

**Sam Haskins**

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Submitted to: Nikos Rentas

Course code: ICS4U

## **Snake User Guide**

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# Introduction

The purpose of this document is to familiarize the user with the operation of the Snake software project. Snake is a game in which the player navigates a growing snake to apples on a two-dimensional grid. The player must avoid hitting the edge of the grid or colliding with the snake's tail. The Snake application additionally stores five high scores; this allows users to compete with themselves. Unlike other versions of the game, Snake is supported on any platform that supports the Java Standard Edition 10.0.2 Runtime Environment, including support for the Swing Application Programming Interface.

Snake was analyzed, designed, and implemented by Sam Haskins, a high school student residing in Ottawa, Ontario, Canada.


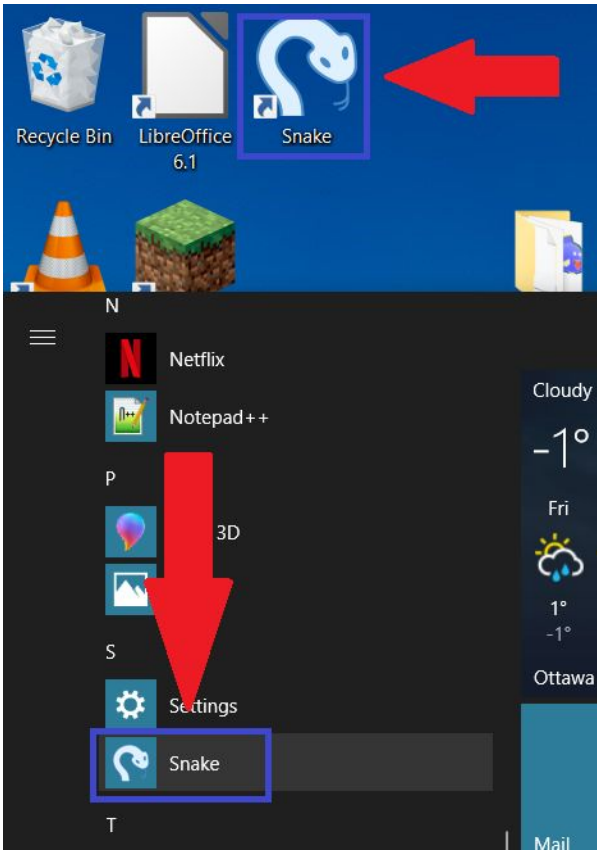
The most recent version of Snake, 1.0, was released on December 13<sup>th</sup>, 2018, with one future release anticipated.

Portions of this document are adapted from Battleship's User Guide, used with permission from the author (Haskins, 2018).

## Loading Instructions

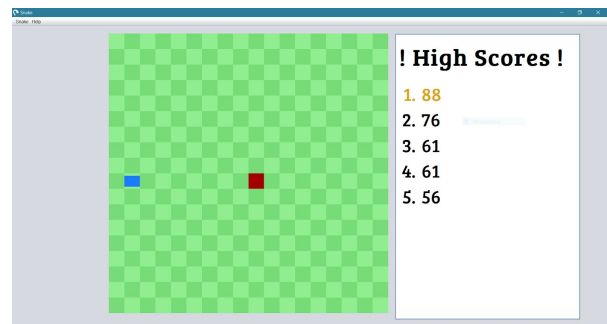
Snake may be loaded via clicking a provided shortcut or via launching the Snake Java Archive directly. The first method, using a shortcut, is only available on platforms on which Snake was installed using the Windows Installer method. For more details, consult Snake's Installation Instructions. Procedures for both methods are provided in this section.

