DEBUGGING day2

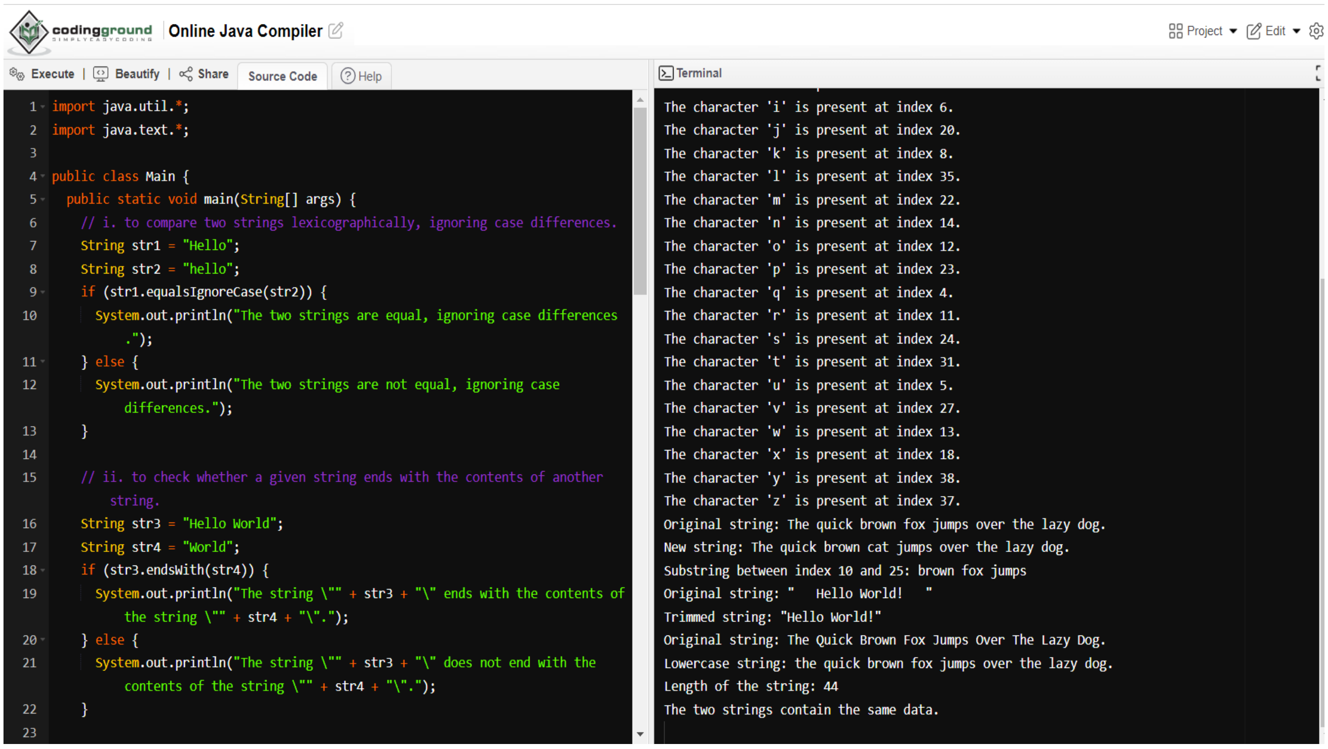
1.debugging code:

```
import java.util.*;
import java.text.*;


public class Main {
  public static void main(String[] args) {
    // i. to compare two strings lexicographically, ignoring case differences.
    String str1 = "Hello";
    String str2 = "hello";
    if (str1.equalsIgnoreCase(str2)) {
      System.out.println("The two strings are equal, ignoring case differences.");
    } else {
      System.out.println("The two strings are not equal, ignoring case
differences.");
    }


    // ii. to check whether a given string ends with the contents of another
string.
    String str3 = "Hello World";
    String str4 = "World";
    if (str3.endsWith(str4)) {
      System.out.println("The string \"" + str3 + "\" ends with the contents of the
string \"" + str4 + "\".");
    } else {
      System.out.println("The string \"" + str3 + "\" does not end with the
contents of the string \"" + str4 + "\".");
```

```
  }


  // iii. to print current date and time in the specified format.

  SimpleDateFormat formatter = new SimpleDateFormat("dd/MM/yyyy
HH:mm:ss");

  Date date = new Date();

  System.out.println("Current date and time: " + formatter.format(date));


  // iv. to get the index of all the characters of the alphabet.

  String str5 = "The quick brown fox jumps over the lazy dog.";

  for (char c = 'a'; c <= 'z'; c++) {

   int index = str5.indexOf(c);

   if (index != -1) {

    System.out.println("The character '" + c + "' is present at index " + index +
".");

   } else {

    System.out.println("The character '" + c + "' is not present in the string.");

   }

  }


  // v. To replace each substring of a given string that matches the given
regular expression with the given replacement. In the below string replace all
the fox with cat.

