Component
Strongly connected
digraph

Directed path between any 2 pairs of nodes
DFS time
$O(n+m)$
$O(n^2)$

DFS tree

tree (not black)
cross $u-x, u-v$
forward
back $v-y$

claim graph contains cycle iff
DFS tree has back edge
DAG: directed acyclic graph
- topological ordering (or: sort)

Diagram:

Vertices: a, b, c, d, e

Edges:
- a → b
- a → c
- b → c
- c → d
- c → e
- d → e

Numbers:
- 7/10
- 8/9
- 3/6
- 4/5
- 1/2

Sequence: a, b, c, d, e
The diagram shows a sequence of events or steps, with dates and letters indicating different points. The sequence includes dates such as 3/10, 13/14, and 11/12, and letters like "w", "s", "j", and "u". The text below the diagram reads:

sz t so w u p b j s
18 17 14 12 10 9 8 7 2
DAG algorithms

linear time

shortest path
longest path
count paths