## Procedure 1: Launching Snake using a Shortcut

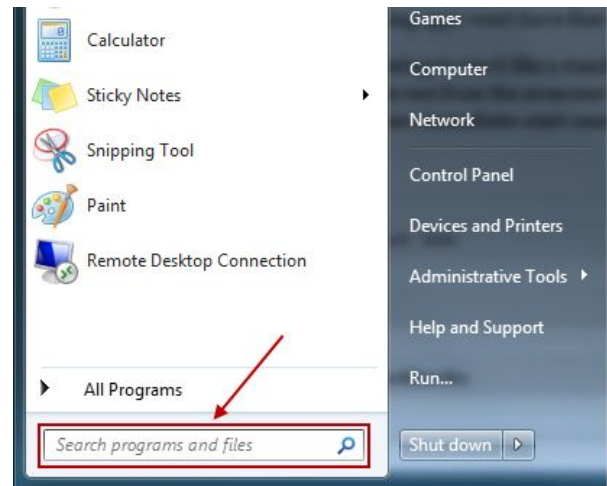
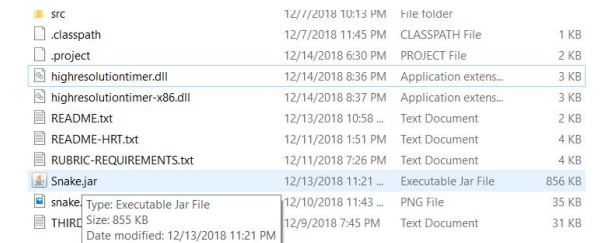
Text Instructions	Visual Instructions
<p>1) Ensure that Snake was installed on the platform using the Windows Installer method. If it was not, this procedure cannot be used.</p> <p>For more details, consult the Snake Installation Instructions.</p>	 <p>(Berg, 2015)</p>
<p>2) Double click the start menu or desktop shortcut. Both shortcuts work; it is recommended to use whichever is more convenient.</p>	

3) Snake will start.

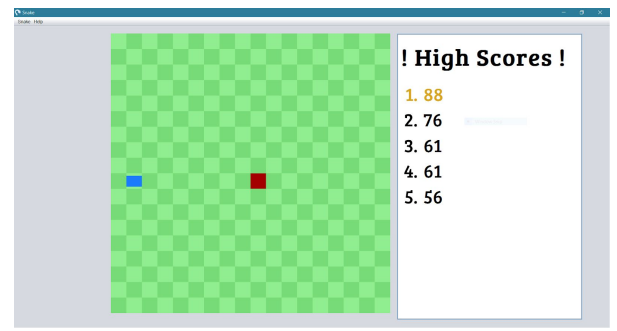
The procedure is complete.



## Procedure 2: Launching Snake's Java Archive

Text Instructions	Visual Instructions
<p>1) Locate the "Snake.jar" file in the directory where Snake was installed.</p> <p>For more information, consult the Snake Installation Instructions.</p>	 <p>(Dodd)</p>
<p>2) Invoke the "Snake.jar" file.</p> <p>On Windows platforms, this is accomplished via two clicks in rapid succession. This is referred to as a "double-click".</p>	

3) Snake will start.  
The procedure is complete.



## Using Snake's Features


This section of the User Guide describes Snake's features and the procedures for using them. Before using any of Snake's features, the Snake application must be launched; to do this, consult the previous section.

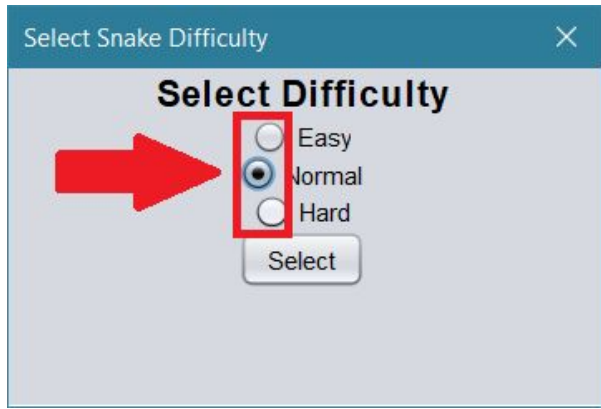
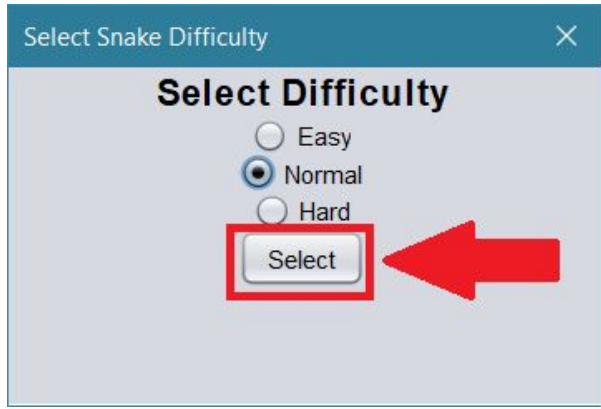
### Select Snake Difficulty

#### Description

The user is allowed to select the difficulty they desire for their Snake game. Options are easy, normal, and hard. The difficulty controls the speed of the snake.

