CSCI-101 Programming 1

Lab 12

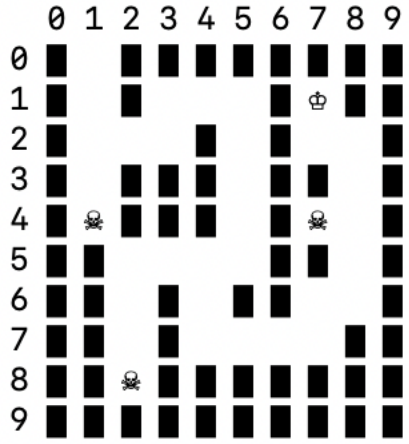
INSTRUCTIONS
Log into cs.bridgewater.edu and create a directory named **lab12** in your csci101 directory. Inside your **Lab12** directory create a file named **MazeGenerator.java**.

In this lab you will create a 10x10 array of characters and populate the array with the Unicode characters shown in the table below. You can store Unicode characters in a 2D array just as you would any other character. For example to put a skull character at row 0, column 0 in a 2D array named **maze**, we would write the following:

maze[0][0] = '\u2620';

Code	char	glyph
1	'\u2007'	
2	'\u2588'	■
3	'\u2620'	☠
4	'\u2654'	♔

By the end of this lab you should be able to create and print a maze stored in a 2D array that looks similar to the one below.



Let's Go!

- Create a method named **printMaze** that takes a 2D array of characters as an argument and print the 2D array as shown above. Include the indices above the maze and on the left hand side of the maze. Note: You may have to come back and do this after you have started main so that you can test it.

- Create a method named **printActionMenu** that prints to the screen the following menu.

  1. Change cell
  2. Exit

  Choose an action:

- Create a method named **printGlyphMenu** that prints to the screen the following menu.

  [1] [2] ■ [3] ☠ [4] ♔

  Choose a character code:

- Create a method named **main** that includes the following:

  Declare a Scanner that can read from the keyboard.

  Declare a 10x10 array of characters named **maze.**
  Initialize all of the characters in **maze** to the black box character (code 2) shown in the table above.

  Print the maze to the screen using **printMaze**. (Now is the time to go back and polish up printMaze so that it appears as shown in the image).

  Now create an infinite loop and within the loop do the following:

  Call **printActionMenu** to display the menu.
  Read the value entered by the user into a variable named **choice.**

  If the user chooses 2, gracefully terminate the program.

  If the user chooses 1,

  Ask the user to choose a row, and read the value entered by the user into a variable named **row**. If the value entered by the user is not a valid row number, continue to the top of the infinite loop using the **continue;** statement.

  Ask the user to choose a column, and read the value entered by the user into a variable named **column**. If the value entered by the user is not a valid column number, continue to the top of the infinite loop using the **continue;** statement.

  Call **printGlyphMenu** to print the glyph options to the screen.
  Read the value entered by the user into a variable named **code**.

  If the value entered by the user is not a valid code, continue to the top of the infinite loop using the **continue;** statement.

  Store the selected character at the specified row and column in **maze.**
  Call **printMaze** to print the maze to the screen.