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CT-2109 Assignment One

The first problem faced is to read in users input, this will be used to identify whether they want to type the alphabet forwards or backwards. Furthermore then it will be used to identify if the user is pressing the correct letter of the alphabet. I used reference material from my year studying in LIT in 2014 where I used the library import java.util.Scanner over this period to take inputs from the user. Referencing this material I had already written previously I focused on the next problem.

The next problem faced is how to compare the input of the user to the letters of the alphabet. The way I figured this problem out was to use the ASCII table where each String input by the user is converted into lowercase, then into a single char where it is then type cast into an integer value. Doing this mean I do not need to populate an array to compare the inputs to.

The final problem to face was to time how long it takes the user to type the alphabet. Using the System.currentTimeMillis() Method the start time was stored in a variable upon the specified function being called.

The program will work by first requesting the user to select whether they wish to type the alphabet forwards or backwards prompting the user to enter 'f' or 'b' to do so. The users input is read in where the program checks that it fits the parameters of being either 'f' or 'b' any other input will result in an error message being displayed and the program iterating through an infinite loop until a correct input is entered by the user.

Once the user has correctly input their desired direction one of the two functions are called, as they work identically ill take the forwards function for example. A variable start is populated with the value 97, ASCII value of 'a' along with a startTime variable being created that stores the time in which the stopwatch begins. The function then iterates through a loop that indicates to the user what input to enter along with informing them if they are correct in their input. Once the user has complete entering the final letter a endTime variable is created with the current time to be later used to calculate total time taken which will be printed to the screen.

CODE USED

```java
import java.util.Scanner;
public class Speed_Typing_Test {

        private static String fOrB;
        private static char input;
        private static int start,numInput;
        private static Scanner obj = new Scanner(System.in);

        public static void main(String[] args) {
                System.out.println("Type The Alpahbet in Order (Hit Enter Between
Letters)");
                System.out.println("Forwards Or Backwards (f/b)?");
                //reads in user input and converts to lower case
                fOrB = obj.nextLine();
                //loop to ensure that the user has entered the correct letter
                while(input != 'f' || input != 'b') {
                        //converts user input to lowercase
                        fOrB.toLowerCase();
                        input = fOrB.charAt(0);
                        //checks inputs to identify which direction for the program
                        if(input=='f'){
                                Forwards();
                        }
                        if(input=='b'){
                                Backwards();
                        }
                        else {
                                 System.out.println("Invalid! You must enter f or b to start");
                        }
                }
                obj.close();
        }
        //forward
        public static void Forwards() {
                start = 97;
                System.out.println("Type a");
                long startTime = System.currentTimeMillis();

                //while loop to iterate through the letters of the alphabet
                while(start<123) {
                        //checks length of input to insure its only one char
                        fOrB = obj.next();
                        if(fOrB.length()>1) {
                                System.out.println(fOrB+": Incorrect! type "+(char)start);
                                continue;
                        }
                        //changes String variable into char then into ASCII value of letter
```

```java
                    input = fOrB.charAt(0);
                    input = Character.toLowerCase(input);
                    numInput = (int) input;

                    //checks to see if the user is on the last letter
                    if(start == 122) {
                            long endTime = System.currentTimeMillis();
                            float totalTime = (float)(endTime - startTime) / 1000;
                            System.out.println((char)numInput+": Correct! \nTotal time:
"+totalTime);

                            start++;
                    }
                    else if(start == numInput) {
                            start++;
                            System.out.println((char)numInput+": Correct! Now type
"+(char)start);

                    }
                    else {
                            System.out.println((char)numInput+": Incorrect! type
"+(char)start);
                    }
            }
            System.exit(0);
    }
    //backwards
    public static void Backwards() {
            start = 122;
            System.out.println("Type z");
            long startTime = System.currentTimeMillis();

            while(start>96) {
                    fOrB = obj.next();
                    if(fOrB.length()>1) {
                            System.out.println(fOrB+": Incorrect! type "+(char)start);
                            continue;
                    }
                    input = fOrB.charAt(0);
                    input = Character.toLowerCase(input);
                    numInput = (int) input;

                    //checks to see if the user is on the last letter
                    if(start == 97) {
                            long endTime = System.currentTimeMillis();
                            float totalTime = (float)(endTime - startTime) / 1000;
                            System.out.println((char)numInput+": Correct! \nTotal time:
"+totalTime);

                            start--;
                    }
                    else if(start == numInput) {
```

```
                              start--;
                              System.out.println((char)numInput+": Correct! Now type
"+(char)start);
                    }
                    else {
                              System.out.println((char)numInput+": Incorrect! type
"+(char)start);
                    }
              }
          System.exit(0);
      }
}
```

TESTING

```
Speed_Typing_Test [Java Application] C:\Users\cathal\.p2\pool\plugins\o
Type The Alpahbet in Order (Hit Enter Between Letters)
Forwards Or Backwards (f/b)?
f
Type a
a
a: Correct! Now type b
ab
ab: Incorrect! type b
c
c: Incorrect! type b
b
b: Correct! Now type c
```

```
w: Correct! Now type x
x
x: Correct! Now type y
y
y: Correct! Now type z
z
z: Correct!
Total time: 81.719
```

```
Speed_Typing_Test [Java Application] C:\Users\cathal\.p2\pool\plugins\org.
Type The Alpahbet in Order (Hit Enter Between Letters)
Forwards Or Backwards (f/b)?
ghj
Invalid! You must enter f or b to start
fb
Invalid! You must enter f or b to start
bf
Invalid! You must enter f or b to start
f

Type a
```

```
d: Correct! Now type c
c
c: Correct! Now type b
b
b: Correct! Now type a
a
a: Correct!
Total time: 26.591
```

Test	Expected results	Actual results
F or B entered	Code runs forwards or backwards methods	Code runs forwards or backwards methods
Wrong letter or string > 1 entered for picking forwards or backwards	Error message displayed	Error message displayed
Correct letter entered	Program iterates through the loop until all letters of the alphabet in the selected direction are entered	Program iterates through the loop until all letters of the alphabet in the selected direction are entered
Incorrect letter entered	Error message displayed user prompted to enter correct letter	Error message displayed user prompted to enter correct letter
String > 1 entered for letter input	Error message displayed user prompted to enter correct letter	Error message displayed user prompted to enter correct letter