Practical no. 2

FS19CO042

Aim: Using Stream API implement following programs.

2.1 Write a program to print “Hello World”.

2.2 Write a program to print addition of two integers.

2.3 Write a program to convert a numeric string into int.

2.4 Write a program to print addition of two integers input from command line arguments.

2.5 Write a program to take two integers from command line, subtract the smaller number from the greater and print the result.

2.6 Write a program to take n integers from command line and print their sum of product (product of first number and last number added to product of second number and second last number and so on).

2.7 Consider any two integers. Write a program to print sum of their squares.

2.8 Write a program to find square root of a given positive integer using Heron’s method to find square root.

2.9 Write a program to sort and print the names of students taken from command line in alphabetical order.

2.10 Write a program to print total numbers of vowels and consonants in a given string.

2.11 Given two English words, write a program to check if the first word is anagram of the second word. (An anagram is a word or phrase formed by rearranging the letters of a different word or phrase, typically using all the original letters exactly once. (Example: Anagram of TOM MARVOLO RIDDLE is I AM LORD VOLDEMORT.)

2.12 Write a program to print a missing number in a sorted integer array.

2.13 Write a program to find all the pairs of numbers on an integer array whose sum is equal to a given number.

Tool used: Editor (Notepad/Intellij IDE), JDK and JRE

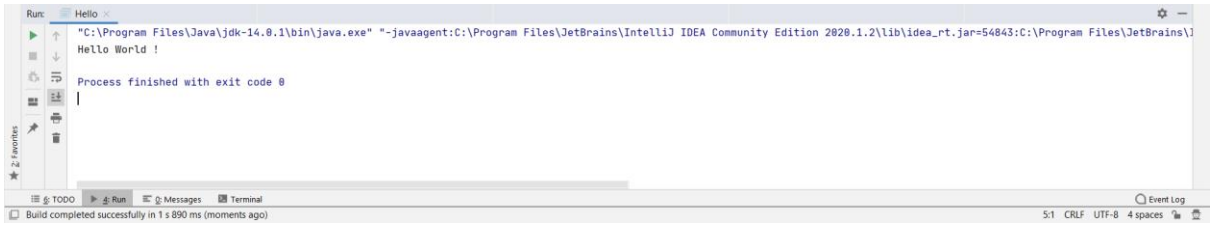
Code:

2.1 Write a program to print “Hello World”.

Code:

```
public class Hello {

   public static void main(String[] args) {
      System.out.println("Hello World !");
   }
}
```

Output:

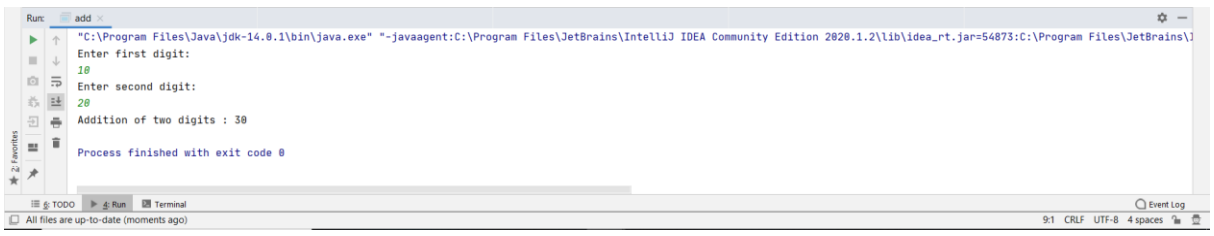


2.2 Write a program to print addition of two integers.

Code:

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

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        System.out.println("Enter first digit:");

        int a = scanner.nextInt();

        System.out.println("Enter second digit:");

        int b = scanner.nextInt();

        int c = a+b;

        System.out.println("Addition of two digits : " + c);

