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import java.util.*;
public class X
{
    void discount()
    { Scanner sc=new Scanner(System.in);
      double amount, discount, bill;
      System.out.println("Enter bill amount");
      amount=sc.nextDouble();
      if(amount<10000)
          discount=amount*10.0/100.0;
      else if(amount<25000)
          discount=amount*12.25/100.0;
      else
          discount=amount*20.0/100.0;
      bill=amount-discount;
      System.out.println("Discount = "+discount);
      System.out.println("Bill = "+bill);
    }//discount()

    void primeFactors()
    { Scanner sc=new Scanner(System.in);
      System.out.println("Enter a number");
      int num=sc.nextInt();
      for(int i=1; i<=num; i++)
      { if(num%i==0) // check if i is a factor
        { int count=0;
          //check if i is prime
          for(int j=1; j<=i; j++)
          { if(i%j==0)
            { count++;
              }
            }//for j
          if(count==2)
            { System.out.println(i);
              }//if count
            }//if n%i
          }//for i
        }//primeFactors()

    void armstrong()
    { Scanner sc=new Scanner(System.in);
      System.out.println("Enter a number");
      int num=sc.nextInt();
      int num2=num;
      int sum=0;
      while(num2>0)

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    { int dig=num2%10;
      sum+=(int)Math.pow(dig,3);
      num2/=10;
    }//while
    if(sum==num)
        System.out.println("Armstrong");
    else
        System.out.println("Not Armstrong");
}//armstrong()

void pattern()
{ for(int i=1; i<=5; i++)
  { for(int j=1; j<=i; j++)
    { System.out.print( j );
      }//j loop
    System.out.println();
  }//i loop
}//pattern()

void vowels()
{ Scanner sc=new Scanner(System.in);
  System.out.println("Enter a string");
  String str=sc.nextLine();
  int count=0;
  for(int i=0; i<str.length(); i++)
  { char c=str.charAt(i);
    c=Character.toUpperCase(c);
    if(c=='A' || c=='E' || c=='I' || c=='O' || c=='U')
    { System.out.println(c);
      count++;
    }
  }
  System.out.println("No of vowels = "+count);
}//vowels()

void percentage()
{ Scanner sc=new Scanner(System.in);
  int arr[]=new int[5];
  System.out.println("Enter marks in 5 subjects");
  for(int i=0; i<arr.length; i++)
  { arr[i]=sc.nextInt();
  }
  int sum=0;
  for(int i=0; i<arr.length; i++)
  { sum+=arr[i];
  }
}

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    double per=(double)sum/5;
    System.out.println("Total = "+sum);
    System.out.println("Percentage = "+per);
} //percentage()

public static void main(String args[])
{
    Scanner sc=new Scanner(System.in);
    X obj=new X();
    int choice=0;
    do
    {
        System.out.println("1. Calculate Discount");
        System.out.println("2. Display Prime factors");
        System.out.println("3. Armstrong number");
        System.out.println("4. Pattern");
        System.out.println("5. Split characters of a string");
        System.out.println("6. Calculate percentage");
        System.out.println("7. Exit Program");
        System.out.println("Enter choice = ");
        choice=sc.nextInt();
        switch(choice)
        {
            case 1: obj.discount();
                    break;
            case 2: obj.primeFactors();
                    break;
            case 3: obj.armstrong();
                    break;
            case 4: obj.pattern();
                    break;
            case 5: obj.vowels();
                    break;
            case 6: obj.percentage();
                    break;
            case 7: System.out.println("Quitting program");
                    break;
            default: System.out.println("Wrong choice");
        }
    } //switch
    } while(choice!=7);
    System.out.println("Thanks");
} //main
} //class

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