  String str6 = "The quick brown fox jumps over the lazy dog.";

  String regex = "fox";

  String replacement = "cat";

  String newStr = str6.replaceAll(regex, replacement);
```

```
    System.out.println("Original string: " + str6);
    System.out.println("New string: " + newStr);

    // vi. to get a substring of a given string between two specified positions.
    String str7 = "The quick brown fox jumps over the lazy dog.";
    int startIndex = 10;
    int endIndex = 25;
    String subStr = str7.substring(startIndex, endIndex);
    System.out.println("Substring between index " + startIndex + " and " +
endIndex + ": " + subStr);

    // vii. to trim any leading or trailing whitespace from a given string.
    String str8 = "   Hello World!   ";
    String trimmedStr = str8.trim();
    System.out.println("Original string: \"" + str8 + "\"");
    System.out.println("Trimmed string: \"" + trimmedStr + "\"");

    // viii. to convert all the characters in a string to lowercase.
    String str9 = "The Quick Brown Fox Jumps Over The Lazy Dog.";
    String lowerCaseStr = str9.toLowerCase();
    System.out.println("Original string: " + str9);
    System.out.println("Lowercase string: " + lowerCaseStr);

    // ix. to get the length of a given string.
    String str10 = "The quick brown fox jumps over the lazy dog.";
    int length = str10.length();
    System.out.println("Length of the string: " + length);
    // x. to check whether two String objects contain the same data
    String str11 = "The quick brown fox jumps over the lazy dog.";
    String str12 = "The quick brown fox jumps over the lazy dog.";
    if (str11.equals(str12)) {
      System.out.println("The two strings contain the same data.");
    } else {
      System.out.println("The two strings do not contain the same data.");
    }
  }
}
```

