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A.java

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```
/**
 * check sum checks to see if a credit card number is valid by the checksum algo
 rithm.
 */
public class CheckSum
{
    public boolean isValid (String s){

        int total = 0;
        int doubling = 0;

        for (int k=0; k < s.length(); k++){

            int digit = Integer.parseInt(s.substring(k,k+1));
            doubling = 2*digit;

            /**
             * if (k % 2 == 1){
             *     digit = 2*digit;
             *     if (digit >= 10){
             *         digit = digit - 9;
             *     }
             * }
             * total += digit;
             */
            /**
             * if (k % 2 == 0){
             *     total += digit;
             * }
             * else {
             *     digit = 2*digit;
             *     if (digit >= 10){
             *         digit = digit - 9;
             *     }
             *     total += digit;
             * }
             */
            /**
             * if( !( k % 2 == 0) && doubling < 10){
             *     total += 2*digit;
             * }
             * if( !(k % 2 == 0) && doubling >= 10){
             *     total += 2*digit - 9;
             * }
             */
        }

        // return total % 10 == 0;

        if( total%10 == 0){
            return true;
        }
        else {
            return false;
        }
    }
}
```

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B.java

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```
public class CreditCard{  
    public boolean isValid(String s){  
        int total=0;  
        for(int k=0; k<s.length(); k++){  
            int digit = Integer.parseInt(s.substring(k,k+1));  
            if (k % 2 == 0) {  
                total+= digit;  
            }  
            else{  
                if(2*digit >= 10){  
                    total+=(2*digit - 9);  
                }  
                else{  
                    total+=2*digit;  
                }  
            }  
        }  
        // return total == 10 * (total/10);  
        if (total == 10 * (total/10)){  
            return true;  
        }  
        else {  
            return false;  
        }  
    }  
}
```

```
/**
 * Write a description of class proteinIndex here.
 * @version 9/26/04
 */
import java.util.ArrayList;

public class proteinIndex
{
    public int proteinIndex(String dna, String protein)
    {
        String[] codon = new String[62];

        int index = Integer.MAX_VALUE;

        codon = ProteinConverter.proteinToCodons(protein);
        for(int k=0; k<codon.length; k++){
            int loc = dna.indexOf(codon[k]);
            if (loc >= 0) {
                // index = Math.min(index, loc);
                if (loc < index) {
                    index = loc;
                }
            }
        }
        if (index == Integer.MAX_VALUE) return -1;
        else return index;
        // return -1;
    }
}
```

```
/**
 * Write a description of class CCard here.
 */
public class CCard
{
    public boolean isValid(String ccard)
    {
        for(int k=0; k < ccard.substring(); k++){
            int pin = Integer.parseInt(ccard.substring(k,k+1));
        }
        if (k%2 == 0);
        pin = pin
        if (!(k%2 == 0));
        pin = pin*2
        if(pin > 10);
        pin = pin-9

        int Credit = 0;
        Credit += pin

        if (pin%10 == 0);
        return true;

        if (!(pin%10 == 0));
        return false;
    }
}
```

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E.java

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```
public class E
{
    public int proteinIndex(String dna, String protein){
        for(int k=0; k < dna.length()-2; k++){
            String codon = dna.substring(k,k+3);
            if (ProteinConverter.codonToProtein(codon).equals(protein)){
                return k;
            }
        }
        return -1;
    }
}
```

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Q.java

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```
public class Q
{
    public String[] convertAll(String dna){
    }

    public String reverse(String dna){
        String rev = "";
        for(int k=dna.length()-1; k >= 0; k--){
            rev = rev + dna.substring(k,k+1);
        }
        return rev;
    }

    public boolean fiveBigger(String dna){
        String[] p5 = convertAll(dna);
        // reverse() is a function that returns a string backwards
        String[] p3 = convertAll(reverse(dna));
        return p5.length > p3.length;
    }
}
```