**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.

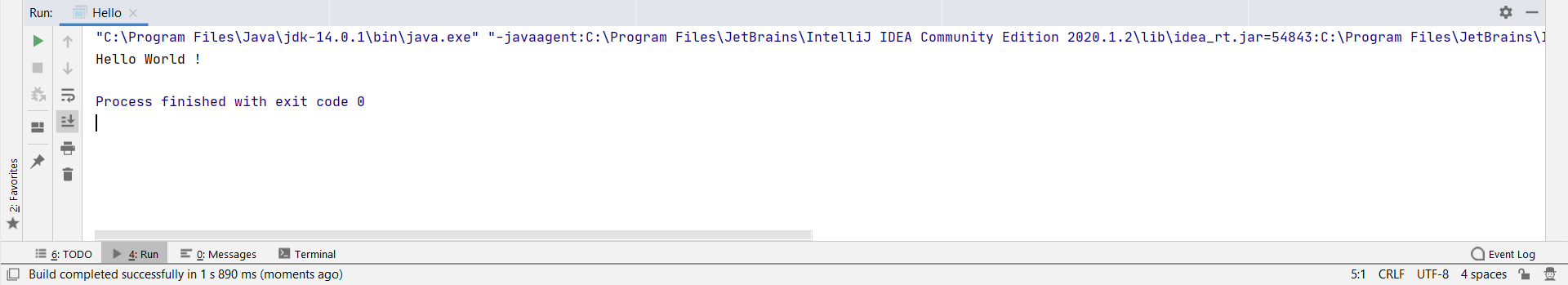
**Tool used:** Editor (Notepad/Intellij IDE), JDK and JRE

**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();

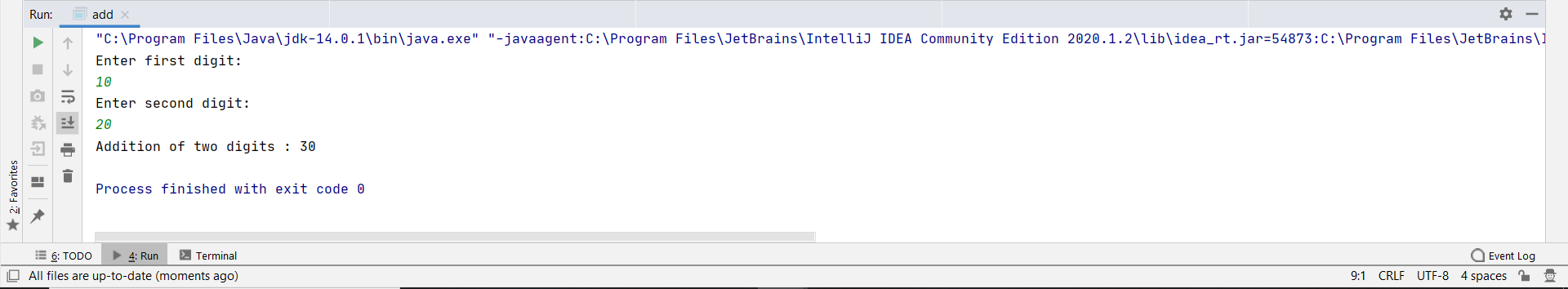
**int** c = a+b;

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();

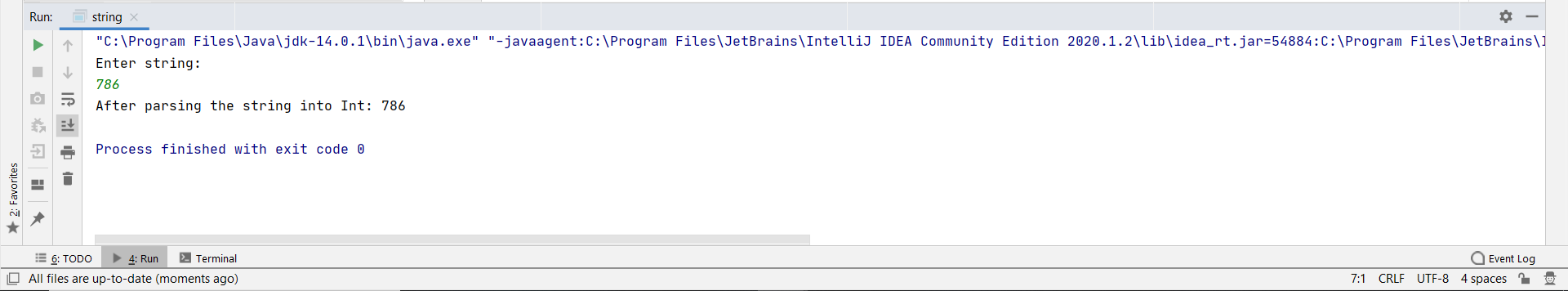
**int** number = Integer.*parseInt*(s);