Output:



```
import java.util.*;
import java.text.*;

public class Main {
  public static void main(String[] args) {
    // i. to compare two strings lexicographically, ignoring case differences.
    String str1 = "Hello";
    String str2 = "hello";
    if (str1.equalsIgnoreCase(str2)) {
      System.out.println("The two strings are equal, ignoring case differences
        .");
    } else {
      System.out.println("The two strings are not equal, ignoring case
        differences.");
    }

    // ii. to check whether a given string ends with the contents of another
      string.
    String str3 = "Hello World";
    String str4 = "World";
    if (str3.endsWith(str4)) {
      System.out.println("The string \"" + str3 + "\" ends with the contents of
        the string \"" + str4 + "\".");
    } else {
      System.out.println("The string \"" + str3 + "\" does not end with the
        contents of the string \"" + str4 + "\".");
    }

```

```
The character 'i' is present at index 6.
The character 'j' is present at index 20.
The character 'k' is present at index 8.
The character 'l' is present at index 35.
The character 'm' is present at index 22.
The character 'n' is present at index 14.
The character 'o' is present at index 12.
The character 'p' is present at index 23.
The character 'q' is present at index 4.
The character 'r' is present at index 11.
The character 's' is present at index 24.
The character 't' is present at index 31.
The character 'u' is present at index 5.
The character 'v' is present at index 27.
The character 'w' is present at index 13.
The character 'x' is present at index 18.
The character 'y' is present at index 38.
The character 'z' is present at index 37.
Original string: The quick brown fox jumps over the lazy dog.
New string: The quick brown cat jumps over the lazy dog.
Substring between index 10 and 25: brown fox jumps
Original string: "   Hello World!   "
Trimmed string: "Hello World!"
