String(স্ট্রিং)

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13(1).Binary to Decimal.

13(2).Binary to Decimal from the user.

14(1).Decimal to Binary.

14(2).Decimal to Binary from the user.

1(1) - Print using string.(স্ট্রিং এর মাধ্যমে প্রিন্ট করা)

```c
#include <stdio.h>

int main()
{
    char ch[] = "Golam Kibria";
    /*char ch[] = "Golam \
                    kibria"; */
    printf("%s\n", ch);
}
```

Output:
Golam Kibria

1(2) – Print string from the user.

```c
#include <stdio.h>

int main()
{
    char ch[20];
    printf("Enter your full name ");
    gets(ch);

    printf("Full name is = %s\n", ch);
}
```

Output:
Enter your full name Golam kibria
Full name is = Golam kibria

2(1) - Display string character wise

```c
#include <stdio.h>

int main()
{
    char ch[] = "kibria";
    int i = 0;

    while (ch[i] != '\0')
    {
        printf("%c\n", ch[i]);
        i++;
    }
}
```

Output:
k
i
b
r
i
a

2(2) - Display string character wise

```c
#include <stdio.h>

int main()
{
    char ch[] = "kibria";
    int length, i;
    length = strlen(ch);
    for (i = 0; i < length; i++)
    {
        printf("%c\n", ch[i]);
    }
}
```

```
Output:
k
i
b
r
i
a
```

3(1)- Find a string length using strlen() function.

```c
#include <stdio.h>

int main()
{
    char ch[10] = "kibria";
    //scanf("%s", &ch);
    //printf("The string is = %s\n", ch);
    int length = strlen(ch);

    printf("Length is = %d\n", length);
}
```

```
Output:
Length is = 6
```

3(2)- Find a string length without using strlen() function.

```c
#include <stdio.h>

int main()
{
    char ch[] = "kibria";
    int i = 0, length = 0;

    while (ch[i] != '\0')
    {
        i++;
        length++;
    }
    printf("Length is = %d\n", length);
    (০ ততম ইনডেক্স মানে হলো ১ তম লেহ্ত)
}
```

```
Output:
Length is = 6
```

4(1)- Copy a string using strcpy() function.

```c
#include <stdio.h>

int main()
{
    char ch1[20] = "kibria";
    char ch2[20];

    strcpy(ch2, ch1);

    printf("Main string is = %s\n", ch1);
    printf("Copy string is = %s\n", ch2);
}
```

```
Output:
Main string is = kibria
Copy string is = kibria
```

4(2)- Copy a string using strcpy() function from the user.

```c
#include <stdio.h>

int main()
{
    char ch1[20];
    char ch2[20];
    printf("Main string is = ");
    //scanf("%s", &ch1);
    gets(ch1);

    strcpy(ch2, ch1);

    printf("Copy string is = %s\n", ch2);
}
```

```
Output:
Main string is = Golam kibria
Copy string is = Golam kibria
```

5(1) - Concat string using strcat() function.

```c
#include <stdio.h>

int main()
{
    char ch1[20] = "My name is ";
    char ch2[20] = "Golam kibria";

    strcat(ch1, ch2);

    printf("Character is = %s\n", ch1);
}
```

Output:
Character is = My name is Golam kibria

5(2) - Concat string using strcat() function.

```c
#include <stdio.h>

int main()
{
    char ch1[20] = "My name is ";

    strcat(ch1, "Golam kibria");

    printf("Character is = %s\n", ch1);
}
```

Output:
Character is = My name is Golam kibria

5(3)- Concat string without strcat() function.

```c
#include <stdio.h>

int main()
{
    char ch1[50] = "Golam ";
    char ch2[] = "kibria";
    int i = 0, length = 0, j = 0;

    while (ch1[i] != '\0')
    {
        i++;
        length++;
    }
    while (ch2[j] != '\0')
    {
        ch1[length + j] = ch2[j];
        j++;
    }
    //ch1 এর ৫তম ইনডেক্সে বসবে ch2 এর ০তম ইনডেক্স এর মান
    printf("Character is = %s\n", ch1);
}
```

Output:
Character is = Golam kibria

6. Comparing a string using strcmp() function.

```c
#include <stdio.h>

int main()
{
    char ch1[10];     // = "kibria";
    char ch2[10];     // = "kibria";
    scanf("%s %s", &ch1, &ch2);
    printf("ch1 = %s\nch2 = %s\n", ch1, ch2);

    int d = strcmp(ch1, ch2);

    if (d == 0)
        printf("String are equal\n");
    else
        printf("Strings are not equal\n");
}
```

```
Output:
kibria
kibria
ch1 = kibria
ch2 = kibria
String are equal
```

7(1). Reverse a string using strrev() function.

```c
#include <stdio.h>

int main()
{
    char ch[] = "kibria";
    printf("Character is = %s\n", ch);
    strrev(ch);

    printf("Reverse is = %s\n", ch);
}
```

```
Output:
Character is = kibria
Reverse is = airbik
```

7(2). Reverse a string using strrev() function form the user.

```c
#include <stdio.h>

int main()
{
    char ch[10];
    printf("Character is = ");
    gets(ch);

    strrev(ch);
    printf("Reverse is = %s\n", ch);
}
```

```
Output:
Character is = golam kibria
Reverse is = airbik malog
```

7(3). Reverse a string without strrev() function.

```c
#include <stdio.h>

int main()
{
    char ch1[20] = "kibria";
    char ch2[20];
    int i = 0, length = 0, j;
    //i and length for ch1 , j for ch2
    while (ch1[i] != '\0')
    {
        i++;
        length++;
    }

    for (j = 0, i = length - 1; i >= 0; i--, j++)
    {
        ch2[j] = ch1[i];
    }
    ch2[j] = '\0';

    printf("Character is = %s\n", ch1);
    printf("Reverse is = %s\n", ch2);
}
```

```
Output:
Character is = kibria
Reverse is = airbik
```

8. String swapping(এক স্ট্রিং এর উপাদান অন্য স্ট্রিং এ কপি করা)

```c
#include <stdio.h>

int main()
{
    char ch1[20] = "Bangladesh";
    char ch2[20] = "Canada";
    char temp[20];

    printf("Before swapping : \n");
    printf("ch1 = %s\n", ch1);
    printf("ch2 = %s\n", ch2);

    strcpy(temp, ch1);
    strcpy(ch1, ch2);
    strcpy(ch2, temp);

    printf("After swapping : \n");
    printf("ch1 = %s\n", ch1);
    printf("ch2 = %s\n", ch2);
}
```

```
Output:
Before swapping :
ch1 = Bangladesh
ch2 = Canada
After swapping :
ch1 = Canada
ch2 = Bangladesh
```

```c
#include <stdio.h>

int main()
{
        char ch1[20] = "kibria";
        char ch2[20];
        int i = 0, length = 0, j;
        //i and length for ch1 , j for ch2

        //printf("Enter a string = ");
        //scanf("%s", &ch1);
        while (ch1[i] != '\0')
        {
                i++;
                length++;
        }

        for (j = 0, i = length - 1; i >= 0; i--, j++)
        {
                ch2[j] = ch1[i];
        }
        ch2[j] = '\0';

        printf("Entered string is = %s\n", ch1);
        printf("Reverse string is = %s\n", ch2);

        int d = strcmp(ch1, ch2);
        //সমান হলে d=0 হবে। কারন মাইনাস করলে 0 ই হবে

        if (d == 0)
              printf("String is palindrome\n");
        else
              printf("String is not palindrome\n");
}
```

```
Output:
Entered string is = kibria
Reverse string is = airbik
String is not palindrome
```

10(1) – strupr()

```c
#include <stdio.h>

int main()
{
    char ch[] = "kibria";
    strupr(ch);
    printf("Character is = %s\n", ch);
}
```

```
Output:
Character is = KIBRIA
```

```c
#include <stdio.h>

int main()
{
    char ch[10];
    gets(ch);
    strupr(ch);
    printf("Character is = %s\n", ch);
}
```

```
Output:
kibria go
Character is = KIBRIA GO
```

10(2) – strlwr()

```c
#include <stdio.h>

int main()
{
    char ch[] = "KIBRIA";
    strlwr(ch);
    printf("Character is = %s\n", ch);
}
```

```
Output:
Character is = kibria
```

```c
#include <stdio.h>

int main()
{
    char str[100];
    int i, vowel, consonant, digit, word, other;
    i = vowel = consonant = digit = word = other = 0;

    printf("Enter a string = ");
    gets(str);

    while ((str[i]) != '\0')
    {
        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'))
            consonant++;
        else if (str[i] >= '0' && str[i] <= '9')
            digit++;
        else if (ch == ' ')
            word++;
        else
            other++;
        i++;
    }
    word++;
    /*space এর আগে 1 টা word অবশ্যই থাকবে,
    তাই সেই word টাকে এখানে increment করে দিলাম।*/
    printf("Number of vowels = %d\n", vowel);
    printf("Number of consonants = %d\n", consonant);
    printf("Number of words = %d\n", word);
    printf("Number of digits = %d\n", digit);
    printf("Number of others = %d\n", other);
}
```

```
Output:
Enter a string = Golam, Kibria, 34#ezaz
Number of vowels = 7
Number of consonants = 8
Number of words = 3
Number of digits = 2
Number of others = 3
```