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]);

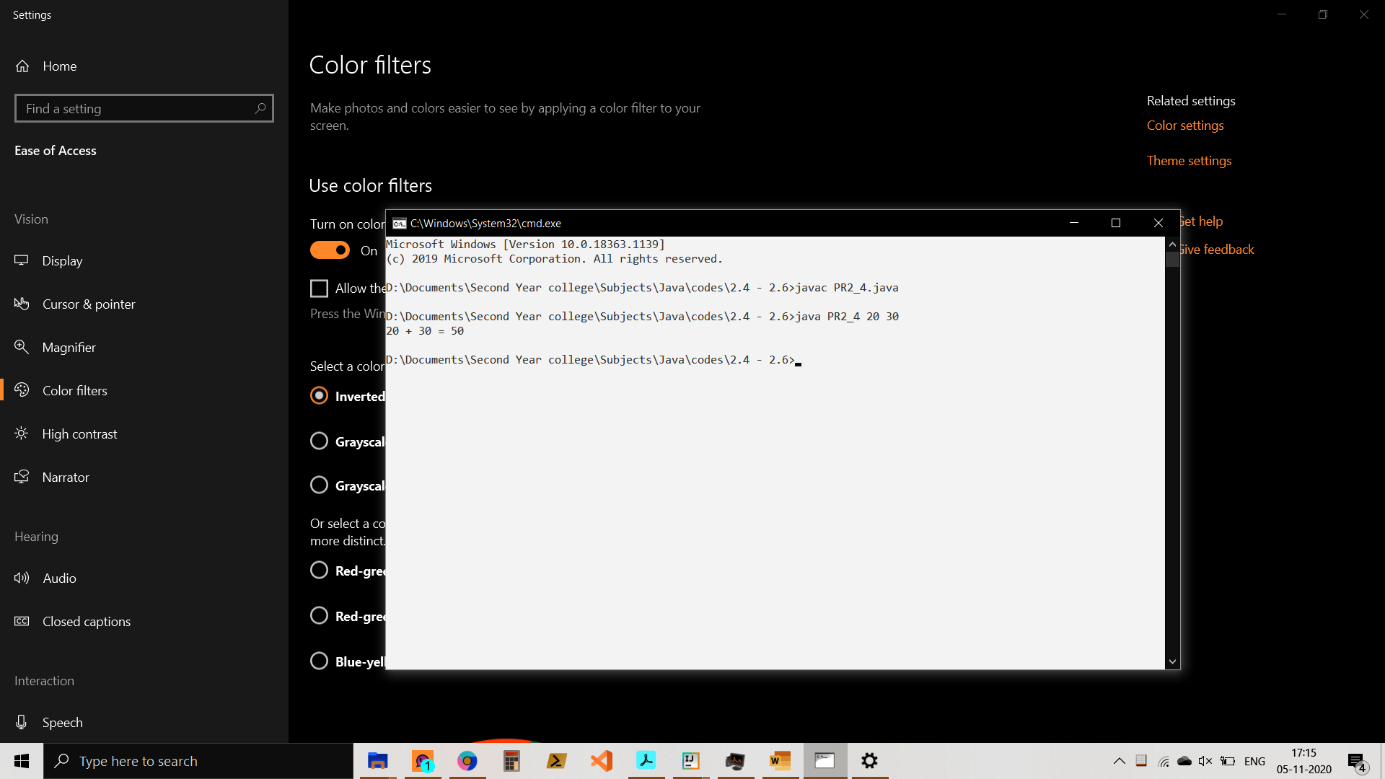
num2 = Integer.*parseInt*(args[1]);

sum = num1+num2;

