**DATA STRUCTURE ASSIGNMENT**

1. import java.util.Scanner;

public class ArmStrong {

public static void main(String[] args) {

Scanner s=new Scanner(System.in);

System.out.println("enter a number to check ArmStrong Or Not:");

int a=s.nextInt();

int sum=0;

int temp;

int number=a;

while (a!=0) {

temp=a%10;

sum=sum+(temp\*temp\*temp);

a=a/10;

}

if (sum==number) {

System.out.println(number+" is ArmStrong Number ");

}

else {

System.out.println(number + "is not ArmStrong Number ");

}

}

}

2**.** public class ArmStrong {

public static void main(String[] args) {

int sum = 0;

int temp;

int number;

System.out.println("arm strong number bw 100-999 are :");

for (int i = 100; i <= 999; i++) {

number = i;

while (number > 0) {

temp = number % 10;

sum = sum + (temp \* temp \* temp);

number = number / 10;

}

if (sum == i) {

System.out.println(i+ " is ArmStrong Number ");

}

sum=0;

}

}

}

3. import java.util .\*;

public class SimpleAndCompoundInterest {

public static void main (String argu[ ])

{

double amount, rate, t, simpleInterest,compoundInterest;

Scanner sc=new Scanner (System. in);

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

amount=sc.nextDouble();

System. out. println("Enter the No.of months:");

t=sc.nextDouble();

System. out. println("Enter the Rate of interest");

rate=sc.nextDouble();

simpleInterest=(amount \* t \* rate/100);

compoundInterest=amount \* Math.pow(1.0+rate/100.0,t) - amount;

System.out.println("Simple Interest="+simpleInterest);

System.out. println("Compound Interest="+compoundInterest);

}

}

4. import java.util .\*;

public class SimpleAndCompoundInterest {

public static void main (String argu[ ])

{

double amount, rate, t, simpleInterest,compoundInterest;

Scanner sc=new Scanner (System. in);

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

amount=sc.nextDouble();

System. out. println("Enter the No.of months:");

t=sc.nextDouble();

System. out. println("Enter the Rate of interest");

rate=sc.nextDouble();

simpleInterest=(amount \* t \* rate/100);

compoundInterest=amount \* Math.pow(1.0+rate/100.0,t) - amount;

System.out.println("Simple Interest="+simpleInterest);

System.out. println("Compound Interest="+compoundInterest);

}

}

5. import java.util.Scanner;

public class Results {

public static void main(String[] args) {

Scanner s=new Scanner(System.in);

System.out.println("Enter First Subject-1 Marks");

int subject1=s.nextInt();

System.out.println("Enter First Subject-2 Marks");

int subject2=s.nextInt();

System.out.println("Enter First Subject-3 Marks");

int subject3=s.nextInt();

if (subject1>=60&&subject2>=60&&subject3>=60) {

System.out.println("Passed");

}

else if (((subject1>=60&&subject2>=60)) || ((subject2>=60&&subject3>=60 )) || ((subject3>=60&&subject1>=60 ))) {

System.out.println("Promoted");

}

else if(subject1>60|| subject2 >60|| subject3>60 || (subject1<60&&subject2<60&&subject3<60)) {

System.out.println("Failed");

}

else

{

System.out.println("entered data is invalid");

}

}

}

6. import java.util.Scanner;

public class IncomeTaxCalculator {

public static void main(String[] args) {

Scanner s=new Scanner(System.in);

double ctc=s.nextDouble();

if (ctc>=0&&ctc<=180000) {

System.out.println("tax payable in % is : NILL ");

}

else if(ctc>180000&&ctc<=300000) {

System.out.println(" tax payable in % is : 10 ");

}

else if(ctc>300000&&ctc<=500000) {

System.out.println(" tax payable in % is : 20 ");

}

else if(ctc>500000&&ctc<=1000000) {

System.out.println(" tax payable in % is : 30 ");

}

else{

System.out.println("tax payable in % is : 40 ");

}

}

}

7. public class FindElementInArray {

public static void main(String[] args) {

int[] num = {5,12,14,6,78,19,1,23,26,35,37,7,52,86,47};

int toFind = 19;

boolean found = false;

for (int n : num) {

if (n == toFind) {

found = true;

break;

}

}

if(found)

System.out.println(toFind + " is found.");

else

System.out.println(toFind + " is not found.");

}

}

8.public class Array {

static void bubbleSort(int[] arr) {

int n = arr.length;

int temp = 0;

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

for (int j = 1; j < (n - i); j++) {

if (arr[j - 1] > arr[j]) {

temp = arr[j - 1];

arr[j - 1] = arr[j];

arr[j] = temp;

}

}

}

}

public static void main(String[] args) {

int arr[] = {5, 12, 14, 6, 78, 19, 1, 23, 26, 35, 37, 7, 52, 86, 47};

System.out.println("Array Before Bubble Sort");

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

System.out.print(arr[i] + " ");

}

System.out.println();

bubbleSort(arr);

System.out.println("Array After Bubble Sort");

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

System.out.print(arr[i] + " ");

}

}

}.