#### Procedure 3: Select Snake Difficulty

Text Instructions	Visual Instructions
<p>1) To reach the "Select Snake Difficulty" dialog, invoke the "Snake &gt; Select difficulty" menu entry.</p> <p>The dialog will also be shown when Snake is first run.</p>	

<p>2) Select the desired difficulty using the provided radio buttons.</p> <p>Options are easy, normal, and hard.</p>	
<p>3) After the desired difficulty is selected, press the “Select” button of the dialog.</p> <p>The desired difficulty will be used for the Snake game.</p> <p>Difficulties:</p> <ol style="list-style-type: none"> <li>1) Easy - Snake moves every 15 milliseconds.</li> <li>2) Normal - Snake moves every 8 milliseconds.</li> <li>3) Hard - Snake moves every 5 milliseconds.</li> </ol>	

### Sample Input

The input for the Select Snake Difficulty feature may be easy, normal, or hard.

**Table 1: Select Snake Difficulty Sample Output**

Difficulty	Game Speed
Easy	Very slow
Normal	Slow
Hard	Regular speed

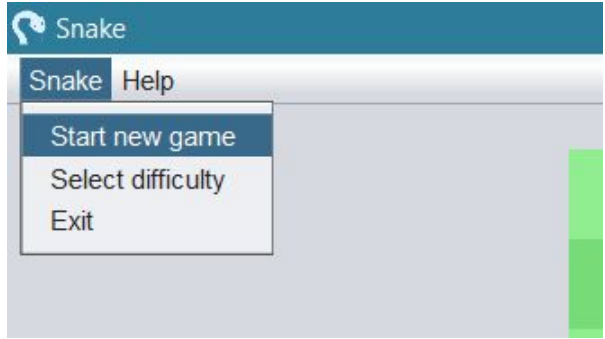
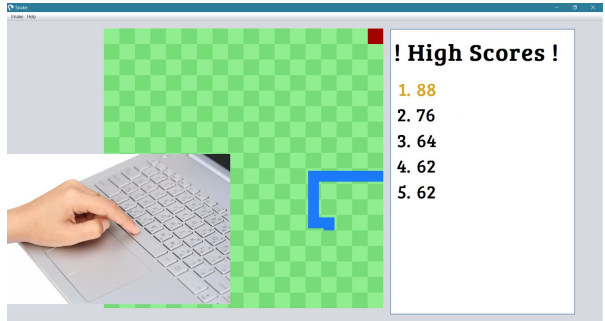
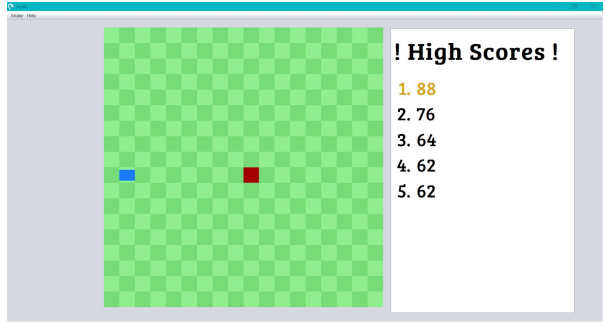
### Start New Game

#### Description

The user is allowed to start a new game of Snake at any time.



#### Procedure 4: Start New Game

Text Instructions	Visual Instructions
1a) To start a new game, invoke the "Snake > Start new game" menu entry.	
1b) Alternatively, if a game of Snake is not in progress, a new game may be initiated by pressing the spacebar.	 (Chack, 2016)
2) A new game of Snake will be initiated. To begin, press any key.  The previously selected difficulty will be used.	

#### Sample Input

The Start New Game feature is capable of starting a new game when a game is or is not in progress.

#### Sample Output



A new game of Snake is begun.

## Set Snake Direction

### Description

The player is allowed to change the direction of the snake using the arrow keys. However, 180° turns are not permitted. For example, if the snake is currently moving right, the user may not turn left.

