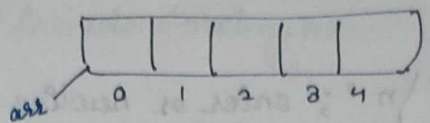
WEEK - 05 :-

#CHAR-ARRAYS AND STRINGS # 01

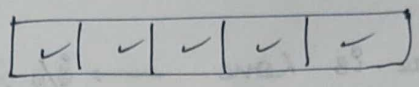
int arr[5]



int → 4 byte

space = 4×5 = 20 byte

→ Char arrays :- char ch[5];



char → 1 byte = 8 bit

space = 5 × 1 = 5 bytes.

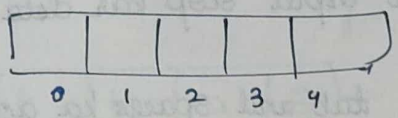
Ch → 1 byte → 8 bit →

Total combination → 2^8 → 256 (ASCII table)

char ch[10];

Input : ~~for~~ cin >> ~~ch~~ ch ; & output → cout << ch ;

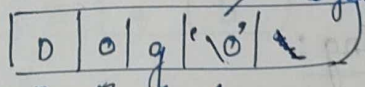
char ch[5];



null character ↓ termination of string. 'e' '\0'

cin >> ch ; → i/p: Dog → automatically, NC add ho jayega

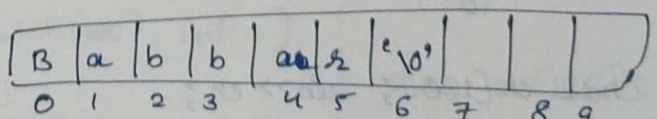
cout << ch ; →



print print print print karna ruk jayega.

Null character ('\0') → ASCII value = 0.

Code : → char ch[10] →



→ cin >> ch ⟹ i/p : Babbar

→ cout << ch ⇒ o/p : Babbar ✓

→ Char temp = ch[6]; // null character hai.

→ Int value = int(temp); → cout << value ; → o/p : 0

Ascii of null char

⇒ Delimeter :-

* Jab bhi aap character array ke case ke andar input le rahe honge, toh aapka input kab rukhega? → By Default 'Space'

∴ cin delimeter → '\n'; enter or newline
→ '\t'; tab
→ '_'; space
} in all these cases, input stops.

Eg :- My Name is Love ⟶ o/p : My.

cin.getline :- jab pura line chahiye.

→ cin.getline (ch, 100); → maximum input
↳ where to store.

But, enter se fir bhi input stop kar deta hai.

⇒ cin.getline() ⟶ tab and spaces ka asar nahi hoga.

Q.) Length of String :

char ch [100]; cin >> ch ⟵ Babbar

Sol: if (null_char) → ruk jao;
'\0'

```
char ch[100]; cin >> ch;
int len = findLength (ch, 100); cout << len;

int findLength (char ch[], int size)
{
    int length = 0;
    for (int i=0; i< size; i++)
        if (ch[i] == '\0') → break;
        else → length++;
} return length;
```

now, if I had used cin.getline (ch, 100);

↳ ★ Space will also be counted.

function ⟶ strlen (ch) ; ⟶ length of char array

#include <string.h>

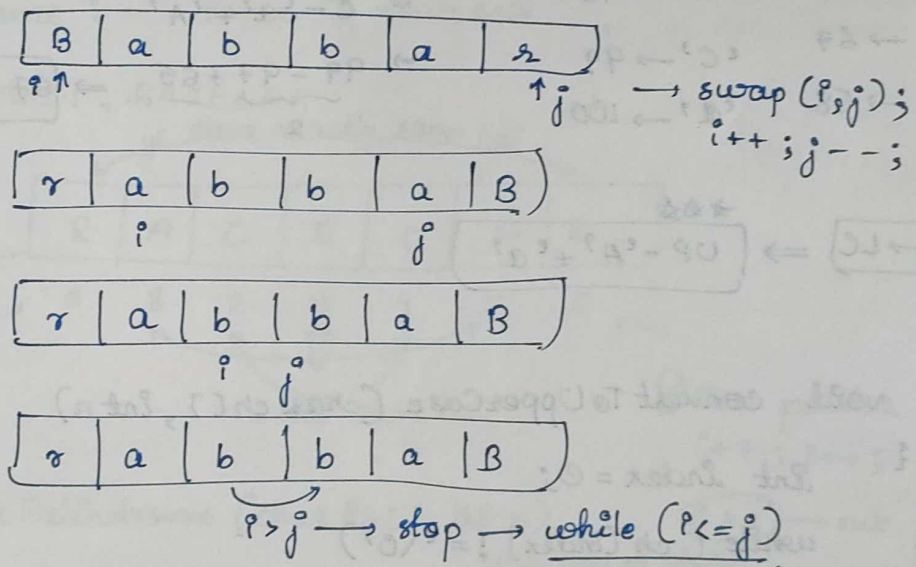
Code :-

```
int len = 0, index = 0;
while (ch [index] != '\0')
 {
     index ++;
 }
return index;
```

600

Q> Reverse a string :-

i/p : Babbar o/p : rabbaB




```
void reverseString (char ch[], int n)
 {
   int i=0, j=n-1;
   while (i<=j)
     {
       swap (a[i], a[j]);
       i++, --j;
     }
 }  return ch;
```

```
char ch[100];
cin.getline (ch, 100);

int len = findLength (ch, 100);
reverseString (ch, len);
cout << ch << endl;
```

Inbuilt function for reverse = ?

