**Strings**

**1. Write a program in C to find the length of a string without using library function.**

#include <stdio.h>

main()

{

char str[100];

int l= 0;

printf("\n\nFind the length of a string :\n");

printf("---------------------------------\n");

printf("Input the string : ");

gets(str);

while(str[l]!='\0')

{

l++;

}

printf("Length of the string is : %d\n\n", l-1);

}

**Output:**

Find the length of a string :

---------------------------------

Input the string BITsource.com

Length of the string is : 13

**2. Write a program in C to print individual characters of string in reverse order.**

#include <stdio.h>

#include <string.h>

main()

{

char str[100];

int l,i;

printf("\n\nPrint individual characters of string in reverse order :\n");

printf("------------------------------------------------------\n");

printf("Input the string : ");

gets(str);

l=strlen(str);

printf("The characters of the string in reverse are : \n");

for(i=l;i>=0;i--)

printf("%c", str[i]);

printf("\n");

}

**OUTPUT**

Print individual characters of string in reverse order :

-----------------------------------------------------------

Input the string : BITsource.com

The characters of the string in reverse are :

moc.ecruosTIB

**3. Write a program in C to copy one string to another string.**

#include <stdio.h>

main()

{

char str1[100], str2[100];

int i;

printf("\n\nCopy one string into another string :\n");

printf("-----------------------------------------\n");

printf("Input the string : ");

gets(str1);

/\* Copies string1 to string2 character by character \*/

i=0;

while(str1[i]!='\0')

{

str2[i] = str1[i];

i++;

}

str2[i] = '\0';

printf("\nThe First string is : %s\n", str1);

printf("The Second string is : %s\n", str2);

printf("Number of characters copied : %d\n\n", i);

}

**Output:**

Copy one string into another string :

-----------------------------------------

Input the string : This is a string to be copied.

The First string is : This is a string to be copied.

The Second string is : This is a string to be copied.

Number of characters copied : 31

**4. Write a program in C to find maximum occurring character in a string.**

#include <stdio.h>

#define str\_size 100 //Declare the maximum size of the string

#define chr\_no 255 //Maximum number of characters to be allowed

main()

{

char str[str\_size];

int ch\_fre[chr\_no];

int i = 0, max;

int ascii;

printf("\n\nFind maximum occurring character in a string :\n");

printf("--------------------------------------------------\n");

printf("Input the string : ");

gets(str);

for(i=0; i<chr\_no; i++) //Set frequency of all characters to 0

ch\_fre[i] = 0;

i=0; /\* Read for frequency of each characters \*/

while(str[i] != '\0')

{

ascii = (int)str[i];

ch\_fre[ascii] += 1;

i++;

}

max = 0;

for(i=0; i<chr\_no; i++)

{

if(i!=32)

{

if(ch\_fre[i] > ch\_fre[max])

max = i;

}

}

printf("The Highest frequency of character '%c' appears number of times : %d \n\n", max, ch\_fre[max]);

}

**Output:**

Find maximum occurring character in a string :

--------------------------------------------------

Input the string : Welcome to BITresource

The Highest frequency of character 'e' appears number of times : 4

**5. Write a program in C to extract a substring from a given string.**

#include <stdio.h>

main()

{

char str[100], sstr[100];

int pos, l, c = 0;

printf("\n\nExtract a substring from a given string:\n");

printf("--------------------------------------------\n");

printf("Input the string : ");

gets(str);

printf("Input the position to start extraction :");

scanf("%d", &pos);

printf("Input the length of substring :");

scanf("%d", &l);

while (c < l)

{

sstr[c] = str[pos+c-1];

c++;

}

sstr[c] = '\0';

printf("The substring retrieve from the string is : \" %s\ "\n\n", sstr);

}

**Output:**

Extract a substring from a given string:

--------------------------------------------

Input the string : This is test string

Input the position to start extraction :9

Input the length of substring :4

The substring retrieve from the string is : " test "

6. Write a program in C to read a sentence and replace lowercase characters by uppercase and vice-versa.

#include <stdio.h>

#include <string.h>

#include <ctype.h>

main()

{

char str[100];

int ctr, ch, i;

printf("\n\nReplace lowercase characters by uppercase and vice-versa :\n");

printf("--------------------------------------------------------------\n");

printf("Input the string : ");

gets(str);

i=strlen(str);

ctr = i; /\*shows the number of chars accepted in a sentence\*/

printf("\nThe given sentence is : %s",str);

printf("After Case changed the string is: ");

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

{

ch = islower(str[i]) ? toupper(str[i]) : tolower(str[i]);

putchar(ch);

}

printf("\n\n");

}

**Output:**

Replace lowercase characters by uppercase and vice-versa :

--------------------------------------------------------------

Input the string : This Is A Test String

The given sentence is : This Is A Test String

After Case changed the string is: tHIS iS a tEST sTRING

**7. Write a program in C to Find the Frequency of Characters.**

#include <stdio.h>

main()

{

char str[1000],choice;

int i,ctr=0;

printf("\n\nFind the Frequency of Characters :\n");

printf("--------------------------------------\n");

printf("Input the string : ");

gets(strs);

printf("Input the character to find frequency: ");

scanf("%c",&choice);

for(i=0;str[i]!='\0';++i)

{

if(choice==str[i])

++ctr;

}

printf("The frequency of '%c' is : %d\n\n", choice, ctr);

}

**Output:**

Find the Frequency of Characters :

