

## **INTRODUCTION**

### **Character set of c**

Character set of c language used for creating application of c or creating the programme of c

Language means using the combination of character set we can create the c programme Statement.

#### **C provide the following character set to us**

Alphabet: a to z or A to Z

Digit: 0 to 9

Special Symbol:?,+,<,>,etc.

#### **How to recognize the character set from system**

The system cannot understood the high level language.so c provide the some basic

Code translation language is called as ASCII(American Standard Code For Information and Interchange)

With the help of this character set c recognize the characters in programmer and store in some specific

Format in system and then convert it in the machine code with the help of compiler.

#### **Given table shows the ASCII code chart of alphabet and digits.**

A to Z : 65 to 90 and a to z:97 to 122

Digit: 0 to 9:48 to 57

Total ASCII code in c language is 256 from 0 to 255

### **Constant of c language**

Constant means those value cannot change during the execution of programme is called as a constant.

#### **Types of constant**

## **Numeric Constant**

In this type of constant we can fix only number value in programmr.

Types of Numeric Constant:

### **1]Integer Constant:-**

This type of constant can not have decimal point

e.g.12,13,09 etc

### **2]Float Constant or real constant:-**

This type of constant can hava decimal point

e.g.1.2,3.2,5.4 etc

### **3]Character Constant:-**

In character Constant we can store the single character constant and more than

One character constant.

### **4] Single character constant:-**

if we fix the any value in single coat is called as character constant

e.g. 'a', 'A', '3' three is not a numeric constant this is the character constant because in singlecoat.

### **5]Multicharacter Constant:-**

If we fix the any value in double coat is called as multi character constant or in c string .

e.g.a[]={“good”};

## **Keywords of c language.:-**

Keywords means those world having the single meaning provided by compiler.

We can say keyword are reserve word.there are 32 keyword in c given table show all keyword of c language.

e.g. if we want to write the integer in c can not write the integer full.we need to write the int because compiler know int means integer because int is the keyword.

## **Data Type in c language**

### **Types of data type in c language:-**

#### **1] Built in data type:-**

Those data type are provided by compiler is called as built in data type.

Types of built in datatype

**A] Integer data type:-** this data type indicates to us only use the value without decimal point.

e.g.90,100,03;//allow with integer.

e.g.1.2,3.6;//not allow with integer.

Integer also provide the some its sub datatype.

#### **1] Integer**

- If we want to use the integer data type in programme write simply: **int**
- Integer datatype allocate the **2 byte** memory
- Integer datatype can store the value **-32768 to 32767**
- Integer datatype use the format specifier **%d**

#### **2]Short Integer**

- If we want to use the short integer in programme write simply :short int.
- Short int data type allocate 1 byte memory
- Short integer can store the value -32768 to 32767
- Short integer datatype use the format specifier %d or %i.

#### **3] Long Integer:**

- If we want to use the long integer in programme write simply :long int
- Long Integer data type allocate 4 byte memory
- Long Integer datatype can store the value -2147483648 to 2147483647
- Long Integer use the format specifier %ld

#### **4] Unsigned Integer:**

- If we want to use the unsigned integer in programme write simply: unsigned int
- Unsigned Integer data type allocate 2 byte
- Unsigned integer data type can store the value 0 to 65535
- Unsigned format specifier: %u

## **B]Float data type :-**

float data type store the value with decimal point

e.g. a=1.4,b=4.5; etc allow with float.

e.g.if we store the integer value then it will accept and place (0)at last value

## **Types of float datatype:**

### **1]Float:-**

- If we want to use the float datatype use in programme write simple:-float
- Float data type allocate 4 byte memory
- Float datatype can store value -3.14x10e 38 to 3.14x10e 38
- Float data type use the format specifier %f

### **2]Double:-**

- If we want use the double datatype in programme write simply:-double.
- Double datatype allocate memory 8 byte.
- Double datatype can store the value -1.7x10 e 308 to 1.7x 10e308
- Double datatype use the format specifier %lf

### **3]Long Double:-**

- If we want to use the long double data type in programme write simply:long double
- Long double datatype allocate 8 byte memory
- Long double datatype can store the value -1.7 x 10e4932 to 1.7 x 10e4932
- Long double datatype use the format specifier

## **C]Character Data type:-**

This data type store only alphabetical data

### **Types of character data type**

- 1] Signed Character
- 2] Unsigned Character

**ii]Derived data type:-** Those datatype we can use with any other datatype

This datatype c provide later

Types of derived datatype

- i]pointer
- ii]Function
- iii]Array

### **iii]User Defined data type**

Those data type created by user for its own use is called as user defined datatype.