Original string: The Quick Brown Fox Jumps Over The Lazy Dog.
Lowercase string: the quick brown fox jumps over the lazy dog.
Length of the string: 44
The two strings contain the same data.
```

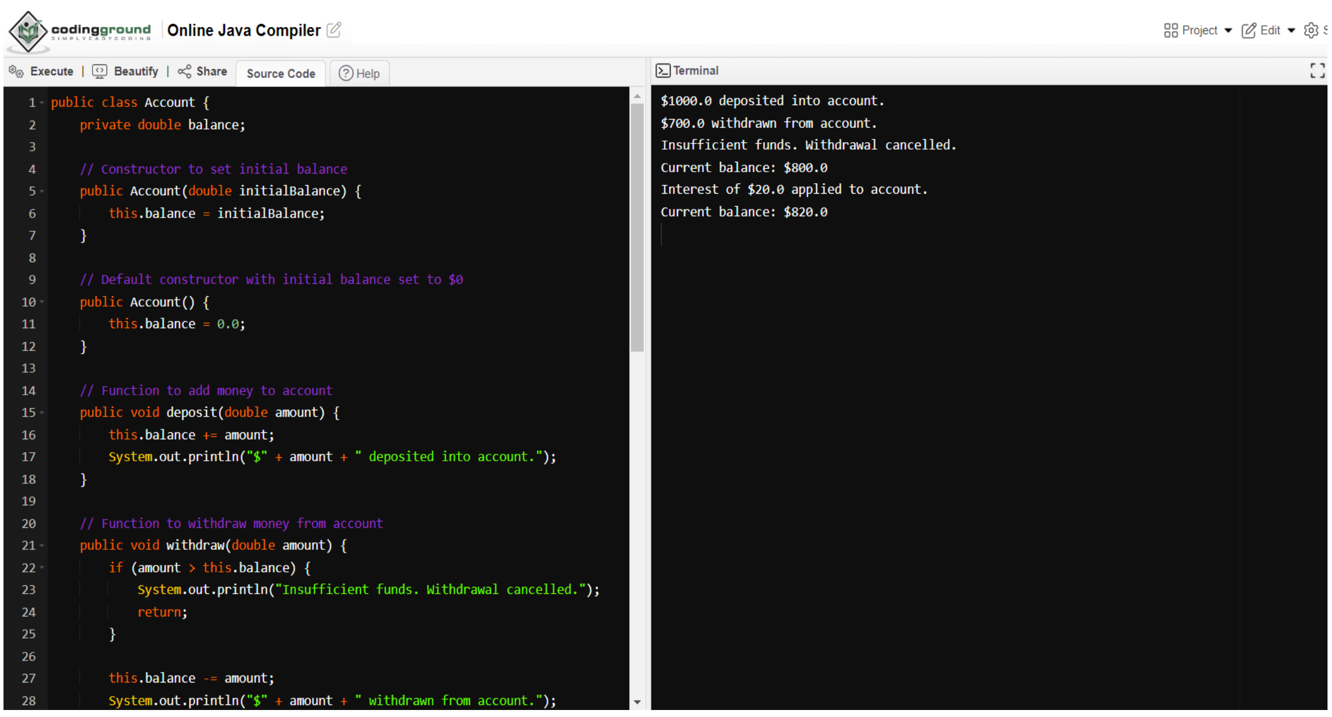
2.CODE:

```
public class Account {
  private double balance;

  // Constructor to set initial balance
  public Account(double initialBalance) {
    this.balance = initialBalance;
  }

  // Default constructor with initial balance set to $0
  public Account() {
    this.balance = 0.0;
  }

  // Function to add money to account
  public void deposit(double amount) {
    this.balance += amount;
    System.out.println("$" + amount + " deposited into account.");
  }

  // Function to withdraw money from account
  public void withdraw(double amount) {
    if (amount > this.balance) {
      System.out.println("Insufficient funds. Withdrawal cancelled.");
      return;
    }

    this.balance -= amount;
    System.out.println("$" + amount + " withdrawn from account.");
  }
```

```
// Function to inquire current balance
public void getBalance() {
   System.out.println("Current balance: $" + this.balance);
}

// Function to compute interest on current balance
public void computeInterest(double rate) {
   double interest = this.balance * rate / 100.0;
   this.balance += interest;
   System.out.println("Interest of $" + interest + " applied to account.");
}

public static void main(String[] args) {
   // Create account with initial balance of $500
   Account myAccount = new Account(500.0);

   // Deposit $1000 into account
   myAccount.deposit(1000.0);

   // Withdraw $700 from account
   myAccount.withdraw(700.0);

   // Withdraw $1000 from account (should trigger penalty)
   myAccount.withdraw(1000.0);

   // Inquire current balance
   myAccount.getBalance();

   // Compute interest at a rate of 2.5%
   myAccount.computeInterest(2.5);
```

```
        // Inquire current balance
        myAccount.getBalance();
    }
}
```

