure 1. Before building this artifact it is recommended that you complete all Vitruvia exercises for Concept 15.

Hint: This graph should be created using techniques similar to those used to solve the previous problem. In this case, we start out with an integer list containing 8 integers and then use map functions to create the appropriate vertex lists.

It is important to note that, in this graph, each color contains one edge that is either vertical or horizontal. Also, no color contains both a vertical edge and a horizontal edge. Also note that a diagonal sequence of coordinates can be created by appropriately *shifting* (i.e., adding an offset to) a sequence of “unshifted” diagonal points. For example, compare the sequence $(0, 0), (8, 8), (16, 16), \dots$ with the shifted form $(0, 0 + 10), (8, 8 + 10), (16, 16 + 10), \dots$. How much to shift and how to shift is for you to figure out.

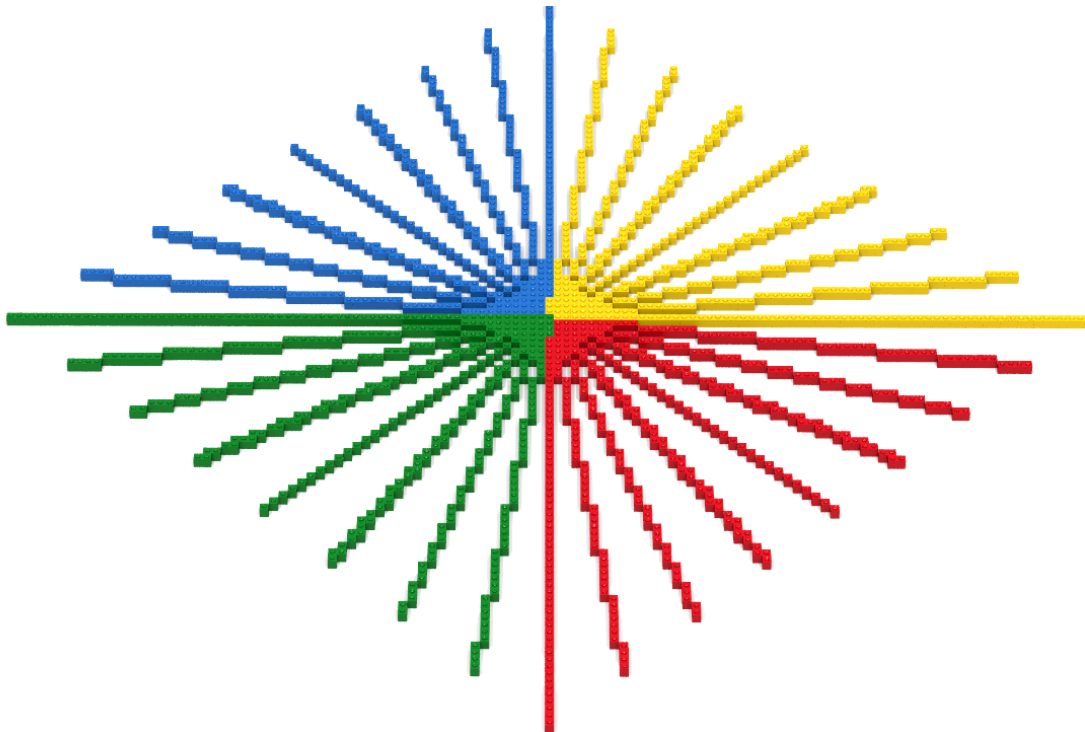


Figure 1: A graph with 65 vertices and 64 edges.