System.***out***.println(num1+**" + "**+num2+**" = "**+sum);

}  
}

Output:

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**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]);

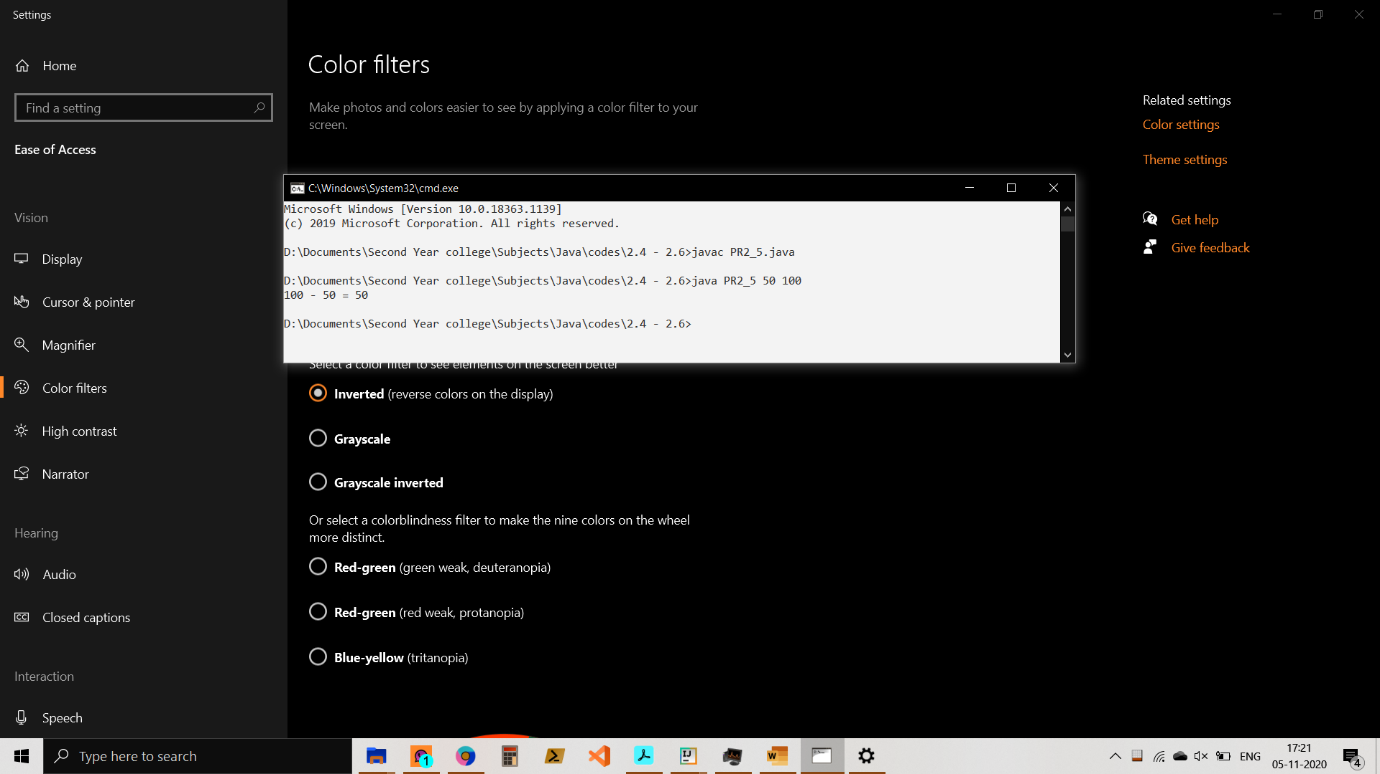
num2 = Integer.*parseInt*(args[1]);

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;

