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CSCI 260

Programming Assignment 4: Queue Introduction

```
package queuedemo;
import java.util.LinkedList;
import java.util.Queue;
import java.util.Scanner;

public class QueueDemo {

    Scanner scan;
        Queue<Integer> queue;
        int n;

        void insert()
        {
            scan = new Scanner(System.in);
            queue = new LinkedList<Integer>();

            System.out.println("integer Queue - Insert and Delete");
            System.out.println("\nEnter 'n' value:");

            n = scan.nextInt();

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

            for(int i=0; i<n; i++)
            {
                queue.add(scan.nextInt());
            }
        }
            void delete()
            {
                System.out.println("\nThe Queue");
                while(!queue.isEmpty())
                {
                    System.out.println(queue.poll());
                }

    public static void main(String[] args) {
        // TODO code application logic here
        QueueDemo obj = new QueueDemo();
        obj.insert();
        obj.delete();
    }

}
```

Programming Challenge 4:

```
import java.util.LinkedList;
import java.util.Queue;
import java.util.Scanner;

public class MortgageInterest {

    public static double interestCalcFirst(double homeValue,double downPayment, double
interestRate)
    {
        double newHomeValue = homeValue - downPayment;
        double newInterest = (interestRate/100) * newHomeValue;

        return newInterest;
    }

    public static double interestCalcSecond(double homeValue, double interestRate)
    {

        double newInterest = (interestRate/100) * homeValue;

        return newInterest;
    }


    public static void main (String[] args)
    {

        Scanner sc = new Scanner(System.in);

        System.out.println("Welcome to the Mortgage Interest Calculator:\n");
        System.out.println("Please insert your home value: \n");
        double homeValue = sc.nextDouble();

        System.out.println("Please insert your down payment: \n");
        double downPay = sc.nextDouble();

        System.out.println("Please insert the interest rate: \n");
        double interestRate = sc.nextDouble();

        System.out.println("Please insert you monthly principle: \n");
        double principle = sc.nextDouble();

        System.out.println("The new interest payment is... $" +
interestCalcFirst(homeValue, downPay, interestRate));

        double interestPrinciple = interestCalcFirst(homeValue, downPay, interestRate) +
principle;

        double queueValue = (homeValue - downPay) - interestPrinciple;

        System.out.println("New home Value is: " + queueValue);

        Queue<Double> queue = new LinkedList<Double>();

        queue.add(queueValue);

        //System.out.println(queue.poll());
        Double newHomeValue;


        for(int i = 0; i < 12; i++)
        {

            if(i == 0)
            {
            interestPrinciple = interestCalcFirst(homeValue, downPay, interestRate) +
principle;
```

```
            queueValue = (homeValue - downPay) - interestPrinciple;

            System.out.println("The new home Value is: " + queueValue);

            queue.add(queueValue);

            System.out.println("The interest Payment for the month " + (i+1) + " is: "
+ interestCalcFirst(homeValue, downPay, interestRate));

            homeValue = queueValue;
            }

            else
            {
                interestPrinciple = interestCalcSecond(homeValue, interestRate) +
principle;

                queueValue = (homeValue - downPay) - interestPrinciple;

                System.out.println("The new home Value is: " + queueValue);

                queue.add(queueValue);

                System.out.println("The interest Payment for the month " + (i+1) +
" is: "  + interestCalcSecond(homeValue, interestRate));

                homeValue = queueValue;
            }

        }


    }



}
```