CLASS X PROJECT SOLUTION

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```java
//Program 1
import java.util.*;

public class MyClass
{
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter Deposit Amount and number of years");

        double principle = sc.nextDouble(), time = sc.nextDouble(), rate = 0.0, A = 0.0, CI = 0.0;

        if(principle < 2000 && time >= 2 )
        {
            A = principle * (Math.pow((1 + 5.0 / 100), time));
            CI = A - principle;
        }
        else if(principle >= 2000 && principle < 6000 && time >= 2 )
        {
            A = principle * (Math.pow((1 + 7.0 / 100), time));
            CI = A - principle;
        }
        else if(principle >= 6000 && time >= 1 )
        {
            A = principle * (Math.pow((1 + 8.0 / 100), time));
            CI = A - principle;
        }
        else if(time >= 5)
        {
            A = principle * (Math.pow((1 + 9.75 / 100), time));
            CI = A - principle;
        }
        else
        {
            A = principle * (Math.pow((1 + 3.0 / 100), time));
            CI = A - principle;
        }

        System.out.println("Amount Deposited: "+ principle);
        System.out.println("Number of years: "+ time);
        System.out.println("Compound Interest: "+ CI);
        System.out.println("Total Amount: "+ (principle + CI));
    }
}
```

```java
//Program 2
import java.util.*;

public class MyClass
{
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter Horsepower Amount");
        double hp = sc.nextDouble(), fee = 0.0;

        if(hp <= 50)
            fee = 0;
        else if(hp <= 100)
            fee = 300;
        else if(hp <= 200)
            fee = 600;
        else if(hp <= 300)
            fee = 900;
        else
            fee = 1500;

        System.out.println("License Fee Amount: \u20B9 " + fee);
    }
}
```

```java
//Program 3
import java.util.*;

public class MyClass
{
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("--Menu--");
        System.out.println("1. Equilateral");
        System.out.println("2. Isosceles");
        System.out.println("3. Right-Angled triangle");
        System.out.println("4. Scalene");

        System.out.print("Enter your choice: ");
        int choice = sc.nextInt();

        System.out.println("\nEnter 3 sides: ");
        double s1 = sc.nextDouble(), s2 = sc.nextDouble(), s3 = sc.nextDouble();

        switch(choice)
        {
            case 1: if(s1 == s2 && s2 == s3)
                        System.out.print("The triangle is Equilateral");
                    else
                        System.out.print("The triangle is not Equilateral");
                    break;

            case 2: if(s1 == s2 || s2 == s3 || s1 == s3)
                        System.out.print("The triangle is Isosceles");
                    else
                        System.out.print("The triangle is not Isosceles");
                    break;

            case 3: if((s1*s1)+(s2*s2)==(s3*s3) || (s1*s1)+(s3*s3)==(s2*s2) ||
(s2*s2)+(s3*s3)==(s1*s1))
                        System.out.print("The triangle is Right Angled");
                    else
                        System.out.print("The triangle is not Right Angled");
                    break;

            case 4: if(s1 != s2 && s1 != s3 && s2 != s3)
                        System.out.print("The triangle is Scalene");
                    else
                        System.out.print("The triangle is not Scalene");
                    break;

            default: System.out.println("Wrong choice");
        }
    }
}
```

```java
//Program 4
import java.util.*;

public class MyClass
{
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter two numbers");
        int n1 = sc.nextInt(), n2 = sc.nextInt();
        String m = n1 + "" + n2 ;
        System.out.println("Merged Numberbers: " + m);
    }
}

```

```java
//Program 5
import java.util.*;

public class MyClass
{
    public static void main(String args[])
    {
        for(int i=3; i<=300; i++)
        {
            if(isPrime(i) && isPrime(i+2))
                System.out.println(i + " " + (i+2));
        }
    }
    static boolean isPrime(int n)
    {
        int count = 0;
        for(int j=1; j<=n; j++)
        {
            if(n % j == 0)
                count++;
        }
        if(count == 2)
            return true;

        return false;
    }
}

```

```java
//Program 6
import java.util.*;

public class MyClass
{
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("--Menu--");
        System.out.println("1. Prime Palindrome");
        System.out.println("2. Armstrong");

        System.out.print("Enter your choice: ");
        int choice = sc.nextInt();

        System.out.print("Enter a number: ");
        int num = sc.nextInt();

        switch(choice)
        {
            case 1: int count = 0;
                    for(int i=1; i<=num; i++)
                    {
                        if(num % i == 0) count++;
                    }
                    if(count == 2)
                    {
                        int temp=num, rev = 0;
                        while(temp > 0)
                        {
                            int d = temp % 10;
                            rev = rev * 10 + d;
                            temp /= 10;
                        }
                        if(rev == num)
                            System.out.println(num + " is a prime-palindrome
number");
                        else
                            System.out.println(num + " is not a prime-palindrome
number");
                    }
                    break;

            case 2: int temp, digits=0, last=0, sum=0;

                    temp=num;

                    while(temp>0)
                    {
                      temp = temp/10;
                      digits++;
                    }
                    temp = num;
                    while(temp>0)
                    {
                      last = temp % 10;
                      sum +=  (Math.pow(last, digits));
                      temp = temp/10;
                    }
```