}

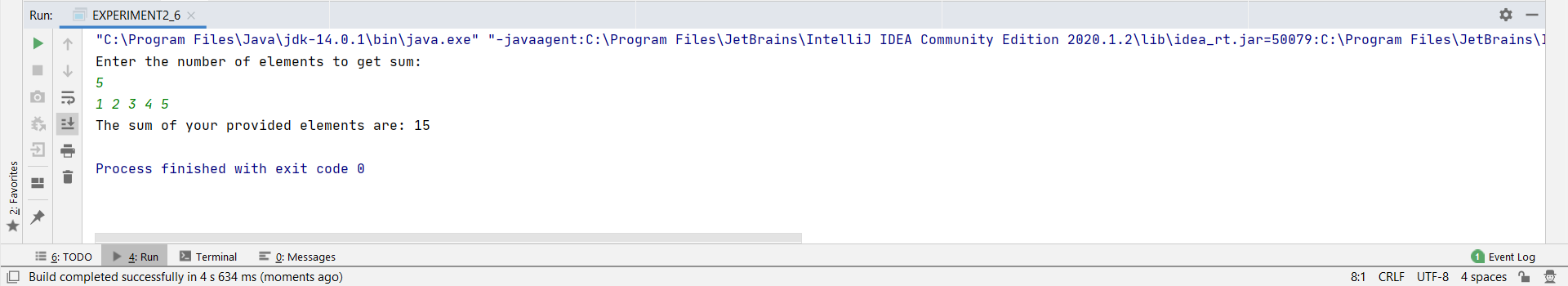
**if**(n%2 != 0){  
 **int** middleIndex = ((n-1)/2);  
 sum += arr[middleIndex];  
 }

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();

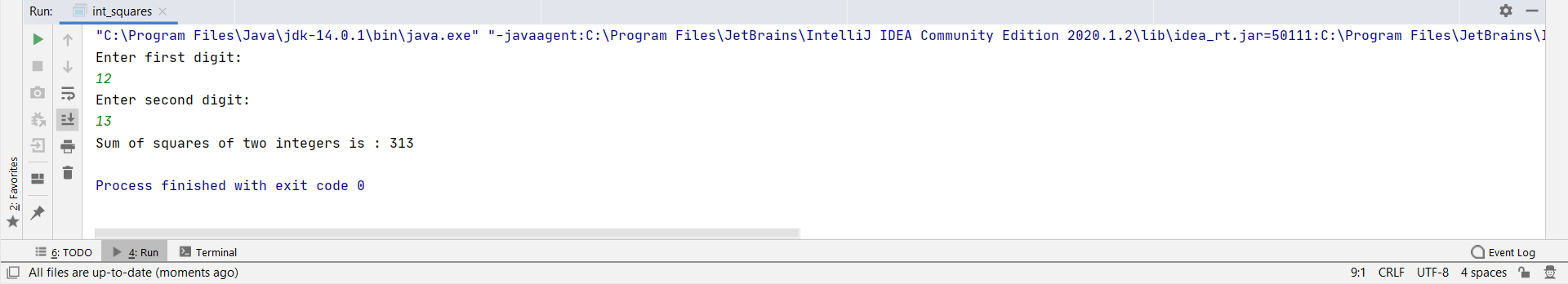
d = c\*c;

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);

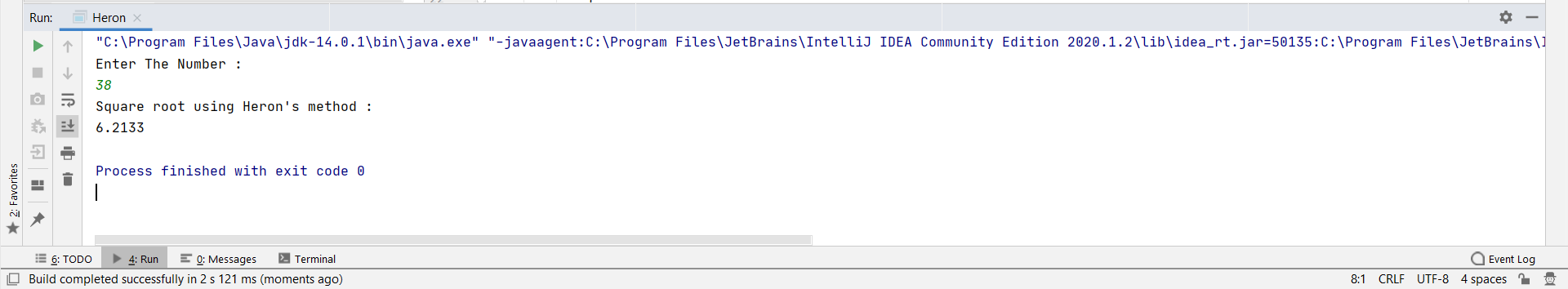
**for** (i = 0; i < 4; i++)

a = 0.5 \* (a + x / a);

