



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 ប្រើសម្រាប់កំនត់ចំនួនក្រោយក្បៀស
- %m ប្រើសម្រាប់កំនត់ចំនួនខ្ទង់នៅខាងក្រោយក្បៀស

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

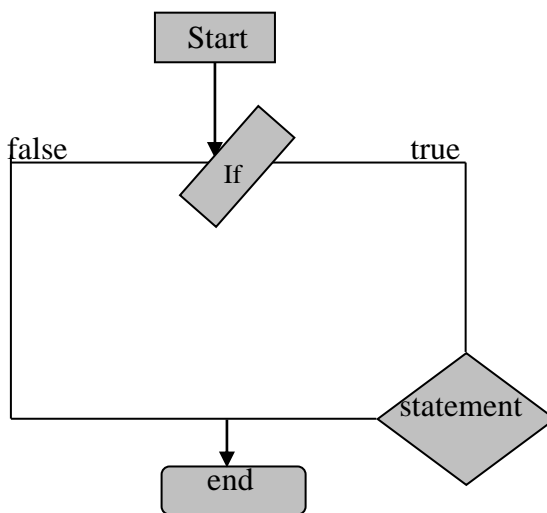
If statement is used to test the situation which condition true or false.

#### 2.1.2 Syntax:

```

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

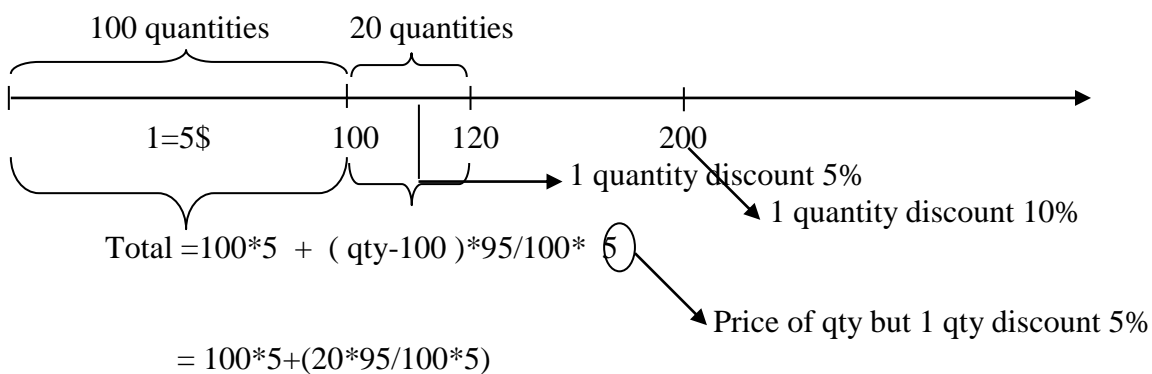
#### Flow chart



#### Exercise10:

ចូរសរសេរ program មួយដើម្បីរកថ្លៃលក់ទំនិញដោយបញ្ចូលថ្លៃទំនិញពី keyboard ។ ដោយដឹងថាទំនិញមួយថ្លៃ 5\$ ក៏ប៉ុន្តែបើសិនទំនិញនោះលើសពី 100 ឡើងទៅត្រូវបញ្ចុះតម្លៃ 5% ហើយបើទំនិញលើសពី 200ឡើងទៅត្រូវបញ្ចុះតម្លៃ 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

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

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

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

Example 10:

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

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

```
void main(){
```

```
clrscr();
```

```
int qty;
```

```
float total;
```

```
printf("Input qty=");
```

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

```
if(qty<=100)
```

```
total=qty*5;
```

```
if(qty>100)
```

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

```
if(qty>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 ប៉ុន្តែវាអោយអោយ user លុបតួអក្សរដែល user បានបញ្ចូល ។

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

```
#include<stdio.h> ។
```



**Example 11:**

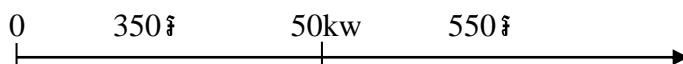
```
#include<stdio.h>
#include<conio.h>
void main(){
    clrscr();
    int qty;
    float total;
    Hello://goto Label name;
    printf("Input qty=");
    scanf ("%d",& qty);
    if(qty<0)
        goto Hello;
    total=qty*500;
    printf("Total =%0.2f Riel\n",total);
    getch();
}
```

**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

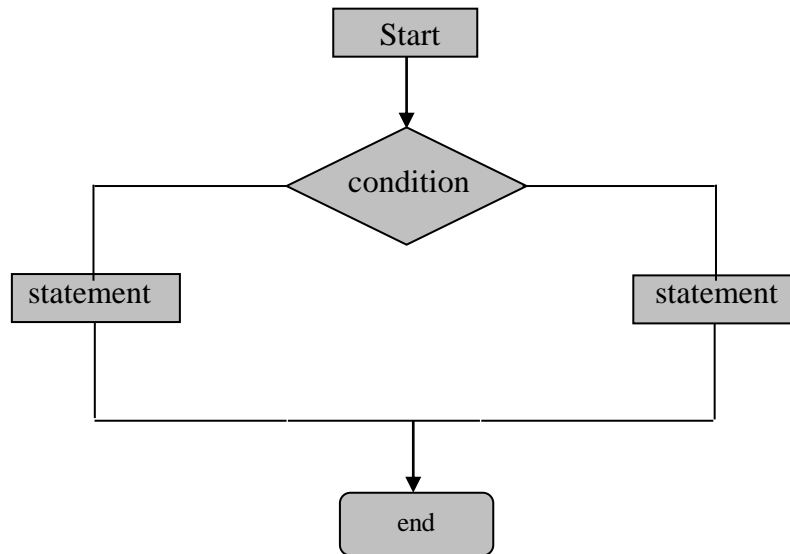


```
Use_num = New_num - old_num
if(Use_num<=50) eg: = 35kw
    total=Use_num*350=35*350=12250 ៛
if(Use_num>50) eg: = 60kw
    total=(50*350)+((use_num-50)*550);
```

## 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;
}
```

## 2.2.2 Flow Chart



### Exercise:

រកតម្លៃ Maximum នៃពីចំនួន

```

if (a>b)
    printf("Maximum number is a=%d",a);
else
    printf("Maximum number is b=%d",b);
  
```

Example:13

```

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

### 2.3 if else if.....else statement.

ប្រើសម្រាប់ត្រួតពិនិត្យស្ថានភាពកំណត់ដែលប្រើច្រើនដង ។

Example14:

```
#include<stdio.h>
#include<conio.h>
void main(){
    clrscr();
    int a,b;
    printf("Input a=");
    scanf ("%d",& a);
    printf("Input b=");
    scanf ("%d",& b);
    if(a>b)
        printf("Maximum number is a =%d\n",a);
    else if (b>a)
        printf("Maximun number is b =%d\n",b);
    else
        printf("A=B=%d\n",a);
    getch();
}
```

### Exercise15:

ចូរសរសេរ program មួយដើម្បីរកថ្លៃសរុបកំណត់ដែលមានរាយនាមដូចខាងក្រោម:

book, pen, pencil, correctionpen, ruler, cover, dictionary, marker, ink; ដោយអនុញ្ញាតិអោយ User បញ្ចូល ចំនួនផលិតផល(quantity)និងតម្លៃ(Unit\_price)ពី keyboard ។ប្រសិនបើអតិថិជនទិញទំនិញមុខណាមួយ តិចជាងរឹស្មី៣០មិនទទួលបានការបញ្ចុះតម្លៃទេ ប៉ុន្តែប្រសិនបើទិញផលិតផលនោះនៅចន្លោះរវាង 30→60 នឹងត្រូវ discount អោយ 10% ហើយបើអតិថិជនទិញលើស 60 ឡើងទៅនឹងទទួលបានការ discount 20% ។

