#include<bits/stdc++.h>

using namespace std;

int main() {

// your code goes here

uint16\_t start = 0xA0;

uint16\_t j, reg, a = start;

int arr[1024];

int i;

for(i=0;i<200;i++){

arr[i]=rand()%2;

}

arr[200]=(start&0x0001);

for(j = 201; ; j++) {

reg = ((a) ^ (a >> 4)) & 1;

a = ((a >> 1) | reg << (8));

arr[j]=(reg&0x0001);

/\* Stop condition \*/

if (a == start) {

break;

//break;

}

}

for(j=711;j<1024;j++)

arr[j]=rand()%2;

for(i=0;i<1024;i++)

cout<<arr[i]<<" ";

cout<<endl;

int count=0;

int index[100];

j=0;

for(i=0;i<1024;i++){

if(arr[i]==1&&arr[i+1]==1&&arr[i+2]==0&&arr[i+3]==1&&arr[i+4]==0&&arr[i+5]==1&&arr[i+6]==1&&arr[i+7]==0&&arr[i+8]==0&&arr[i+9]==0&&arr[i+10]==0&&arr[i+11]==0&&arr[i+12]==1&&arr[i+13]==0&&arr[i+14]==1&&arr[i+15]==1){

count++;

index[j++]=i;

i=i+15;

}

}

cout<<"the no of time it got correlated with 1101011000001011 are "<<count<<endl;

cout<<"the indexes at which it got correlated are"<<endl;

for(i=0;i<count;i++)

cout<<index[i]<<" ";

return 0;

}