Online Discussion session

String

Instructor:

Er. Manisha Bhattarai

NCIT

Date :2077-03-01

String

- Collection of characters
- Stored at consecutive memory locations
- Terminated by a null character i.e. '\0'

String

- Initialization of string

➢ Compile time initialization:

Syntax:

```
char name[]={'R', 'a', 'm'};
```

or

```
char name[]="Ram";
```

or

```
char name []={'R', 'a', 'm', '\0'};
```

➢ Run time initialization:

```
scanf("%s", string_name);
scanf("%[^\n]s",string_name);
gets(string_name);
```

1. Program to input a string and display it.

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


void main()
  {
      char name[50];
   printf("Enter your name");
   gets(name);
   printf("\nThe name you entered is ");
    puts(name);
    getch();
  }
```

1. Program to input a string and display it.

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


void main()
  {
      char name[50];
    printf("Enter your name");
    scanf("%[^\n]s",name);
    printf("\nThe name you entered is %s“,name);
getch();
  }
```

2. Program to input a string and display it's characters in discrete form.

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


void main()
  {
        char name[50];
    int i;
    printf("Enter your name");
    gets(name);
    printf("The name you entered in discrete form is:\n ");
      while(name[i]!='\0')
        {
        printf("%c\t",name[i]);
          i++;
        }
    getch();
  }
```

3. Program to input and display names of 5 persons.

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

void main()
  {
  char name[5][50];
    int i;
    printf("Enter names of 5 students");
for(i=0;i<5;i++)
        {
        gets(name[i]);
      }
printf("\nThe names of 5 students are:\n");
    for(i=0;i<5;i++)
        {
        printf("%s\n",name[i]);
      }
    getch();
  }
```

4. Program to input a string and count the total number of vowels, semicolons, commas, spaces, digits and other characters.

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


void main()
  {
       char str[50];
    int vc=0,sc=0,cc=0,spc=0,dc=0,oc=0,i;
    printf("Enter a string");
    gets(str);
```

```
for(i=0;i<strlen(str);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')
              vc++;
  else if(str[i]==';')
              sc++;
   else if(str[i]==',')
              cc++;
```

4. Program to input a string and count the total number of vowels, semicolons, commas, spaces, digits and other characters.

```
            else if(str[i]==' ')
                spc++;
             else if(str[i]>='0'&&str[i]<='9')
                dc++;
             else
                oc++;
          }
printf("\nNumber of vowels=%d",vc);
 printf("\nNumber of semicolons=%d",sc);
      printf("\nNumber of commas=%d",cc);
      printf("\nNumber of spaces=%d",spc);
      printf("\nNumber of digits=%d",dc);
      printf("\nNumber of other characters=%d",oc);
      getch();
}
```

5. Program to input a string and convert uppercase to lowercase and vice versa.

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

void main()
  {
  char str[50];
    int i;
    printf("Enter your name");
    gets(str);
for(i=0;str[i]!='\0';i++)
        {
        if(str[i]>='A'&&str[i]<='Z')
            str[i]+=32;
        else if(str[i]>='a'&&str[i]<='z')
            str[i]-=32;
      }
    printf("The converted string is %s",str);
        getch();
  }
```

String Handling Functions

- strlen()
- strrev()
- strcpy()
- strcmp()
- strcat()
- strlwr()
- strupr()

strlen()

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

void main()
   {
   char str[20];
     int length;
     printf("Enter a string");
     gets(str);
     length=strlen(str);
     printf("Length of %s is %d",str,length);
     getch();
   }
```

strrev()

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

void main()
  {
      char str[20];
    printf("Enter a string");
    gets(str);
    printf("Original string is %s",str);
     strrev(str);
    printf("Reversed string is %s",str);
    getch();
  }
```

strcpy()

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


void main()
   {
        char str1[20],str2[20];
     printf("Enter a string");
     gets(str1);
     strcpy(str2,str1);
     printf("original string is %s and copied string is %s",str1,str2);
     getch();
   }
```

strcmp()

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

void main()
  {
      char str1[20],str2[20];
    printf("Enter first string");
    gets(str1);
printf("Enter second string");
    gets(str2);
    if(strcmp(str1,str2)==0)
      printf("Strings are identical");
    else
      printf("Strings are not identical");
    getch();
  }
```

strcat()