ចូរបង្ហាញតម្លៃសរុបរបស់ផលិតផលនីមួយៗដោយគិតជាលុយខ្មែរ លុយដុល្លា និង លុយបាត ។ ហើយបង្ហាញតម្លៃសរុប របស់ផលិតផលទាំងអស់ដោយគិតជា លុយខ្មែរ លុយដុល្លា និង លុយបាតផងដែរ ។

Example15:

```
#include<stdio.h>
#include<conio.h>
void main(){
    clrscr();
    Again:
    int    book,pen,pencil,correctionpen,ruler,cover,dictionary,marker,ink;
    float  total,total1,total2,total3,total4,total5,total6,total7,total8,total9,
           total10,love,love1,oun,oun1,ounsomlanh,ounsomlanh1,ounheang,ounheang1,
           loveoun,loveoun1,loveounheang,loveounheang1,miss,miss1,missoun,missoun1,
           missounheang,missounheang1,result,book_price,pen_price,pencil_price,
           correctionpen_price,ruler_price,cover_price,dictionary_price,marker_price,ink_price;
    char ch;
    printf("                LOEM CHANNDANY\n");
```

```
printf("Input book=");
scanf ("%d",& book);
printf("Input book_price=Riel ");
scanf ("%f",& book_price);
if(book<30)
    total1=book*book_price;
else if(book<=60)
    total=30*book_price+(book-30)*book_price*0.9;
else
    total=30*book_price+(30*book_price)*0.9+(book-60)*book_price*0.8;
printf("Book payment in R is=%0.2f Reil.\n",total1);
love=total1/4200;
printf("Book payment in $ is=%0.2f $.\n",love);
love1=total1/100;
printf("Book payment in B is=%0.2f B.\n",love1);
printf(" \n");

printf("Input pen=");
scanf ("%d",& pen);
printf("Input pen_price=Riel ");
scanf ("%f",& pen_price);
if(pen<30)
    total2=pen*pen_price;
else if(pen<=60)
    total2=30*pen_price+(pen-30)*pen_price*0.9;
else
    total2=30*pen_price+(30*pen_price)*0.9+(pen-60)*pen_price*0.8;
printf("pen payment in R is=%0.2f Reil.\n",total2);
oun=total2/4200;
printf("pen payment in $ is=%0.2f $.\n",oun);
oun1=total2/100;
printf("pen payment in B is=%0.2f B.\n",oun1);
printf(" \n");

printf("Input pencil=");
scanf ("%d",& pencil);
printf("Input pencil_price=Riel ");
scanf ("%f",& pencil_price);
if(pencil<30)
    total3=pencil*pencil_price;
else if(pencil<=60)
    total3=30*pencil_price+(pencil-30)*pencil_price*0.9;
else
    total3=30*pencil_price+(30*pencil_price)*0.9+(pencil-60)*pencil_price*0.8;
printf("pencil payment in R is=%0.2f Reil.\n",total3);
ounsomlanh=total3/4200;
printf("pencil payment in $ is=%0.2f $.\n",ounsomlanh);
ounsomlanh1=total3/100;
printf("pencil payment in B is=%0.2f B.\n",ounsomlanh1);
printf(" \n");

printf("Input correctionpen=");
```

```
scanf ("%d",& correctionpen);
printf("Input correctionpen_price=Riel ");
scanf ("%f",& correctionpen_price);
if(correctionpen<30)
    total4=correctionpen*correctionpen_price;
else if(correctionpen<=60)
    total4=30*correctionpen_price+(correctionpen-30)*correctionpen_price*0.9;
else
    total4=30*correctionpen_price+(30*correctionpen_price)*0.9+(correctionpen-60)
    *correctionpen_price*0.8;
printf("correctionpen payment in R is=%0.2f Reil.\n",total4);
ounheang=total4/4200;
printf("correctionpen payment in $ is=%0.2f $.\n",ounheang);
ounheang1=total4/100;
printf("correctionpen payment in B is=%0.2f B.\n",ounheang1);
printf(" \n");

printf("Input ruler=");
scanf ("%d",& ruler);
printf("Input ruler_price=Riel ");
scanf ("%f",& ruler_price);
if(ruler<30)
    total5=ruler*ruler_price;
else if(ruler<=60)
    total5=30*ruler_price+(ruler-30)*ruler_price*0.9;
else
    total5=30*ruler_price+(30*ruler_price)*0.9+(ruler-60)*ruler_price*0.8;
printf("Ruler payment in R is=%0.2f Reil.\n",total5);
loveoun=total5/4200;
printf("Ruler payment in $ is=%0.2f $.\n",loveoun);
loveoun1=total5/100;
printf("Ruler payment in B is=%0.2f B.\n",loveoun1);
printf(" \n");

printf("Input cover=");
scanf ("%d",& cover);
printf("Input cover_price=Riel ");
scanf ("%f",& cover_price);
if(cover<30)
    total6=cover*cover_price;
else if(cover<=60)
    total6=30*cover_price+(cover-30)*cover_price*0.9;
else
    total6=30*cover_price+(30*cover_price)*0.9+(cover-60)*cover_price*0.8;
printf("Cover payment in R is=%0.2f Riel.\n", total6);
loveounheang=total6/4200;
printf("Cover payment in $ is=%0.2f $.\n",loveounheang);
loveounheang1=total6/100;
printf("Cover payment in B is=%0.2f B.\n",loveounheang1);
printf(" \n");

printf("Input dictionary=");
```

```
scanf ("%d",& dictionary);
printf("Input dictionary_price=Riel ");
scanf ("%f",& dictionary_price);
if(dictionary<30)
    total7=dictionary*dictionary_price;
else if(dictionary<=60)
    total7=30*dictionary_price+(dictionary-30)*dictionary_price*0.9;
else
    total7=30*dictionary_price+(30*dictionary_price)*0.9+(dictionary-60)*
    dictionary_price*0.8;
printf("Dictionary payment in R is=%0.2f Riel.\n",total7);
miss=total7/4200;
printf("Dictionary payment in $ is=%0.2f $.\n",miss);
miss1=total2/100;
printf("Dictionary payment in B is=%0.2f B.\n",miss1);
printf(" \n");

printf("Input marker=");
scanf ("%d",& marker);
printf("Input marker_price=Riel ");
scanf ("%f",& marker_price);
if(marker<30)
    total8=marker*marker_price;
else if(marker<=60)
    total8=30*marker_price+(marker-30)*marker_price*0.9;
else
    total8=30*marker_price+(30*marker_price)*0.9+(marker-60)*marker_price*0.8;
printf("Marker payment in R is=%0.2f Riel.\n",total8);
missoun=total8/4200;
printf("Marker payment in $ is=%0.2f $.\n",missoun);
missoun1=total8/100;
printf("Marker payment in B is=%0.2f B.\n",missoun1);
printf(" \n");

printf("Input ink=");
scanf ("%d",& ink);
printf("Input ink_price=Riel ");
scanf ("%f",& ink_price);
if(ink<30)
    total9=ink*ink_price;
else if(ink<=60)
    total9=30*ink_price+(ink-30)*ink_price*0.9;
else
    total9=30*ink_price+(30*ink_price)*0.9+(ink-60)*ink_price*0.8;
printf("Ink payment in B is=%0.2f Riel.\n",total9);
missounheang=total9/4200;
printf("Ink payment in $ is=%0.2f $.\n",missounheang);
missounheang1=total9/100;
printf("Ink payment in B is=%0.2f B.\n",missounheang1);
printf(" \n\n\n");
total10=total1+total2+total3+total4+total5+total6+total7+total8+total9;
printf("All total you have to pay in R is=%0.2f Riel.\n",total10);
```

```

total=total10/4200;
printf("All total you have to pay in $ is=%0.2f $.\n",total);
result=total10/100;
printf("All total you have to pay in B is=%0.2f B.\n",result);
printf("\nRun program again (y/n)?");
fflush(stdin);
ch=getchar();
if(ch=='Y' || ch=='y')
    goto Again;
getch();
}

