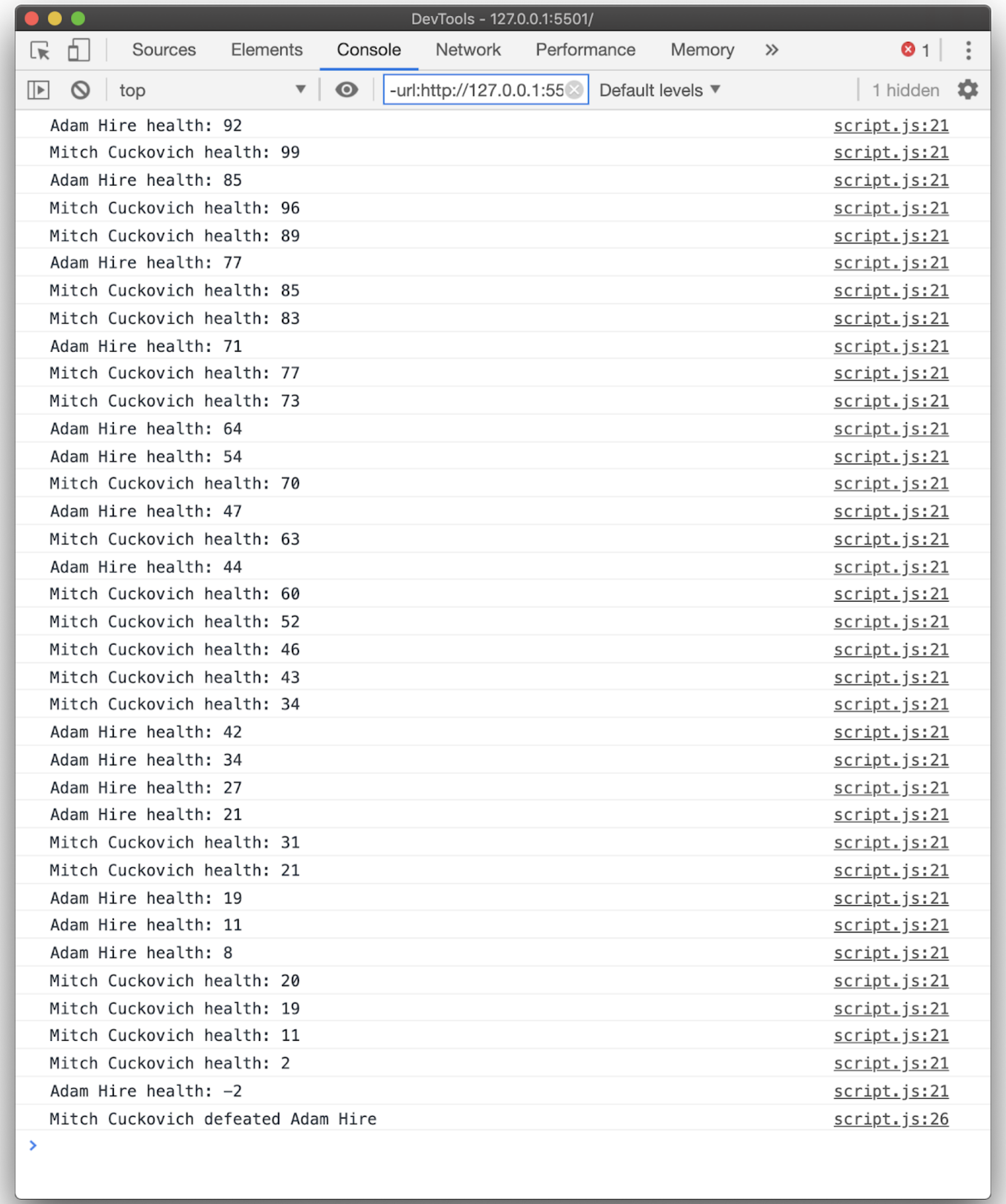
JAVASCRIPT LAB 2 - GAME

Task: This lab will focus on three ways of writing out functions: function declaration, function expression, and arrow functions. The goal is to properly log statements to the console by using a mixture of the aforementioned topics. While this lab explicitly asks you to use certain functions, it is worth mentioning that each example `could` be written using any of the three methods for defining functions. You will only need to construct an `index.html` and `script.js` file. Final output example:



```
Adam Hire health: 92                                    script.js:21
Mitch Cuckovich health: 99                              script.js:21
Adam Hire health: 85                                    script.js:21
Mitch Cuckovich health: 96                              script.js:21
Mitch Cuckovich health: 89                              script.js:21
Adam Hire health: 77                                    script.js:21
Mitch Cuckovich health: 85                              script.js:21
Mitch Cuckovich health: 83                              script.js:21
Adam Hire health: 71                                    script.js:21
Mitch Cuckovich health: 77                              script.js:21
Mitch Cuckovich health: 73                              script.js:21
Adam Hire health: 64                                    script.js:21
Adam Hire health: 54                                    script.js:21
Mitch Cuckovich health: 70                              script.js:21
Adam Hire health: 47                                    script.js:21
Mitch Cuckovich health: 63                              script.js:21
Adam Hire health: 44                                    script.js:21
Mitch Cuckovich health: 60                              script.js:21
Mitch Cuckovich health: 52                              script.js:21
Mitch Cuckovich health: 46                              script.js:21
Mitch Cuckovich health: 43                              script.js:21
Mitch Cuckovich health: 34                              script.js:21
Adam Hire health: 42                                    script.js:21
Adam Hire health: 34                                    script.js:21
Adam Hire health: 27                                    script.js:21
Adam Hire health: 21                                    script.js:21
Mitch Cuckovich health: 31                              script.js:21
Mitch Cuckovich health: 21                              script.js:21
Adam Hire health: 19                                    script.js:21
Adam Hire health: 11                                    script.js:21
Adam Hire health: 8                                     script.js:21
Mitch Cuckovich health: 20                              script.js:21
Mitch Cuckovich health: 19                              script.js:21
Mitch Cuckovich health: 11                              script.js:21
Mitch Cuckovich health: 2                               script.js:21
Adam Hire health: -2                                    script.js:21
Mitch Cuckovich defeated Adam Hire                      script.js:26
>
```

Build Specifications:

- Declare an arrow function named **`randomDamage`** that has no parameters and returns a random integer between 1 and 10.
- Declare an arrow function named **`chooseOption`** that has two parameters named **`opt1`** and **`opt2`**. **`chooseOption`** does two things:
    - Declares and initializes a variable named **`randNum`** to either a 0 or 1, randomly.
    - Returns **`opt1`** if randNum is equal to 0 otherwise return **`opt2`** . (Use a ternary operator)