```
                    if(num == sum)
                        System.out.println(num + " is an Armstrong Number");
                    else
                        System.out.println(num + " is not an Armstrong Number");
                    break;
            default: System.out.println(" Invalid choice");
        }
    }
}
```

```java
//Program 7
import java.util.*;

public class MyClass
{
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("--Menu--");
        System.out.println("1. Fibonnaci");
        System.out.println("2. Series");

        System.out.print("Enter your choice: ");
        int choice = sc.nextInt();

        switch(choice)
        {
            case 1: System.out.print("Enter no. of terms: ");
                    int n = sc.nextInt();
                    int a = 0, b = 1, c = a + b, i = 3;

                    System.out.print(a + "," + b);
                    do
                    {
                        System.out.print("," + c);
                        a=b;
                        b=c;
                        c=a+b;
                        i++;
                    }while(i <= n);

                    break;
            case 2:
                    int k=0;
                    for(int j = 1; j<=6; j++)
                    {
                        k = k*10 + 1;
                        System.out.print(k + " ");
                    }
                    break;
            default:
                    System.out.println("Wrong choice");

        }
    }
}
```

```java
//Program 8
import java.util.*;

public class MyClass
{
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);

        System.out.print("Enter Name, Rate, Hour, days");
        String name = sc.nextLine();
        float Rate = sc.nextFloat(), rate = sc.nextFloat();
        float hour = sc.nextFloat();
        int days = sc.nextInt();

        printSalary(name, rate, hour, days);

    }
    static void printSalary(String name, float rate, float hour, int days)
    {
        double salary = rate * hour * days;
        System.out.println("Name: " + name);
        System.out.println("Rate Per Hour: " + rate);
        System.out.println("Hours Worked: " + hour);
        System.out.println("Days Worked: " + days);
        System.out.println("Salary: " + salary);
    }
}
```

```java
//Program 9
import java.util.*;

public class stock
{
    String bname;
    int qty;
    double price, total, discount, netPrice;
    stock(String n, int q, double p)
    {
        bname = n;
        qty = q;
        price = p;
    }
    void calculation()
    {
        total = price * qty;
        if(qty > 30)
        {
            discount = 20.0/100 * total;
            netPrice = total - discount;
        }
    }
    void printAmount()
    {
        System.out.println("\n\nName: " + bname);
        System.out.println("Qty: " + qty);
        System.out.println("Total Price: " + total);
        System.out.println("Discount: " + discount);
        System.out.println("Net Price: " + netPrice);

    }
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter name: ");
        String name = sc.nextLine();
        System.out.print("Enter quantity: ");
        int qty = sc.nextInt();
        System.out.print("Enter Unit Price: ");
        double Price = sc.nextDouble();

        stock s1 = new stock(name, qty, Price);
        s1.calculation();
        s1.printAmount();

    }
}
```

```java
//Program 10
import java.util.*;

public class Distance
{
    int f1, f2, n1, n2;
    int finalFeet, finalInches;
    Distance(int f, int n1, int ff, int n2)
    {
        f1 = f;
        f2 = ff;
        this.n1 = n1;
        this.n2 = n2;
    }
    void sumOfDistance()
    {
        int totalInches = n1 + n2;
        int feet = totalInches / 12;
        finalInches = totalInches % 12;

        finalFeet = f1 + f2 + feet;
    }
    void showDistance()
    {
        System.out.println(finalFeet + " feet " + finalInches + " inch");
    }
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);

        System.out.println("Enter Distance 1 in form of Feet and Inches ");
        int f1 = sc.nextInt();
        int n1 = sc.nextInt();

        System.out.println("Enter Distance 2 in form of Feet and Inches ");
        int f2 = sc.nextInt();
        int n2 = sc.nextInt();

        Distance d1 = new Distance(f1, n1, f2, n2);
        d1.sumOfDistance();
        d1.showDistance();

    }
}
```

```java
//Program 11
import java.util.*;

public class MyClass
{
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a decimal number: ");
        int n = sc.nextInt();
        String s = "";
        while (n > 0)
        {
            s  = n % 2 + s;
            n = n / 2;
        }
        System.out.println("Binary Form: " + s);


    }
}
```

```java
//Program 12
import java.util.*;

public class MyClass
{
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);
        int digits[] = new int[10];

        System.out.print("Enter a number: ");
        int num = sc.nextInt();

        int temp = num;

        while(temp>0)
        {
            int d = temp % 10;
            digits[d]++;
            temp = temp/10;
        }

        System.out.println("\nDigit\t\tFrequency\n");
        for(int i=0;i<10;i++)
        {
            if(digits[i] != 0)
                System.out.println("   " + i + "\t\t\t\t" + digits[i]);
        }