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


void main()
  {
        char str1[20],str2[20];
    printf("Enter first string");
    gets(str1);
    printf("Enter second string");
     gets(str2);
     strcat(str1,str2);
     printf("The concatenated string is %s",str1);
     getch();
  }
```

6. Program to check whether a string is palindrome or not using string handling function.

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

void main()
  {
      char str1[20],str2[20];
    printf("Enter a string");
    gets(str1);
    strcpy(str2,str1);
    strrev(str2);
     if(strcmp(str1,str2)==0)
        printf("%s is palindrome",str1);
     else
        printf("%s is not palindrome",str1);
    getch();
  }
```

7. Program to input 10 names and sort them in ascending order.

```
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
  char name[10][20];
  char temp[20];
  int i,j;
  printf("Enter the name of 10 students");
  for(i=0;i<10;i++)
      {
      gets(name[i]);
    }
    printf("The name of 10 students are\n");
  for(i=0;i<10;i++)
      {
      puts(name[i]);
    }
```

7. Program to input 10 names and sort them in ascending order.

```
for(i=0;i<9;i++)
        {
        for(j=0;j<9-i;j++)
            {
            if(strcmp(name[j+1],name[j])<0)
            {
                strcpy(temp,name[j]);
                strcpy(name[j],name[j+1]);
                strcpy(name[j+1],temp);
             }
  }
        }
        printf("The sorted name of 10 students are\n");
   for(i=0;i<10;i++)
   {
        puts(name[i]);
    }
  getch();
}
```

8. Program to calculate length of string without using string handling function.

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


void main()
  {
        char str[50];
    int i,length=0;
    printf("Enter a string");
    gets(str);
 for(i=0;str[i]!='\0';i++)
        {
        length++;
        }
    printf("The length of %s is %d",str,length);
    getch();
  }
```

9. Program to display the reverse of a string without using string handling function.

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


void main()
{
int length=0,i=0,j;
char str1[20],str2[20];
printf("Enter a string");
gets(str1);
while(str1[i]!='\0')
 {
  length++;
  i++;
 }
for(j=0,i=length-1;j<length;j++,i--)
{
str2[j]=str1[i];
}
```

9. Program to display the reverse of a string without using string handling function.

```
str2[j]='\0';
printf("Original string is %s",str1);
printf("Reversed string is %s",str2);
getch();
}
```

10. Program to convert “this is c programming ” in the given format.

This

Is

C

Programming

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

void main()
{
char str[100];
int i;
printf("Enter a string");
gets(str);
```

```
for(i=0;str[i]!='\0';i++)
{
        if(i==0)
            {
            str[0]-=32;
            }
```

```
    if(str[i]==' ')
        {
        printf("\n");
        str[i+1]-=32;
        continue;
        }
        printf("%c",str[i]);
}

getch();
}
```

Patterns related to string

- N
- N E
- N E P
- N E P A
- N E P A L

```
#include<stdio.h>
#include<conio.h>
void main()
        {
        int i,j;
    char str[]="NEPAL";
for(i=0;i<=4;i++)
        {
                for(j=0;j<=i;j++)
                {
                printf("%c\t",str[j]);
                }
        printf("\n");
        }
    getch();
}
```

Patterns related to string

- N
- E E
- P P P
- A A A A
- L L L L L

```
#include<stdio.h>
#include<conio.h>
void main()
        {
        int i,j;
    char str[]="NEPAL";
for(i=0;i<=4;i++)
      {
            for(j=0;j<=i;j++)
            {
            printf("%c\t",str[i]);
            }
       printf("\n");
       }
   getch();
}
```

Patterns related to string

- 1 N
- 2 N E
- 3 N E P
- 4 N E P A
- 5 N E P A L

```
#include<stdio.h>
#include<conio.h>
void main()
        {
        char str[]="NEPAL";
        int i,j;
```

```
for(i=1;i<=5;i++)
        {
        printf("%d\t",i);
        for(j=1;j<=i;j++)
                {
           printf("%c\t",str[j-1]);
           }
        printf("\n");
        }
    getch();
}
```

Practice Questions

1. Program to check whether a string is palindrome or not without using string handling function.

1. Program to concatenate two strings without using string handling functions.


thank you!