Most Challenging Part of Question 1:

Answer:

Deciding on how to best optimise my program while working with arrays.

Because arrays are sequential data structures, I was concerned that the program would be inefficient as the number of countries increased, e.g. >200. I initially used a HashMap to solve this problem because HashMaps have constant time access for their elements. However, in selecting the random country to quiz the user on, I had to convert the keySet (countries) to an Array to access a random element (this is because HashMaps are not indexed). This essentially defeated the purpose of using a HashMap, and coupled with the constraints of the assignment, I went along with using two arrays, one of the countries and one of the cities, and using a randomly selected index to select the country-city pair from their respective arrays.

Most Challenging Part of Question 2:

Answer:

Deciding on which data structure to use.

Strings are immutable, and so it is impossible to directly replace asterisks with the guessed letters. Because the assignment was on arrays, I used an array to navigate this problem. Without restriction, I would have used a StringBuilder to hold the word to be guessed because of its relative mutability. To optimise my program, I used a char array instead of a string array to optimise space.