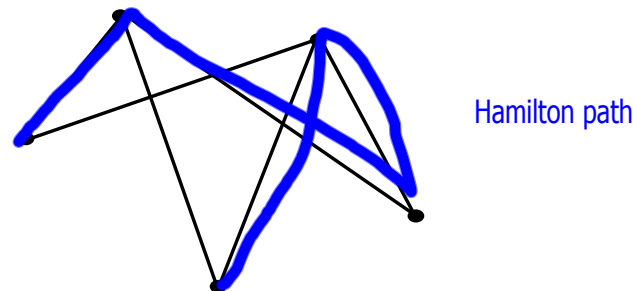
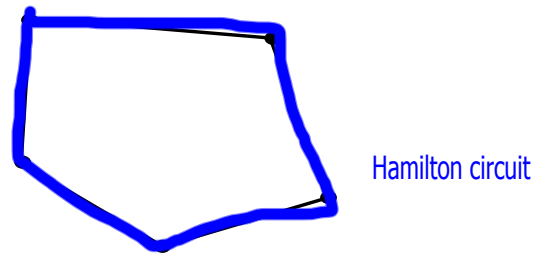
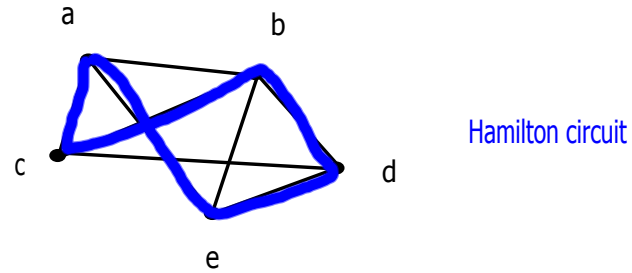




In 1856, Sir William Rowan Hamilton created a game called the Icosian game. The game consisted of a graph in which the vertices represented major cities in Europe. The object of the game was to find a path that visited each of the 20 vertices exactly once.

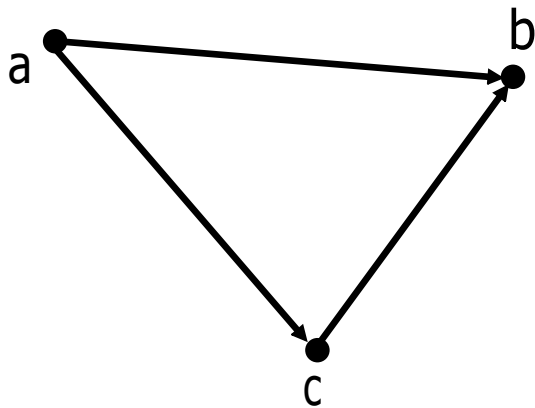
Hamiltonian path - a path that uses each vertex of a graph exactly once.

Hamiltonian circuit - the path ends at the starting vertex.



Tournaments - a digraph that results from giving direction to the edges of a complete graph.

In a competition, the players are represented by the vertices. The edges show who beat whom.



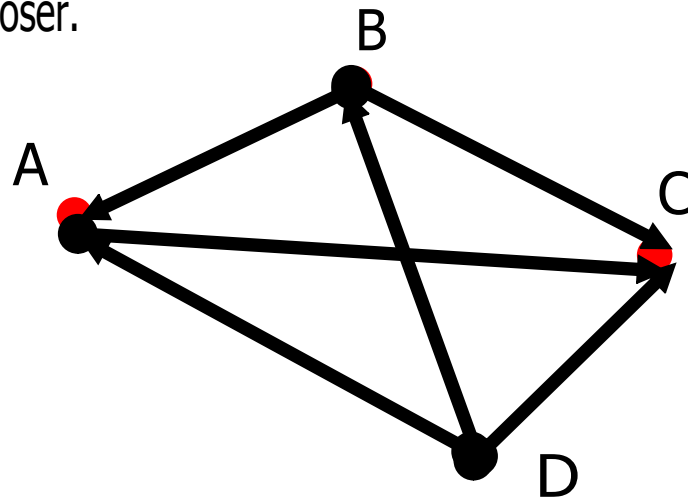
In a digraph, every tournament contains at least 1 Hamiltonian path. If there is exactly ONE such path, it can be used to rank the teams in order, from winner to loser.

Suppose four teams play in the school soccer round-robin tournament.  
 The results of the competition are as follows:

GAME	AB	AC	AD	BC	BD	CD
WINNER	B	A	D	B	D	D

Draw a digraph to represent the tournament.

Find a Hamiltonian path and use it to rank the participants from winner to loser.



D 3  
 B 2  
 A 1  
 C 0

# Homework p 188 #4 - 8