



សាកលវិទ្យាល័យគ្រប់គ្រង និង វេទនាសាស្ត្រ

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# C Programming

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**USING C/C++  
ADVANCED PROGRAMMING**

# Chapter 1

## 1.1 getting start with C-programming Language.

Syntax:

Header file or prototype.

```
void main(){
    clrscr();
    // code that you want to write.
    .....
    getch();
}
```

Example:

```
#include<stdio.h>
#include<conio.h>
void mian(){
    clrscr();
    printf("Hello, world. Today is my first start of using C-programming Language.\n ");
    getch();
}
```

\*Note:

- អនុគមន៍ clrscr screen(); ប្រើសម្រាប់ clear screen ចាស់ៗចោល ។
- អនុគមន៍ printf(".....text here....."); ប្រើសម្រាប់បង្ហាញ អត្ថបទ ឃ្លា វីត្យែមផ្សេងៗទៅលើ screen ។
- getch(); ជា function ប្រើសម្រាប់ save screen ។
- គ្រប់ Statement ទាំងអស់ដែលសរសេរនៅក្នុង C-programming Language ត្រូវតែបញ្ចប់ទៅដោយ (); ។
- How to find prototype of function "clrscr" or any function:
  - 1.Move your cursor to under the function and then press ctrl+F1.
- // a single comment is used to comment the statement that make you easy to understand.
- /\* Multiple comment lines is used to show result display on screen.
- goto(x,y) is used to set the cursor to coordinator x and y on the screen of computer.
- int = integer ចំនួនគត់
- មុនប្រើអថេរយើងត្រូវប្រកាសអថេរជាមុនសិន
- %d ដើម្បីទាញយកតម្លៃជាចំនួនគត់ទៅបង្ហាញ
- %f ដើម្បីទាញយកតម្លៃជាចំនួនទស្សភាគទៅបង្ហាញ
- អនុគមន៍ scanf(" ");ដើម្បីទាញយកតម្លៃបញ្ចូលពី keyboard ។
- កាលណាប្រើ scanf(" "); គេត្រូវប្រើជាមួយ(&)=address
- %n ប្រើសម្រាប់កំនត់ចំនួនក្រោយក្បួន
- %m ប្រើសម្រាប់កំនត់ចំនួនខ្ទង់នៅខាងក្រោយក្បួន

Example1:

```
#include<stdio.h>
#include<conio.h>
void main(){
    clrscr();
    printf("Hello, everyone.\n This year, I'm 20 years old.\n How old are you,Dany?\n I'm 19
years old.\n");
    getch();
}
```

Example2:

```
#include<stdio.h>
#include<conio.h>
void main(){
    clrscr();

    printf("Hello, everyone.\n");
    printf("This year, I'm 20 years old.\n");
    printf("How old are you, Dany?\n");
    printf("I'm 19 years old.\n");
    getch();
}
```

## 1.2 การถ่ายทอดข้อมูล

Example3:

```
#include<stdio.h>
#include<conio.h>
void main(){
    clrscr();
    int age;
    age=20;
    printf("Hello,everyone.\n");
    printf("This year,I'm %d years old\n",age);
    printf("How old are you, Dany?\n");
    age=19;
    printf("I'm %d years old.\n",age);
    getch();
}
```

Example3:

```
#include<stdio.h>
#include<conio.h>
void main(){
    clrscr();
    int a=20,b=19;
    printf("Hello,everyone.\n");
    printf("This year,I'm %d years old\n",a);
    printf("How old are you, Dany?\n");
    printf("I'm %d years old.\n",b);
    getch();
}
```

```
}  
Example4:  
#include<stdio.h>  
#include<conio.h>  
void main(){  
    clrscr();  
    int a=10,test=20;  
    float b=10.20;  
    printf("Display all the value on screen.\n");  
    printf("A=%d",a);  
    printf("Test=%d",test);  
    printf("B=%-0.2f",b);  
    getch();  
}
```

**Exercise5:**

Write a program to calculate the two numbers from keyboard and display result as below.