Output:



```
public class Account {
    private double balance;

    // Constructor to set initial balance
    public Account(double initialBalance) {
        this.balance = initialBalance;
    }

    // Default constructor with initial balance set to $0
    public Account() {
        this.balance = 0.0;
    }

    // Function to add money to account
    public void deposit(double amount) {
        this.balance += amount;
        System.out.println("$" + amount + " deposited into account.");
    }

    // Function to withdraw money from account
    public void withdraw(double amount) {
        if (amount > this.balance) {
            System.out.println("Insufficient funds. Withdrawal cancelled.");
            return;
        }

        this.balance -= amount;
        System.out.println("$" + amount + " withdrawn from account.");
```

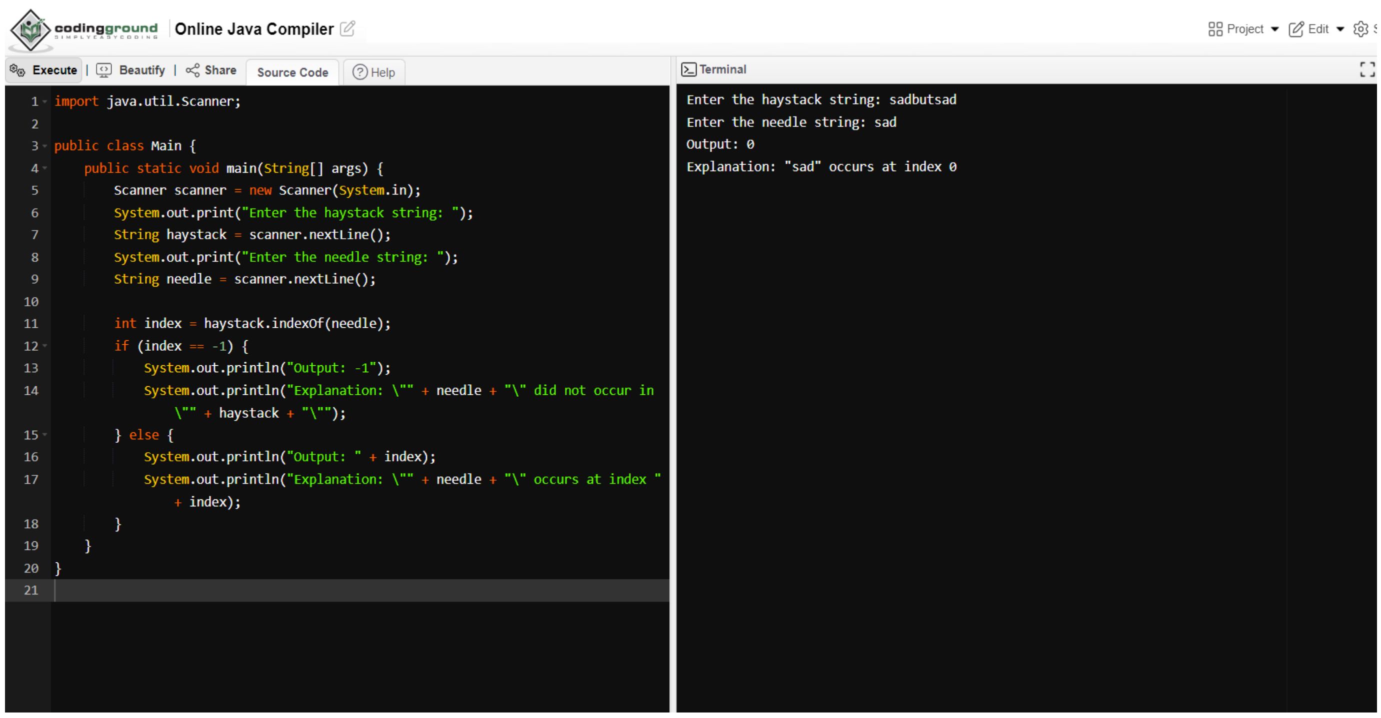
```
$1000.0 deposited into account.
$700.0 withdrawn from account.
Insufficient funds. Withdrawal cancelled.
Current balance: $800.0
Interest of $20.0 applied to account.
Current balance: $820.0
```

