CSC/MAT-220: Discrete Structures
EFY 14

Thomas R. Cameron

November 20, 2017

The Seven Bridges of Königsberg.   The city of Königsberg in Prussia was set on both sides of the Pregel River, and included two large islands which were connected to eachother, or to the two mainland portions of the city, by seven bridges. See the figure below.
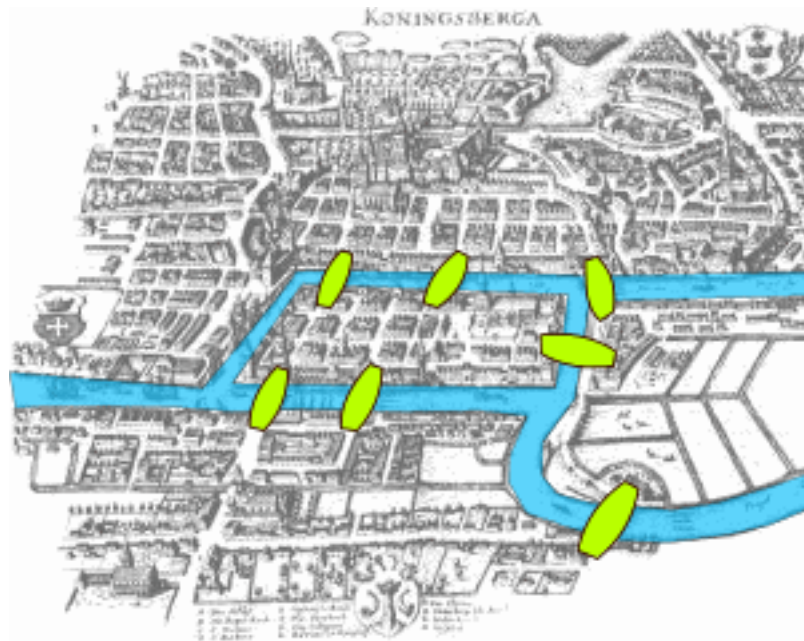

Figure 1: By Bogdan Giuscă

The goal is to walk through the city by crossing each bridge exactly once. Provide justification for why or why not such a walk is possible.

1

The Five Bridges of Kaliningrad. Two of the original seven bridges did not survive the bombing of Königsberg in World War II. Two others were later demolished and replaced by a modern highway. See the figure below.
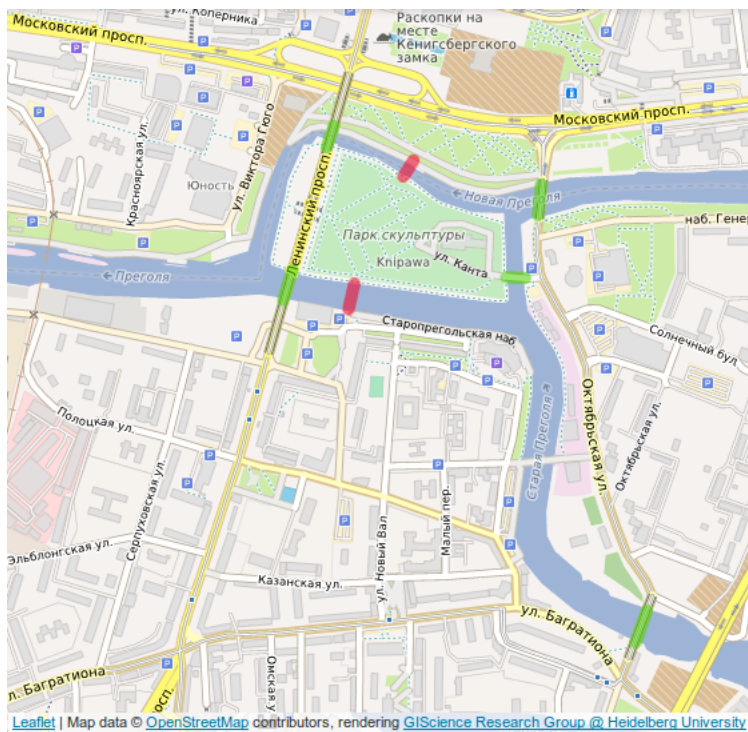

Figure 2: Locations of remaining bridges are in green, while those destroyed are in red.

Now can you construct a walk through the city that crosses each bridge exactly once? If so, provide justification and draw a graph and the walk below.