### **Types of userdefined datatype**

- i]Structure
- ii]Union
- iii]Enumeration

Note:- Derived and user defined data type discussed in later part of notes.

Variable:-

**Variable:** Variable means if we create the variable in programme then system

Allocate the block for that variable in memory as per its type.

### **Why use the variable:**

- Variable used to store the value in memory as per its type
- Variable also used to retrieve the value from memory for display the output for some process.

### **How to create the variable in c.**

Syntax:- data type variable name separated by commas;

E.g.int a,b,c;

Above statement shows we creat the three variable of type integer namely a,b,c and

We can store the three integer type values in that.

But if we want to create the variable in c language for that we need to follow some

### **Rule of c language for variable declaration**

- Variable means name start with alphabet cannot start with digit or any special Symbol other than underscore character.  
e.g. `int a10;`//valid variable name  
`int _a10;`//valid variable name  
`int 10a;`//not valid variable name  
`int ?a;`//invalid variable name
- Cannot use the blank space between two variable.  
e.g. `int a b;`//invalid variable name  
`int a_b;`//valid variable name
- Cannot give the keyword variable name  
e.g. `int float;`//invalid variable name

How to write thw application

Steps for application write in c language.

- Add the header files.
- How to add the header files in programme

If we want to add the header file in c programme for that we need to use the `#include`

Preprocessor directives or file inclusion directives.this directive is used to add the any file

In programme .if we add the file once in programme we can use the all contents form that file In your programme .

**Syntax:-** `#include<filename.extension>`

**e.g.**`#include<stdio.h>`

**Note:-** it is optional means not compulsory

- Write main function  
How to write the main function  
`Returntype main()`  
`{`  
Write here the body of programme  
`}`

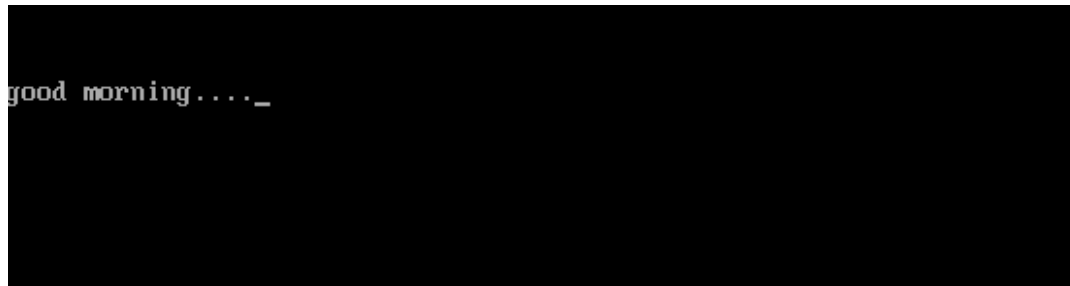
```
e.g. void main(){
printf("good morning");
getch();
}
```

- Write programme code
- Define function after the main if use function in programme

### **Basic application of c language.**

```
#include<stdio.h>
#include<conio.h>
void main(){
clrscr();
printf("good morning.....");
getch();
}
```

### **Output:**

A screenshot of a terminal window with a black background. The text 'good morning....\_' is displayed in a light blue or cyan monospaced font. The text is followed by a cursor character, which appears as a short horizontal line.

### **What is use of stdio.h and conio.h header file**

Stdio.h= standard input output function header file this file provide

The all input and output related functions to us.

Conio.h= console input output function.this file is used to device control file

Means if we want to clear the output screen or hold the output on dos prompt

For that we need to use the conio.h file.

**Void main():-** this is the heart of c programmer means we can not run the c programme

Without main function .for every c programme must be single main function.

Every c programme execution start with main function

**Clrscr()=**clear the screen

This function is used to clear the output screen.this function is provided by conio.h Header file.

**Printf():**- this is the output function this function is used to display the output on the screen.

**Getch():**-this function is used to hold the output screen on dos prompt whenever user press

Any key when user press any key then come back in programme

### **Input and output function of c**

If we want to interact with c programme then we need to provide the input

To programme and get the output from programme for this purpose c provide

The some input and output related function to us

If we want to use the input and output functions of c language for that we need to

Use the stdio.h header file.

