Introduction to programming – Activity 6

Getting started

☐ Double-click on the file *Activity6.R*

☐ Make sure your working directory is set to Activity6

Main exercise

You should have noticed that in the last few weeks, we wrote down a lot of coordinates and plotted a lot of lines. You must be a pro by now! This week, we will use all of the skills we learned to make our own maze, customize it, and then play a game with it.

☐ Your maze needs to be unique, so follow your instructor's instruction to decide what number you will have and write it down below. The number 888 is used as an example.

Maze number: _____

☐ First, you need to decide what your maze will look like and draw it. Use a piece of squared paper and draw an x- and y-axis. Choose between a 4X4, 6X6, or 8X8 maze. The larger the maze, the more work.

Size of the maze: _____

☐ Then, decide where your start and end points will be. Put a "S" on your start point, and an "E" at the end. Record these points.

Runner (start):   x_start = _____   y_start = _____

Finish flags (end):   x_end = _____   y_end = _____

☐ Draw walls to connect the "S" on your drawing with the "E". Make sure they are on the lines. After you have your main path, add more lines to confuse people. Don't forget: the more walls, the more work.

☐ Record the start (x1, y1) and end (x2, y2) coordinates of each wall. Hint: Jessica likes to start with the bottom and move up for the horizontal walls, then start from the left and move right for the vertical walls. You can use a highlighter to show which walls you already recorded. Use the sheet provided and don't worry, you don't have to fill out all of the lines!

☐ Decide what color you want your maze to be and record it below.

Maze color: _____

☐ Open the file **Positions_N.csv**, go to **File > Save As…** and replace **N** by your number. Enter your start and end coordinates below the appropriate columns and save your changes.

☐ Open the file **Walls_N.csv**, go to **File > Save As…** and replace **N** by your number. Enter your wall coordinates and **save your changes**.

☐ Open the file **Preferences_N.csv**, go to **File > Save As…** and replace **N** by your number. Enter your wall color under color (don't add quotation marks) and the size of your maze under size. **Save your changes**.

☐ Open the file Activity6.R, add your number on line 5. **Save your changes.**
```
all_maze <- c(888, YourNumber)
```

☐ When everyone is done entering their information or if there is nobody at the computer, type `source("Activity6.R")` in the R console. Did your maze look the way you expected? Try to solve it in the light first to make sure it works!

Advanced Advanced activities – if your group is done early

☐ **Try your maze in the dark.** Find the lines below (they appear twice) and remove one of the # before each of them. Save your changes and type `source("Activity6.R")` in the R console. The architect should use your drawing for the maze plans.
```
# # Add a black square (the room is dark)
# rect(0, 0, 6, 6,
#      col = "black", border=par("fg"), lty=NULL, lwd=par("lwd"),
xpd=FALSE)
```

Congratulations, you are now very good at troubleshooting and modifying a computer program!

It is now time to move beyond the maze and towards waves…

Record the position of your walls here

Line	x1	y1	x2	y2
1				
2				
3				
4				
5				
6				
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10				
11				
12				
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