    }
}
```

```java
//Program 13
import java.util.*;

public class MyClass
{
    static void getNumbers(int d[])
    {
        int n = d.length;
        int temp = 0;
        for(int i=0; i < n; i++)
        {
            for(int j=1; j < (n-i); j++)
            {
                if(d[j-1] < d[j])
                {
                    temp = d[j-1];
                    d[j-1] = d[j];
                    d[j] = temp;
                }

            }
        }

    }
    static void displayArray(int d[])
    {
        for(int i = 0; i<d.length; i++)
            System.out.print(d[i] + " ");
    }
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);
        int ar[] = {3, 56, 67, 34, 24, 6, 1, 4 , 8, 9, 10, 22, 23, 36, 29};


        System.out.print("\nBefore Sorting:\t");
        displayArray(ar);
        System.out.print("\nAfter Sorting:\t");
        getNumbers(ar);
        displayArray(ar);

    }
}
```

```java
//Program 14
import java.util.*;

public class MyClass
{
    static void getNumbers(int x[])
    {
        int n = x.length;

        // One by one move boundary of unsorted subarray
        for (int i = 0; i < n-1; i++)
        {
            // Find the maximum element in unsorted array
            int max_idx = i;
            for (int j = i+1; j < n; j++)
            {
                if (x[j] > x[max_idx])
                    max_idx = j;
            }

            // Swap the found maximum element with the first
            // element
            int temp = x[max_idx];
            x[max_idx] = x[i];
            x[i] = temp;
        }

    }
    static void displayArray(int d[])
    {
        for(int i = 0; i<d.length; i++)
            System.out.print(d[i] + " ");
    }
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);
        int ar[] = {3, 56, 67, 34, 24, 6, 1, 4 , 8, 9, 10, 22, 23, 36, 29};


        System.out.print("\nBefore Sorting:\t");
        displayArray(ar);
        System.out.print("\nAfter Sorting:\t");
        getNumbers(ar);
        displayArray(ar);

    }
}
```

```java
//Program 15
import java.util.*;

public class MyClass
{
    void search(int index[ ], int phone[ ], int no)
    {
        int low = 0;
        int high = index.length-1;
        int found = 0, mid = 0;

        while (low <= high)
        {
            mid = (high - low) / 2;

            if (index[mid] == no)
            {
                found = 1;
                break;
            }

            if (index[mid] < no)
                low = mid + 1;
            else
                high = mid - 1;
        }
        if(found == 1)
            System.out.println("Phone Number: " + phone[mid]);
        else
            System.out.println("The Index number is not present in the list");
    }
}
```

```java
//Program 16
public class MyClass
{
    void search(int x[ ], int val)
    {
        int found = -1;
        for(int i = 0; i<x.length; i++)
        {
            if(val == x[i])
            {
                found = i;
                break;
            }
        }

        if(found != -1)
            System.out.println(val + " found at index " + found);
        else
            System.out.println("Search Unsuccessful");
    }
}
```

```java
//Program 17
import java.util.*;

public class MyClass
{
    public static void main(String args[])
    {
        int ar[] = {3, 6, 9, 5, 12, 14, 8, 18, 7, 21, 10, 4};
        int br[] = new int[12];
        int left = 0, right = 11;

        for(int i = 0; i<12; i++)
        {
            if(ar[i] %2 == 0)
                br[left++] = ar[i];
            else
                br[right--] = ar[i];
        }
        for(int i = 0; i<12; i++)
            System.out.print(br[i] + " ");
    }
}
```

```java
//Program 18
import java.util.*;

public class arraay_2d
{
    public static void main(String args[])
    {
        int ar[][] = new int[4][5];

        Scanner sc = new Scanner(System.in);
        System.out.println("Enter 20 numbers");

        for(int i=0; i<4; i++)
        {
            for(int j=0; j<5; j++)
            {
                ar[i][j] = sc.nextInt();
            }
        }
        int max = ar[0][0];
        System.out.println("You have entered:\n");
        for(int i=0; i<4; i++)
        {
            for(int j=0; j<5; j++)
            {
                if(ar[i][j] > max)
                    max = ar[i][j];
                System.out.print(ar[i][j] + "\t");
            }
            System.out.println();
        }

        System.out.println("\nLargest Number: " + max);


    }
}
```

```java
//Program 19
import java.util.*;

public class MyClass
{
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter a sentence: ");
        String s = sc.nextLine();
        s = s.toUpperCase();
        s += " ";
        String word = "";
        int count = 0;

        for(int i=0; i<s.length(); i++)
        {
            char ch = s.charAt(i);
            if(ch != ' ')
                word += ch;
            else
            {
                System.out.println(word);
                if(word.equals("GOOD"))
                    count++;

                word = "";
            }
        }

        System.out.println("GOOD/good word Frequency: " + count);
    }
}
```

```java
//Program 20
import java.util.*;

public class MyClass
{
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter a sentence: ");
        String s = sc.nextLine();
        s = s.toUpperCase();
        for(int i=0; i<s.length(); i++)
        {
            char ch = s.charAt(i);
            if(Character.isLetter(ch))
            {
                if(ch == 'Z')
                    System.out.print("A");
                else
                    System.out.print(++ch);
            }
            else
                System.out.print(ch);

        }
    }
}
```