Cycle - 1

1) Define a class ‘product’ with data members pcode, pname and price. Create 3 objects of the class and find the product having the lowest price.

Code:

public class product

{

int pcode;

int price;

String pname;

void getdata(int p1,String p2,int p3)

{

pcode = p1;

pname = p2;

price = p3;

}

public static void main(String[]args)

{

System.out.println("Name : APARNA MOHAN");

System.out.println("Reg no : SJC 22MCA-2013");

System.out.println("Course code : 20MCA132");

System.out.println("Date : 24/3/2023");

int smallest;

product ob1 = new product();

product ob2 = new product();

product ob3 = new product();

ob1.getdata(3243,"Dell inspiron",57000);

ob2.getdata(3654,"Lenova",33000);

ob3.getdata(3875,"asus",90000);

if(ob1.price<ob2.price){

if(ob3.price<ob1.price)

{

smallest = ob3.price;

}

else

{

smallest = ob1.price;

}

}

else

{

if (ob2.price<ob3.price)

{

smallest = ob2.price;

}

else

{

smallest = ob3.price;

}

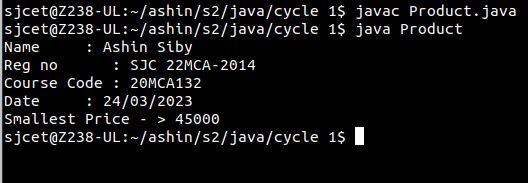
}

System.out.println(smallest+"is the cheapest.");

}

}

Output



2) Read 2 matrices from the console and perform matrix addition.

Code:

public class AddMatrices {

public static void main(String[] args) {

System.out.println("Name : APARNA MOHAN");

System.out.println("Reg no : SJC 22MCA-2013");

System.out.println("Course code : 20MCA132");

System.out.println("Date : 24/3/2023");

int rows = 2, columns = 3;

int[][] firstMatrix = { {2, 3, 4}, {5, 2, 3} };

int[][] secondMatrix = { {-4, 5, 3}, {5, 6, 3} };

// Adding Two matrices

int[][] sum = new int[rows][columns];

for(int i = 0; i < rows; i++) {

for (int j = 0; j < columns; j++) {

sum[i][j] = firstMatrix[i][j] + secondMatrix[i][j];

}

}

// Displaying the result

System.out.println("Sum of two matrices is: ");

for(int[] row : sum) {

for (int column : row) {

System.out.print(column + " ");

}

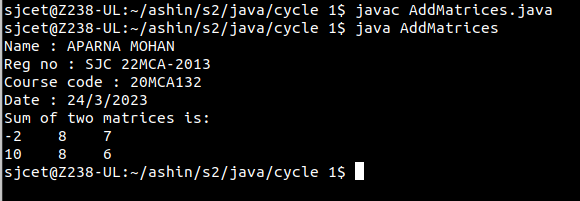
System.out.println();

}

}

}

Output



3) Add complex numbers

Code:

import java.util.Scanner;

public class ComplexAddition {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.print("Enter the real part of the first complex number: ");

double real1 = input.nextDouble();

System.out.print("Enter the imaginary part of the first complex

number: ");

double imaginary1 = input.nextDouble();

System.out.print("Enter the real part of the second complex number:

");

double real2 = input.nextDouble();

System.out.print("Enter the imaginary part of the second complex

number: ");

double imaginary2 = input.nextDouble();

double realResult = real1 + real2;

double imaginaryResult = imaginary1 + imaginary2;

System.out.println("Name : APARNA MOHAN");

System.out.println("Reg no : SJC 22MCA-2013");

System.out.println("Course code : 20MCA132");

System.out.println("Date : 24/3/2023");

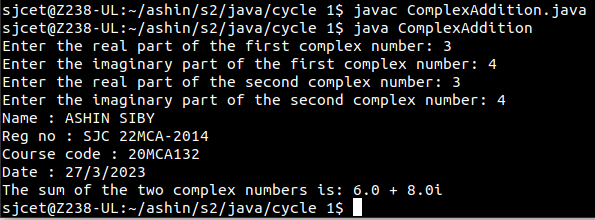
System.out.println("The sum of the two complex numbers is: " +

realResult + " + " + imaginaryResult + "i");

}

}

Output



4) Read a matrix from the console and check whether it is symmetric or not.