    }

}
```

Output:



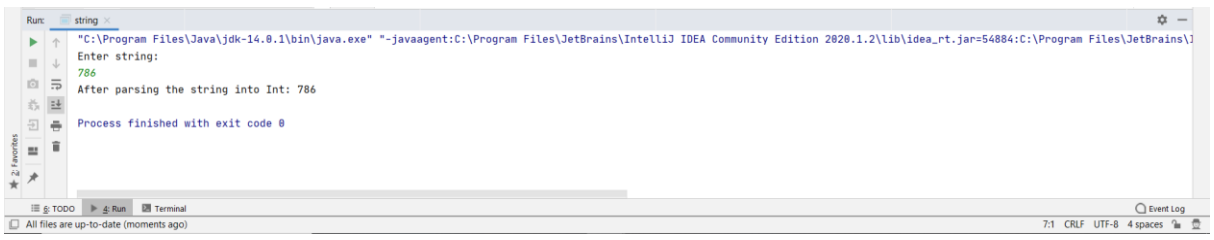
2.3 Write a program to convert a numeric string into int.

Code:

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

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

```
        Scanner scanner = new Scanner(System.in);

        System.out.println("Enter string:");

        String s = scanner.nextLine();

        int number = Integer.parseInt(s);

        System.out.println("After parsing the string into Int: " + number);

    }

}
```

Output:

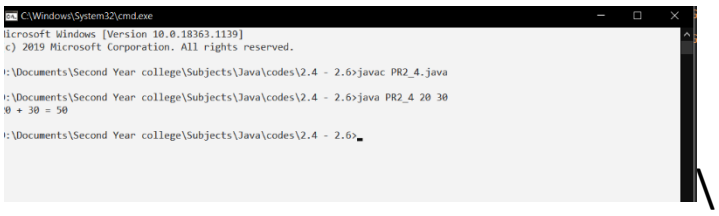


2.4 Write a program to print addition of two integers input from command line arguments.

Code:

```
public class PR2_4 {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        int num1, num2, sum;
        num1 = Integer.parseInt(args[0]);
        num2 = Integer.parseInt(args[1]);
        sum = num1+num2;
        System.out.println(num1+" + "+num2+" = "+sum);
    }
}
```

Output:

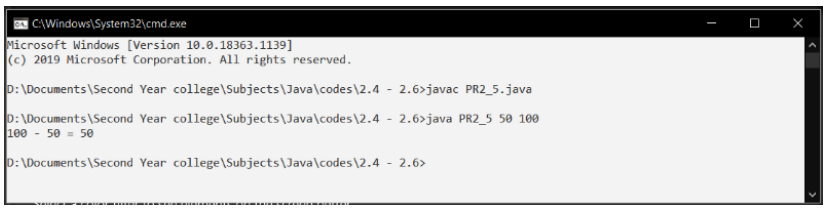


2.5 Write a program to take two integers from command line, subtract the smaller number from the greater and print the result.

Code:

```
public class PR2_5 {

   public static void main(String[] args) {
      Scanner sc = new Scanner(System.in);
      int num1, num2;
       num1 = Integer.parseInt(args[0]);
       num2 = Integer.parseInt(args[1]);
      System.out.println(num1>num2 ? num1 +" - "+num2+" = "+(num1-num2) : num2 +" - "+num1+" =
"+(num2-num1));
   }
}
```

Output :



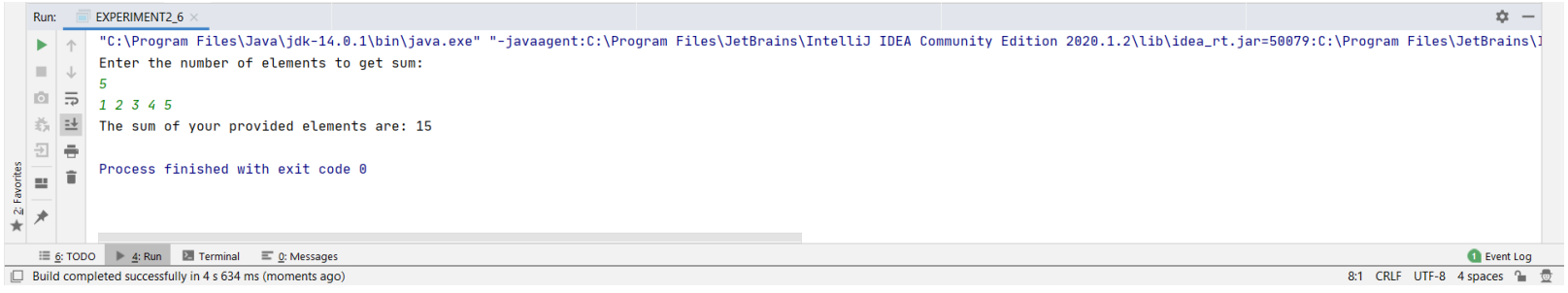
2.6 Write a program to take n integers from command line and print their sum of product (product of first number and last number added to product of second number and second last number and so on).

Code:

