

Chess AI Player Task 10: Knight Piece

Abstract: The goal of this task was to take the created knight piece and to have a human move the piece around the board. Also I am combining the random moves task to this task so it will also contain moving the piece around the board randomly. The piece works by checking if the new square is 17 15 10 or 6 square away from the current square. The random moves work by taking a list of these numbers and randomly selecting from the list.

Demo:

```
8 |-----|
7 |-----|
6 |-----|
5 |-----|
4 |-----N-----|
3 |-----|
2 |-----|
1 |-----|
  |A B C D E F G H|
T
CL-USER> (moveknight testknight e6)

8 |-----|
7 |-----|
6 |-----N-----|
5 |-----|
4 |-----|
3 |-----|
2 |-----|
1 |-----|
  |A B C D E F G H|
NIL
CL-USER> (moveknight testknight c5)

8 |-----|
7 |-----|
6 |-----|
5 |-----N-----|
4 |-----|
3 |-----|
2 |-----|
1 |-----|
  |A B C D E F G H|
NIL
CL-USER> (moveknight testknight b3)

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

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

T
CL-USER> (knight-random-move testknight)

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

NIL
CL-USER> (knight-random-move testknight)

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

NIL
CL-USER> (knight-random-move testknight)

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

NIL
CL-USER>

Code:

```
(defun knight-legal-move (cs ns)
  (setf king-addition '(-17 -15 -10 -6 6 10 15 17))
  (cond
    ((number-in-list-p (- cs ns) king-addition))))

(defmethod moveknight ((obj knight) (x integer))
  (setf (desired-square obj) x)
  (cond
    ((knight-legal-move (current-square obj) (desired-square obj))
      (setf (aref the-board (desired-square obj)) 7)
      (setf (aref the-board (current-square obj)) 0)
      (setf (current-square obj) x)
      (display-current-board))))

(defmethod knight-get-move ()
  (setf knight-addition '(-17 -15 -10 -6 6 10 15 17))
  (nth (random (length knight-addition)) knight-addition))

(defmethod knight-random-move ((obj knight))
  (moveknight obj (- (current-square obj) (knight-get-move))))
```