#include<stdio.h>

#include<string.h>

int failure[100];

void fail(char \*pat,int \*failure)

{

int j,n=strlen(pat);

failure[0]=-1;

int i;

for (j=1;j<n;j++)

{

i=failure[j-1];

while(pat[j]!=pat[i+1]&&i>=0)

i=failure[i];

if (pat[j]==pat[i+1])

failure[j] = i+1;

else

failure[j]=-1;

}

}

int pmatch(char \*s,char \*pat,int \*failure)

{

int i=0,j=0;

int lenp=strlen(pat);

int lens=strlen(s);

while(i<lens && j<lenp)

{

if(s[i]==pat[j])

{

i++;

j++;

}

else if(j==0)

{

i++;

}

else

{

j=failure[j-1]+1;

}

}

return ((j==lenp)?(i-lenp):-1);

}

void main()

{

char s[100],pat[100];

printf("Enter the String:\n");

gets(s);

printf("Enter the Pattern:\n");

gets(pat);

printf("\nEntered string:\n");

puts(s);

printf("\nEntered Pattern:\n");

puts(pat);

fail(pat,failure);

int b=pmatch(s,pat,failure);

if (b==-1)

{

printf("\nNot Found\n");

}

else

{

printf("\n%d\n",b);

}

}