Spring 2022 CSE 321 Operating Systems Lab Assignment 6

Total Marks: 20 Deadline: 28th April, 11:59 PM

Question 1 {10 Marks}

Write a program in c to detect if the system will face any deadlock in the future. If a deadlock is detected then print "Deadlock Ahead" otherwise print "Safe here". The situation is given below. (Allowed to use Banker's Algorithm).

Note: The code can be implemented in several different ways, but make sure the parameter remains the same as shown below.

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 \begin{array}{l} n=5; \ /\!/ \ Number \ of \ processes \\ m=4; \ /\!/ \ Number \ of \ resources \\ int \ alloc[5][4]=\left\{\left\{0,1,0,3\right\}, \ /\!/ \ P0 \ /\!/ \ Allocation \ Matrix \\ \left\{2,0,0,0\right\}, \ /\!/ \ P1 \\ \left\{3,0,2,0\right\}, \ /\!/ \ P2 \\ \left\{2,1,1,5\right\}, \ /\!/ \ P3 \\ \left\{0,0,2,2\right\}; \ /\!/ \ P4 \\ \\ int \ max[5][4]=\left\{\left\{6,4,3,4\right\}, \ /\!/ \ P0 \ /\!/ \ MAX \ Matrix \\ \left\{3,2,2,1\right\}, \ /\!/ \ P1 \\ \left\{9,1,2,6\right\}, \ /\!/ \ P2 \\ \left\{2,2,2,8\right\}, \ /\!/ \ P3 \\ \left\{4,3,3,7\right\}; \ /\!/ \ P4 \\ \\ int \ avail[4]=\left\{3,3,2,1\right\}; \ /\!/ \ Available \ resources \\ \end{array}
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Question 2 {10 Marks}

Write a c program that will generate the safe sequence of process execution for the situation given below:(Use Banker's Algorithm).

Note: The code can be implemented in several different ways, but make sure the parameter remains the same as shown below.

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 \begin{array}{l} n=6; \ /\!/ \ Number \ of \ processes \\ m=4; \ /\!/ \ Number \ of \ resources \\ int \ alloc[6][4]=\left\{\left\{0,1,0,3\right\}, \ /\!/ \ P0 \ /\!/ \ Allocation \ Matrix \\ \left\{2,0,0,3\right\}, \ /\!/ \ P1 \\ \left\{3,0,2,0\right\}, \ /\!/ \ P2 \\ \left\{2,1,1,5\right\}, \ /\!/ \ P3 \\ \left\{0,0,2,2\right\}, \ /\!/ \ P4 \\ \left\{1,2,3,1\right\}; \ /\!/ \ P5 \\ \end{array} \\ int \ max[6][4]=\left\{\left\{6,4,3,4\right\}, \ /\!/ \ P0 \ /\!/ \ MAX \ Matrix \\ \left\{3,2,2,4\right\}, \ /\!/ \ P1 \\ \left\{9,1,2,6\right\}, \ /\!/ \ P2 \\ \left\{2,2,2,8\right\}, \ /\!/ \ P3 \\ \left\{4,3,3,7\right\}, \ /\!/ \ P4 \\ \left\{6,2,6,5\right\}; \ /\!/ \ P5 \\ \end{array} \\ int \ avail[4]=\left\{2,2,2,1\right\}; \ \ /\!/ \ Available \ resources \\ \end{array}
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