

```
1: Script started on Tue Mar 6 21:09:03 2012
2: bash-3.2$ cat -n vi\007iiqueens.pl.lis
3: bash-3.2$ cat -n vi\007iiqueens.pl
4:      1  % $Id: viiiqueens.pl,v 1.3 2011-05-19 19:53:59-07 - - $ */
5:      2
6:      3  not( X ) :- X, !, fail.
7:      4  not( _ ).
8:      5
9:      6  remove( Item, [ Item | Tail ], Tail ).
10:     7
11:     8  remove( Item, [ Head1 | Tail1 ], [ Head1 | Tail2 ] ) :-
12:     9      remove( Item, Tail1, Tail2 ).
13:    10
14:    11  threatens( Rank1, File1, Rank2, File2 ) :-
15:    12      Rankdiff is abs( Rank1 - Rank2 ),
16:    13      Filediff is abs( File1 - File2 ),
17:    14      Rankdiff == Filediff.
18:    15
19:    16  place( Rank, File, Rank, [], [ File ] ).
20:    17
21:    18  place( Rank1, File1, Rank2, [ File2 | Rest ], [ File2 | Gives ] ) :-
22:    19      not( threatens( Rank1, File1, Rank2, File2 )),
23:    20      Nextrank2 is Rank2 + 1,
24:    21      place( Rank1, File1, Nextrank2, Rest, Gives ).
25:    22
26:    23  queens( _, [], Sequence, Sequence ).
27:    24
28:    25  queens( Rank, Start, Partial, Answer ) :-
29:    26      remove( One, Start, Remaining ),
30:    27      place( Rank, One, 1, Partial, New ),
31:    28      Nextrank is Rank + 1,
32:    29      queens( Nextrank, Remaining, New, Answer ).
33:    30
34:    31  queens :-
35:    32      queens( 1, [1,2,3,4,5,6,7,8], [], Answer ),
36:    33      write( Answer ), nl,
37:    34      fail.
38:    35
39:    36  % TEST: queens.
40: bash-3.2$ gprolog
41: GNU Prolog 1.3.1
42: By Daniel Diaz
43: Copyright (C) 1999-2009 Daniel Diaz
44: | ?- [viii queens].
45: compiling /afs/cats.ucsc.edu/courses/cmpls112-wm/Languages/prolog/Examples/viii que
eens.pl for byte code...
46: /afs/cats.ucsc.edu/courses/cmpls112-wm/Languages/prolog/Examples/viii queens.pl co
mpiled, 36 lines read - 4021 bytes written, 11 ms
47:
48: yes
49: | ?- queens.
50: [1,5,8,6,3,7,2,4]
51: [1,6,8,3,7,4,2,5]
52: [1,7,4,6,8,2,5,3]
53: [1,7,5,8,2,4,6,3]
54: [2,4,6,8,3,1,7,5]
55: [2,5,7,1,3,8,6,4]
56: [2,5,7,4,1,8,6,3]
57: [2,6,1,7,4,8,3,5]
58: [2,6,8,3,1,4,7,5]
59: [2,7,3,6,8,5,1,4]
60: [2,7,5,8,1,4,6,3]
61: [2,8,6,1,3,5,7,4]
62: [3,1,7,5,8,2,4,6]
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63: [3,5,2,8,1,7,4,6]
64: [3,5,2,8,6,4,7,1]
65: [3,5,7,1,4,2,8,6]
66: [3,5,8,4,1,7,2,6]
67: [3,6,2,5,8,1,7,4]
68: [3,6,2,7,1,4,8,5]
69: [3,6,2,7,5,1,8,4]
70: [3,6,4,1,8,5,7,2]
71: [3,6,4,2,8,5,7,1]
72: [3,6,8,1,4,7,5,2]
73: [3,6,8,1,5,7,2,4]
74: [3,6,8,2,4,1,7,5]
75: [3,7,2,8,5,1,4,6]
76: [3,7,2,8,6,4,1,5]
77: [3,8,4,7,1,6,2,5]
78: [4,1,5,8,2,7,3,6]
79: [4,1,5,8,6,3,7,2]
80: [4,2,5,8,6,1,3,7]
81: [4,2,7,3,6,8,1,5]
82: [4,2,7,3,6,8,5,1]
83: [4,2,7,5,1,8,6,3]
84: [4,2,8,5,7,1,3,6]
85: [4,2,8,6,1,3,5,7]
86: [4,6,1,5,2,8,3,7]
87: [4,6,8,2,7,1,3,5]
88: [4,6,8,3,1,7,5,2]
89: [4,7,1,8,5,2,6,3]
90: [4,7,3,8,2,5,1,6]
91: [4,7,5,2,6,1,3,8]
92: [4,7,5,3,1,6,8,2]
93: [4,8,1,3,6,2,7,5]
94: [4,8,1,5,7,2,6,3]
95: [4,8,5,3,1,7,2,6]
96: [5,1,4,6,8,2,7,3]
97: [5,1,8,4,2,7,3,6]
98: [5,1,8,6,3,7,2,4]
99: [5,2,4,6,8,3,1,7]
100: [5,2,4,7,3,8,6,1]
101: [5,2,6,1,7,4,8,3]
102: [5,2,8,1,4,7,3,6]
103: [5,3,1,6,8,2,4,7]
104: [5,3,1,7,2,8,6,4]
105: [5,3,8,4,7,1,6,2]
106: [5,7,1,3,8,6,4,2]
107: [5,7,1,4,2,8,6,3]
108: [5,7,2,4,8,1,3,6]
109: [5,7,2,6,3,1,4,8]
110: [5,7,2,6,3,1,8,4]
111: [5,7,4,1,3,8,6,2]
112: [5,8,4,1,3,6,2,7]
113: [5,8,4,1,7,2,6,3]
114: [6,1,5,2,8,3,7,4]
115: [6,2,7,1,3,5,8,4]
116: [6,2,7,1,4,8,5,3]
117: [6,3,1,7,5,8,2,4]
118: [6,3,1,8,4,2,7,5]
119: [6,3,1,8,5,2,4,7]
120: [6,3,5,7,1,4,2,8]
121: [6,3,5,8,1,4,2,7]
122: [6,3,7,2,4,8,1,5]
123: [6,3,7,2,8,5,1,4]
124: [6,3,7,4,1,8,2,5]
125: [6,4,1,5,8,2,7,3]
126: [6,4,2,8,5,7,1,3]

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127: [6,4,7,1,3,5,2,8]
128: [6,4,7,1,8,2,5,3]
129: [6,8,2,4,1,7,5,3]
130: [7,1,3,8,6,4,2,5]
131: [7,2,4,1,8,5,3,6]
132: [7,2,6,3,1,4,8,5]
133: [7,3,1,6,8,5,2,4]
134: [7,3,8,2,5,1,6,4]
135: [7,4,2,5,8,1,3,6]
136: [7,4,2,8,6,1,3,5]
137: [7,5,3,1,6,8,2,4]
138: [8,2,4,1,7,5,3,6]
139: [8,2,5,3,1,7,4,6]
140: [8,3,1,6,2,5,7,4]
141: [8,4,1,3,6,2,7,5]
142:
143: (29 ms) no
144: | ?-
145:
146: bash-3.2$ exit
147:
148: Script done on Tue Mar  6 21:09:32 2012
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