

* Alpha-Beta Pruning for 8-Queens

```
function is_safe (board, row, col):
    for i from 0 to row - 1:
        if board[i] == col or abs (board[i] - col)
            == abs (i - row)
            return False
    return True
```

```
function minimax (board, row, alpha,
                  beta, is_max):
```

```
    if row == N
        return 1
```

```
    if is_max:
```

```
        max_score = 0
```

```
        for col from 0 to N-1:
```

```
            if is_safe (board, row, col):
```

```
                board [row] = col
```

```
                score = minimax (board, row + 1,
                                alpha, beta, False)
```

```
                max_score += score
```

```
                board [row] += 1
```

```
            alpha = max (alpha, max_score)
```

```
            if beta <= alpha:
```

```
                break
```

```
        return max_score
```

```
    else:
```

```
        min_score = infinity
```

for col from 0 to N-1:

if is-safe (board, row, col):

board[row] = col

score = minimax (board, row+1,
alpha, beta, True)

min_score = min (min_score, score)

board[row] = -1

beta = min (beta, min_score)

if beta <= alpha:

break

return min_score

Output

			Q			
					Q	
						Q
Q						
			Q			
					Q	
				Q		
	Q					

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