

HOMework 1 (DUE TUESDAY JANUARY 31, 12 NOON)

THE EIGHT QUEEN PROBLEM

- Write MATLAB code using a backtracking algorithm by means of a recursive call to a nested function; follow the pseudocode shown on page 116 of **hw1_handout.pdf**. The code should return all solutions (ignore symmetry).
- Submit the homework on bcourses in the Assignments section under Homework_1. You should create a folder named **lastname_firstname_hw1**. Place all of your m-files in this folder and zip it. Please upload this single zip file.
- The submitted material must contain the following:
 - A working version of the code, so that a run can be initiated with a call to a function named **queens**. This function should return an $8 \times 8 \times N$ matrix of data type **logical**, where N is the number of solutions found and a “true” entry in an 8×8 solution represents a queen. You may use more than one m-file, but it should be initiated by calling

```
>> SolutionsMat=queens
```
 - An explanation of *your* implementation. This should be done using the first comment lines of the **queens.m** file, so that calling

```
>> help queens
```

displays your identity (full name) and the explanation of your code.
- Note: The function “logical” can be used to convert a numeric matrix to a matrix with logical type data. <http://www.mathworks.com/help/matlab/ref/logical.html>