```

**Exercise16:**

ចូរសរសេរ program មួយរបស់ហាង Happy Burger ដើម្បីរកថ្លៃលក់ទំនិញដែលមានរាយនាមដូចខាងក្រោម:

Beef\_BurgerSet,Happy\_BurgerSet,Bacon\_BurgerSet,Chicken\_BurgerSet,Pork\_BurgerSet,  
 Fish\_BurgerSet,Ham\_BurgerSet,Hot\_dogSet,Chicken\_Nugget6PesSet,Chicken\_Nugget9PesSet,  
 Fried\_Chicken3PesSet,Banana\_SandwichSet,Beef\_Burger,Happy\_Burger,Bacon\_Burger,  
 Chicken\_Burger,Pork\_Hurger,Fish\_Burger,Ham\_Burger,Hot\_dog,Chicken\_Nugget6Pes,  
 Chicken\_Nugget9Pes,Frech\_Fried,Fillet\_Fish,Pepsi,s,m,l,Fried\_Chicken2Pes,Fried\_Chicken3Pes,  
 Pried\_Chicken5Pes,Sandwich,Banana,Bacon,Happy,Orange\_Juice,Strawbery\_Juice,Gourmet\_Pepsi  
 ,Gourmet\_Marinda,Fresh\_Water,ICI\_Crea1Pes;(តម្លៃមុខទំនិញនីមួយៗ programmer ជាអ្នកកំនត់)

ដោយគ្រាន់តែអោយ User បញ្ចូល ចំនួនផលិតផល(quantity)ពី keyboard រួចហើយអោយបង្ហាញ result ។

ចូរបង្ហាញតម្លៃសរុបរបស់ផលិតផលនីមួយៗដោយគិតជាលុយខ្មែរ លុយដុល្លា និង លុយបាត ។ ហើយបង្ហាញតម្លៃសរុបរបស់ផលិតផលទាំងអស់ដោយគិតជា លុយខ្មែរ លុយដុល្លា និង លុយបាតផងដែរ ។

**Example16:**

```

#include<stdio.h>
#include<conio.h>
void main(){
    clrscr();
    Again:
    int    Beef_BurgerSet,Happy_BurgerSet,Bacon_BurgerSet,Chicken_BurgerSet,
          Pork_BurgerSet,Fish_BurgerSet,Ham_BurgerSet,Hot_dogSet,
          Chicken_Nugget6PesSet,Chicken_Nugget9PesSet,Fried_Chicken3PesSet,
          Banana_SandwichSet,Beef_Burger,Happy_Burger,Bacon_Burger,Chicken_Burger,
          Pork_Hurger,Fish_Burger,Ham_Burger,Hot_dog,Chicken_Nugget6Pes,
          Chicken_Nugget9Pes,Frech_Fried,Fillet_Fish,Pepsi,s,m,l,Fried_Chicken2Pes,
          Fried_Chicken3Pes,Pried_Chicken5Pes,Sandwich,Banana,Bacon,Happy,
          Orange_Juice,Strawbery_Juice,Gourmet_Pepsi,Gourmet_Marinda,
          Fresh_Water,ICI_Crea1Pes;
    float Alltotal,total,total1,total2,total3,total4,total5,total6,total7,total8,
          total9,total10,total11,total12,total13,total14,total15,total16,total17,
          total18,total19,total20,total21,love,love1,loveinheart,
          loveinheart1,loveoun,loveoun1,loveounsomlanh,loveounsomlanh1,loveounheang,
          loveounheang1,miss,miss1,missoun,missoun1,missounnas,missounnas1,
          missounheangnas,missounheangnas1,missteoun,missteoun1,missteounheang,
          missteounheang1,missteounheangnas,missteounheangnas1,missnas,missnas1,