### Procedure 5: Set Snake Direction

Text Instructions	Visual Instructions										
1) Press the arrow key corresponding to the desired direction for the snake.	 (Wickens, 2009)										
2) If the selected direction is not opposite the existing direction, the snake will turn and move in the new direction.	 <table border="1"><caption>! High Scores !</caption><tbody><tr><td>1.</td><td>88</td></tr><tr><td>2.</td><td>76</td></tr><tr><td>3.</td><td>64</td></tr><tr><td>4.</td><td>62</td></tr><tr><td>5.</td><td>62</td></tr></tbody></table>	1.	88	2.	76	3.	64	4.	62	5.	62
1.	88										
2.	76										
3.	64										
4.	62										
5.	62										

### Sample Input

The snake's direction may be set to up, down, left, and right.

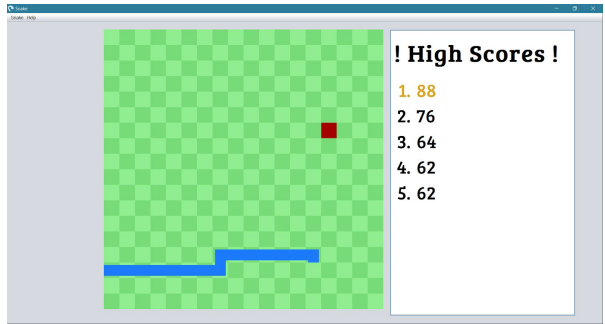

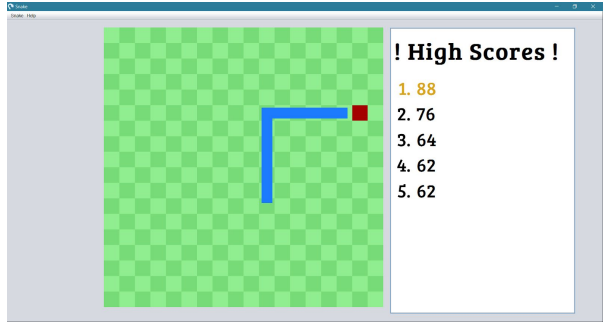
### Sample Output

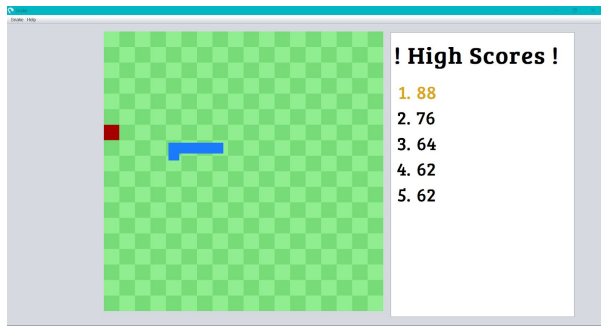
Provided the requested direction is not opposite the existing direction, the snake's direction will be set to up, down, left, or right.

## Rules of Snake

Understanding the rules of the Snake game is important to effectively play the game. Snake is advanced periodically; the frequency of this depends on the difficulty. The snake is moved in the direction set by the user, after which one of the following actions will take place:

**Table 2: Rules of Snake**

Rule	Image
<p>The snake hits the edge of the board.</p> <p>The game ends.</p>	 <p>! High Scores !</p> <ol style="list-style-type: none"> <li>1. 88</li> <li>2. 76</li> <li>3. 64</li> <li>4. 62</li> <li>5. 62</li> </ol>
<p>The snake collides with its tail.</p> <p>The game ends.</p>	 <p>! High Scores !</p> <ol style="list-style-type: none"> <li>1. 88</li> <li>2. 76</li> <li>3. 64</li> <li>4. 62</li> <li>5. 62</li> </ol>
<p>The snake fills the entire board.</p> <p>The game ends.</p>	(No image)
<p>The snake eats an apple.</p> <p>The snake increases in size by one unit.</p>	 <p>! High Scores !</p> <ol style="list-style-type: none"> <li>1. 88</li> <li>2. 76</li> <li>3. 64</li> <li>4. 62</li> <li>5. 62</li> </ol>

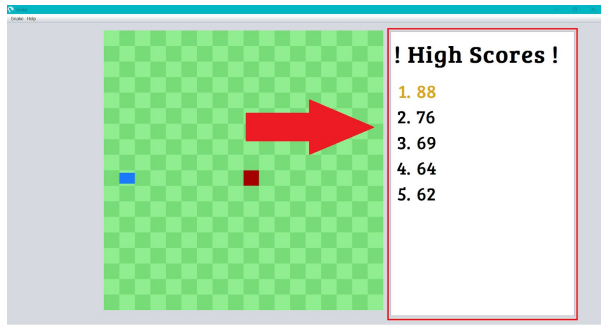
<p>None of the above.</p> <p>The game continues.</p>	
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## View High Scores

### Description

Snake displays five high scores in a component to the right of the snake board. These high scores can be viewed by the user at any time.