Code:

import java.util.Scanner;

public class SymmetricMatrix

{

public static void main(String[] args)

{

System.out.println("Name : APARNA MOHAN");

System.out.println("Reg no : SJC 22MCA-2013");

System.out.println("Course code : 20MCA132");

System.out.println("Date : 24/3/2023");

Scanner mat = new Scanner(System.in);

System.out.println("Enter the no. of rows : ");

int rows = mat.nextInt();

System.out.println("Enter the no. of columns : ");

int cols = mat.nextInt();

int matrix[][] = new int[rows][cols];

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

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

{

for (int j = 0; j < cols; j++)

{

matrix[i][j] = mat.nextInt();

}

}

System.out.println("The matrix is :");

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

{for (int j = 0; j < cols; j++)

{

System.out.print(matrix[i][j]+"\t");

}

System.out.println();

}

if(rows != cols)

{

System.out.println("The given matrix is not a square matrix");

}

else

{

boolean symmetric = true;

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

{

for (int j = 0; j < cols; j++)

{

if(matrix[i][j] != matrix[j][i])

{

symmetric = false;

break;

}

}

}

if(symmetric)

{

System.out.println("The given matrix is symmetric.");

}

else

{

System.out.println("The given matrix is not symmetric.");

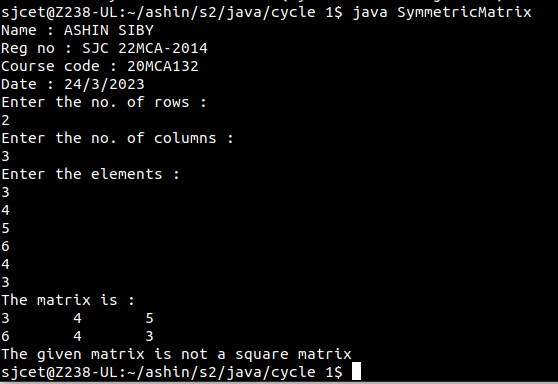
}

}

mat.close();}

}

Output



5) Create CPU with attribute price. Create inner class Processor (no. of cores, manufacturer) and static nested class RAM (memory, manufacturer). Create an object of CPU and print information of Processor and RAM.

Code:

public class cpu{

class processor{

int cores;

String producer;

processor(int noC, String manu){

cores=noC;

producer=manu;

}

void display(){

System.out.println("\nPROCESSOR DETAILS");

System.out.println("No. of Cores = "+cores);

System.out.println("Manufacturer = "+producer+"\n");

}

}

static class ram{

int mem;

String manuf;

ram(int memory,String producer ){

mem=memory;

manuf=producer;

}

void display(){

System.out.println("Name : APARNA MOHAN");

System.out.println("Reg no : SJC 22MCA-2013");

System.out.println("Course code : 20MCA132");

System.out.println("Date : 24/3/2023");

System.out.println("\nRAM DETAILS");

System.out.println("Memory = "+mem+" GB");

System.out.println("Manufacturer = "+manuf+"\n");

}

}

public static void main(String[] args) {cpu.ram obj1= new cpu.ram(8,"Intel");

cpu obj2 = new cpu();

cpu.processor obj3 = obj2.new processor(8,"Samsung");

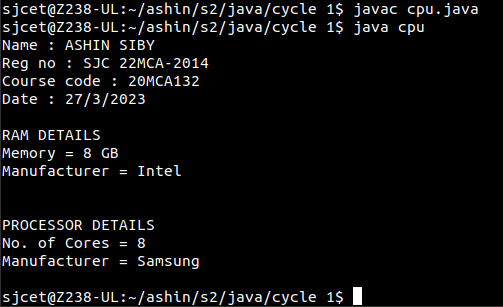
obj1.display();

obj3.display();

}

}

Output



Cycle - 2

1) Program to Sort strings.

Code:

import java.util.Scanner;

import java.util.Arrays;

public class sort {

public static void main(String[] args) {

int i,j;

Scanner sc = new Scanner(System.in);

System.out.println("SANUP");

System.out.println("SJC22MCA-2048");

System.out.println("12-4-2023");

System.out.println("");

System.out.println("Enter the number of words");

int num=sc.nextInt();

String word[]=new String[num];

sc.nextLine();

for( i=0;i<num;i++){

System.out.println("\nEnter a Word\n");

word[i]=sc.nextLine();

}

for( i=0;i<num-1;i++){

for( j=i+1;j<num;j++){

if(word[i].compareTo(word[j])>0){

String temp = word[i];

word[i]=word[j];

word[j]=temp;

}

}

}

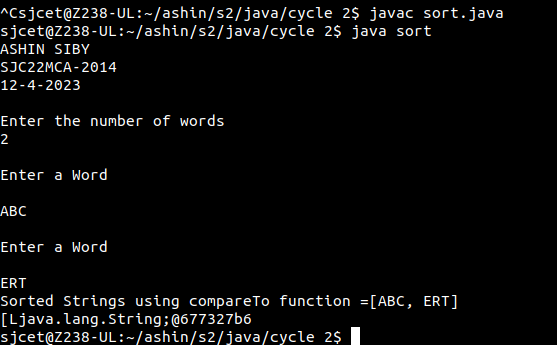
System.out.println("Sorted String using compareTo function="+Arrays.toString(word));

System.out.println(word);

}

}

Output



2) Search for an element in an array.