### **Input function:-**

Putchar():- this function is used display the single character output

Getchar():-this function is used to read the single character from keyboard

Gets():this function is used to accept the string output from keyboard.

Puts():-this function is used to display the string output on monitor

Printf():-this function is used to display the any type of data on output screen

Scanf():-this function is used to read the any type of data from keyboard.

### **How to use the putchar() and getchar() function shows in following programme**

Syntax of getchar() function:-

Character variable=getchar();

e.g. ch=getchar()this statement indicate to us read the single character data from keyboard

Syntax of putchar():-

Putchar(character variable);

e.g. putchar(ch);

### **//programme demonstrate the use of getchar() and putchar() function**

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

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

```
void main(){
```

```
char ch;
```

```
clrscr();
```

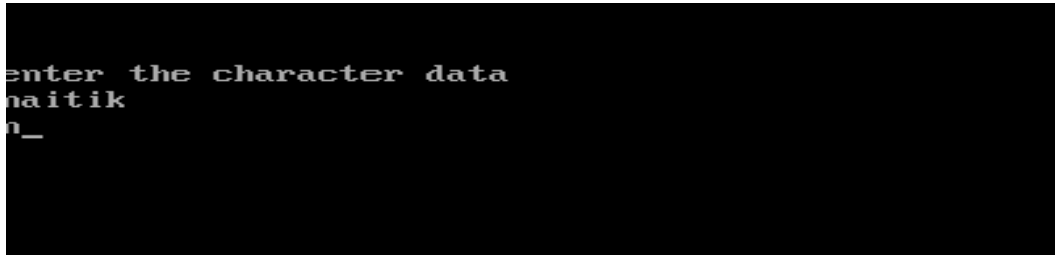
```
printf("enter the character data\n");
```

```
ch=getchar();
```



```
putchar(ch);  
getch();  
}
```

**Output:**



Note:- above programme only accept the single character and display the single character

If we want to input more than one character data from keyboard and display it for that use

The loop.this wil discuss later part of notes.

### **How to use the printf()and scanf()function**

Printf() can use for three purpose

- Display the message  
Syntax:-printf("message write here for display");  
e.g. printf("good morning");
- Display the variable values  
Syntax:- printf("format specifier",variable name);  
e.g. printf("%d",c);
- Display the message with variable value.  
Syntax:- printf("message format specifier ",variable);  
e.g. printf("addition is %d",c);

### **How to use scanf() function**

Syntax:- scanf("format specifier",&variablename);

e.g. scanf("%d",&a);

programme demonstrate the use scanf() and printf() function

### **//Write a programme to accept the two values and display its multiplication**

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

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```
#include<conio.h>

void main(){

int a,b,c;

clrscr();

printf("enter the two values");

scanf("%d%d",&a,&b);

c=a+b;

printf("addition is %d",c);

getch();

}
```

**Output:**

A screenshot of a terminal window with a black background and green text. The text shows the execution of a C program: it prompts 'enter the two values', the user enters '10' and '20' on separate lines, and the program outputs 'addition is 30'.

**Operators**:- operators are the symbol they use for perform the some operation.

There are seven types of operator in c language.

- **1] Arithmetic operator**

Operator	meaning
+	Addition
-	Subtraction
*	Multiplication
/	Division

- **2] Assignment operator**

Operator	Meaning
----------	---------

= Assignment or put right value in to left variable

- **3] Logical Operator**

Operator	meaning
&&	Logical and
	Logical or
!	And

- **4] Increment and Decrement operator**

Operator	meaning
++	increment by default one
--	Decrement by default one

- **5] Relational operator**

Operator	meaning
==	equal to
!=	not equal to
>	Greater than
<	less than
<=	less than equal to
>=	Greater than equal to

- **6]Conditional operator**

Operator	meaning
?	Ternary operator
:	colon operator

Format of conditional operator

Syntax : exp1?exp2:exp3;

e.g. a>b?printf("good morning");:printf("bad");

expression one always condition and expression two and third are conditions.if expression one true then execute the expression two if expression one is false then execute the expression third.

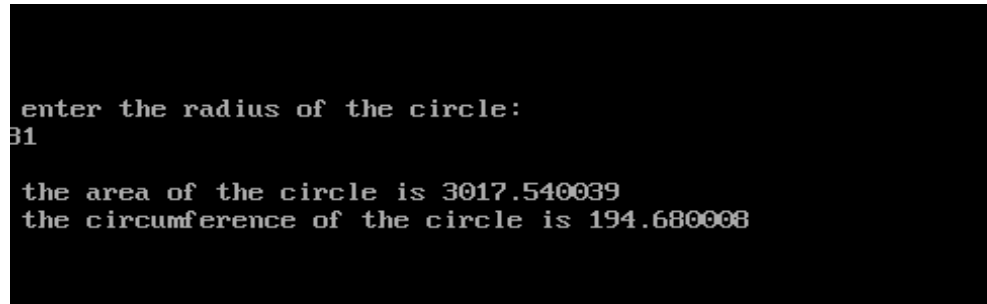
- **Bitwise operator.**

Solve problem on first topic

### **//1]find the area of circle and circumference of circle.**