### Procedure 6: View High Scores

Text Instructions	Visual Instructions
<p>1) Read the high scores from the display located to the right of the Snake board.</p>	

### Sample Input

The high scores display stores the five highest scores achieved by the user. It can be viewed at any time.

### Sample Output

The high scores component displays the five highest scores, as achieved by the user. It displays the highest score in gold.

## Technical Notes

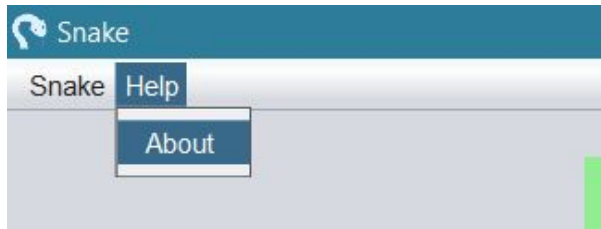

The high scores feature of Snake stores the high scores in a file called “.snakescores” in the user’s home directory. On Windows, this file will additionally be marked hidden.

## About

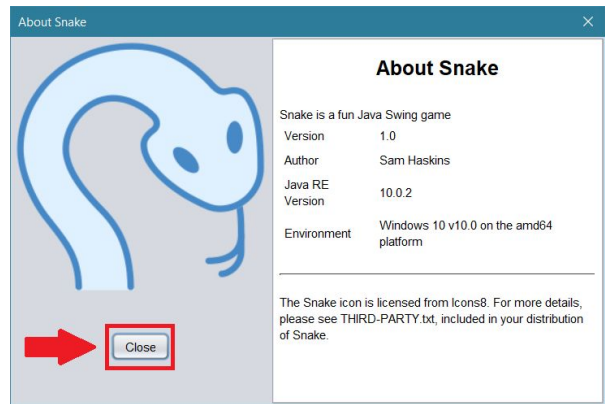
### Description

Use the “About” feature to find information about Snake and the environment upon which it is running. This feature displays information about Snake, Snake’s version, the version of the Java platform, and the operating system’s architecture and version.

### Procedure 7: About Snake

Text Instructions	Visual Instructions
1) To open the “About” dialog, invoke the “Help > About” menu item.	 A screenshot of the Snake application window. The title bar says "Snake". The menu bar has "Snake" and "Help". The "Help" menu is open, showing an "About" option.
2) The about dialog will open, displaying information about Snake and the platform.	 A screenshot of the "About Snake" dialog box. It features a blue snake icon on the left and a text area on the right. The text area contains the following information: "Snake is a fun Java Swing game", "Version 1.0", "Author Sam Haskins", "Java RE Version 10.0.2", and "Environment Windows 10 v10.0 on the amd64 platform". There is a "Close" button at the bottom left of the dialog box.

3) To close the about dialog, click the “Close” button.



### Sample Input

Sample input for the “About” feature is limited to invoking the “Help > About” menu item.

### Sample Output

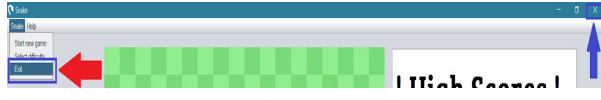
The “About” feature will open the about dialog, displaying information about Snake and the platform.

## Exit

### Description

Snake contains an “Exit” menu item. This item, when invoked, exits the program.

### Procedure 8: Exit

Text Instructions	Visual Instructions
<p>1) To exit Battleship, invoke the “Snake &gt; Exit” menu item.</p> <p>Alternatively, the exit button provided by the platform’s window manager may be invoked with the same effect.</p>	

2) Snake will exit immediately.

The procedure is complete.



(Gothelf, 2016)

### **Sample Input**

Sample inputs for the “Exit” feature include clicking the menu item “Snake > Exit” and clicking a platform window-manager defined close button.

### **Sample Output**

The output of the “Exit” feature is Snake immediately exiting.

## References

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