```



```
missnasheang,missnasheang1,missnasheangnas,missnasheangnas1,
missnasheangnasna,missnasheangnasna1,missnasheangnasnaoun,
missnasheangnasnaoun1,missnasheangnasnaounsomlanh,missnasheangnasnaounsom
lanh1,missinheart,missinheart1,missinmind,missinmind1,dream,dream1,result;

char ch;

printf("                DANY\n");
printf("                WELLCOME TO HAPPY BURGER\n");

printf("1 Input Beef_BurgerSet=");
scanf ("%d",& Beef_BurgerSet);
    total1=Beef_BurgerSet*2.90;
printf(" Beef_BurgerSet payment in $ is=%0.2f $.\n",total1);
love=total1*4200;
printf(" Beef_BurgerSet payment in R is=%0.2f Riel.\n",love);
love1=total1*42;
printf(" Beef_BurgerSet payment in B is=%0.2f B.\n",love1);
printf(" \n");

printf("2 Input Happy_BurgerSet=");
scanf ("%d",& Happy_BurgerSet);
    total2=Happy_BurgerSet*3.60;
printf(" Happy_BurgerSet payment in R is=%0.2f $.\n",total2);
loveinheart=total2*4200;
printf(" Happy_BurgerSet payment in $ is=%0.2f Reil.\n",loveinheart);
loveinheart1=total2*42;
printf(" Happy_BurgerSet payment in B is=%0.2f B.\n",loveinheart1);
printf(" \n");

printf("3 Input Bacon_BurgerSet=");
scanf ("%d",& Bacon_BurgerSet);
    total3=Bacon_BurgerSet*3.10;
printf(" Bacon_BurgerSet payment in R is=%0.2f $.\n",total3);
loveoun=total3*4200;
printf(" Bacon_BurgerSet payment in $ is=%0.2f Reil.\n",loveoun);
loveoun1=total3*42;
printf(" Bacon_BurgerSet payment in B is=%0.2f B.\n",loveoun1);
printf(" \n");

printf("4 Input Chicken_BurgerSet=");
scanf ("%d",& Chicken_BurgerSet);
    total4=Chicken_BurgerSet*3.00;
printf(" Chicken_BurgerSet payment in R is=%0.2f $.\n",total4);
loveounsomlanh=total4*4200;
printf(" Chicken_BurgerSet payment in $ is=%0.2f Reil.\n",loveounsomlanh);
loveounsomlanh1=total3*42;
printf(" Chicken_BurgerSet payment in B is=%0.2f B.\n",loveounsomlanh);
printf(" \n");

printf("5 Input Pork_BurgerSet=");
scanf ("%d",& Pork_BurgerSet);
```

```
        total5=Pork_BurgerSet*2.90;
printf(" Pork_BurgerSet payment in R is=%0.2f $.\n",total5);
loveounheang=total5*4200;
printf(" Pork_BurgerSet payment in $ is=%0.2f Reil.\n",loveounheang);
loveounheang1=total5*42;
printf(" Pork_BurgerSet payment in B is=%0.2f B.\n",loveounheang1);
printf(" \n");

printf("6 Input Fish_BurgerSet=");
scanf ("%d",& Fish_BurgerSet);
        total6=Fish_BurgerSet*3.20;
printf(" Fish_BurgerSet payment in R is=%0.2f $.\n",total6);
miss=total6*4200;
printf(" Fish_BurgerSet payment in $ is=%0.2f Reil.\n",miss);
miss1=total6*42;
printf(" Fish_BurgerSet payment in B is=%0.2f B.\n",miss1);
printf(" \n");

printf("7 Input Ham_BurgerSet=");
scanf ("%d",& Ham_BurgerSet);
        total7=Ham_BurgerSet*2.60;
printf(" Ham_BurgerSet payment in R is=%0.2f $.\n",total7);
missoun=total7*4200;
printf(" Ham_BurgerSet payment in $ is=%0.2f Reil.\n",missoun);
missoun1=total7*42;
printf(" Ham_BurgerSet payment in B is=%0.2f B.\n",missoun1);
printf(" \n");

printf("8 Input Hot_dogSet=");
scanf ("%d",& Hot_dogSet);
        total8=Ham_BurgerSet*2.60;
printf(" Hot_dogSet payment in R is=%0.2f $.\n",total8);
missounnas=total8*4200;
printf(" Hot_dogSet payment in $ is=%0.2f Reil.\n",missounnas);
missounnas1=total8*42;
printf(" Hot_dogSet payment in B is=%0.2f B.\n",missounnas1);
printf(" \n");

printf("9 Input Chicken_Nugget6PesSet=");
scanf ("%d",& Chicken_Nugget6PesSet);
        total9=2.30;
printf(" Chicken_Nugget6PesSet payment in R is=%0.2f $.\n",total9);
missounheangnas=total9*4200;
printf(" Chicken_Nugget6PesSet payment in $ is=%0.2f Reil.\n",missounheangnas);
missounheangnas1=total9*42;
printf(" Chicken_Nugget6PesSet payment in B is=%0.2f B.\n",missounheangnas1);
printf(" \n");

printf("10 Input Chicken_Nugget9PesSet=");
scanf ("%d",& Chicken_Nugget9PesSet);
        total10=Chicken_Nugget9PesSet*2.90;
printf(" Chicken_Nugget9PesSet payment in R is=%0.2f $.\n",total10);
```

```
missteoun=total10*4200;
printf(" Chicken_Nugget9PesSet payment in $ is=%0.2f Reil.\n",missteoun);
missteoun1=total10*42;
printf(" Chicken_Nugget9PesSet payment in B is=%0.2f B.\n",missteoun1);
printf(" \n");

printf("11 Input Fried_Chicken3PesSet=");
scanf ("%d",& Fried_Chicken3PesSet);
total11=Fried_Chicken3PesSet*3.90;
printf(" Fried_Chicken3PesSet payment in R is=%0.2f $.\n",total11);
missteounheang=total11*4200;
printf(" Fried_Chicken3PesSet payment in $ is=%0.2f Reil.\n",missteounheang);
missteounheang1=total11*42;
printf(" Fried_Chicken3PesSet payment in B is=%0.2f B.\n",missteounheang1);
printf(" \n");

printf("12 Input Fried_Chicken5PesSet=");
scanf ("%d",& Fried_Chicken5Pes);
total12=Fried_Chicken5Pes*2.20;
printf(" Fried_Chicken5PesSet payment in R is=%0.2f $.\n",total12);
missteounheangnas=total12*4200;
printf(" Fried_Chicken5PesSet payment in $ is=%0.2f Reil.\n",missteounheangnas);
missteounheangnas1=total12*42;
printf(" Fried_Chicken5PesSet payment in B is=%0.2f B.\n",missteounheangnas1);
printf(" \n");

printf("13 Input Beef_Burger=");
scanf ("%d",& Beef_Burger);
total13=Beef_Burger*1.80;
printf(" Beef_Burger payment in R is=%0.2f $.\n",total13);
missnas=total13*4200;
printf(" Beef_Burger payment in $ is=%0.2f Reil.\n",missnas);
missnas1=total13*42;
printf(" Beef_Burger payment in B is=%0.2f B.\n",missnas1);
printf(" \n");

printf("14 Input Happy_Burger=");
scanf ("%d",& Happy_Burger);
total14=Happy_Burger*2.50;
printf(" Happy_Burger payment in R is=%0.2f $.\n",total14);
missnasheang=total14*4200;
printf(" Happy_Burger payment in $ is=%0.2f Reil.\n",missnasheang);
missnasheang1=total14*42;
printf(" Happy_Burger payment in B is=%0.2f B.\n",missnasheang1);
printf(" \n");

printf("15 Input Bacon_Burger=");
scanf ("%d",& Bacon_Burger);
total15=Bacon_Burger*2.00;
printf(" Bacon_Burger payment in R is=%0.2f $.\n",total15);
missnasheangnas=total15*4200;
printf(" Bacon_Burger payment in $ is=%0.2f Reil.\n",missnasheangnas);
```

```
missnasheangnas1=total15*42;
printf(" Bacon_Burger payment in B is=%0.2f B.\n",missnasheangnas1);
printf(" \n");

printf("16 Input Chicken_Burger=");
scanf ("%d",& Chicken_Burger);
    total16=Chicken_Burger*1.90;
printf(" Chicken_Burger payment in R is=%0.2f $.\n",total16);
missnasheangnasna=total16*4200;
printf(" Chicken_Burger payment in $ is=%0.2f Reil.\n",missnasheangnasna);
missnasheangnasna1=total16*42;
printf(" Chicken_Burger payment in B is=%0.2f B.\n",missnasheangnasna1);
printf(" \n");

printf("17 Input Pork_Hurger=");
scanf ("%d",& Pork_Hurger);
    total17=Pork_Hurger*1.80;
printf(" Pork_Hurger payment in R is=%0.2f $.\n",total17);
missnasheangnasnaoun=total17*4200;
printf(" Pork_Hurger payment in $ is=%0.2f Reil.\n",missnasheangnasnaoun);
missnasheangnasnaoun1=total17*42;
printf(" Pork_Hurger payment in B is=%0.2f B.\n",missnasheangnasnaoun1);
printf(" \n");

printf("18 Input Fish_Burger=");
scanf ("%d",& Fish_Burger);
    total18=Fish_Burger*2.10;
printf(" Fish_Hurger payment in R is=%0.2f $.\n",total18);
missnasheangnasnaounsomlanh=total18*4200;
printf(" Fish_Hurger payment in $ is=%0.2f Reil.\n",missnasheangnasnaounsomlanh);
missnasheangnasnaounsomlanh1=total18*42;
printf(" Fish_Hurger payment in B is=%0.2f B.\n",missnasheangnasnaounsomlanh1);
printf(" \n");

printf("19 Input Ham_Burger=");
scanf ("%d",& Ham_Burger);
    total19=Ham_Burger*1.80;
printf(" Ham_Burger payment in R is=%0.2f $.\n",total19);
missinheart=total19*4200;
printf(" Ham_Burger payment in $ is=%0.2f Reil.\n",missinheart);
missinheart1=total19*42;
printf(" Ham_Burger payment in B is=%0.2f B.\n",missinheart1);
printf(" \n");

printf("20 Input Hot_dog=");
scanf ("%d",& Hot_dog);
    total20=Hot_dog*1.50;
printf(" Hot_dog payment in R is=%0.2f $.\n",total20);
missinmind=total20*4200;
printf(" Hot_dog payment in $ is=%0.2f Reil.\n",missinmind);
missinmind1=total20*42;
printf(" Hot_dog payment in B is=%0.2f B.\n",missinmind1);
```

```
printf(" \n");

printf("21 Input Chicken_Nugget6Pes=");
scanf ("%d",& Chicken_Nugget6Pes);
    total21=Hot_dog*1.50;
printf(" Chicken_Nugget6Pes payment in R is=%0.2f $.\n",total21);
dream=total21*4200;
printf(" Chicken_Nugget6Pes payment in $ is=%0.2f Reil.\n",dream);
dream1=total21*42;
printf(" Chicken_Nugget6Pes payment in B is=%0.2f B.\n",dream1);
printf(" \n");
printf(" \n");
printf(" \n");

    Alltotal=total1+total2+total3+total4+total5+total6+total7+total8+total9+
        total10+total11+total12+total13+total14+total15+total16+total17+total18+
        total19+total20+total21;
printf("All total you have to pay in R is=%0.2f $.\n",Alltotal);
total4=Alltotal*4200;
printf("All total you have to pay in $ is=%0.2f Riel.\n",total4);
result=Alltotal*42;
printf("All total you have to pay in B is=%0.2f B.\n",result);
printf("\nRun program again (y/n)?");
fflush(stdin);
ch=getchar();
if(ch=='Y' || ch=='y')
    goto Again;
printf(" \n");
printf("                Written by Dany\n");
getch();
}
```

