**Assignment 1:**

1. **Source Code:**

**import java.util.\*;**

**public class Sort {**

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

**Scanner sc = new Scanner(System.in);**

**int n = sc.nextInt();**

**String[] strArr = new String[n];**

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

**String input = sc.next();**

**strArr[i] = input;**

**}**

**sc.close();**

**bubbleSort(strArr);**

**insertionSort(strArr);**

**}**

**public static void bubbleSort(String[] strArr) {**

**String temp;**

**for (int i = 0; i < strArr.length - 1; i++) {**

**for (int j = i + 1; j < strArr.length; j++) {**

**if (strArr[j].compareTo(strArr[i]) < 0) {**

**temp = strArr[j];**

**strArr[j] = strArr[i];**

**strArr[i] = temp;**

**}**

**}**

**}**

**System.out.println("Array after Bubble Sort is : ");**

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

**System.out.println(strArr[i]);**

**}**

**}**

**public static void insertionSort(String[] strArr) {**

**System.out.println("Array after Insertion Sort is : ");**

**for (int i = 1; i < strArr.length; i++) {**

**String temp = strArr[i];**

**int j = i - 1;**

**while (j >= 0) {**

**if (temp.compareTo(strArr[j]) > 0) {**

**break;**

**}**

**strArr[j + 1] = strArr[j];**

**j--;**

**}**

**strArr[j + 1] = temp;**

**}**

**for (int i = 0; i < 5; i++) {**

**System.out.println(strArr[i]);**

**}**

**}**

**}**

1. **Source Code:**

**import java.util.\*;**

**class Initials {**

**static void printInitials(String name) {**

**if (name.length() == 0)**

**return;**

**String words[] = name.split(" ");**

**if (words.length == 1) { // For Case: AkshitMangotra**

**for (int i = 0; i < words[0].length(); i++) {**

**if (words[0].charAt(i) >= 'A' && words[0].charAt(i) <= 'Z') {**

**System.out.print(words[0].charAt(i));**

**}**

**}**

**} else { // For case: Akshit Mangotra**

**for (String word : words) {**

**System.out.print(Character.toUpperCase(word.charAt(0)));**

**}**

**}**

**}**

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

**Scanner sc = new Scanner(System.in);**

**String name = sc.nextLine();**

**printInitials(name);**

**sc.close();**

**}**

**}**

1. **Source Code:**

**import java.util.Scanner;**

**public class PasswordGenerator {**

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

**String n;**

**Scanner sc = new Scanner(System.in);**

**System.out.print("Enter your full name:");**

**n = sc.nextLine();**

**System.out.print("Enter your age:");**

**int age = sc.nextInt();**

**String[] t = n.split(" ");**

**int l = t.length;**

**System.out.print("Your password is:");**

**for (int i = 0; i < l - 1; i++) {**

**System.out.print(t[i].charAt(0) + "#");**

**}**

**System.out.print(t[l - 1] + "^" + age);**

**}**

**}**

1. **Source Code:**

**import java.util.\*;**

**public class SwapNames {**

**public static void swapLastNames(String person1, String person2){**

**String[] name1 = person1.split(" ");**

**String[] name2 = person2.split(" ");**

**String temp1 = name1[name1.length - 1];**

**String temp2 = name2[name2.length - 1];**

**if(!temp1.equals(temp2)){**

**System.out.println("The last names are the same! Sorry Cant Marry");**

**name2[name2.length-1] = temp1;**

**name1[name1.length-1] = temp2;**

**}**

**System.out.println("The new names are: ");**

**System.out.println(name1[0] + " " + name1[1]);**

**System.out.println(name2[0] + " " + name2[1]);**

**}**

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

**Scanner sc = new Scanner(System.in);**

**String name1 = sc.nextLine();**

**String name2 = sc.nextLine();**

**swapLastNames(name1, name2);**

**sc.close();**

**}**

**}**

1. **Source Code:**

**import java.util.\*;**

**public class usn {**

**public static boolean isValidUSN(char[] ch) {**

**int l = ch.length;**

**if (l == 10 && (ch[0] >= 48 && ch[0] <= 57 &&**

**(ch[0] == '1' || ch[0] == '2') &&**

**Character.isUpperCase(ch[1]) && Character.isUpperCase(ch[2]) &&**

**ch[3] >= '0' && ch[3] <= '9' && ch[4] >= '0' && ch[4] <= '9' &&**

**Character.isUpperCase(ch[5]) && Character.isUpperCase(ch[6]) &&**

**(ch[5] == 'C' && ch[6] == 'S') && ch[7] >= '0' && ch[7] <= '9' &&**

**ch[8] >= '0' && ch[8] <= '9' && ch[9] >= '0' && ch[9] <= '9'))**

**return true;**

**return false;**

**}**

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

**Scanner sc = new Scanner(System.in);**

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

**sc.close();**

**int l = s.length();**

**char[] ch = new char[l];**

**for (int i = 0; i < l; i++) {**

**ch[i] = s.charAt(i);**

**}**

**if(isValidUSN(ch){**

**System.out.println("Succes");**

**} else {**

**System.out.println("Failure");**

**}**

**}**

**}**

1. **Source Code:**

**public class Usn2 {**

**static String reverseWords(String inputString) {**

**String[] words = inputString.split(" ");**

**String reverseString = "";**

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

**String word = words[i];**

**String reverseWord = "";**

**for (int j = word.length() - 1; j >= 0; j--) {**

**reverseWord = reverseWord + word.charAt(j);**

**}**

**reverseString = reverseString + reverseWord + " ";**

**}**

**return reverseString;**

**}**

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

**String str1 = "1 cup of hot coffee costs 8.00, whereas cold coffee costs 45.00.";**

**System.out.println(reverseWords(str1));**

**String str2 = "It Costs 25000rs for 1 LCD Projector.";**

**System.out.println(reverseWords(str2));**

**String str3 = "8990.33";**

**System.out.println(reverseWords(str3));**

**}**

**}**

1. **Source Code:**

**public class Usn3 {**

**static void printRLE(String s) {**

**String s1 = s.toLowerCase();**

**for (int i = 0; i < s1.length(); i++) {**

**int count = 1;**

**while (i + 1 < s1.length() && s1.charAt(i) == s1.charAt(i**

**+ 1)) {**

**i++;**

**count++;**

**}**

**System.out.print(s1.charAt(i) + "" + count + " ");**

**}**

**System.out.println();**

**}**

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

**printRLE("aAbcccccaaA");**

**printRLE("BBBBbbb");**

**}**

**}**

1. **Source Code:**

**import java.util.Arrays;**

**public class CountTriplets {**

**static int count\_Triplets(int[] A, int N) {**

**int count = 0;**

**Arrays.sort(A);**

**for (int i = 0; i < N; i++) {**

**for (int j = i + 1; j < N; j++) {**

**for (int k = j + 1; k < N; k++) {**

**if (A[i] + A[j] == A[k]) {**

**System.out.println(A[i] + "," + A[j] + "," + A[k]);**

**count++;**

**}**

**}**

**}**

**}**

**return count;**

**}**

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

**int[] A = { 1, 2, 3, 4, 5, 7, 9 };**

**int N = A.length;**

**System.out.print(count\_Triplets(A, N));**

**}**

**}**