--------------------------------------

Input the string : This is a test string

Input the character to find frequency: i

The frequency of 'i' is : 3

**8. Write a program in C to count total number of alphabets, digits and special characters in a string.**

#include <stdio.h>

#include <string.h>

#define str\_size 100 //Declare the maximum size of the string

void main()

{

char str[str\_size];

int alp, digit, splch, i;

alp = digit = splch = i = 0;

printf("\n\nCount total number of alphabets, digits and special characters :\n");

printf("--------------------------------------------------------------------\n");

printf("Input the string : ");

gets(str);

/\* Checks each character of string\*/

while(str[i]!='\0')

{

if((str[i]>='a' && str[i]<='z') || (str[i]>='A' && str[i]<='Z'))

alp++;

else if(str[i]>='0' && str[i]<='9')

digit++;

else

splch++;

i++;

}

printf("Number of Alphabets in the string is : %d\n", alp);

printf("Number of Digits in the string is : %d\n", digit);

printf("Number of Special characters in the string is : %d\n\n", splch);

}

**Output:**

Count total number of alphabets, digits and special characters :

--------------------------------------------------------------------

Input the string : Welcome to w3resource.com

Number of Alphabets in the string is : 21

Number of Digits in the string is : 1

Number of Special characters in the string is : 4

**9. Write a program in C to count total number of vowel or consonant in a string.**

#include <stdio.h>

#define str\_size 100 //Declare the maximum size of the string

main()

{

char str[str\_size];

int i, len, vowel, cons;

printf("\n\nCount total number of vowel or consonant :\n");

printf("----------------------------------------------\n");

printf("Input the string : ");

gets(str);

vowel = 0;

cons = 0;

len = strlen(str);

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

{

if(str[i] =='a' || str[i]=='e' || str[i]=='i' || str[i]=='o' || str[i]=='u' || str[i]=='A' || str[i]=='E' || str[i]=='I' || str[i]=='O' || str[i]=='U')

{

vowel++;

}

else if((str[i]>='a' && str[i]<='z') || (str[i]>='A' && str[i]<='Z'))

{

cons++;

}

}

printf("\nThe total number of vowel in the string is : %d\n", vowel);

printf("The total number of consonant in the string is : %d\n\n", cons);

}

Sample Output:

Count total number of vowel or consonant :

----------------------------------------------

Input the string : Welcome to w3resource.com

The total number of vowel in the string is : 9

The total number of consonant in the string is : 12

**Q10. Write a program in C to Concatenate Two Strings Manually.**

#include <stdio.h>

#include <string.h>

main()

{

char str1[100], str2[100], i, j,l,m,k;

printf("\n\nConcatenate Two Strings Manually :\n");

printf("-------------------------------------\n");

printf("Input the first string : ");

gets(str1);

printf("Input the second string : ");

gets(str2)

l=strlen(str1);

m=strlen(str2);

for(i=0; i<l-1; ++i); /\* value i contains reaches the end of string str1. \*/

str1[i]=' '; /\* add a space with string str1. \*/

i++; /\* value i increase by 1 for the blank space \*/

for(j=0; j<m-1; ++j, ++i)

{

str1[i]=str2[j];

}

k=strlen(str1);

printf("After concatenation the string is : \n ");

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

{

printf("%c",str1[i]);

}

printf("\n\n");

}

**Sample Output:**

Concatenate Two Strings Manually :

-------------------------------------

Input the first string : this is string one

Input the second string : this is string two

After concatenation the string is :

this is string one this is string two

**11. Write a program in C to find the largest and smallest word in a string.**

#include <stdio.h>

#include <string.h>

#include <ctype.h>

main()

{

char str[100], word[20], mx[20], mn[20], c;

int i = 0, j = 0, flg = 0;

printf("\n\nFind the largest and smallest word in a string :\n");

printf("-----------------------------------------------------\n");

printf("Input the string : ");

i = 0;

do

{

fflush(stdin);

c = getchar();

str[i++] = c;

} while (c != '\n');

str[i - 1] = '\0';

for (i = 0; i < strlen(str); i++)

{

while (i < strlen(str) && !isspace(str[i]) && isalnum(str[i]))

{

word[j++] = str[i++];

}

if (j != 0)

{

word[j] = '\0';

if (!flg)

{

flg = !flg;

strcpy(mx, word);

strcpy(mn, word);

}

if (strlen(word) > strlen(mx))

{

strcpy(mx, word);

}

if (strlen(word) < strlen(mn))

{

strcpy(mn, word);

}

j = 0;

}

}

printf("The largest word is '%s' \nand the smallest word is '%s' \nin the string : '%s'.\n", mx, mn, str);

}

**Output:**

Find the largest and smallest word in a string :

-----------------------------------------------------

Input the string : It is a string with smallest and largest word.

The largest word is 'smallest'

and the smallest word is 'a'

in the string : 'It is a string with smallest and largest word'.

**12. Write a program in C to convert a string to uppercase.**

#include<stdio.h>

#include<ctype.h>

main()

{

int ctr=0;

char str\_char;

char str[100];

printf("\n Convert a string to uppercase. :\n");

printf("-----------------------------------");

printf("\n Input a string in lowercase : ");

gets(str);

printf(" Here is the above string in UPPERCASE :\n ");

while (str[ctr])

{

str\_char=str[ctr];

putchar (toupper(str\_char));

ctr++;

}

printf("\n\n");

}

**Output:**

Convert a string to uppercase. :

-----------------------------------

Input a string in lowercase : the quick brown fox jumps over the lazy dog.

Here is the above string in UPPERCASE :

THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG.