**ĐÁP ÁN ĐỀ THI CHỌN HSG TRƯỜNG LỚP 12 (LẦN 2) NĂM HỌC 2022-2023**

**MÔN: TIN HỌC**

**BÀI 1: Hệ đếm**

const fi='BAI1.inp';

 fo='BAI1.out';

var f:text;

 s:string;

 i:byte;

 t:int64;

begin

 assign(f,fi);

 reset(f);

 readln(f,s);

 close(f);

 assign(f,fo);

 rewrite(f);

 t:=0;

 for i:=1 to length(s) do

 if s[i]='1' then

 t:=t\*2+1

 else

 t:=t\*2;

 write(f,t);

 close(f);

end.

**BÀI 2: Tìm số nguyên tố**

const fi='BAI2.inp';

 fo='BAI2.out';

var f:text;

 m,n,k,i,dem,t,s:longint;

function kt(i:longint):boolean;

var j:longint;

begin

 if i<2 then exit(false)

 else

 for j:=2 to trunc(sqrt(i)) do

 if i mod j=0 then

 exit(false);

 exit(true);

end;

begin

 assign(f,fi);

 reset(f);

 readln(f,m,n,k);

 close(f);

 assign(f,fo);

 rewrite(f);

 dem:=0;

 for i:=m+1 to n-1 do

 if kt(i) then

 begin

 t:=i;

 s:=0;

 while t>0 do

 begin

 s:=s+t mod 10;

 t:=t div 10;

 end;

 if s mod k=0 then

 inc(dem);

 end;

 write(f,dem);

 close(f);

end.

**BÀI 3: Taxi**

const fi='BAI3.INP';

 fo='BAI3.OUT';

var f:text;

 d:array[1..4] of longint;

 n,i,x,s:longint;

begin

 assign(f,fi);

 reset(f);

 readln(f,n);

 for i:=1 to n do

 begin

 read(f,x);

 inc(d[x]);

 end;

 close(f);

 s:=d[4];

 if d[3]>d[1] then

 d[1]:=0

 else

 d[1]:=d[1]-d[3];

 s:=s+d[3];

 s:=s+d[2] div 2;

 if d[2] mod 2=0 then

 d[2]:=0

 else

 d[2]:=1;

 if d[2]=1 then

 begin

 s:=s+1;

 if d[1]>2 then

 d[1]:=d[1]-2

 else

 d[1]:=0;

 end;

 if d[1] mod 4=0 then

 s:=s+d[1] div 4

 else

 s:=s+d[1] div 4 +1;

 assign(f,fo);

 rewrite(f);

 write(f,s);

 close(f);

end.

**Bài 4: Số lớn nhất**

const fi='Bai4.inp';

 fo='Bai4.out';

var f:text;

 X,Y:string;

 n,m,i,j:longint;

 C:array[0..200,0..200] of string;

begin

 assign(f,fi);

 reset(f);

 readln(f,X);

 readln(f,Y);

 close(f);

 n:=length(X);

 m:=length(Y);

 for i:=1 to n do

 for j:=1 to m do

 if X[i]=Y[j] then

 begin

 c[i,j]:=c[i-1,j-1]+X[i];

 while (C[i,j]<>'') and (C[i,j][1]='0') do

 delete(C[i,j],1,1);

 end

 else

 if length(C[i,j-1])>length(C[i-1,j]) then

 C[i,j]:=C[i,j-1]

 else

 if length(C[i-1,j])>length(C[i,j-1]) then

 C[i,j]:=C[i-1,j]

 else

 if C[i,j-1]>C[i-1,j] then

 C[i,j]:=C[i,j-1]

 else

 C[i,j]:=C[i-1,j];

 assign(f,fo);

 rewrite(f);

 if c[n,m]='' then

 begin

 if (pos('0',X)>0) and (pos('0',Y)>0) then

 write(f,0);

 end

 else

 writeln(f,c[n,m]);

 close(f);

end.