Example5:

```
#include<stdio.h>  
#include<conio.h>  
void main(){  
    clrscr();  
    int a,b,result;  
    printf("Input a=");  
    scanf ("%d",&a);  
    printf("Input b=");  
    scanf ("%d",&b);  
    result= a+b;  
    printf("a+b=%d\n",result);  
    getch;  
}
```

**Exercise6:**

Write a program to calculate the three numbers from keyboard and display result as below.

Example6:

```
#include<stdio.h>  
#include<conio.h>  
void main(){  
    clrscr();  
    int a,b,c,result;  
    printf("Input a=");  
    scanf ("%d",&a);  
    printf("Input b=");  
    scanf ("%d",&b);  
    printf("Input c=");  
    scanf ("%d",&c);  
    printf("A=%d\n",a);  
    printf("B=%d\n",b);  
    printf("c=%d\n",c);  
    result=a+b+c;
```

```
printf("%d+%d+%d=%d\n",a,b,c,result);
getch();
}
```

**Exercise7:**

Write a program to calculate the three numbers from keyboard and display result as below.

Display two the value:

A=? ; B=? ; c=?

a+b+c=?

a\*b\*c=?

**Example7:**

```
#include<stdio.h>
#include<conio.h>
void main(){
    clrscr();
    int a,b,c,result;
    printf("Input a=");
    scanf ("%d",&a);
    printf("Input b=");
    scanf ("%d",&b);
    printf("Input c=");
    scanf ("%d",&c);
    printf("A=%d\n",a);
    printf("B=%d\n",b);
    printf("c=%d\n",c);
    result=a+b+c;
    printf("%d+%d+%d=%d\n",a,b,c,result);
    result=a*b*c;
    printf("%d*%d*%d=%d\n",a,b,c,result);
    getch();
}
```

**Exercise8:**

Write a program to calculate total amount of product. This program is allowed user to input quantity (qty) and price of product from keyboard and display total amount of that product.

**Example8:**

```
#include<stdio.h>
#include<conio.h>
void main(){
    clrscr();
    int quantity;
    float price, total;
    printf("Input quantity=");
    scanf ("%d",& quantity);
    printf("Input price=");
    scanf ("%f",& price);
    printf("Display Value on screen.\n");
    printf("Quantity=%d",quantity);
    printf("Price=%f",price);
    total=quantity*price;
}
```

```
printf("Total Amount of %d*%0.2f=%0.2f$\n",quantity,price,total);
getch();
}
```

**Exercise9:**

Write a program to calculate monthly salary of employee. This program is allowed user to input number of teaching hour for day and rate per hour from keyboard.

Example9:

```
#include<stdio.h>
#include<conio.h>
void main(){
    clrscr();
    int teaching_hours_per_day;
    float rate_per_hours,salary;
    printf("Input teaching_hours_per_day: h");
    scanf ("%d",& teaching_hours_per_day);
    printf("Input rate_per_hours: $");
    scanf ("%f",& rate_per_hours);
    printf("\n");
    salary=teaching_hours_per_day*rate_per_hours;
    printf("Salary payent si=%0.2f$\n",salary);
    getch();
}
```

# Chapter 2

## Control Statement

### 2.1 If Statement

#### 2.1.1 Definition

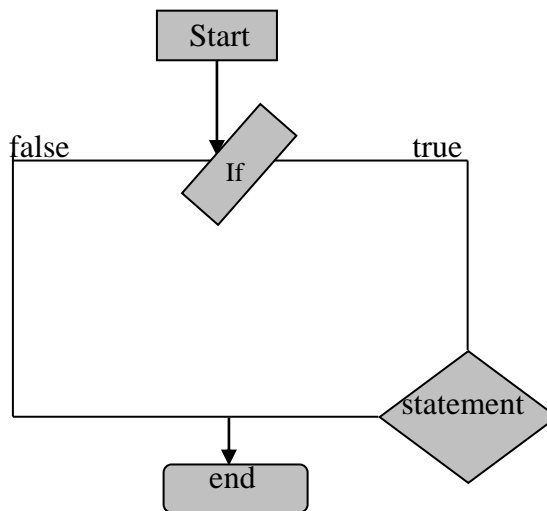
If statement is used to test the situation which condition true or false.