# Chapter 3

## Switch Case

### 3.1 Syntax:

```

Switch (variable){
    case constant 1:
        statement (s);
        break;
    case constant 2:
        statement (s);
        break;
    .....
    case constant n:
        statement (s);
        break;
    [default:
        statement-1 (s);]
}
    
```

\*Note:

- ការប្រើប្រាស់ switch គឺមានលក្ខណៈដូច if else ដែរ ប៉ុន្តែវាត្រូវបានគេប្រើជាមួយសំក្តីខ្លីៗ
- គ្រប់ statement នៅក្នុង case នីមួយៗត្រូវតែបញ្ចប់ទៅដោយ key word **break**; លើកលែងតែ default:
- variable ត្រូវតែជាចំនួនគត់ (integer) រឺតួអក្សរ (character)
- key word **break**; មានតួនាទីដូច exit (1) ដែរ ប៉ុន្តែវាអាចប្រើបានតែនៅក្នុង switch តែប៉ុណ្ណោះ
- variable មានដូចជា char, int, long, shot.

### Example17:

```

#include<stdio.h>
#include<conio.h>
void main(){
    clrscr();
    int n;
    printf("Input n=");
    scanf ("%d",& n);
    switch (n){
        case1:
            printf("One.");
            break;
        case2:
            printf("Two.");
            break;
        case3:
            printf("Three.");
            break;
        default:
            printf("Number bigger than 3");
    }
    getch();
}
    
```

**Exercise18:**

ចូរសរសេរ program ដើម្បីគ្រប់គ្រងការងារដូចខាងក្រោម:

-បង្កើត Menu:

S. Salary

T. Tax

U. Utilities

X. Exit

Please select:

ដែលអនុញ្ញាតិអោយ User ធ្វើការជ្រើសរើស option ណាមួយដែលចង់បង្ហាញ message ពី process ណាមួយនៅពេល

ដែល User បានធ្វើការជ្រើសរើសរួច ។

**Example18:**

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

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

```
#include<stdlib.h>
```

```
void main(){
```

```
clrscr();
```

```
Again:
```

```
char s,ch;
```

```
textbackground (BLUE);
```

```
cprintf("Menu");
```

```
printf ("\n");
```

```
textcolor (BLUE);
```

```
textbackground (GREEN);
```

```
cprintf("T.Tax");
```

```
printf ("\n");
```

```
textbackground (GREEN);
```

```
cprintf ("X.Exit");
```

```
printf ("\n");
```

```
textbackground(GREEN);
```

```
textcolor(WHITE);
```

```
cprintf("Please Select");
```

```
scanf("%c", & s);
```

```
switch(s){
```

```
case's':
```

```
case'S':
```

```
printf("Salary program is running... ");
```

```
break;
```

```
case't':
```

```
case'T':
```

```
printf("Tax program is running... ");
```

```
break;
```

```
case'u':
```

```
case'U':
```

```
printf("Utilities program is running... ");
```

```
break;
```

```
case'x':
```

```
case'X':
```

```

        exit(1);
        default:
        goto Again;
        printf("\nRun 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 Again;

    getch();
}

```

**Exercise20:**

ចូរសរសេរ program មួយដើម្បីរក root delta ដោយមានលក្ខខណ្ឌដូចខាងក្រោម  
 $ax^2+bx+c=0$

find x =?    x1                      x2

Hypothesis a,b,c,x,delta;

Example20:

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

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

```
#include<math.h>
```

```
#include<process.h>
```

```
void main(){
```

```
    Again:
```

```
    clrscr();
```

```
    float a,b,c,Delta,x1,x2;
```

```
    char ch;
```

```
    gotoxy(34,8);
```

```
    printf("Input A=");
```



```
scanf("%f",&a);

gotoxy(34,9);

printf("Input B=");

scanf("%f",&b);

gotoxy(34,10);

printf("Input C=");

scanf("%f",&c);

Delta=(pow(b,2)-(4*a*c));

if(Delta<0){

    gotoxy(34,11);

    printf("No Root\n");

}

else if(Delta>0){

    x1=(-b-sqrt(Delta))/(2*a);

    x2=(-b+sqrt(Delta))/(2*a);

    gotoxy(34,11);

    printf("X1 is=%0.2f\n",x1);

    gotoxy(34,12);

    printf("X2 is=%0.2f\n",x2);

}

else{

    x1=x2=-b/(2*a);

    gotoxy(34,11);

    textbackground(RED);

    printf("x1=x2=%0.2f\n",x1);

}
```

```
gotoxy(27,13);  
textcolor(YELLOW);  
cprintf("Run program again(y/n)?");  
fflush(stdin);  
ch=getchar();  
if(ch=='Y' || ch=='y')  
    goto Again;  
if(ch=='N' || ch=='n')  
    exit(1);  
}
```

# Chapter 4

## Control Statement

### 4.1 while loop statement.

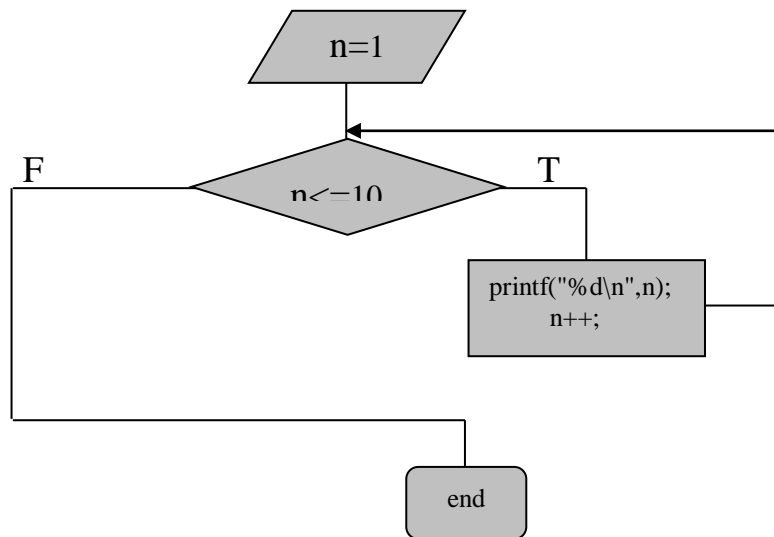
```
Syntax:
while (condition){
    statement (s);
}
```

