```python
#!/usr/bin/env python

import curses
import copy
import sys
import time
import random


##################
# INITIALIZATION #
##################


def main(argv):
    if not len(argv) == 2:
        usage()
        exit(1)

    width = 0
    height = 0
    try:
        width = int(argv[0])
        height = int(argv[1])
    except:
        usage()
        exit(2)

    board = createBoard(width, height)
    if board == None:
        usage()
        exit(3)

    try:
        curses.wrapper(snake, board)
    except Exception as err:
        print(err)

    exit(0)


def usage():
```

```
43      print("USAGE: ./snake.py [WIDTH] [HEIGHT]")
44      print("where [HEIGHT] and [WIDTH] are integers between 10 and the bounds of your terminal")
45
46
47  def createBoard(width, height):
48      if width < 10 or height < 10:
49          return None
50
51      board = []
52      for i in range(height + 2):
53          board.append([])
54          for j in range(width + 2):
55              if i == 0 or i == height + 1:
56                  board[i].append("-")
57              elif j == 0 or j == width + 1:
58                  board[i].append("|")
59              else:
60                  board[i].append(" ")
61
62      board[0][0] = "+"
63      board[height + 1][0] = "+"
64      board[0][width + 1] = "+"
65      board[height + 1][width + 1] = "+"
66
67      return board
68
69
70  ##################
71  # GAME FUNCTIONS #
72  ##################
73
74
75  def snake(stdscr, board):
76      height = len(board)
77      width = len(board[0])
78
79      maxHeight = curses.LINES - 3
80      maxWidth = curses.COLS - 1
81
82      if height >= maxHeight or width >= maxWidth:
83          raise Exception("Bounds too large, the max width is " + str(maxWidth - 3) + " and the max height is " +
str(maxHeight - 3))
```

```
84
85      curses.start_color()
86      curses.init_pair(1, curses.COLOR_BLACK, curses.COLOR_GREEN)
87      curses.init_pair(2, curses.COLOR_BLACK, curses.COLOR_RED)
88
89      curses.curs_set(False)
90
91      stdscr.clear()
92      stdscr.refresh()
93
94      direction = "right"
95
96      snake = []
97      for i in range(3):
98          snake.append([height // 2, (width // 4) - i])
99
100     fruit = [(height // 2), width - (width // 4)]
101
102     drawScreen(board, snake, fruit, stdscr)
103
104     stdscr.addstr(height + 2, 0, "Press any key to start")
105     stdscr.refresh()
106     stdscr.getch()
107     stdscr.addstr(height + 2, 0, "")
108
109     drawScreen(board, snake, fruit, stdscr)
110
111     while True:
112         time.sleep(0.1)
113
114         direction = getDirection(direction, stdscr)
115         drawScreen(board, snake, fruit, stdscr)
116         if updateGame(board, snake, fruit, direction) == False:
117             break
118
119         if snake[0][0] == 0 or snake[0][1] == 0 or snake[0][0] == len(board) - 1 or snake[0][1] == len(board[0])
- 1:
120             break
121
122     stdscr.nodelay(0)
123     stdscr.addstr(height + 2, 0, "GAME OVER - SCORE: " + str(len(snake) - 3), curses.A_BOLD | curses.A_UNDERLINE)
124     stdscr.addstr(height + 3, 0, "Press any key to exit")
```

```
125     stdscr.refresh()
126     time.sleep(0.25)
127 
128     stdscr.getch()
129 
130 
131 def drawScreen(board, snake, fruit, stdscr):
132     stdscr.clear()
133 
134     for i in range(len(board)):
135         for j in range(len(board[i])):
136             stdscr.addstr(i, j, board[i][j])
137 
138     for i, pos in enumerate(snake):
139         stdscr.addstr(pos[0], pos[1], " ", curses.color_pair(1) | curses.A_DIM)
140         if i == 0:
141             stdscr.addstr(pos[0], pos[1], "X", curses.color_pair(1) | curses.A_BOLD)
142 
143     stdscr.addstr(fruit[0], fruit[1], " ", curses.color_pair(2) | curses.A_BOLD)
144 
145     stdscr.addstr(len(board) + 2, 0, "SCORE: " + str(len(snake) - 3))
146 
147     stdscr.refresh()
148 
149 
150 def updateGame(board, snake, fruit, direction):
151     oldSnake = copy.deepcopy(snake)
152 
153     if direction == "right":
154         snake[0][1] += 1
155     elif direction == "left":
156         snake[0][1] -= 1
157     elif direction == "up":
158         snake[0][0] -= 1
159     elif direction == "down":
160         snake[0][0] += 1
161 
162     for i in range(1, len(snake)):
163         snake[i] = oldSnake[i - 1]
164 
165     if snake[0] == fruit:
166         snake.append(oldSnake[-1])
```

```
167             fruit[:] = list(newFruit(snake, fruit, board))
168 
169         for i in range(1, len(snake)):
170             if snake[0] == snake[i]:
171                 return False
172 
173         return True
174 
175 
176     def getDirection(direction, stdscr):
177         stdscr.nodelay(1)
178         key = stdscr.getch()
179 
180         if key == curses.KEY_RIGHT and not direction == "left":
181             return "right"
182         elif key == curses.KEY_LEFT and not direction == "right":
183             return "left"
184         elif key == curses.KEY_UP and not direction == "down":
185             return "up"
186         elif key == curses.KEY_DOWN and not direction == "up":
187             return "down"
188         else:
189             return direction
190 
191     def newFruit(snake, fruit, board):
192         height = len(board)
193         width = len(board[0])
194         newFruitY = random.randrange(1, height - 1)
195         newFruitX = random.randrange(1, width - 1)
196 
197         if [newFruitY, newFruitX] == fruit:
198             return newFruit(snake, fruit, board)
199 
200         for i in snake:
201             if [newFruitY, newFruitX] == i:
202                 return newFruit(snake, fruit, board)
203 
204         return [newFruitY, newFruitX]
205 
206 
207     ############
208     # STARTUP #
```

```
209  ###########
210
211
212  if __name__ == "__main__":
213      main(sys.argv[1:])
```