11(2). Determine number of capital and small letter.

```c
#include <stdio.h>

int main()
{
    char str[50];
    int i, capital, small, digit;
    i = capital = small = digit = 0;

    printf("Enter a string = ");
    gets(str);

    while (str[i] != '\0')
    {
        if (str[i] >= 65 && str[i] <= 90)
            capital++;
        else if (str[i] >= 97 && str[i] <= 122)
            small++;
        else if (str[i] >= 48 && str[i] <= 57)
            digit++;
        i++;
    }

    printf("Number of capital letter = %d\n", capital);
    printf("Number of small letter = %d\n", small);
    printf("Number of digits letter = %d\n", digit);
}
```

```
Output:
Enter a string = Golam KIbria 34
Number of capital letter = 3
Number of small letter = 8
Number of digits letter = 2
```

12.আউটপুট হিসাবে স্ট্রিং এর প্রতিটি শব্দ আলাদা লাইন এ প্রিন্ট হবে। বিরামচিহ্ন গুলো প্রিন্ট হবে না এবং শব্দের প্রথম অক্ষর হবে বড় হাতের।

```c
#include <stdio.h>
#include <string.h>

int main()
{
        char s[100], ch;
        int i, length, wordstarted = 0;

        gets(s);
        length = strlen(s);

        for (i = 0; i < length; i++)
        {
                if (s[i] >= 'a' && s[i] <= 'z')
                {
                        if (wordstarted == 0)
                        {
                                wordstarted = 1;
                                ch = 'A' + s[i] - 'a';
                                printf("%c", ch);
                        }
                        else
                        {
                                printf("%c", s[i]);
                        }
                }
                else if ((s[i] >= 'A' && s[i] <= 'Z') || (s[i] >= '0' && s[i] <= '9'))
                {
                        if (wordstarted == 0)
                        {
                                wordstarted = 1;
                        }
                        printf("%c", s[i]);
                }
                else
                {
                        if (wordstarted == 1)
                        {
                                wordstarted = 0;
                                printf("\n");
                        }
                }
        }

        return 0;
}
```

```
Output:
golam kibria ezaz
Golam
Kibria
Ezaz
```

13(1). Binary to Decimal.

```c
#include <stdio.h>
#include <math.h>
#include <string.h>

int main()
{
        char binary[] = "10110";
        int length = 5;
        int position = 4;
        int decimal = 0;
        int i;

        for (i = 0; i < length; i++)
        {
                decimal = decimal + (binary[i] - '0') * pow(2, position);
                position--;
        }
        printf("Decimal value is = %d\n", decimal);
}
```

```
Output:
Decimal value is = 22
```

13(2). Binary to Decimal from the user.

```c
#include <stdio.h>
#include <math.h>
#include <string.h>

int main()
{
        char binary[65];
        int length;
        int position;
        int decimal = 0;
        int i;

        printf("Enter the binary number = ");
        scanf("%s", &binary);

        length = strlen(binary);
        position = length - 1;

        for (i = 0; i < length; i++)
        {
                decimal = decimal + (binary[i] - '0') * pow(2, position);
                position--;
        }
        printf("Decimal value is = %d\n", decimal);
}
```

```
Output:
Enter the binary number = 111
Decimal value is = 7
```

14(1). Decimal to Binary.

```c
#include <stdio.h>

int main()
{
        int decimalnumber = 22;
        int binarynumber = 0;
        int rem, temp = 1;

        while (decimalnumber != 0)
        {
                rem = decimalnumber % 2;
                decimalnumber = decimalnumber / 2;
                binarynumber = binarynumber + rem * temp;
                temp = temp * 10;
        }

        printf("The binary number is = %d\n", binarynumber);
}
```

```
Output:
The binary number is = 10110
```

14(2). Decimal to Binary from the user.

```c
#include <stdio.h>

int main()
{
        int decimalnumber;
        int binarynumber = 0;
        int rem, temp = 1;

        printf("Enter any decimal number = ");
        scanf("%d", &decimalnumber);

        while (decimalnumber != 0)
        {
                rem = decimalnumber % 2;
                decimalnumber = decimalnumber / 2;
                binarynumber = binarynumber + rem * temp;
                temp = temp * 10;
        }

        printf("The binary number is = %d\n", binarynumber);
}
```

```
Output:
Enter any decimal number = 12
The binary number is = 1100
```