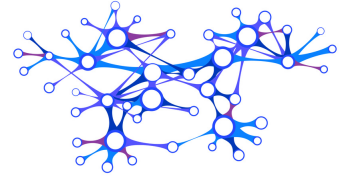


Level 3 Special Project

Graphs



Prerequisite Concepts	Concept 12
Key Concepts	Concept 15

The graph shown in Figure 1 consists of $12 + 2 = 14$ vertices and $12 * 2 = 24$ edges. The graph can be seen as containing 2 centrally located vertices, c_1 and c_2 , and 12 peripheral vertices p_1, \dots, p_{12} . In this graph, c_1 and c_2 are connected to all 12 peripheral vertices. Note that, due to the positioning and overwriting, there is some ambiguity in the pictorial representation of the graph. This is an example of a graph where a symbolic description of the graph, like the one shown below, can be very helpful.

$$V = \{c_1, c_2, p_1, p_2, p_3, p_4, p_5, p_6, p_7, p_8, p_9, p_{10}, p_{11}, p_{12}\}$$
$$E = \{(c_1, p_1), (c_1, p_2), (c_1, p_3), (c_1, p_4), (c_1, p_5), (c_1, p_6), (c_1, p_7), (c_1, p_8), (c_1, p_9), (c_1, p_{10}), (c_1, p_{11}), (c_1, p_{12}), (c_2, p_1), (c_2, p_2), (c_2, p_3), (c_2, p_4), (c_2, p_5), (c_2, p_6), (c_2, p_7), (c_2, p_8), (c_2, p_9), (c_2, p_{10}), (c_2, p_{11}), (c_2, p_{12})\}$$

Using the higher-order function *map*, write a Bricklayer program that creates a graph similar to the one shown below. Before building this artifact it is recommended that you complete all Vitruvia exercises for Concept 15.

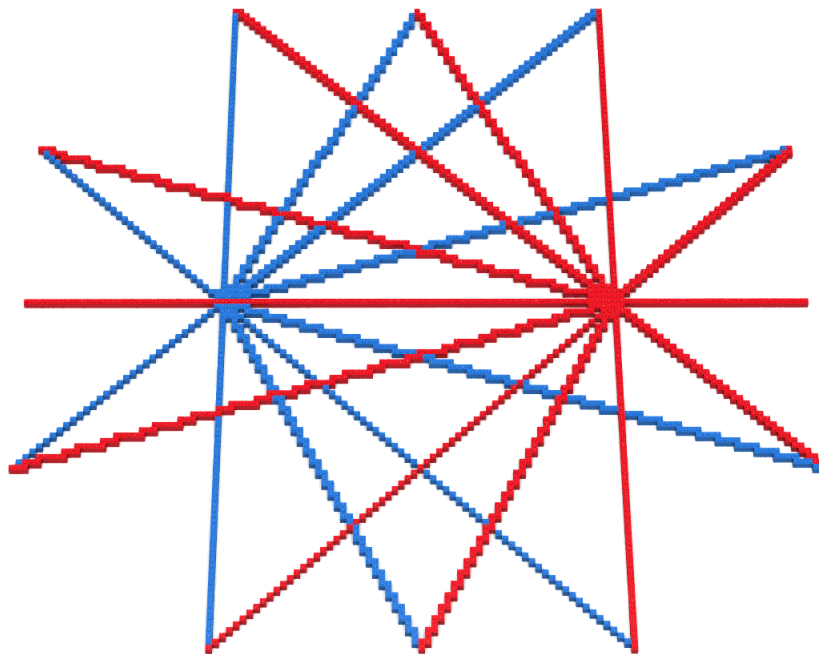


Figure 1: A graph consisting of 14 points and 24 edges.

