# **Homework**

# **Grade 11 Review 4 – Strings**

1. **MakeUppercase.java:** Code a program which changes a string to it’s upper case equivalent. Note: only lower case letters should be changed.

Example:

Input: Enter string: Abracadabra!

Output: Uppercase Equivalent: ABRACADABRA!

| /\*  \* Program name: MakeUppercase.java  \*  \* By: Lucas Chow (Last edited: 2022-09-21)  \*  \* ICS4U1 - 04\_Gr11Review  \*  \* This program takes in an input string, and ouputs the uppercase equivalent of the string  \*  \*/  //importing scanner  import java.util.Scanner;  public class MakeUppercase {  public static void main(String[] args)  {  //declaring variables  String input;  Scanner sc = new Scanner(System.in);    //prompting for input string  System.out.print("Enter String: ");  input = sc.nextLine();    //outputing uppercase equivalent  System.out.print("Uppercase Equivalent:");  System.out.println(input.toUpperCase());      //closing scanner  sc.close();  }  } |
| --- |
|  |

1. **Encrypt.java**: Code a program which encrypts a line of code. The encryption specifications are as follows:

* first and last character of each string are exchanged.
* Middle characters of each string are shifted to the character two after it in the ASCII table (works for non-letters as well.)
* spaces are left alone
* careful with strings less than 3 characters

Example:

Input: Enter a line to be encrypted: Happy Days!

Output: The encryption is: ycrrH !c{uD

| /\*  \* Program name: Encrypt.java  \*  \* By: Lucas Chow (Last edited: 2022-09-21)  \*  \* ICS4U1 - 04\_Gr11Review  \*  \* This program takes in an input string, and switches the first and last characters,  \* and the middle characters are shifted 2 down in the ASCII table  \*  \*/  //importing scanner  import java.util.Scanner;  public class Encrypt {  public static String swapOpposites(String input)  {  char temp;  char[] charArray = input.toCharArray();  temp = charArray[0];  charArray[0] = charArray[charArray.length-1];  charArray[charArray.length-1] = temp;    String swappedString = new String(charArray);    return swappedString;  }    public static String increaseIndexASCII(String input, int index, int value)  {  char[] charArray = input.toCharArray();  charArray[index] = (char) (charArray[index] + value);    String shiftedString = new String(charArray);    return shiftedString;  }    public static void main(String[] args)  {  //declaring variables  String input;  Scanner sc = new Scanner(System.in);  System.out.print("Enter a line to be encrypted: ");  input = sc.nextLine();  String[] arrayOfStrings;    //splitting the string into an array  arrayOfStrings = input.split(" ",0);    //output  System.out.print("The encryption is: ");    //looping through the elements  for (int i = 0; i < arrayOfStrings.length; i++)  {  //using custom method swapOpposites to swap opposite characters in string, for each element  arrayOfStrings[i] = swapOpposites(arrayOfStrings[i]);    //looping though the arrayOfStrings, for each element to increase the char ASCII value by 2  //uses custom method increaseIndexASCII();  for (int a = 1; a < arrayOfStrings[i].length()-1; a++)  {  arrayOfStrings[i] = increaseIndexASCII(arrayOfStrings[i], a, 2);  }  System.out.print(arrayOfStrings[i]+" ");  }        //closing scanner  sc.close();    }  } |
| --- |
|  |

1. **AddDigits.java**: Write a program that outputs the sum of each digit in a number entered by the user.

Example:

Input: 95684

Output: 32

*(9+5+6+8+4)*

| /\*  \* Program name: AddDigits.java  \*  \* By: Lucas Chow (Last edited: 2022-09-28)  \*  \* ICS4U1 - 04\_Gr11Review  \*  \* This program takes in an input string, and finds the sums of the digits  \* and outputs it  \*  \*/  //importing Scanner  import java.util.Scanner;  public class AddDigits {  //start of main method  public static void main(String[] args)  {    //declaring variables  Scanner sc = new Scanner(System.in);  String inputNum;  int intSum;    //prompting user for input  System.out.print("Enter your input: ");  inputNum = sc.nextLine();    //setting intSum to 0  intSum = 0;    //looping through the input,  for (int i = 0; i < inputNum.length(); i++)  {  //adding digits to intSum  intSum += Integer.parseInt(inputNum.substring(i,i+1));  }    //printing out the sum of the inputs  System.out.print("The sum of the digits are: ");  System.out.println(intSum);    //closing scanner  sc.close();  }  } |
| --- |
|  |

1. **AddPairs.java**: Write a program that divides a number entered by the users into a set of two digits numbers (if the number has odd number of digits, the last number is only one digit), then output the sum of the set of numbers.

Example:

Input: 239403854

Output: 209

(23+94+3+85+4)

| /\*  \* Program name: AddPairs.java  \*  \* By: Lucas Chow (Last edited: 2022-09-28)  \*  \* ICS4U1 - 04\_Gr11Review  \*  \* This program takes in an input, and finds the sum of the pairs of digits.  \* If the input has an odd number of digits, it considers a second case by initially  \* checking the length even/odd of the string input  \*  \*/  //importing scanner  import java.util.Scanner;  public class AddPairs {    //start of main method  public static void main(String[] args)  {  //declaring variables  Scanner sc = new Scanner(System.in);  String inputString;  int intSum;  System.out.print("Enter an input: ");  inputString = sc.nextLine();    intSum = 0;    //even length strings  if (inputString.length() % 2 == 0)  {  //looping thorug the string by pairs  for (int i = 0; i \* 2 < inputString.length(); i++)  {  //adding pair value to intSum  intSum += Integer.parseInt(inputString.substring(i\*2,i\*2+2));  }  }    //odd length strings  else  {  //looping through the string  for (int i = 0; i\*2 < inputString.length(); i++)  {  //checking if pair-operation performed would output out of bounds, then would go for the odd method  if (i \* 2 + 2 < inputString.length())  {  //adding pair value to intSum  intSum += Integer.parseInt(inputString.substring(i\*2,i\*2+2));  }  else  {    //adding single value to intSUm  intSum += Integer.parseInt(inputString.substring(i\*2,i\*2+1));  }  }  }      //outputing resutls  System.out.print("Output/ Sum of pairs of digits: ");  System.out.println(intSum);    //closing scanner  sc.close();  }  } |
| --- |
|  |