**return** a;

}  
}

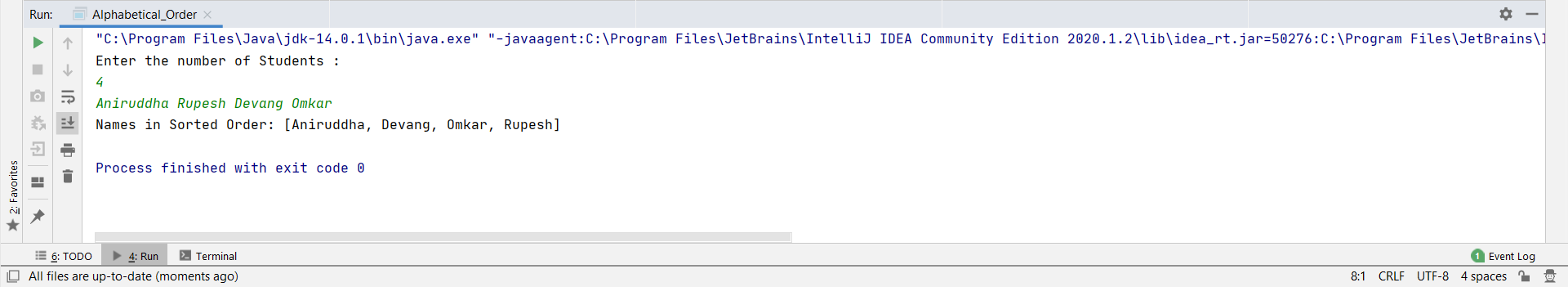
Output :



**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'**)

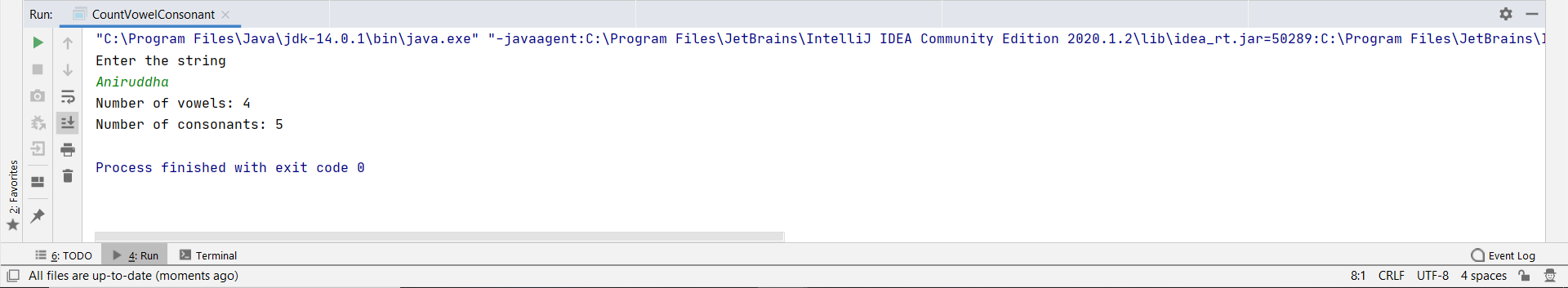
cCount++;

}

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 :"**);