Code:

import java.util.Scanner;

public class search {

public static void main(String[] args) {

int i,j,x=0;

boolean state = false;

Scanner sc = new Scanner(System.in);

System.out.println("SANUP");

System.out.println("SJC22MCA-2048");

System.out.println("12-4-2023");

System.out.println("");

System.out.println("Enter the number of elemets in array");

int num=sc.nextInt();

String word[]=new String[num];

sc.nextLine();

for( i=0;i<num;i++){

System.out.println("\nEnter a Word\n");

word[i]=sc.nextLine();

}

System.out.println("Enter the element to Search");

String search = sc.nextLine();

for( i=0;i<num;i++){

if(word[i].equals(search)){

x = i;

state = true;

}

}

if(state){

System.out.println("Element found at position = "+x);

}

functionelse{

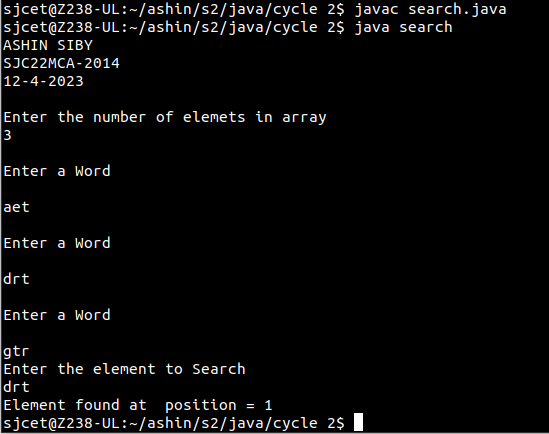
System.out.println("Element found not found");

}

}

}

Output



3) Perform string manipulations

Code:

import java.util.Scanner;

public class string {

public static void main(String[] args) {

System.out.println("Enter The String");

Scanner sc = new Scanner(System.in);

String str1 = sc.nextLine();

System.out.println("SANUP");

System.out.println("SJC22MCA-2048");

System.out.println("12-4-2023");

System.out.println("");

System.out.println("Length of String = "+str1.length());

System.out.println("Character at First position = "+str1.charAt(1));

System.out.println("String Contains 'Col' sequence :"+str1.contains("Col"));

System.out.println("String ends with e : "+str1.endsWith("e"));

System.out.println("Replace'col' with 'kol': "+str1.replaceAll("Col","kol"));

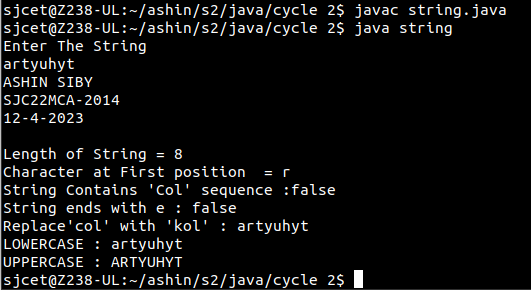
System.out.println("LOWERCASE : "+str1.toLowerCase());

System.out.println("UPPERCASE : "+str1.toUpperCase());

}

}

Output



4) Program to create a class for Employee having attributes eNo, eName, eSalary. Read n employ information and Search for an employee given eNo, using the concept of Array of Objects.

Code:

import java.util.Scanner;public class employee {

int eNo;

String eName;

double eSalary;

public void getdetails(){

Scanner sc = new Scanner(System.in);

System.out.println("\nEnter the Employee details");

System.out.println("Employee number : ");

eNo=sc.nextInt();

System.out.println("Name : ");

sc.nextLine();

eName=sc.nextLine();

System.out.println("Salary : ");

eSalary=sc.nextDouble();

}

void display(){

System.out.println("Empolyee No :"+eNo);

System.out.println("Name :"+eName);

System.out.println("Salary Amount"+eSalary+"\n");

}

public static void main(String[] args) {

System.out.println("SANUP");

System.out.println("SJC22MCA-2048");

System.out.println("12-4-2023");

System.out.println("");

System.out.println("\nEnter the No. of Employee's");

Scanner sc1 = new Scanner(System.in);

int num = sc1.nextInt();

employee arr[]=new employee[num];

for(int i =0;i<num;i++){

arr[i]=new employee();

arr[i].getdetails();

}

System.out.println("\nInformations of all the employee's");

for(int i=0;i<num;i++){

arr[i].display();

}

boolean state = false;System.out.println("\nEnter the Employee Number to get details of a

employee");

int num2= sc1.nextInt();

for(int i=0;i<num;i++){

if(arr[i].eNo==num2){

System.out.println("\nEmployee details");

arr[i].display();

}

}

}

}

Output