```
#include<stdio.h>
#include<conio.h>
void main(){
int radius ;
float area,circum;
clrscr();
float pi=3.14;
printf("\n enter the radius of the circle:");
scanf("%d",&radius);
area=pi*radius*radius;
circum=2*pi*radius;
printf("\n the area of the circle is %2f",area);
printf("\n the circumference of the circle is %2f",circum);
getch();
}
```

**Output:-**



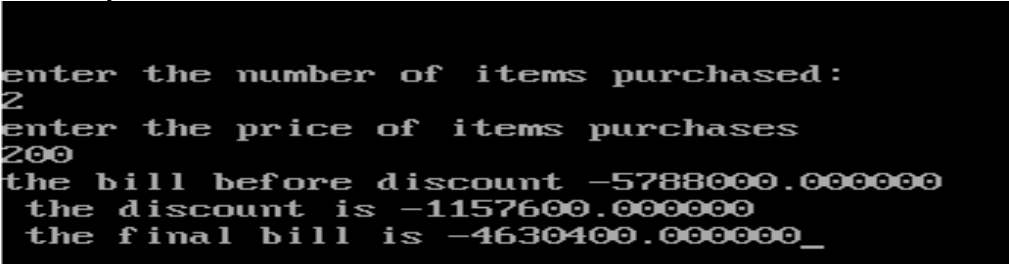
```
enter the radius of the circle:
31
the area of the circle is 3017.540039
the circumference of the circle is 194.680008
```

### **//2]programme demonstrate to calculate the bill discount**

```
#include<stdio.h>
#include<conio.h>
void main(){
int items;
float discount ,bill,price;
clrscr();
printf("enter the number of items purchased:");
scanf("%d",&items);
printf("enter the price of items purchases");
scanf("%f",&price);
bill=items*price;
```

```
printf("the bill before discount %2f",bill);
discount=0.2*bill;
printf("\n the discount is %2f",discount);
bill=bill-discount ;
printf("\n the final bill is %2f",bill);
getch();
}
```

**Output:**



```
enter the number of items purchased:
2
enter the price of items purchases
200
the bill before discount -5788000.000000
the discount is -1157600.000000
the final bill is -4630400.000000_
```

### //3]programme demonstrate the c arithmetic feature

```
#include<stdio.h>
#include<conio.h>
void main(){
int x=10,y=10,float z;

clrscr();

z=x+y;
printf("\n value of z is %d",z);
x=x+y;
printf("\n value of x is %d",x);
y+=z;
printf("\n value of y is %d",y);
x++;
printf("\n value of x is %d",x);
y=x++;
z=++y;
printf("\n value y is %d",y);
printf("\n value of z is %d",z);
getch();
}
```

```
value of z is 0
value of x is 65
value of y is 80
value of x is 66
value y is 67
value of z is 0_
```

#### **//4] programme demonstrate finding the sum of digit**

```
#include<stdio.h>
#include<conio.h>
void main(){
clrscr();
int num,rem,sum=0;
printf("enter any number of 4 digit");
scanf("%d",&num);
rem=num%10;
sum=sum+rem;
num=num/10;
rem=num%10;
sum+=rem;
num/=10;
rem=num%10;
sum+=rem;
num/=10;
sum+=num;
printf("\n the sum of the digits is %d",sum);
getch();
}
```

