Homework #10

Due date: 21:30, December 22th, Tuesday, 2015

Problem statement

Solve 2 problems from CPE test.

1. 10586:Ordering Tasks (80%)
   Execution time limit: 1 second.

   Input:
   The input will consist of several instances of the problem. Each instance begins with a line containing two integers, $1 \leq n \leq 100$ and m ($1 \leq m \leq 100$). n is the number of tasks (numbered from 1 to n) and m is the number of direct precedence relations between tasks. After this, there will be m lines with two integers i and j, representing the fact that task i must be executed before task j. An instance with n = m = 0 will finish the input.

   Output
   For each instance, print a line with n integers representing the tasks in a possible order of execution.

   Sample Input
   5 4
   1 2
   2 3
   1 3
   1 5
   3 2
   1 2
   1 3
   4 3
   1 2
   2 3
   1 4
   0 0

   Sample Output
   1 4 2 5 3
   1 3 2
   1 2 3 4

2. 11082:Life on Mars? (20%)
   Execution time limit: 30 second.

   An Stardust message is a non-empty sequence S = S(0) S(1) ... S(n - 1) of natural numbers. The blank is used to delimit the elements of the sequence. A message is considered valid if there is a permutation of S , say S' , such that S' is idempotent, that is, for all $0 \leq i < |S'|$ it holds that S'(S'(i)) = S'(i) . Any non-valid sequence is considered hacked.

   Input
   The input consists of several test cases, one per line. Each test case contains a Stardust message: a non-empty sequence S = S(0) S(1) ... S(n - 1) of natural numbers ($1 \leq n \leq 10^5$). The blank is used to delimit the elements of the sequence.
   The end of the input is indicated when the Stardust message is "0". Do not process this last line.

   Output
   For each case in the input, print one line. If the input message is valid, any idempotent permutation of the input message S must be printed following the format of the input messages. If the input message is hacked, the warning "Message hacked by the Martians!!!" must be printed in a single line.

   Sample Input
   2 0 1
   2 1 1
   3 2 2
   2 2 2
   1 2 2 1 1
   2 4 1 3 0
   2 4 2 3 0
   2 4 6 3 0
   5 8 1 9 4 0 7 11 2 6 10 3
   5 2 1 2 4 0 7 11 2 6 2 3
   1 2 1 2 1 0 7 11 2 6 2 1
   1 2 1 2 1 0 7 7 2 6 2 1
   1 2 1 2 1 0 7 7 2 6 12 1
   0

   Sample Output
   0 1 2
   1 1 2
   Message hacked by the Martians!!!
   2 2 2
   1 1 2 1 2
   0 1 2 3 4
   0 2 2 3 4
   Message hacked by the Martians!!!
   0 1 2 3 4 5 6 7 8 9 10 11
   0 1 2 3 4 5 6 7 2 2 2 11
   0 1 2 1 1 1 6 7 2 2 2 11
   0 1 2 1 1 1 6 7 2 2 2 7
   Message hacked by the Martians!!!

Requirements

1. Write a C program that is capable of handling input.
2. See the sample run below for the required output format, **your output must be in the exactly same format with the sample.**

Submission

Be sure to upload your source code to E3 by the due date and name your file as "**HW10_xxxxxxx_1.c**" and "**HW10_xxxxxxx_2.c**", where **xxxxxxx** is your student ID.