#### 2.1.2 Syntax:

```

if(condition)
statement;
or
if (condition){
    statement (s);
}
    
```

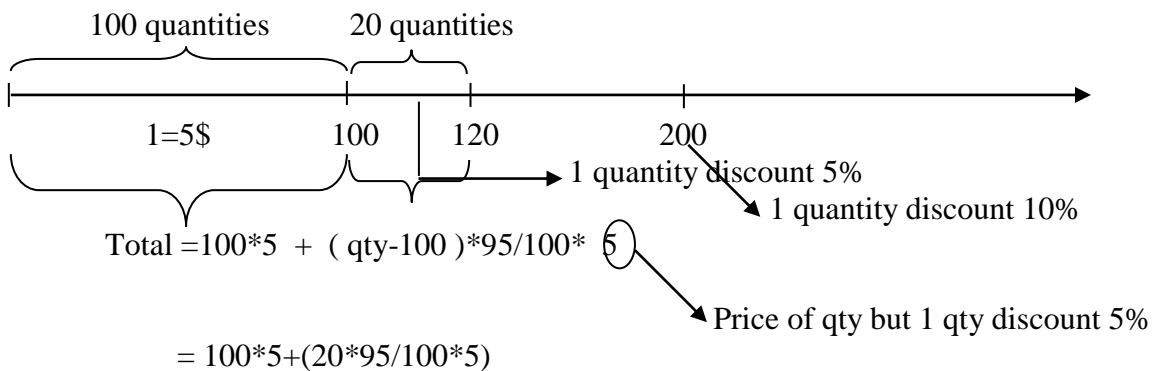
#### Flow chart



#### Exercise10:

ចូរសរសេរ program មួយដើម្បីរកថ្លៃលក់ទំនិញដោយបញ្ចូលថ្លៃទំនិញពី keyboard ។ ដោយដឹងថាទំនិញមួយថ្លៃ 5\$ ក៏ប៉ុន្តែបើសិនទំនិញនោះលើសពី 100 ឡើងទៅត្រូវបញ្ចុះតម្លៃ 5% ហើយបើទំនិញលើសពី 200 ឡើងទៅត្រូវបញ្ចុះតម្លៃ 10% ។ ចូរសរសេរ code រកថ្លៃសរុបដោយប្រើ if statement ។

Condition Chart



$$1/ \text{qty} = 90$$

$$\Rightarrow \text{total} = 90 * 5 = 450\$$$

$$2/ \text{qty} = 120 = 100 + 20$$

$$\Rightarrow \text{total} = 100 * 5 + (\text{qty} - 100) * 95 / 100 * 5;$$

$$100 * 5 + (20 * 95 / 100) * 5;$$

or

$$2/ \text{qty} = 120 = 100 + 20$$

$$\Rightarrow \text{total} = 100 * 5 + (\text{qty} - 100) * 0.95 * 5;$$

$$= 100 * 5 + (20 * 0.95) * 5;$$

$$3/ \text{qty} = 250 = 100 + 100 + 50$$

$$\Rightarrow \text{total} = 100 * 5 + (100 * 95 / 100) * 5 + (\text{qty} - 200) * 90 / 100 * 5;$$

$$= 100 * 5 + (100 * 95 / 100) * 5 + (50 * 90 / 100) * 5;$$

or

$$3/ \text{qty} = 250 = 100 + 100 + 50$$

$$\Rightarrow \text{total} = 100 * 5 + (100 * 0.95 / 100) * 5 + (\text{qty} - 100) * 0.9 * 5;$$

$$= 100 * 5 + (100 * 0.95 / 100) * 5 + (50 * 0.9) * 5;$$

Example10:

#include&lt;stdio.h&gt;

#include&lt;conio.h&gt;

void main(){

clrscr();

int qty;

float total;

printf("Input qty=");

scanf ("%d",&amp; qty);

if(qty&lt;=100)

total=qty\*5;

if(qty&gt;100)

total=100\*5+(qty-100)\*0.95\*5;

if(qty&gt;200)

total=100\*5+(100\*0.95)\*5+(qty-200)\*0.9\*5;

printf("Total is =%0.2f\n",total);

getch();

}

- អនុគមន៍ **goto Label name;** មានតួនាទីដំណើរការ program ទៅទីតាំងណាមួយដែល programmer កំនត់អោយ

- អនុគមន៍ **getchar();** មានតួនាទីដូច **getch();** ដែរ ប៉ុន្តែវាអាចអោយ user លុបតួអក្សរដែល user បានបញ្ចូល ។

អនុគមន៍នេះត្រូវបានប្រើជាមួយអនុគមន៍ **fflush (stdin.);** ហើយត្រូវបានប្រើជាមួយ Header file

#include&lt;stdio.h&gt; ។



**Example 11:**

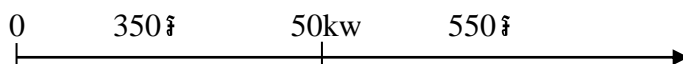
```
#include<stdio.h>
#include<conio.h>
void main(){
    clrscr();
    int qty;
    float total;
    Hello://goto Label name;
    printf("Input qty=");
    scanf ("%d",& qty);
    if(qty<0)
        goto Hello;
    total=qty*500;
    printf("Total =%0.2f Riel\n",total);
    getch();
}
```

**Exercise 12:**

ចូរសរសេរ program ដើម្បីរកថ្លៃភ្លើងដែលមានលក្ខខណ្ឌដូចខាងក្រោម:

- បញ្ចូលលេខថ្លៃ
- បញ្ចូលលេខថាស់ពី keyboard
- ប្រសិនបើបញ្ចូលលេខថាស់និងលេខថ្លៃតូចជាង 0 នោះនឹងត្រូវអោយបញ្ចូលលេខនោះសាជាថ្មីម្តងទៀត ។
- សម្រាប់ការគណនាថ្លៃភ្លើងគឺត្រូវបានទូទាត់ដូចខាងក្រោម:
  - +ប្រសិនបើការប្រើប្រាស់លើសពី 50KW/m ឡើងទៅត្រូវគិត 550៛ ក្នុង 1KW
  - +ហើយបើតិចជាងរឺស្មើ 50KW/m ត្រូវគិតត្រឹមតែ 350៛ ក្នុង 1KW ។

Condition Chart



```
Use_num = New_num - old_num
if(Use_num<=50) eg: = 35kw
    total=Use_num*350=35*350=12250៛
if(Use_num>50) eg: = 60kw
    total=(50*350)+((use_num-50)*550);
```

## Example12:

```
#include<stdio.h>
#include<conio.h>
#include<stdlib.h>
void main(){
    Again:
    clrscr();
    float old_num,New_num,use_num,total;
    char ch;
    old_A:
    printf("Input old Number=");
    scanf("%f",&old_num);
    if(old_num<0)
        goto old_A;
    old_B:
    printf("Input New number=");
    textcolor(GREEN);
    cscanf("%f",&New_num);
    if(New_num<old_num)
        goto old_B;
    use_num=New_num-old_num;
    if(use_num<=50)
        total=use_num*350;
    if(use_num>50)
        total=(50*350)+((use_num-50)*550);
    TRY:
    clrscr();
    printf("you have to pay=$%0.2f\n",total);
    printf("Run program again (y/n)?");
    fflush(stdin);
    ch=getchar();
    if(ch=='Y'||ch=='y')
        goto Again;
    else if(ch=='N'||ch=='n')
        exit(1);
    else
        goto TRY;
}
```