**loop** គឺជាការ process ម្តងហើយម្តងទៀតទៅតាមលក្ខខណ្ឌដែលបានកំណត់ ។

Example:

```
int n=1;
while (n<=10){
    printf("n=%d\n",n);
    n++;
}
```

### Flow Chart of while loop



អត្ថន័យរបស់ while មានន័យថា process statement (s); នៅក្នុង while នឹងត្រូវអនុវត្តម្តងហើយម្តងទៀតរហូតដល់ condition = Fault រឺក៏មិនពិតទើបចាកចេញ ។

Example:

នៅពេលបញ្ចូល n=5 វានឹងមានរាងដូចខាងក្រោម

```
s=0
s=1+2+3+4+5
s=s+i
i=1→s=s+i=0+1=1
i=2→s=s+i=1+2=3
i=3→s=s+i=3+3=6
i=4→s=s+i=6+4=10
i=5→s=s+i=10+5=15
i=6→s=15
```

Example:

```
#include<stdio.h>
#include<conio.h>
void main(){
    clrscr();
    int s=0,n,i=1;
    printf("Input n=1");
    scanf("%d", & n);
    printf("\n,Sum=");
    while(i<=n){
        s=s+i;
        printf("%d", i);
        i++;
    }
    printf("\b=%d\n",s);
    getch();
}
```

### Exercise:

ចូរសរសេរ program មួយដើម្បីរកចំនួនកំទំនិញ n មុខ ។ ដោយអនុញ្ញាតិអោយ User បញ្ចូល ចំនួនផលិតផល (quantity) និងតម្លៃ(Unit\_price) ពី keyboard ។ ប្រសិនបើអតិថិជនទិញទំនិញមុខណាមួយ តិចជាងរឺស្មើ 30 មិនទទួលបានការបញ្ចុះតម្លៃទេ ប៉ុន្តែប្រសិនបើទិញផលិតផលនោះនៅចន្លោះរវាង 30→60 នឹងត្រូវ discount អោយ 10% ហើយបើអតិថិជនទិញលើស 60 ឡើងទៅនឹងទទួលបានការ discount 20% ។ ចូរបង្ហាញតម្លៃសរុបរបស់ផលិតផល ។

Example17:

```
#include<stdio.h>
#include<conio.h>
void main(){
    clrscr();
    int qty,n,i=1;
    float u_price,payment,total=0;
    printf("Input Number of Product :");
    scanf("%d",&n);
    while(i<=10){
        printf("Please Input for product %d :\n",i);
        printf("Quantity [%d] :",i);
        scanf("%d",&qty);
        printf("Unit price [%d] :",i);
        scanf("%f",&u_price);
        if(qty<=30)
            payment=qty*u_price;
        else if(qty>30 && qty<=60)
            payment=(30*u_price)+((qty-30)*u_price*90/100);
        else
            payment=(30*u_price)+((30*u_price*90/100)+(qty-60)*u_price*80/100);
        printf("you have to pay for product %d =%.2f\n\n",i,payment);
        total=total+payment;
    }
```

```
        i++;  
    }  
    printf("Total price for %d product =%0.2f\n",i-1,total);  
  
    getch();  
  
}
```

# Chapter 5

## Function

### 5.1 General Form of Function (Sub program).

នៅក្នុងការសរសេរ program យើងតែងតែជួប statements ដដែលៗនៅកន្លែងផ្សេងគ្នានៃ program ។ ដើម្បីជៀសវាងការសរសេរ statements ដដែលៗយើងត្រូវប្រើអនុគមន៍ជំនួសវិញ ។ ហើយនៅពេលត្រូវការប្រើយើងគ្រាន់តែហៅឈ្មោះវាមកប្រើតែប៉ុណ្ណោះ ។

ជាទូទៅក្នុងការសរសេរ program ដែលមានលក្ខណៈទ្រង់ទ្រាយធំហើយតែងតែជួបបង្ហាញកម្រិតដែលពិបាកក្នុងការកែសម្រួលដូច្នោះយើងត្រូវចែកវាជា function ដើម្បីងាយស្រួលក្នុងការកែសម្រួលហើយក្រោយមកយើងផ្តល់ឱ្យវាឡើងវិញ ។

### 5.2 syntax:

```
function_type function_name(data type par1,.....){
    [return expression;]
}
```

\*function\_type:

- void (Non\_return function)
- int                    -|
- char                   |
- float                 |return function
- double               |
- etc.                   |

\*Functions are divided in to two distinct types:

- Non\_return function (Using with void function\_type, not using return statement).

Example:1 Non\_return function

```
void Dara(){//Non_return function without parameter.
    printf("Hello,everyone.\n");
    printf("How are you?");
}
void Channa(int age){//Non_return function with parameter.
    printf("This year, I'm 20 years old.\n",age);
}
```

Example:2 Return\_function

```
int Sum(){//Return function without parameter
    int a,b,sum
    sum=a+b
    return(Sum);
}
```

```

or
int Sum(){//Return function without parameter.
    int a,b;
    return(a+b);
}
To display result or output
printf ("%d",Sum());
float kun(float a, float b){//Return function with parameter.
    return(a+b);
}
printf("Result=%0.2f\n",kun(1.5,2);
}

```

Example:3

```

#include<stdio.h>
#include<conio.h>
void Display(){
    printf("How are you?\n");
    printf("I'm fine, thanks.\n");
}
void main(){
    clrscr();
    printf("Hello,Dara.\n");
    //calling Non_return function
    Display();
    printf("Hello, Channa.\n");
    //calling Non_return function
    Display();
    getch();
}

```

\*Note:

ក្នុងករណីដែលយើងចង់បង្កើត function នៅខាងក្រោយ void main() { យើងត្រូវតែប្រកាស function នោះនៅពីលើ

```
void main() { សិន
```

Example:

```

#include<stdio.h>
#include<conio.h>
void Display(){
.....
    Display(){
}
void Display(){
    printf("How are you?\n");
    printf("I'm fine, thanks.\n");
}
}

```

**Exercise:**

ចូរសរសេរ program រកផ្តល់កំនិត n មុខដោយបំពេញនូវលក្ខខណ្ឌដូចខាងក្រោម

-ប្រើ do.....while loop

-ចែក program អោយទៅជា 3 functions រួមទាំង void main( ) { ផងដែរ ។

-function ដែលបង្កើតទាំងអស់ត្រូវតែជា Non\_return function ។

**Resolution:**

```
#include<stdio.h>
#include<conio.h>
void Cal Prod (int n){
    float qty, price, total;
    int i=1
    do{
        printf("Input qty=");
        scanf("%f",& qty);
        printf("Input price");
        scanf("%f",& price);
        total=qty*price;
        printf("Total payment is =%0.2f\n",total);
        i++;
    }while(i<=n);
}
//end Cal Prod function
void Input Rec(){
    int n;
    printf("Input number of production=");
    scanf("%d",& n);
}
//calling Cal Prod function
Cal Prod (n);
//end input Rec function
void main(){
    clrscr( );
    //calling input Rec function
    input Rec( );
    getch( );
}
//end void
```

