question	78 views

HW1 Code help

Would someone mind explaining what the code that we are given in hw1 does?

hw2

<div align="right">Updated 1 day ago by Anonymous</div>

---

the students' answer, *where students collectively construct a single answer*

As far as I understand, it chooses a String "secretWord" randomly from the CANDIDATES. It also defines the main method which runs when java WordGuess is called on in terminal.

<div align="right">Updated 1 day ago by Anonymous</div>

---

the instructors' answer, *where instructors collectively construct a single answer*

I'll go through line by line what the code means in detail if anyone cares to read it. Warning, explanation is lengthy. The student answer is the TL;DR.

```java
import java.util.Random;
import java.util.Scanner;
```

import statements: You are importing external functionality into your code. Without the java.util.Random and java.util.Scanner libraries, your code would not be able to access methods from either of these libraries. Scanner is usually used to get user input. The Random library is used below when a Random() object is being created in the main method. You can think of import statements like giving your program access to toolkits that contain additional methods that are not included in the Java language by default.

```java
public class WordGuess {
```

Creating a public class. Later in the semester we will go into more detail about what a class represents. For now, just know that you need this to start creating a Java program.

```java
    static final String[] CANDIDATES = {"cat", "dad", "dog", "mom", "rat"};
```

The above line of code is creating a constant String array variable (notice the all caps). It is understood that constant variables store values that will not change during the execution of the program. Constant variables are denoted with the static final keywords and are all caps. Next, the constant String array variable is initialized to an array with the given values: "cat", "dad", "dog", "mom", "rat"

```java
    public static void main(String[] args) {
```

The main method is the method that will be executed upon entering the java WordGuess command in the terminal or command prompt.

Notice the args parameter. args is a String array that stores additional input that is entered into the command line in addition to the java WordGuess command. For example, if you entered this into the command line:

java WordGuess hello world we are programming

then the args variable would now store each of the extra values as a String in a String array. So the args array would equal: ["hello", "world", "we", "are", "programming"]

The topic of arrays will be covered more in depth later on.

```java
        String secretWord = args.length > 0
            ? CANDIDATES[Integer.parseInt(args[0])]
            : CANDIDATES[new Random().nextInt(CANDIDATES.length)];
```

The next line of code contains a ternary operator. It is sort of hard to see because it is broken up onto different lines. Here's what it looks like mashed together (it's still so lengthy that it takes up two lines though):

String secretWord = args.length > 0 ? CANDIDATES[Integer.parseInt(args[0])] : CANDIDATES[new Random().nextInt(CANDIDATES.length)];

Ternary operators should have been covered in recitation, but if your class did not get a chance to cover them, you can always refer to your textbook (or ask on piazza) for an explanation. I'm not going to go into detail here.

args.length > 0
We went over that args was an array. args.length gives us the length or size of that array. In our previous example, args was equal to ["hello", "world", "we", "are", "programming"]

Thus args.length is 5, since there are 5 elements in the array.

So if args.length is greater than zero, then return the element in the CANDIDATES array at the index which we can obtain from the args[0]. args[0] means get the 0th element of the args array. Java uses 0 indexing. We need to convert args[0] to an integer because, remember, args is a String array. The Integer.parseInt() function allows us to convert the String to an Integer.

Your test command line input would probably look something like this:
java WordGuess 3

And this would mean, run the program, get the element in CANDIDATES at index 3 (which would be "mom"), and store that element into the secretWord variable.

If args.length is less than zero, then the condition in the ternary operator is false and we will need to create a new random index. new Random().nextInt(CANDIDATES.length) generates a random number from 0 to (the length of the CANDIDATES - 1). It then selects the element located at that random index in the CANDIDATE array, then stores it into the secretWord String variable. It is essentially choosing a random word from the CANDIDATE array if no number is given in the command line at the start of program execution.

```
        // Your code goes here:
```

The above line is a comment. It will not be executed in your program. You place your actual code below or in place of this line.

```
    }
}
```

Closing brackets of the program.

Updated 1 day ago by Jamie Lee

followup discussions *for lingering questions and comments*

⦿ Resolved ○ Unresolved

Anonymous 1 day ago
how do we get the secret word to compare the guesses to? Is there a file we need to read?

> **Anonymous** 1 day ago I'm dumb they give us this in the code above sorry