<u>Questions for Debugging a code in Java</u>

3.code:

```
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("haystack= ");
        String haystack = scanner.nextLine();
        System.out.print("needle= ");
        String needle = scanner.nextLine();

        int index = haystack.indexOf(needle);
        if (index == -1) {
            System.out.println("Output: -1");
            System.out.println("Explanation: \"" + needle + "\" did not occur in \"" + haystack + "\"");
        } else {
            System.out.println("Output: " + index);
            System.out.println("Explanation: \"" + needle + "\" occurs at index " + index);
        }
    }
}
```

Output:



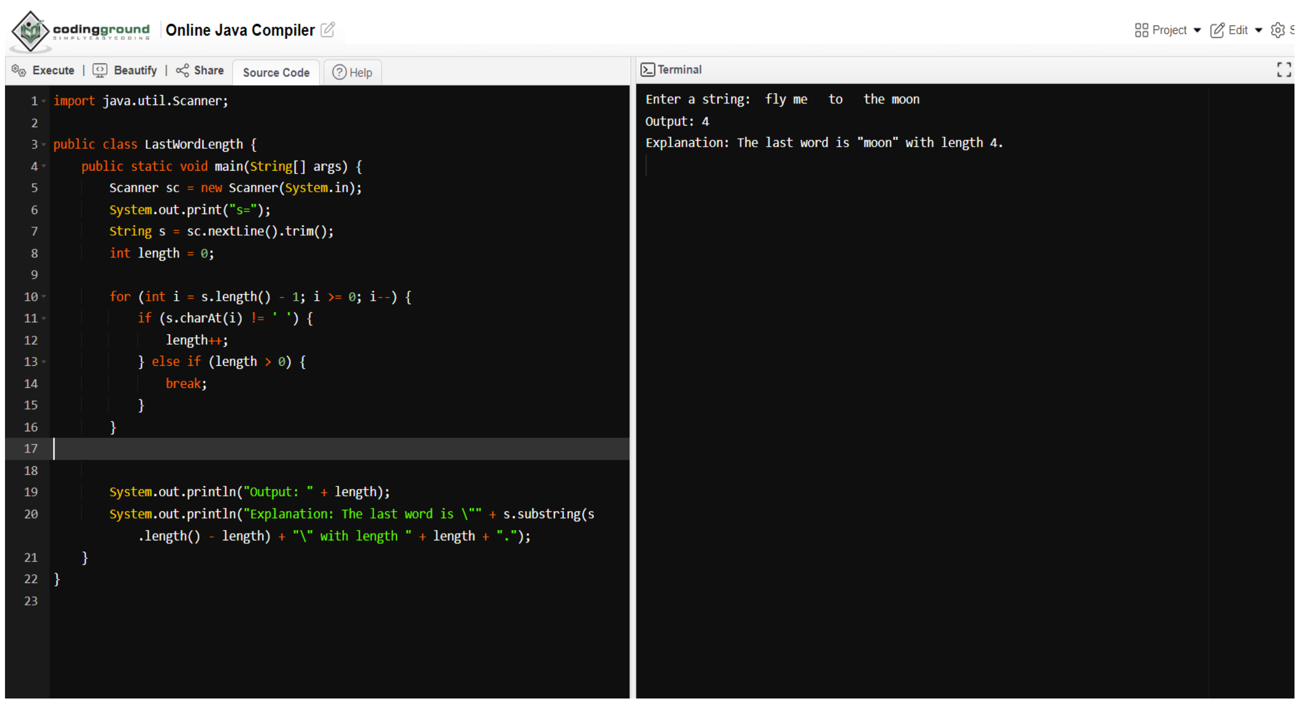
```
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter the haystack string: ");
        String haystack = scanner.nextLine();
        System.out.print("Enter the needle string: ");
        String needle = scanner.nextLine();

        int index = haystack.indexOf(needle);
        if (index == -1) {
            System.out.println("Output: -1");
            System.out.println("Explanation: \"" + needle + "\" did not occur in
                \"" + haystack + "\"");
        } else {
            System.out.println("Output: " + index);
            System.out.println("Explanation: \"" + needle + "\" occurs at index "
                + index);
        }
    }
}
```

```
Enter the haystack string: sadbutsad
Enter the needle string: sad
Output: 0
Explanation: "sad" occurs at index 0
```

4.Code

```java
import java.util.Scanner;

public class LastWordLength {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.print("s=");

        String s = sc.nextLine().trim();

        int length = 0;

        for (int i = s.length() - 1; i >= 0; i--) {

            if (s.charAt(i) != ' ') {

                length++;

            } else if (length > 0) {

                break;

            }

        System.out.println("Output: " + length);

        System.out.println("Explanation: The last word is \"" + s.substring(s.length() - length) + "\" with
length " + length + ".");

    }

}
```

Output:



```java
import java.util.Scanner;

public class LastWordLength {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("s=");
        String s = sc.nextLine().trim();
        int length = 0;

        for (int i = s.length() - 1; i >= 0; i--) {
            if (s.charAt(i) != ' ') {
                length++;
            } else if (length > 0) {
                break;
            }
        }


        System.out.println("Output: " + length);
        System.out.println("Explanation: The last word is \"" + s.substring(s
            .length() - length) + "\" with length " + length + ".");
    }
}
```

