

findSubstring

Write a C function that takes two character string arguments, str and substr as input and returns 1 if substr is a substring of str (i.e. if substr is contained in str) and 0 if not. For example, the function will return 1 if substr is "123" and str is "abc123xyz", but it will return 0 if otherwise. Note that for this question you are not allowed to use any string functions from the standard C library. The prototype of the function is given below:

```
int findSubstring(char *str, char *substr);
```

A sample program template is given below to test the function:

```
#include <stdio.h>
#include <string.h>
#define INIT_VALUE 999
int findSubstring(char *str, char *substr);
int main()
{
    char str[40], substr[40], *p;
    int result = INIT_VALUE;

    printf("Enter the string: \n");
    fgets(str, 80, stdin);
    if (p=strchr(str, '\n')) *p = '\0';
    printf("Enter the substring: \n");
    fgets(substr, 80, stdin);
    if (p=strchr(substr, '\n')) *p = '\0';
    result = findSubstring(str, substr);
    if (result == 1)
        printf("findSubstring(): Is a substring\n");
    else if ( result == 0)
        printf("findSubstring(): Not a substring\n");
    else
        printf("findSubstring(): An error\n");
    return 0;
}
int findSubstring(char *str, char *substr)
{
    /* Write your code here */
}
```

Some test input and output sessions are given below:

(1) Test Case 1:

Enter the string:

abcdefgh

Enter the substring:

abc

findSubstring(): Is a substring

(2) Test Case 2:

Enter the string:
 abcdefgh
 Enter the substring:
 bc
 findSubstring(): Is a substring

(3) Test Case 3:
 Enter the string:
 abcdef
 Enter the substring:
 cdefg
 findSubstring(): Not a substring

(4) Test Case 4:
 Enter the string:
 abcdef
 Enter the substring:
 xy
 findSubstring(): Not a substring

```
#include <stdio.h>
#include <string.h>
#define INIT_VALUE 999
int findSubstring(char *str, char *substr);
int main()
{
    char str[40], substr[40], *p;
    int result = INIT_VALUE;

    printf("Enter the string: \n");
    fgets(str, 80, stdin);
    if (p=strchr(str,'\n')) *p = '\0';
    printf("Enter the substring: \n");
    fgets(substr, 80, stdin);
    if (p=strchr(substr,'\n')) *p = '\0';
    result = findSubstring(str, substr);
    if (result == 1)
        printf("findSubstring(): Is a substring\n");
    else if ( result == 0)
        printf("findSubstring(): Not a substring\n");
    else
        printf("findSubstring(): An error\n");
    return 0;
}

int findSubstring(char *str, char *substr)
{
    int result = 0;
    int j,i,k=0;

    for(i=0;str[i]!='\0';i++)
    {
        for(j=i;str[j]==substr[k];j++)
        {
            k++;
            if(substr[k]=='\0')
            {
                result = 1;
            }
        }
    }
    return result;
}
```