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# Difference between strncmp() and strcmp in C/C++

The basic difference between these two are :

1. strcmp compares both the strings till null-character of either string comes whereas strncmp compares at most **num** characters of both strings. But if *num* is equal to the length of either string than *strncmp* behaves similar to *strcmp*.
2. Problem with *strcmp* function is that if both of the strings passed in the argument is not terminated by null-character, then comparison of characters continues till the system crashes. But with *strncmp function* we can limit the comparison with **num** parameter.

When pass str1 and str2 as parameters to **strcmp() function**, it compares both the strings character by character till null-character('\0'). In our case, upto character **'s'** both the strings remain same but after that **str1** has character **'h'** having ASCII value 104 and **str2** has **null-character** having ASCII value 0. Since the ASCII value of str1 character is greater than ASCII value of str2 character, so *strcmp()* function returns value greater than zero. Hence, string str1 is greater than string str2 in strcmp() function. When pass these parameters in **strncmp()** function with the 3rd parameter **num** upto which want to compare strings then it compares both the strings character by character till num(if num <= length of smallest string) or till null character of smallest string. In our case, both the strings have same character upto *num*, so *strncmp()* function returns value zero. Hence, string str1 is equal to string str2 in strncmp() function.

---

## CPP

```cpp
// C, C++ program demonstrate difference between
// strncmp() and strcmp()
#include <stdio.h>
#include <string.h>

int main()
{
```

```c
    // Take any two strings
    char str1[] = "akash";
    char str2[] = "akas";

    // Compare strings using strncmp()
    int result1 = strncmp(str1, str2, 4);

    // Compare strings using strcmp()
    int result2 = strcmp(str1, str2);

    // num is the 3rd parameter of strncmp() function
    if (result1 == 0)
        printf("str1 is equal to str2 upto num characters\n");
    else if (result1 > 0)
        printf("str1 is greater than str2\n");
    else
        printf("str2 is greater than str1\n");

    printf("Value returned by strncmp() is: %d\n", result1);

    if (result2 == 0)
        printf("str1 is equal to str2\n");
    else if (result2 > 0)
        printf("str1 is greater than str2\n");
    else
        printf("str2 is greater than str1\n");

    printf("Value returned by strcmp() is: %d", result2);

    return 0;
}
```

Output:

```
str1 is equal to str2 upto num characters
Value returned by strncmp() is: 0
str1 is greater than str2
Value returned by strcmp() is: 104
```

**Let us see the differences in a tabular form -:**

| | strncmp() | strcmp |
|---|---|---|
| 1. | It is a C library Function. | It is library function in C and C++ |
| 2. | Its syntax is -: strncmp(const char *str1, const char *str2, size_t n) | Its syntax is -: int strcmp ( const char * str1, const char * str2 ); |
| 3. | It takes two parameters that is string1 and string2 | This function performs a binary comparison of the characters. |
| 4. | Its return value is integer type. | It perform operations until NULL is reached. |

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