```
public class EXPERIMENT2_6 {

   public static void main(String[] args) {

      Scanner sc = new Scanner(System.in);
      System.out.println("Enter the number of elements to get sum:");
      int n = sc.nextInt();
      int [] arr = new int[n];
      int sum = 0;

      for(int k=0; k<arr.length; k++)
        arr[k] = sc.nextInt();

      for(int i=0; i<arr.length/2; i++){

         int result = arr[i] + arr[arr.length-1-i];
         sum += result;
      }

      if(n%2 != 0){
         int middleIndex = ((n-1)/2);
```

```
            sum += arr[middleIndex];
        }
        System.out.println("The sum of your provided elements are: "+sum);

    }
}
```

Output:

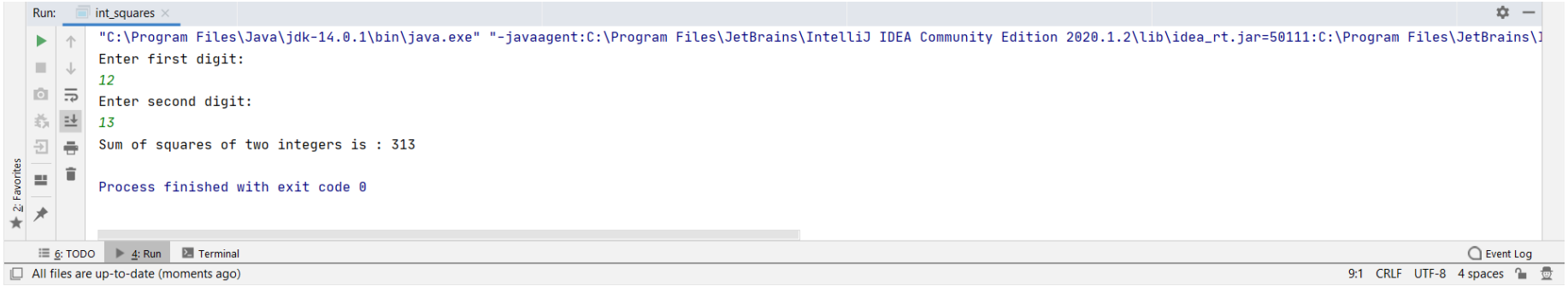


2.7 Consider any two integers. Write a program to print sum of their squares.

Code:

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

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);
        int a,b,c,d,e;
        System.out.println("Enter first digit:");

        a=sc.nextInt();
        b = a*a;
        System.out.println("Enter second digit:");

        c = sc.nextInt();
        d = c*c;
        e = b+d;
        System.out.println("Sum of squares of two integers is : " + e);
    }
}
```

Output:

