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| **Experiment No.** | 4B |

| **AIM:** | Write a program to demonstrate arrays of objects. |
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| **Program 1** | |
| **PROBLEM STATEMENT :** | Create a class called ShoppingCart to represent the following scenario: In a mall, a conveyor belt holds “c” carts at a time. Each cart may contain variable number of items, items which are either Perishable or Non-perishable category items. Create a 3D array named as cart which stores the cost of items purchased.  Hint: Use Ragged/Jagged Arrays  For c=3, find out:  a) Total cost of each cart  b) Find out all perishable items sold (on 3 carts)  c) Find out the costliest non-perishable item sold |
| **PROGRAM:** | import java.util.\*;  class shoppingCart{  void calc(double arr[][][]){    double ptotal=0, total=0, temp=0, costliest=0; int x=0;  for(int i=0; i<arr.length; i++){  double p=0, np=0, y=0;  for(int j=0; j<arr[i].length; j++){    for(int k=0; k<arr[i][j].length; k++){  if(j==0){  p += arr[i][j][k];  ptotal += arr[i][j][k];  }  if(j==1){  if(y<arr[i][j][k]){  y = arr[i][j][k];  }  if(temp<arr[i][j][k]){  temp = arr[i][j][k];  x=i+1;  }  np += arr[i][j][k];  }  total += arr[i][j][k];  }  if(j==0){System.out.println("Total cost of perishable items in cart " + (i+1) + " : " + p);}  if(j==1){System.out.println("Total cost of non-perishable items in cart " + (i+1) + " : " + np);}  }  System.out.println("Total cost of cart " + (i+1) + ": " + total);  System.out.println("Value of costliest non-perishable item sold in cart " + (i+1) + " : " + y);  }  System.out.println("Total cost of perishable items in all carts : " + ptotal);  System.out.println("Costliest non-perishable item was sold in cart " + x + ".Its value is : " + temp + "");  }  }  class shop {  public static void main(String []args){    Scanner sc = new Scanner(System.in);  System.out.print("Enter number of carts : ");  int c = sc.nextInt();  if(c>0){  double cart[][][] = new double[c][2][];  for(int i=0; i<cart.length; i++){  for(int j=0; j<cart[i].length; j++){  if(j==0){  System.out.print("Enter no. of perishable items in cart " + (i+1) + " : ");  int x = sc.nextInt();  cart[i][j] = new double[x];  for(int k=0; k<cart[i][j].length; k++){  System.out.print("Enter cost of item " + (k+1) + " : ");  cart[i][j][k] = sc.nextDouble();  }  }  if(j==1){  System.out.print("Enter no. of non-perishable items in cart " + (i+1) + " : ");  int y = sc.nextInt();  cart[i][j] = new double[y];  for(int l=0; l<cart[i][j].length; l++){  System.out.print("Enter cost of item " + (l+1) + " : ");  cart[i][j][l] = sc.nextDouble();  }  }  }  }    shoppingCart a = new shoppingCart();  a.calc(cart);  }  else if(c<=0){  System.out.println("Invalid input!!");  }  }  } |
| **RESULT:** | |
| **Program 2** | |
| **PROBLEM STATEMENT :** | A certain chain of hotels needs to maintain details of all hotels it has across India. Each hotel has an ID, location, number of rooms(a 1D array of rooms of 3 types: suite, deluxe, standard) eg, if a hotel has 20 suites, 40 deluxe rooms and 60 standard rooms, this array will be rooms[]={20,40,60} In the main class, create an array of hotels. Include the following methods in the Hotel class: static void listHotels(Hotel h[],String location)-> list hotel details in a given location static void listHotels(Hotel h[],int room\_type)->list Total number of rooms in each hotel of the given  room type. |
| **PROGRAM:** | import java.util.\*;  class Hotel{  int id;  String location;  int rooms[];  Hotel(int id, String location, int rooms[]){  this.id = id;  this.location = location;  this.rooms = rooms;  }  static void listHotels(Hotel h[],String sLoc){  System.out.printf("\n%-15s %-15s\n", "Hotel ID", "Location");  for(int i=0; i<h.length; i++){  if(h[i].location.equalsIgnoreCase(sLoc)){  System.out.printf("%-15d %-15s\n", h[i].id, h[i].location);  }  }  System.out.println();  }    static void listHotels(Hotel h[],int rType){  System.out.printf("\n%-15s %-15s\n", "Hotel ID", "Count");  for(int i=0; i<h.length; i++){  System.out.printf("%-15s %-15s\n", h[i].id, h[i].rooms[rType]);  }  }  }  public class hotels{  public static void main(String []args){  Scanner sc = new Scanner(System.in);  System.out.print("Enter number of hotels : ");  int n = sc.nextInt();  if(n>0){  Hotel h[] = new Hotel[n];  for(int i = 0; i < n; i++){  System.out.println("Enter details for Hotel " + (i + 1) + ": ");    System.out.print("Hotel ID : ");  int id = sc.nextInt();  sc.nextLine();    System.out.print("Location of hotel : ");  String location = sc.nextLine();    System.out.print("Number of suites : ");  int su = sc.nextInt();  if(su<0){System.out.println("Invalid input!!"); break;}    System.out.print("Number of deluxe rooms : ");  int d = sc.nextInt();  if(d<0){System.out.println("Invalid input!!"); break;}    System.out.print("Number of standard rooms : ");  int st = sc.nextInt();  if(st<0){System.out.println("Invalid input!!"); break;}    int rooms[] = {su,d,st};  h[i] = new Hotel(id,location,rooms);  }  for(int i=0; i<h.length; i++){  for(int j=0; j<h[i].rooms.length; j++){  if(h[i].rooms[j] < 0){  break;  }  else{  sc.nextLine();  System.out.print("\nEnter a location to search : ");  String sLoc = sc.nextLine();  Hotel.listHotels(h, sLoc);    System.out.print("Enter room type -\n1. Suite\n2. Deluxe\n3. Standard\nEnter your choice : ");  int rType = sc.nextInt();  if(rType>=1 && rType<=3){  Hotel.listHotels(h, rType-1);  }  else{ System.out.println("Invalid input!!"); }  }  }  }  }  else{System.out.println("Invalid input!!");}  }  } |
| **RESULT:** | |
| **CONCLUSION:** | Studied the implementation of arrays of objects to solve the given problems. |