**Exercise:**

ចូរសរសេរ program ដើម្បីបង្កើត function ដូចខាងក្រោម:

1. float Sum(float a, float b)
2. float Mul (float a, float b)
3. float Sub (float a, float b)
4. float Div (float a ,int b)

**Resolution:**

```
#include<stdio.h>
#include<conio.h>
//void Sum(float a, float b){
    //return(a+b)
    //printf("a+b = %0.2f\n",Sum(a+b));
```



```
//}  
//float Mul(float a, float b){  
    //return(a*b)  
//}  
//float Sub(float a, float b){  
    //int sub;  
    //sub=a-b;  
    //printf("%d",sub);  
//}  
  
//float Div(float a, float b){  
    //return(a/b)  
//}  
//}  
void main(){  
    clrscr();  
    float a,b,s,m,d,total,Sub;  
    printf("Input A : ");  
    scanf("%f",&a);  
    printf("INput B : ");  
    scanf("%f",&b);  
    s=a+b;  
    printf("%0.1f\n",s);  
    m=a*b;  
    printf("%0.1f\n",m);  
    Sub=a-b;  
    printf("%0.1f\n",Sub);  
    d=(a/b);  
    printf("%0.1f\n",d);  
    total=s+m+d+Sub;  
    printf("Total : %0.1f\n",total);  
    getch();  
}
```

# Chapter 6

## Array

**6.1 Array** គឺជាអថេរដែលមានធាតុតម្រៀបតគ្នាជាបន្តបន្ទាប់ហើយមានប្រភេទទិន្នន័យដូចគ្នា ។

- + Array ត្រូវបានគេប្រើ
- Shot: តម្រៀប
- search: ស្វែងរក
- Delete: លុប
- Update: កែប្រែ

Syntax:

```
data_type variable_name[n];
```

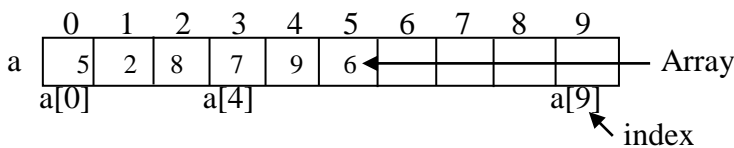
\*Note:

- data\_type ជាប្រភេទទិន្នន័យរបស់អថេរទូទៅ
- variable\_name គឺជាអថេរធម្មតាហើយយើងអាចកំណត់បាននូវឈ្មោះរបស់វាដែលយើងចង់ ។
- [n] គឺជាកន្លែងកំណត់ធាតុរបស់ Array ប៉ុន្តែមិនអាចដាក់ជាតួអក្សរបានទេ គឺជាចំនួនគត់ ចាប់ពីលេខ1ឡើងទៅ

Example 6.1:

```
int a [10];
```

- int ជា data\_type
- a ជា variable\_name
- 10 ជា ចំនួនធាតុរបស់ Array



ធាតុទីមួយរបស់ Array គឺចាប់ពី index 0 ។ ការប្រកាសខាងលើបានបង្ហាញអោយឃើញថាយើងកំណត់ Array 10ធាតុ

ដូចនេះធាតុរបស់ Array គឺ :

```
a[0],a[1],a[2],a[3],a[4],a[5],a[6],a[7],[8],a[9]
```

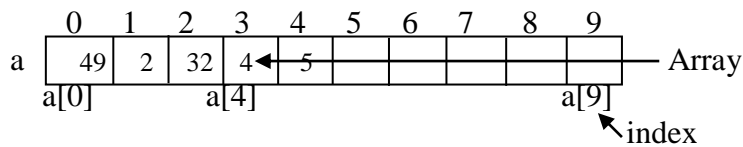
Example 6.2:

```
int test [10]={49,2,32,4,6};
```

\*Note:

ដើម្បីផ្តោតម្ល៉ៃទៅអោយ variable របស់ Array តម្លៃនោះត្រូវសរសេរក្នុងសញ្ញា Opening press and Closing press {.....};

ហើយតម្លៃនីមួយៗត្រូវផ្តាច់គ្នាដោយសញ្ញា Comma ( , ) ។



a[0] = 49  
 a[1] = 2  
 a[2] = 32  
 a[3] = 4  
 a[4] = 5

ដើម្បីបញ្ចូលនិងបង្ហាញតម្លៃរបស់ Array ដាច់ខាតយើងត្រូវតែប្រើ loop ។

**Example 6.3:**

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

    int n,a[10],i;
    printf("Input number of Array=");
    scanf ("%d",&n);
    printf("Input values to Array:\n");
    for(i=0;i<n;i++){
        printf("a[%d]=",i);
        scanf("%d",& a[i]);
    }
    for(i=0;i<n;i++){
        printf("\n a[%d]=%d",i,a[i]);
    }
    getch();
}
```

**Exercise:**

ចូររៀនរសៀវ Program ដើម្បី search តម្លៃក្នុង Array

```
#include<stdio.h>
#include<conio.h>
void main(){
    clrscr();
    int i, n, f=0, a[50], search;
    printf("Input number of array:");
    scanf("%d",&n);
    printf("Input values of array :");
    for (i=0;i<n;i++){
        printf("a[%d]=",i);
        scanf("%d",&a[i]);
    }
    //clrscr();
    printf("Input number that you want to search:");
    scanf("%d",&search);
    //searching technique

    for (i=0;i<n; i++)
        if(a[i]==search)
```

```

    f=1;
    //if(a[i]==search)
    //f=1;
    if(f==1)
    printf("%d is found!",search);
    else
    printf("Not found!");
    getch();
}

```

**Exercise:**

រូបសរសេរ Program ដើម្បីរកស្វែងតម្លៃដែលយើងបាន search ឃើញ

```

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

```

```

void main(){
    clrscr();
    int i, n,ind, a[50], f=0, search;
    printf("Input number of array=");
    scanf("%d",&n);
    printf("Input values to Array :\n");
    for(i=0;i<n;i++){
        printf("a[%d]=",i);
        scanf("%d",&a[i]);
    }

    //clrscr();
    printf("input number that you want to search=");
    scanf("%d",&search);

    //searching technique
    for(i=0;i<n;i++)
        if(a[i]==search){
            f=1;
            ind=i;
        }
    if(f==1)    printf("%d is found!",search);
    else        printf("Not found!");
    printf("\na[%d]=%d",ind,a[ind]);

    getch();
}

```

**Exercise:**

ចូរសរសេរ Program រកប្រាក់ខែបុគ្គលិក n នាក់ដោយប្រើលក្ខខណ្ឌដូចខាងក្រោម:

+ប្រើ Array

+ប្រាក់ខែត្រូវគិតតាមលក្ខខណ្ឌដូចខាងក្រោម

-ប្រសិនបើធ្វើការតិចជាង 80 ម៉ោងក្នុងមួយខែនឹងទទួលបានកំរៃ 5\$ ក្នុងមួយម៉ោង ។

-ប្រសិនបើលើសពី 80 ម៉ោងក្នុងមួយខែនឹងទទួលបានកំរៃ 7\$ ក្នុងមួយម៉ោងនៅលើម៉ោង

ដែលធ្វើការលើស

+ពេលបញ្ចូលតម្លៃរួចហើយត្រូវបង្ហាញប្រាក់ខែរបស់បុគ្គលិកម្នាក់ៗនិងប្រាក់ខែសរុបរបស់បុគ្គលិកទាំងអស់

