**Object Oriented Programming in Java Assignment**

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| NAME: | COWKUR AVANISH |
| ROLL NO: | 100522733011 |
| SUBJECT: | OOPS IN JAVA |
| BRANCH: | COMPUTER SCIENCE AND ENGINEERING |
| SEMESTER: | 3RD SEMESTER |
| COLLEGE: | UNIVERSITY COLLEGE OF ENGINEERING-OSMANIA UNIVERSITY |

**Q.1) Write a program in java to calculate the BMI of a person using command line arguments.**

**A-1)**

public class BMICalculator {

    public static void main(String[] args) {

        if(args.length != 2) {

            System.out.println("Please provide weight (in kg) and height (in m) as command line arguments.");

            return;

        }

        try {

            double weight = Double.parseDouble(args[0]);

            double height = Double.parseDouble(args[1]);

            double bmi = weight / (height \* height);

            System.out.printf("The calculated BMI is: %.2f\n", bmi);

        } catch(NumberFormatException e) {

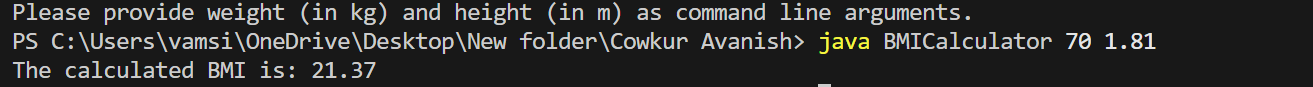
            System.out.println("Invalid input. Please enter numeric values for weight and height.");

        }

    }

}

**OUTPUT:**

****

**NOTE:- Here it is to be noted that 70 is the weight of the person in (kg) and 1.81 is the height of the person in (m).**

**Q.2) Define an abstract class Theme park and inherit 2 classes Queensland and Wonderla from the abstract class. In both the theme parks, the entrance fee for adults is 500Rs and for children it is 300Rs. If a family buys 'n' adult tickets and 'm' children tickets, define a method in the abstract class to calculate the total cost.**

**A-2)**

import java.util.\*;

abstract class Themepark

{

   public int TotalCost(int m , int n)

   {

       return (300 \* m) + (500 \* n);

   }

   abstract void playGame();

}

class Queensland extends Themepark

{

   public void playGame()

   {

       Scanner Sc = new Scanner(System.in);

       boolean Games[] = new boolean[30];

       Arrays.fill(Games, false);

       int c;

       do

       {

           System.out.print("\nEnter the number of the game you want to play (1 - 30). \nPress 0 to exit. \nEnter you choice : ");

           c = Sc.nextInt();

           if(c >= 1 && c <= 30)

           {

               if(Games[c-1] == true)

               {

                   System.out.println("Warning! You cannot play this game again. Please try another game.");

               }

               else

               {

                   Games[c-1] = true;

                   System.out.println("Thankyou for playing this game.");

               }

           }

           else

           {

               if(c == 0)

               {

                   System.out.println("Thankyou for playing. Bye!");

               }

               else

               {

                   System.out.println("Invalid input! Please enter valid input");

               }

           }

       }

       while(c != 0);

   }

}

class Wonderla extends Themepark

{

   public void playGame()

   {

       Scanner Sc = new Scanner(System.in);

       int Games[] = new int[40];

       Arrays.fill(Games, 0);

       int c;

       do

       {

           System.out.print("\nEnter the number of the game you want to play (1 - 40). \nPress 0 to exit. \nEnter you choice : ");

           c = Sc.nextInt();

           if(c >= 1 && c <= 40)

           {

               Games[c-1]++;

               System.out.println("Thankyou for playing this game.");

           }

           else

           {

               if(c == 0)

               {

                   System.out.println("Thankyou for playing. Bye!");

               }

               else

               {

                   System.out.println("Invalid Input! Please enter a valid input.");

               }

           }

       }

       while(c != 0);

       int rep = 0;

       for(int i = 0 ; i < 40 ; i++)

       {

           if(Games[i] > 1)

           {

               rep++;

           }

       }

       System.out.println("\nTotal numbers of games repeated : " + rep);

       int not\_played = 0;

       for(int i=0 ; i < 40 ; i++)

       {

           if(Games[i] == 0)

           {

               not\_played++;

           }

       }

       System.out.println("\nTotal number of games not played : " + not\_played);

       int one = 0;

       for(int i=0 ; i < 40 ; i++)

       {

           if(Games[i] == 1)

           {

               one++;

           }

       }

       System.out.println("\nTotal number of games that are played only once : " + one);

   }

}

public class MyClass

{

   public static void main(String args[])

   {

       Scanner Sc = new Scanner(System.in);

       int m , n;

       System.out.println("Welcome to Queensland");

       System.out.print("Enter total number of adults : ");

       n = Sc.nextInt();

       System.out.print("Enter total number of children : ");

       m = Sc.nextInt();

       Queensland Q = new Queensland();

       System.out.println("Total cost of tickets : " + Q.TotalCost(m , n));

       Q.playGame();

       System.out.println("\nWelcome to Wonderla");

       System.out.print("Enter total number of adults : ");

       n = Sc.nextInt();

       System.out.print("Enter total number of children : ");

       m = Sc.nextInt();

       Wonderla W = new Wonderla();

       System.out.println("Total cost of tickets : " + W.TotalCost(m , n));

       W.playGame();

   }

}

**OUTPUT:**