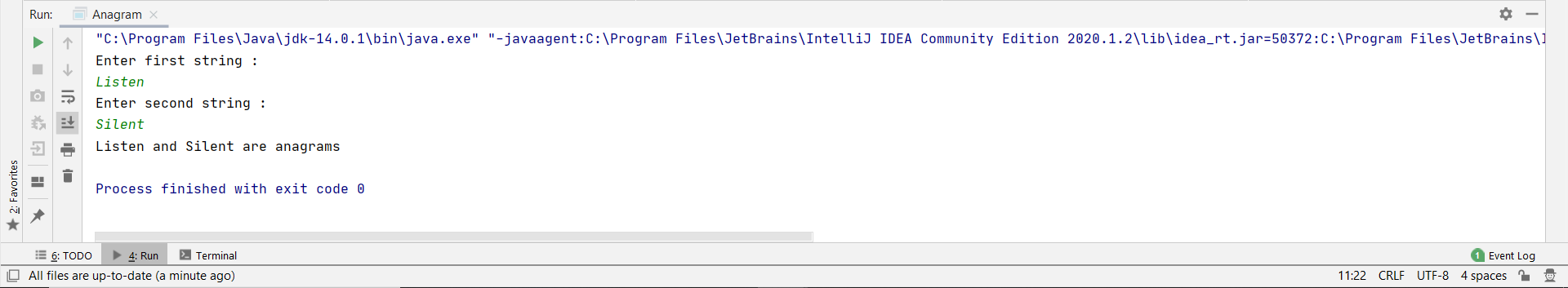
String str2 = in.nextLine();

*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 };

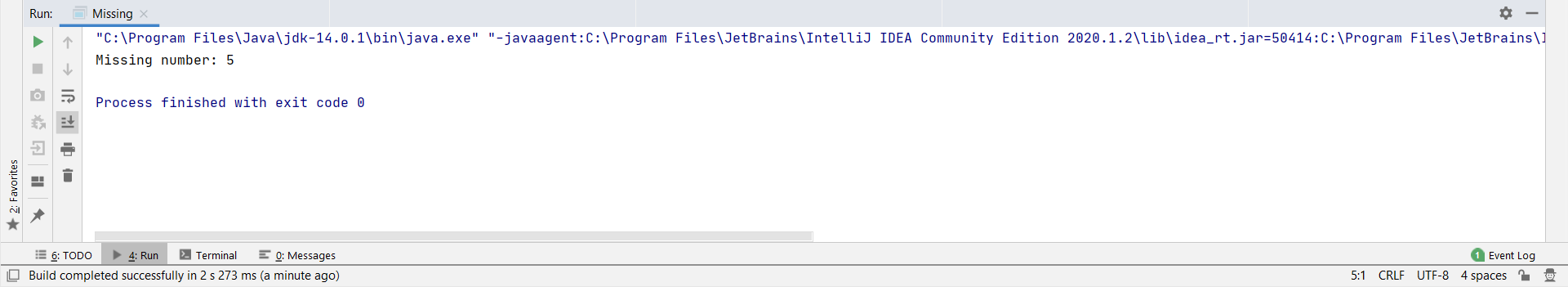
**int** size = array.**length**;

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();

}

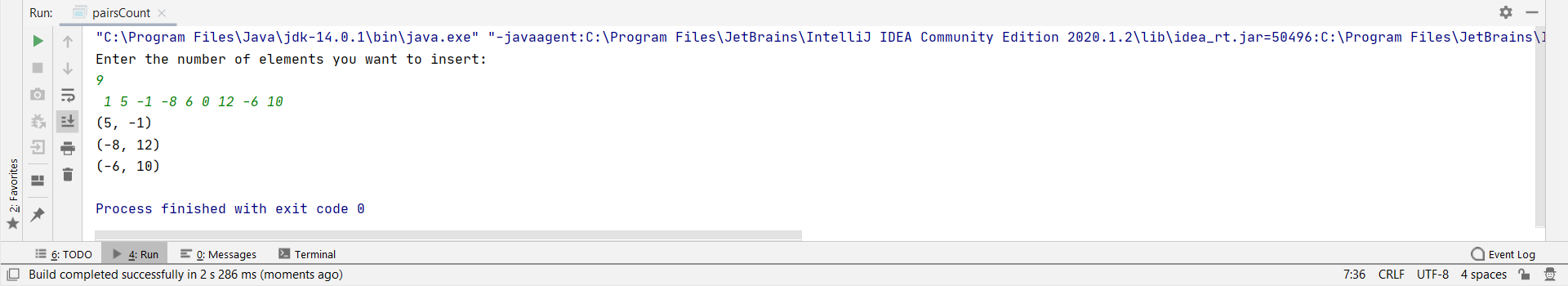
**int** k = 4;

*showPairs*(arr, n, k);

}

}

Output:



**Conclusion: We understood and performed various programs using Java.**