```
#include<stdio.h>
#include<conio.h>
void main(){
    clrscr();
    int n, i, hour , salary[100];
    int total=0;
    printf("Input number of satts=");
    scanf("%d",&n);
    for(i=0;i<n;i++){
        printf("Input Working hour fo staff %d=",i+1);
        scanf("%d",&hour);
        if(hour<=80)
            salary[i]=hour*5;
        else
            salary[i]=80*5+(hour-80)*7;
        total=total+salary[i];
    }
    for(i=0;i<n;i++){
        printf("Salar for stuff %d=%d $\n",i,salary[i]);
    }
    printf("Total salary for all stuffs=%d $\n",total);
    getch();
}
```

**Exercise:**

ចូរសរសេរ program ដើម្បី sort តម្លៃរបស់ Array តាមលំដាប់កើន

```
#include<stdio.h>
#include<conio.h>
void main(){
    clrscr();
    int i,j,n,temp,a[100];
    printf("Input number of array:");
    scanf ("%d",&n);
    //Input values to array
    printf("Input each value to array:\n");
    for (i=0; i<n; i++){
        printf("a[%d]=",i);
        scanf("%d",&a[i]);
    }
}
```

```

}
//Sorting values in array
for (i=0; i<n-1;j++)
    for (j=i+1; j<n; j++)
        if(a[i]>a[j]){
            temp = a[i];
            a[i] = a[j];
            a[j] = temp;
        }
//Output values from array
printf("After sorting array:\n");
for(i=0; i<n; i++)
    printf("a[%d]=%\n",i , a[i]);
    getch();
}

```

**Exercise:**

ចូរសរសេរ Program ដែលបំពេញលក្ខខណ្ឌដូចខាងក្រោម

- បញ្ចូលតម្លៃ n ទៅក្នុង Array
- បង្កើត Menu ដើម្បីអោយ User អាច Display តម្លៃដែលបានដោយ

បញ្ចូលលេខ 1

- search តម្លៃណាមួយដែលយើងចង់បានដោយ

បញ្ចូលលេខ 2

- Sort តម្លៃនៅក្នុង Array ដោយ

បញ្ចូលលេខ 3

- Program ទាំងមូលនឹងត្រូវ close ដោយ

បញ្ចូលលេខ 4 ។

```

#include<stdio.h>
#include<conio.h>
void main(){
    clrscr();
    int i, j, n, a[100];
    int menu, search, temp, f=0, ind;
    printf("Input number of Arrays=");
    scanf ("%d",& n);
    printf("Inut values to Array: \n");
    for(i=0; i<n; i++){
        printf("a[%d]=",i);
        scanf ("%d",& a[i]);
    }
    //Create menu;
    do{
        printf("My Menu:\n");

```

```
printf("1. Display Elements\n");
printf("2. Search Elements\n");
printf("3. Sort Elements\n");
printf("3. Exit Program\n");
printf("Select Option:");
if(menu==1){
    printf("1. Display Elements of Array\n");
    for(i=0; i<n; i++){
        printf("a[%d]=%d\n, i, a[i]");
    }
}
else if(menu==2){
    printf("2. Search Elements\n");
    printf("Input number to search=");
    for ("i=0; i<n; i++")
        if(a[i]==search){
            f=1;
            ind=i;
        }
    if(f==1)    printf("%d is found in index a[%d]\n,search,ind,a[ind]");
    else        printf("not found!");
}
else if(menu==3){
    printf("3. Sort Elements of Array\n");
    //Sorting values in Array
    for(i=0; i<n; i++)
        for(j=i+1; j<n; j++)
            if(a[i]>a[j]){
                temp = a[i];
                a[i] = a[j];
                a[j] = temp;
            }
}
//clrscr();
printf("\n\n\n");
}while(menu==4);
getch();
}
```

## 6.2 Update

### Exercise:

ចូរសរសេរ program ដើម្បីអោយយើងអាច Update តម្លៃណាមួយរបស់ Array ដែលយើងចង់បាន ។

```
#include<stdio.h>
#include<conio.h>
void main(){
    clrscr();
    int i, j, n, a[100];
    printf("Input number of Array=");
    scanf ("%d",& n);
    printf("Input values of Array:\n");
    for(i=0; i<n; i++){
        printf("a[%d]=",i);
        scanf ("%d",& a[i]);
    }
    //Update data
    printf("Which record that you want to update?");
    printf("\n Input index of element to update");
    scanf ("%d",& j);
    printf("a[%d]=", j);
    scanf ("%d",& a[j]);
    //After update data
    for(i=0; i<n; i++){
        printf("a[%d]=%d\t", i , a[i]);
    }
    getch();
}
```

### Exercise:

ចូរសរសេរ program ដែលអនុញ្ញាតិអោយ User បញ្ចូលតម្លៃទៅក្នុង Array n ធាតុនិងអនុញ្ញាតិអោយ User

update តម្លៃណាមួយក្រោយពីបាន search ឃើញ ។

```
#include<stdio.h>
#include<conio.h>
void main(){
    clrscr();
    int i, ind, f=0, search, n, a[100];
    printf("Input number of array:");
    scanf("%d", &n);
    printf("Input values to Array:\n");
    for(i=0; i<n; i++){
        printf("a[%d]=", i);
        scanf("%d", &a[i]);
    }

    //Display values from array before updating
    printf("\nDisplay values from array before updating!!!\n");
    for(i=0; i<n; i++){
        printf("a[%d]=%d\t", i, a[i]);
    }
}
```



```

//Search value to update
printf("\nInput value to search:");
scanf("%d", &search);

for(i=0; i<n; i++)
    if(a[i]==search){
        f=1;
        ind=i;
    }
if(f==1){
    printf("\nValue=%d is in the index=%d\n", search, ind);
    //Update data in the found value of array
    printf("Input new value to update in index=%d", ind);
    scanf("%d", &a[ind]);
}
else printf("\nValue=%d not found!!!\n", search);

//Display values of array after updating
printf("\nDisplay values from array after updating!!!\n");
for(i=0; i<n; i++){
    printf("a[%d]=%d\t", i, a[i]);
}

getch();
}

```

## 6.4 Delete

### Exercise:

ចូរសរសេរ program ដើម្បីអោយយើងអាច delete តម្លៃណាមួយរបស់ Array ដែលយើងចង់បាន ។

```

#include<stdio.h>
#include<conio.h>
void main(){
    clrscr();
    int i, j, n, del, a[100];
    printf("Input number of Array=");
    scanf("%d", &n);
    printf("Input values to Array: \n");

    //Input values to array
    for(i=0; i<n; i++){
        printf("a[%d]=", i);
        scanf("%d", &a[i]);
    }

    //Display values of array before deleting
    printf("\n\nDisplay values of array after deleting!!!\n");
    for(i=0; i<n; i++){
        printf("a[%d]=%d\t", i, a[i]);
    }
}

```

```
//Deleting value from array
printf("\nInput value that you want to delete=");
scanf("%d", &del);
j=0;
for(i=0; i<n; i++)
    if(a[i]!=del){
        a[j] = a[i];
        j++;
    }
if(i==j)printf("Not found!!!\n");
else {
    printf("\n\nDisplay values of array after deleting!!!\n");
    for(i=0; i<j; i++)
        printf("a[%d]=%d\t", i, a[i]);
}
getch();
}
```