

CS 385  
Homework 5  
Due by Nov 3 1:00pm

Prof. Dietrich

## Assignment

1. Do exercises 1 and 5 on page 176.
2. Apply the strong connected component finding algorithm discussed in class to the directed graphs in exercises 1 and 9a on pages 176-177. Recall that a **strongly connected component**  $C$  of a directed graph  $G(V, E)$  is a subset such that:
  - $C \subset V$ ,
  - $\forall u, v \in C$ , there is a path  $u \rightsquigarrow v$  and a path  $v \rightsquigarrow u$ ,
  - $\forall w \in V$  and  $w \notin C$ , then  $\forall u \in C$ , there is no path from  $u$  to  $w$ , or no path from  $w$  to  $u$ .
3. How many strongly connected components are there in a **dag** (directed acyclic graph)?