public class BinaryCode {

public static String[] decode(String message)

{String []s=new String [2];

int[] arr=new int[message.length()];

s[0]="";

s[1]="";

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

{

arr[i]=Integer.parseInt(message.substring(i, i+1));

}

if (message.length()==1)

if (arr[0]==0)

{s[0]="0";

s[1]="NONE";

return s;

}

else if (arr[0]==1)

{s[0]="NONE";

s[1]="1";

return s;

}

else if (arr[0]==2)

{s[0]="NONE";

s[1]="NONE";

return s;

}

int[] ar0=new int [message.length()];

int[] ar1=new int [message.length()];

ar0[0]=0;

ar1[0]=1;

if(arr[0]==3||arr[message.length()-1]==3)

{s[1]="NONE";

s[0]="NONE";

return s;}

if (arr[0]==0)

{s[1]="NONE";

ar0[1]=0;

for(int i=1;i<message.length()-1;i++)

ar0[i+1]=arr[i]-ar0[i]-ar0[i-1];

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

s[0]=s[0]+ar0[i];

}

if (arr[0]==2)

{s[0]="NONE";

ar1[1]=1;

for(int i=1;i<message.length()-1;i++)

ar1[i+1]=arr[i]-ar1[i]-ar1[i-1];

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

s[1]=s[1]+ar1[i];

}

if (arr[0]==1)

{ for (int i = 0; i < message.length()-1; i++) {

if(i==0)

{ ar0[1]=arr[0]-ar0[0];

ar1[1]=arr[0]-ar1[0];}

else

{ ar0[i+1]=arr[i]-ar0[i]-ar0[i-1];

ar1[i+1]=arr[i]-ar1[i]-ar1[i-1];}

}

if(s[0]!="NONE")

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

s[0]=s[0]+ar0[i];

if(s[1]!="NONE")

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

s[1]=s[1]+ar1[i];

}

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

if (!(((ar0[i]==0)||(ar0[i]==1))))

s[0]="NONE";

if (!((ar1[i]==0)||(ar1[i]==1)))

s[1]="NONE";

}

if((arr[message.length()-1]!=ar0[message.length()-1]+ar0[message.length()-2]))

s[0]="NONE";

if ((arr[message.length()-1] != ar1[message.length()-1]+ar1[message.length()-2]))

s[1]="NONE";

return s;

}

}