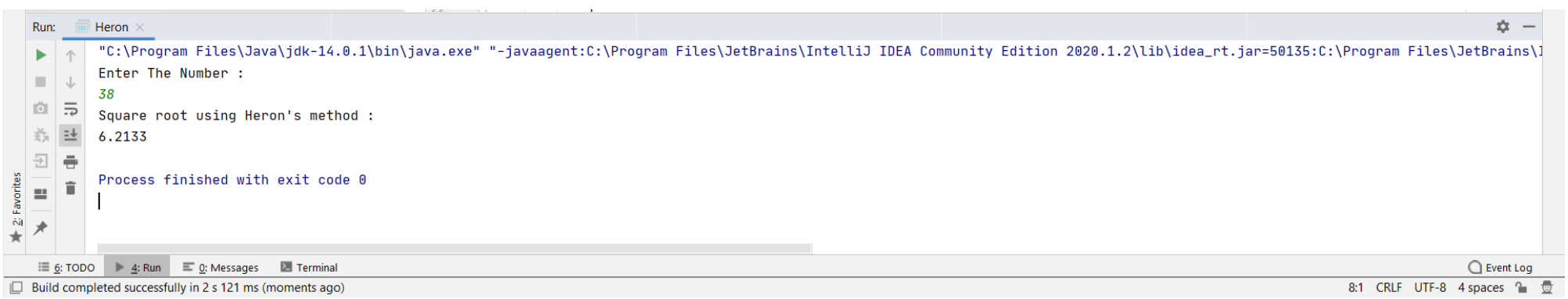


2.8 Write a program to find square root of a given positive integer using Heron's method to find square root.

Code:

```
import java.util.Scanner;
public class Heron {
   public static void main(String[] args) {
      Scanner scanner = new Scanner(System.in);
      System.out.println("Enter The Number : ");

      int a = scanner.nextInt();
      System.out.println((double)Math.round(heron(a) * 10000d) / 10000d);
   }
public static int ClosetNumber(int a)   {
   int i;
   a = a - 1;
   while (a != 0) {

      for (i = 1; i * i <= a; i++)
      {

         if (i * i == a)
            return a;
      }
      a = a - 1;
   }
   return 0;
}
public static double heron(int x)
{
   double a, i;
   a = ClosetNumber(x);
      for (i = 0; i < 4; i++)
         a = 0.5 * (a + x / a);
      return a;
   }
}
```

Output :

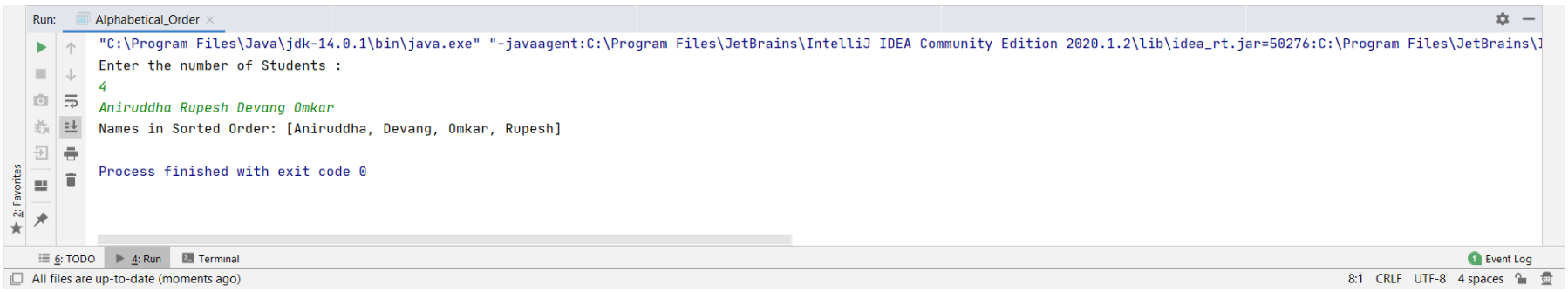


2.9 Write a program to sort and print the names of students taken from command line in alphabetical order.

Code :

```
import java.util.Scanner;
public class Alphabetical_Order
{
   public static void main(String[] args)
   {
      int n;
      String temp;
      Scanner s = new Scanner(System.in);
      System.out.print("Enter number of names you want to enter:");
      n = s.nextInt();
      String names[] = new String[n];
      Scanner s1 = new Scanner(System.in);
      System.out.println("Enter all the names:");
      for(int i = 0; i < n; i++)
         names[i] = s1.nextLine();

      for (int i = 0; i < n; i++)     {
         for (int j = i + 1; j < n; j++)        {
            if (names[i].compareTo(names[j])>0)      {
               temp = names[i];
               names[i] = names[j];
               names[j] = temp;
            }
         }
      }
      System.out.print("Names in Sorted Order:");
      for (int i = 0; i < n - 1; i++)
         {
            System.out.print(names[i] + ",");
         }
         System.out.print(names[n - 1]);
      }
   }
```

Output:

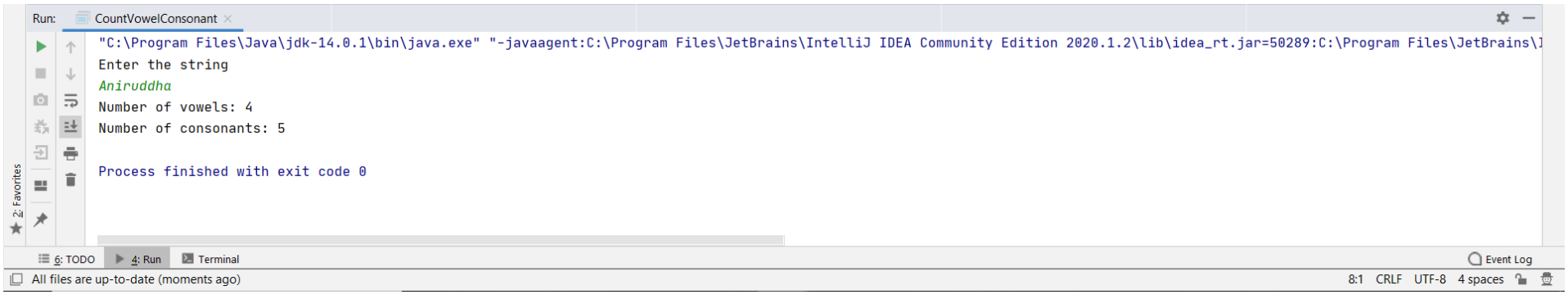


2.10 Write a program to print total numbers of vowels and consonants in a given string.

Code:

```
import java.util.Scanner;



public class CountVowelConsonant {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);
        int vCount = 0, cCount = 0;

        System.out.println("Enter the string ");
        String str = sc.nextLine();

        str = str.toLowerCase();
        for(int i = 0; i < str.length(); i++) {

            if(str.charAt(i) == 'a' || str.charAt(i) == 'e' || str.charAt(i) == 'i' || str.charAt(i) == 'o' ||
str.charAt(i) == 'u')
                vCount++;

            else if(str.charAt(i) >= 'a' && str.charAt(i)<='z')
                cCount++;

         }

        System.out.println("Number of vowels: " + vCount);
        System.out.println("Number of consonants: " + cCount);
    }
}
```

Output:



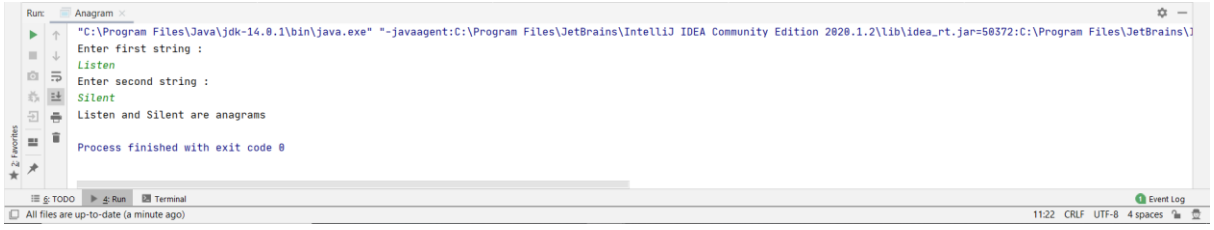
2.11 Given two English words, write a program to check if the first word is anagram of the second word. (An anagram is a word or phrase formed by rearranging the letters of a different word or phrase, typically using all the original letters exactly once. (Example: Anagram of TOM MARVOLO RIDDLE is I AM LORD VOLDEMORT.)

Code:

```
import java.util.Arrays;
import java.util.Scanner;

public class Anagram {

   static void areAnagram(String str1, String str2) {
      String s1 = str1.replaceAll("\\s", "");
      String s2 = str2.replaceAll("\\s", "");

      boolean status = true;
      int n1 = s1.length();
      int n2 = s2.length();

      if (n1 != n2)
         status = false;

      char[] ArrayS1 = s1.toLowerCase().toCharArray();
      char[] ArrayS2 = s2.toLowerCase().toCharArray();

      Arrays.sort(ArrayS1);
      Arrays.sort(ArrayS2);

      status = Arrays.equals(ArrayS1, ArrayS2);
      if (status)
         System.out.println(str1 + " and " + str2 + " are anagrams");
      else
         System.out.println(str1 + " and " + str2 + " are not anagrams");
   }

   public static void main(String args[]) {

      Scanner in = new Scanner(System.in);

      System.out.println("Enter first string :");

      String str1 = in.nextLine();

      System.out.println("Enter second string :");

      String str2 = in.nextLine();
```

```
        areAnagram(str1, str2);
    }
}
```

