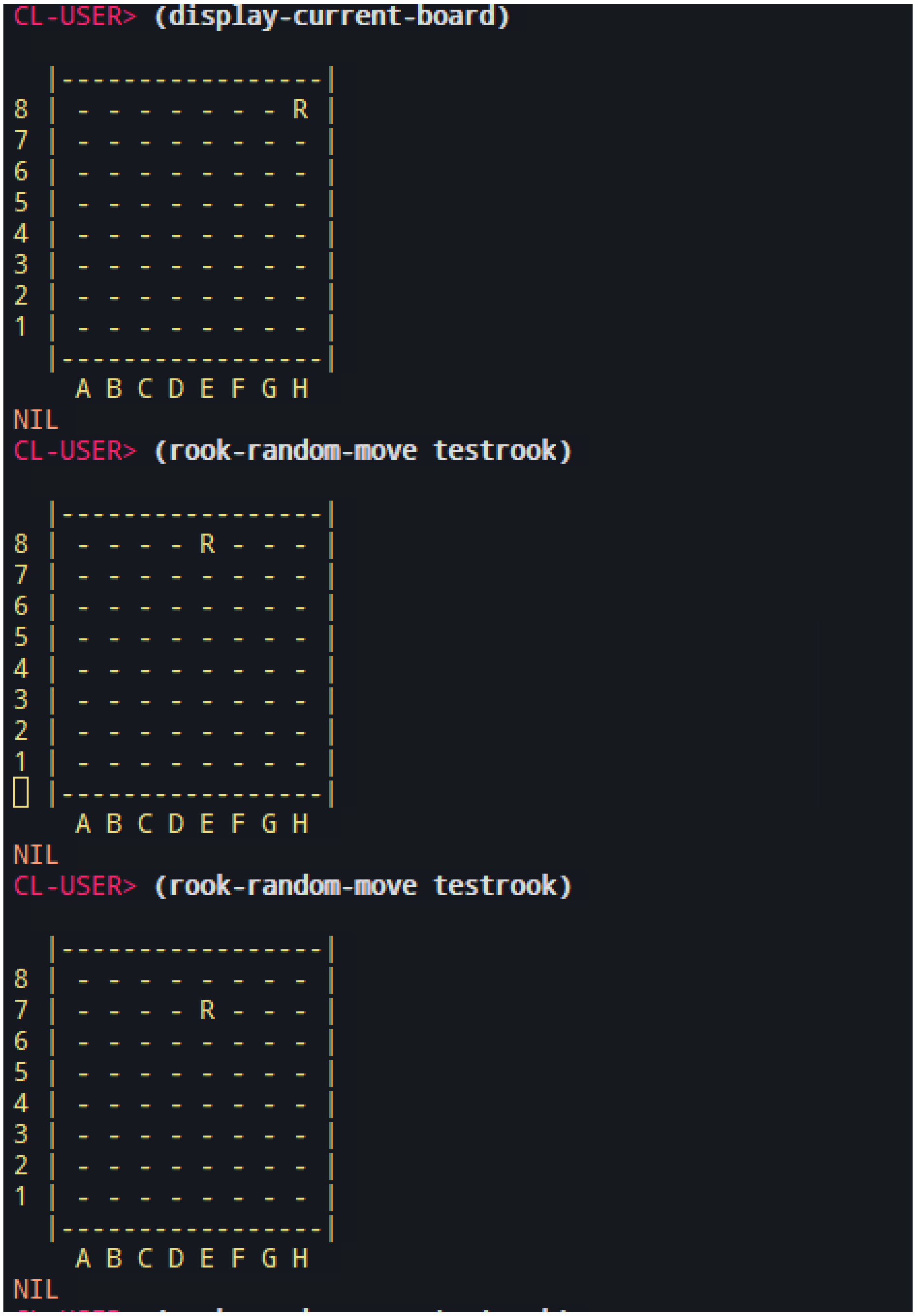
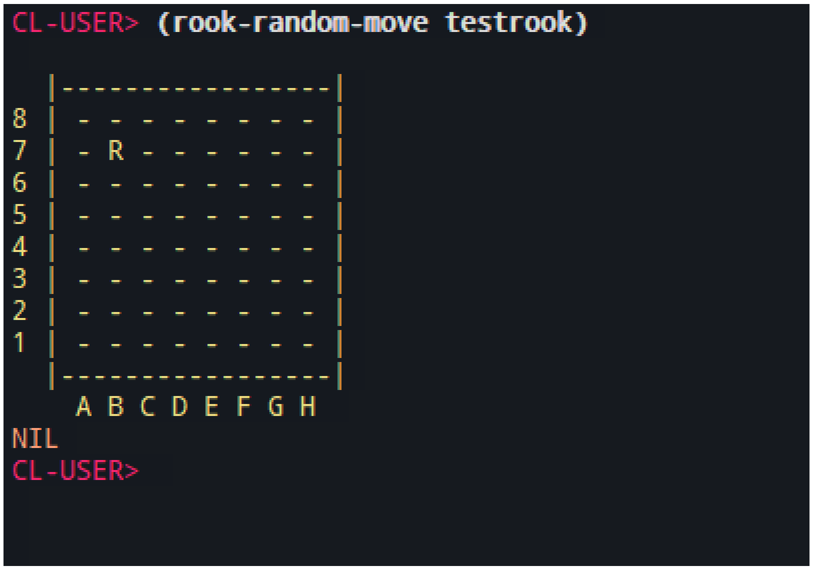
Chess AI Player Task Four: Rook Piece

Abstract: The goal of this task was to have the rook make random moves around the board.

