

1. Example: 1) Program to Print Array Elements

**2) Program to insert elements into an array and print the array elements.
(Use multiple tabs on c compiler)**

1.

```
#include <stdio.h>
int main() {
    int a[5] = { 10, 20, 30, 40, 50};
    printf("Array elements are:\n");
    printf("%d\t",a[0]);
    printf("%d\t",a[1]);
    printf("%d\t",a[2]);
    printf("%d\t",a[3]);
    printf("%d\t",a[4]);
    return 0;
}
```

2.

```
#include<stdio.h>
int main()
{
    int a[5],i;
    printf("Enter 5 elements into an array:\n");
    for(i=0;i<=4;i++)
    {
        scanf("%d",&a[i]);
    }
    printf("The 5 elements are:\n");
    for(i=0;i<=4;i++)
    {
        printf("%d\n",a[i]);
    }
    return 0;
}
```

Output:

Enter 5 elements into an array:

35

23

45

67

11

The 5 elements are:

35

23

45

67

11

2. Example: 1) To change the value of a specific character in a string and use

2) `strlen`

3) `strcpy`

4) `strcmp`

5) `strcat`.

(Use multiple tabs on c compiler)

1)

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

```
int main()
```

```
{
```

```
char str [] = "Hello World!";
```

```
str[0] = 'J';
```

```
printf("%s", str);
```

```
return 0;
```

```
}
```

2)

C strlen()

Example: Program to find length of the string.(Using `strlen()`)

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

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

```
int main()
```

```
{
```

```
char a[20]="Program";
```

```
char b[20]={'P','r','o','g','r','a','m','\0'};
```

```
printf("Length of string a = %d\n",strlen(a));
```

```
printf("Length of string b = %d \n",strlen(b));
```

```
return 0;
```

```
}
```

Output:

Length of string a = 7

Length of string b = 7

3)

C strcpy()

Example: Program to copy the string.

```
#include <stdio.h>
#include <string.h>
int main() {
    char str1[20] = "INDIA";
    char str2[20];
    strcpy(str2, str1);
    printf("%s",str2);
    return 0;
}
```

Output: INDIA

4)

C strcmp()

Example: Program to copy the string.

```
#include<stdio.h>
#include<string.h>
int main() {

    char s1[] = "g f g";
    char s2[] = "g f g";
    int res = strcmp(s1, s2);
    if (res == 0) printf("Equal");
    else
    printf("Unequal");
    return 0;
}
```

Output: Equal

5)

C strcat()

Example: Program to concatenates the string.

```
#include<stdio.h>
#include <string.h>
int main() {
    char str1[100] = "This is ", str2[] = "INDIA";
    strcat(str1, str2);
    printf("%s",str1);
    printf("%s",str2);
    return 0;
}
```

Output:

This is INDIA INDIA

- 3) Example: 1) Program to illustrate the concept of pointers**
2) Write a program to concatenate four strings
(Use multiple tabs on c compiler)

1)

```
#include<stdio.h>
int main()
{
    int a = 10;
    int *p;
    p = &a;
    printf("\nAddress of a: %u", &a);
    printf("\nAddress of a: %u", p);
    printf("\nAddress of p: %u", &p);
    printf("\nValue of p: %d", p);
    printf("\nValue of a: %d", a);
    printf("\nValue of a: %d", *(&a));
    printf("\nValue of a: %d", *p); return 0;
}
```

Output:

Address of a: 65494
Address of a: 65494
Address of p: 65496
Value of p: 65494
Value of a: 10

Value of a: 10

Value of a: 10

2)

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

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

```
int main()
{
    char str1[50] = "INDIA ";
    char str2[] = "is ";
    char str3[] = "my ";
    char str4[] = "country!";

    strcat(str1, str2);
    strcat(str1, str3);
    strcat(str1, str4);

    printf("The concatenated string is: %s\n", str1);

    return 0;
}
```

4) Example: 1) Program to understand concept of structure (Store information of two students) and use 2) strlen (Use multiple tabs on c compiler)

1)

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

```
struct Student {
```

```
char name[50];
```

```
int age;
```

```
float totalMarks;
```

```
};
```

```
int main()
```

```
{
```

```
    struct Student s1, s2;
```

```
    printf("Input details for Student 1:\n");
```

```
    printf("Name: ");
```

```
    scanf("%s", s1.name);
```

```

printf("Age: ");
scanf("%d", &s1.age);
printf("Total Marks: ");
scanf("%f", &s1.totalMarks);

printf("\nInput details for Student 2:\n");
printf("Name: ");
scanf("%s", s2.name);
printf("Age: ");
scanf("%d", &s2.age);
printf("Total Marks: ");
scanf("%f", &s2.totalMarks);
printf("\nStudent 1 Information:\n");
printf("Name: %s\n", s1.name);
printf("Age: %d\n", s1.age);
printf("Total Marks: %.2f\n", s1.totalMarks);

printf("\nStudent 2 Information:\n");
printf("Name: %s\n", s2.name);
printf("Age: %d\n", s2.age);
printf("Total Marks: %.2f\n", s2.totalMarks);
return 0;
}