Output:



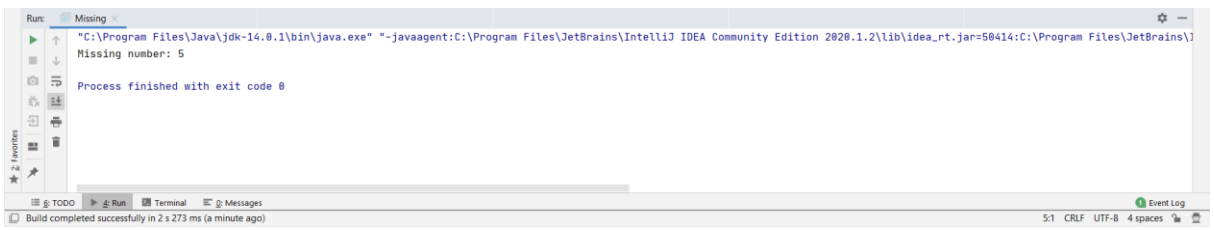
2.12 Write a program to print a missing number in a sorted integer array.

Code:

```
public class Missing {
    static int search(int arr1[], int size)
    {
        int a = 0, b = size - 1;
        int mid = 0;
        while ((b - a) > 1)
        {
            mid = (a + b) / 2;
            if ((arr1[a] - a) != (arr1[mid] - mid))
                b = mid;
            else if ((arr1[b] - b) != (arr1[mid] - mid))
                a = mid;
    }
    return (arr1[mid] + 1);
```

```
}

public static void main (String[] args)

{

    int array[] = { 1, 2, 3, 4, 6, 7, 8, 9, 10 };

    int size = array.length;

    System.out.println("Missing number: " + search(array, size));

}
```

Output:



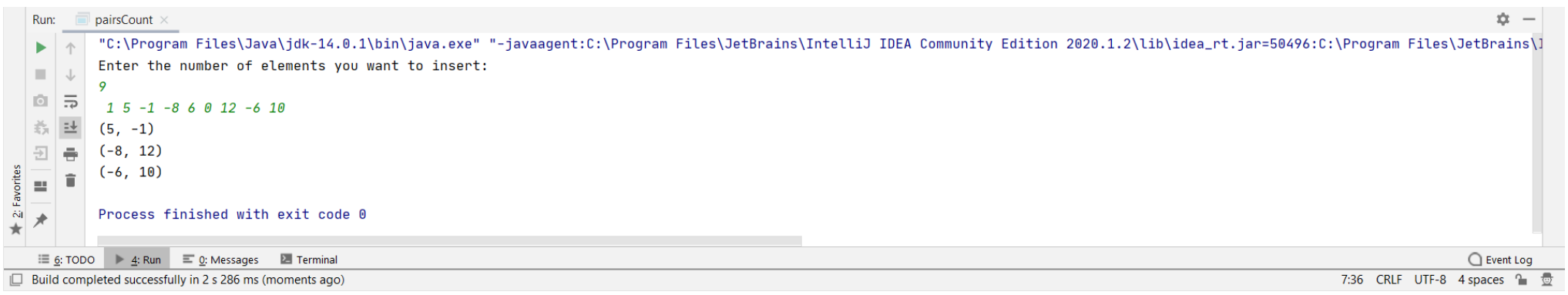
2.13 Write a program to find all the pairs of numbers on an integer array whose sum is equal to a given number.

Code:

```
import java.util.Scanner;

public class pairsCount {

    static void showPairs(int arr[], int n, int k) {

        for (int i = 0; i < n; i++)

            for (int j = i + 1; j < n; j++)

                if (arr[i] + arr[j] == k)

                    System.out.println("(" + arr[i] + ", " + arr[j] + ")");
```

```
}


public static void main(String[] arg) {

    Scanner sc = new Scanner(System.in);

    System.out.println("Enter the number of elements you want to insert: ");

    int n = sc.nextInt();

    int arr[] = new int[n];

    for(int i=0; i<arr.length; i++){

        arr[i]=sc.nextInt();

    }

    int k = 4;

    showPairs(arr, n, k);

  }
}
```

Output:



Conclusion: We understood and performed various programs using Java.