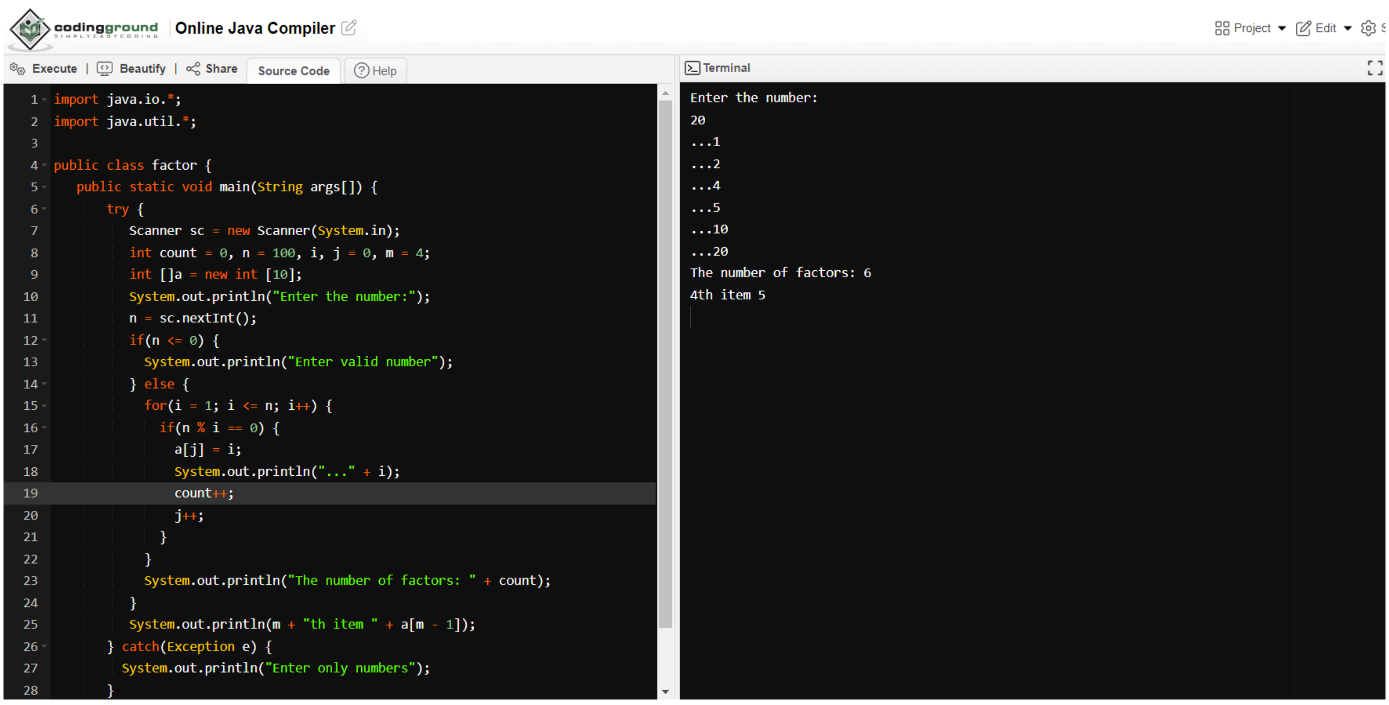
```
Enter a string:  fly me   to   the moon
Output: 4
Explanation: The last word is "moon" with length 4.
```

Questions for Finding error in Java to determine the factor

Corrected code:

```
import java.io.*;

import java.util.*;

public class factor {

  public static void main(String args[]) {

      try {

         Scanner sc = new Scanner(System.in);

         int count = 0, n = 100, i, j = 0, m = 4;

         int []a = new int [10];

         System.out.println("Enter the number:");

         n = sc.nextInt();

         if(n <= 0) {

           System.out.println("Enter valid number");

         } else {

           for(i = 1; i <= n; i++) {

             if(n % i == 0) {

               a[j] = i;

               System.out.println("..." + i);

               count++;

               j++;

             }

           }

           System.out.println("The number of factors: " + count);

         }

         System.out.println(m + "th item " + a[m - 1]);

      } catch(Exception e) {

        System.out.println("Enter only numbers");

      }

   }

}
```

Output:



```java
import java.io.*;
import java.util.*;

public class factor {
    public static void main(String args[]) {
        try {
            Scanner sc = new Scanner(System.in);
            int count = 0, n = 100, i, j = 0, m = 4;
            int []a = new int [10];
            System.out.println("Enter the number:");
            n = sc.nextInt();
            if(n <= 0) {
              System.out.println("Enter valid number");
            } else {
              for(i = 1; i <= n; i++) {
                if(n % i == 0) {
                  a[j] = i;
                  System.out.println("..." + i);
                  count++;
                  j++;
                }
              }
              System.out.println("The number of factors: " + count);
            }
            System.out.println(m + "th item " + a[m - 1]);
        } catch(Exception e) {
          System.out.println("Enter only numbers");
        }
```

```
Enter the number:
20
...1
...2
...4
...5
...10
...20
The number of factors: 6
4th item 5
```