- Declare a function expression named **`attackPlayer`** that has one parameter named **`health`** which returns a number equal to **`health`** minus the result of the **`randomDamage`** function.
- Declare an arrow function named **`logHealth`** that has two parameters named **`player`** and **`health`** which has a console.log method to state the following message: "**`player`** health: **`health`**".
- Declare an arrow function named **`logDeath`** that has two parameters named **`winner`** and **`loser`** which has a console.log method to state the following message: "**`winner`** defeated **`loser`**"
- Declare an arrow function named **`isDead`** that has one parameter named **`health`** which returns a boolean value of true or false based on the following condition: **`health`** <= 0;
- Declare a function declaration named **`fight`** that has four parameters.
    - Parameters:
        - **`player1`** - this will hold the name of the first player
        - **`player2`** - this will hold the name of the second player
        - **`player1Health`** - this will hold the health of the first player
        - **`player2Health`** - this will hold the health of the second player
    - Within the **`fight`** function, write a while loop that loops while true
        - Declare and initialize a variable named **`attacker`** equal to the **`chooseOption`** function with **`player1`** and **`player2`** as arguments.
        - Has an if statement that is triggered when **`attacker`** is equal to **`player1`**.
            - Set **`player2Health`** equal to the result of **`attackPlayer`** with **`player2Health`** as its argument.
            - Calls the **`logHealth`** function with **`player2`** and **`player2Health`** as its arguments.
            - Call **`isDead`** with **`player2Health`** as an argument. If the result is true:
                - Call the **`logDeath`** function with **`player1`** and **`player2`** as arguments.
                - Break
        - Has an else statement that:
            - Sets **`player1Health`** equal to the **`attackPlayer`** function with **`player1Health`** as its argument.

        - Call the **`logHealth`** function with **`player1`** and **`player1Health`** as its arguments.
        - Call **`isDead`** with **`player1Health`** as an argument. If the result is true:
            - Call the **`logDeath`** function with **`player2`** and **`player1`** as arguments.
            - Break

- Lastly, call the **`fight`** function with the required four parameters. You pick the names and starting health. For example: player1: “Mitch”, player2: “Adam”, player1Health: 100, player2Health: 100.

Tests: Same as build specifications.

Extended Challenges:
Write some additional functions. Use whatever function style you like. Here are some ideas...

- printSquare: This function has a parameter for width. It logs a square shape to the console based on the width parameter. For example, given width 3, it would log:
  ```
  ###
  ###
  ###
  ```
- printTriangle: This function has a parameter for width. It logs a square shape to the console based on the width parameter. For example, given width 4, it would log:
  ```
  #
  ##
  ###
  ####
  ```
- Think of other shape methods you could write.
- getGrade: This function takes in a number parameter (0 to 100). It returns the corresponding letter grade using the scale: A=90+, B=80+, C=70+, D=60+, F=below 60. Call the function with different numbers and log the results. (Note: there should be no console.log *inside* the function.)
- prioritize: This function has two parameters, **`urgent`** and **`important`**, both boolean. It returns the priority according to this rule: urgent & important → 1, important not urgent → 2, urgent not important → 3, neither urgent nor important → 4.