Q: Convert to upper case.

i/p :- My name is Love Babbar.

o/p :- MY NAME IS LOVE BABBAR.

'a' → 'A' = ? Let, ascii A = 65

↓

'a' = 97

∴ if (97 - 97 + 65) = 65 'aa jayega

⇒ lower case - 97 + 65

{lc → up} ⇒ l.c - 'a' + 'A' → lowercase to uppercase.

'A' → 65 'a' → 97

'B' → 66 'b' → 98

'C' → 67 'c' → 99

'D' → 68 'd' → 100

now if I want 'c' to 'C'

→ c - 'a' + 'A'

→ 99 - 97 + 65 ⇒ 67 = C

(2)

If {UC → LC} ⇒ UP - 'A' + 'a'

Code :-

```
void convertToUpperCase (char ch[], int n)
{
    int index = 0;
    while (ch[index] != '\0')
    {
        char currCharacter = ch[index];
        // check if lowercase, then only convert to upper case.
        if (currCharacter >= 'a' and cur__ <= 'z')
        {
            currCharacter ch[index] = curChar - 'a' + 'A';
        }
        index++;
    }
}
```

Q) Replace @ with space.

i/p :- My @ Name @ is @ Love @ Babbar

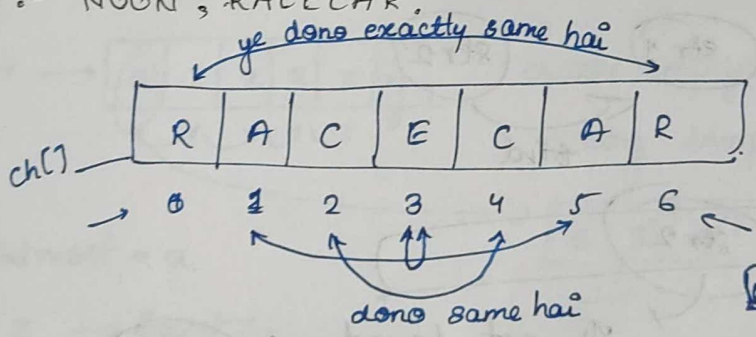
o/p :- My Name is Love Babbar.

```
void replaceCharacter (char ch[], int n);
 {  int index = 0
    while (ch[index] != '\0')
    {
       if (ch[index] == '@')
       {
          ch[index] = ' ';
       }
       index++;
    }
};
```

☆ Q) Check Palindrome.

⇒ Palindrome :- "Same if reversed".

Eg :- NOON, RACECAR.



Two pointer approach
i++; j++; if equal.
(i > j) → ruk jao.

```
bool CheckPalindrome (char ch[], int n)
{                          ↳ length of string.
    int i = 0; j = n-1;
    while (i <= j)
    {
       if (ch[i] == ch[j])
          { i++, j--;
          }
       else
          { return false;
          }
    }
    return true;
}
```

TC ⇒ O(n/2) → O(n)

STRINGS → (~~class~~/~~object~~) Let's learn as Datatype.

Eg :- string name; (string → datatype, name → variable)

String → dynamic in nature.

→ String → collection of characters.

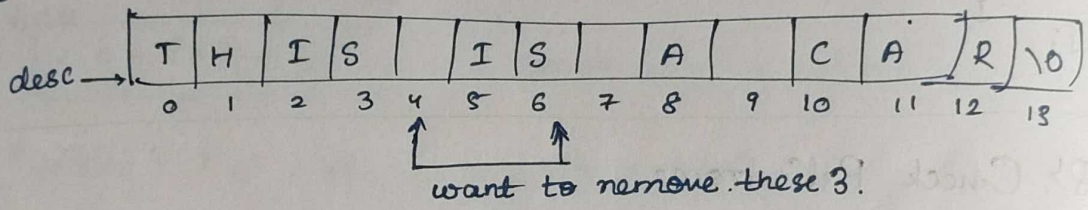
→ stringS.cpp

cin >> name ; cout << name ;

printing first character → cout << name[0] << endl;

Functions ka notes → stringFunctions.cpp

Erase



⇒ desc.erase (4, 3);

Find function :