```

2)

C strlen()

Example: Program to find length of the string.(Using strlen())

```

#include <stdio.h>
#include <string.h>
int main()
{
char a[20]="Program";
char b[20]={'P','r','o','g','r','a','m','\0'};
printf("Length of string a = %d\n",strlen(a));
printf("Length of string b = %d \n",strlen(b));
return 0;
}

```

Output:

Length of string a = 7

Length of string b = 7

5) Example: 1) Write a function to check whether the number is positive negative or zero in c language and use 2)strcpy

3)strcmp

(Use multiple tabs on c compiler)

1)

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

```
void checkNumber(int num)
```

```
{
```

```
    if (num > 0)
```

```
        printf("The number is Positive\n");
```

```
    else if (num < 0)
```

```
        printf("The number is Negative\n");
```

```
    else
```

```
        printf("The number is Zero\n");
```

```
}
```

```
int main()
```

```
{
```

```
    int n;
```

```
    printf("Enter a number: ");
```

```
    scanf("%d", &n);
```

```
    checkNumber(n);
```

```
    return 0;
```

```
}
```

2)

C strcpy()

Example: Program to copy the string.

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

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

```
int main()
```

```

{
char str1[20] = "INDIA";
char str2[20];
strcpy(str2, str1);
printf("%s",str2);
return 0;
}

```

Output: INDIA

3)

C strcmp()

Example: Program to copy the string.

```

#include<stdio.h>
#include<string.h>
int main() {

char s1[] = "g f g";
char s2[] = "g f g";
int res = strcmp(s1, s2);
if (res == 0) printf("Equal");
else
printf("Unequal");
return 0;
}

```

Output: Equal

- 6) Example: 1) Write a function to check whether a character is vowel or constant**
2) To change the value of a specific character in a string
(Use multiple tabs on c compiler)

1)

```

#include <stdio.h>

void checkVowelConsonant(char ch)
{
if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u' ||
    ch == 'A' || ch == 'E' || ch == 'I' || ch == 'O' || ch == 'U')
{

```



```

        printf("The character '%c' is a Vowel.\n", ch);
    }
    else
    {
        printf("The character '%c' is a Consonant.\n", ch);
    }
}

```

```

int main()
{
    char ch;
    printf("Enter a character: ");
    scanf(" %c", &ch);

    checkVowelConsonant(ch);

    return 0;
}

```

```

2)
#include<stdio.h>
int main()
{
    char str [] = "Hello World!";
    str[0] = 'J';
    printf("%s", str);
    return 0;
}

```

**7) Example : 1) Write a function to perform + , - , * , /
 use 2) strcmp
 3) strcat
 (Use multiple tabs on c compiler)**

```

1)
#include <stdio.h>

void addition()
{
    int x = 10;

```

```
    int y = 20;
    int sum;
    sum = x + y;
    printf("sum = %d\n",sum);
}
```

```
void subtraction()
{
    int x = 30;
    int y = 20;
    int sub;
    sub = x - y;
    printf("sub = %d\n",sub);
}
```

```
void multiplication()
{
    int x = 20;
    int y = 5;
    int mul;
    mul = x * y;
    printf("mul = %d\n",mul);
}
```

```
void division()
{
    int x = 10;
    int y = 2;
    int div;
    div = x / y;
    printf("div = %d\n",div);
}
```

```
int main()
{
    addition();
    subtraction();
    multiplication();
    division();

    return 0;
}
```

```
}
```

2)

C strcmp()

Example: Program to copy the string.

```
#include<stdio.h>
#include<string.h>
int main() {

char s1[] = "g f g";
char s2[] = "g f g";
int res = strcmp(s1, s2);
if (res == 0) printf("Equal");
else
printf("Unequal");
return 0;
}
```

Output: Equal

3)

C strcat()

Example: Program to concatenates the string.

```
#include<stdio.h>
#include <string.h>
int main() {
char str1[100] = "This is ", str2[] = "INDIA";
strcat(str1, str2);
printf("%s",str1);
printf("%s",str2);
return 0;
}
```

Output:

This is INDIA INDIA

8)Example: Write a structure to store information of engineering student with members student id, student name, student branch, student div and student cgpa;

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

```
struct EngStudent  
{  
    int id;  
    char div;  
    char name[20];  
    char branch[20];  
    float cgpa;  
};
```

```
int main()  
{  
    struct EngStudent e;  
  
    printf("Enter student information\n");  
    printf("Student id\n");  
    scanf("%d",&e.id);  
    printf("student div\n");  
    scanf(" %c",&e.div);  
    printf("Student name\n");  
    scanf("%s",e.name);  
    printf("Student branch\n");  
    scanf("%s",e.branch);  
    printf("Student cgpa\n");  
    scanf("%f",&e.cgpa);  
  
    printf("Display information\n");  
    printf("id = %d\n",e.id);  
    printf("div = %c\n",e.div);  
    printf("name = %s\n",e.name);  
    printf("branch = %s\n",e.branch);  
    printf("cgpa = %f\n",e.cgpa);  
  
    return 0;  
}
```