Demo:

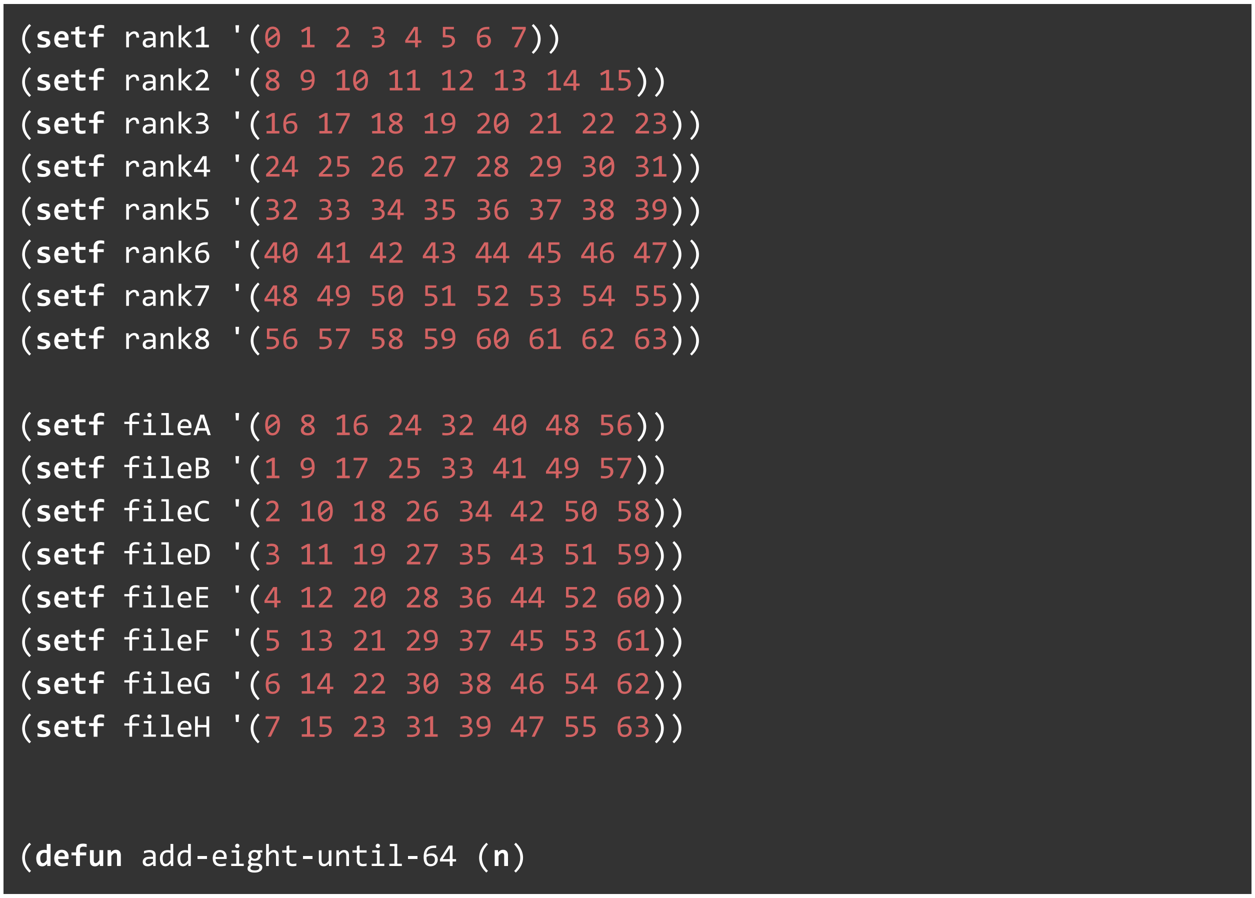


```
CL-USER> (display-current-board)

   |-----------------|
8  | - - - - - - - R |
7  | - - - - - - - - |
6  | - - - - - - - - |
5  | - - - - - - - - |
4  | - - - - - - - - |
3  | - - - - - - - - |
2  | - - - - - - - - |
1  | - - - - - - - - |
   |-----------------|
     A B C D E F G H
NIL
CL-USER> (rook-random-move testrook)

   |-----------------|
8  | - - - - R - - - |
7  | - - - - - - - - |
6  | - - - - - - - - |
5  | - - - - - - - - |
4  | - - - - - - - - |
3  | - - - - - - - - |
2  | - - - - - - - - |
1  | - - - - - - - - |
   |-----------------|
     A B C D E F G H
NIL
CL-USER> (rook-random-move testrook)

   |-----------------|
8  | - - - - - - - - |
7  | - - - - R - - - |
6  | - - - - - - - - |
5  | - - - - - - - - |
4  | - - - - - - - - |
3  | - - - - - - - - |
2  | - - - - - - - - |
1  | - - - - - - - - |
   |-----------------|
     A B C D E F G H
NIL
```



```
CL-USER> (rook-random-move testrook)

  |-----------------|
8 | - - - - - - - - |
7 | - R - - - - - - |
6 | - - - - - - - - |
5 | - - - - - - - - |
4 | - - - - - - - - |
3 | - - - - - - - - |
2 | - - - - - - - - |
1 | - - - - - - - - |
  |-----------------|
    A B C D E F G H
NIL
CL-USER>
```

Code:



```lisp
(setf rank1 '(0 1 2 3 4 5 6 7))
(setf rank2 '(8 9 10 11 12 13 14 15))
(setf rank3 '(16 17 18 19 20 21 22 23))
(setf rank4 '(24 25 26 27 28 29 30 31))
(setf rank5 '(32 33 34 35 36 37 38 39))
(setf rank6 '(40 41 42 43 44 45 46 47))
(setf rank7 '(48 49 50 51 52 53 54 55))
(setf rank8 '(56 57 58 59 60 61 62 63))

(setf fileA '(0 8 16 24 32 40 48 56))
(setf fileB '(1 9 17 25 33 41 49 57))
(setf fileC '(2 10 18 26 34 42 50 58))
(setf fileD '(3 11 19 27 35 43 51 59))
(setf fileE '(4 12 20 28 36 44 52 60))
(setf fileF '(5 13 21 29 37 45 53 61))
(setf fileG '(6 14 22 30 38 46 54 62))
(setf fileH '(7 15 23 31 39 47 55 63))


(defun add-eight-until-64 (n)
  (loop for i from (+ 8 n) to 64 by 8
        collect i))

(defun sub-eight-until-0 (n)
  (loop for i from (- n 8)  downto 0 by 8
        collect i))

(defun rook-moves-in-file (n)
  (append
   (sub-eight-until-0 n)
   (add-eight-until-64 n)))

(defun rook-rndm-in-file (n)
  (setf moves (rook-moves-in-file n))
  (nth (random (length moves)) moves))

(defun rook-get-rank-moves (n)
  (cond
    ((member n rank1) rank1)
    ((member n rank2) rank2)
    ((member n rank3) rank3)
    ((member n rank4) rank4)
    ((member n rank5) rank5)
    ((member n rank6) rank6)
    ((member n rank7) rank7)
    ((member n rank8) rank8)
    )
  )

(defun rook-get-file-moves (n)
  (cond
    ((member n fileA) fileA)
    ((member n fileB) fileB)
    ((member n fileC) fileC)
    ((member n fileD) fileD)
    ((member n fileE) fileE)
    ((member n fileF) fileF)
    ((member n fileG) fileG)
    ((member n fileH) fileH)
    )
  )

(defun get-possible-rook-moves (cs)
  (append (rook-get-file-moves cs) (rook-get-rank-moves cs)))

(defun rook-get-rand-square (cs)
 (nth (random (length (get-possible-rook-moves cs)))
(get-possible-rook-moves cs)))

(defmethod rook-random-move ((obj rook))
  (moverook obj (rook-get-rand-square (current-square obj))))
```