

2008 Spring

Computer Engineering Programming 1

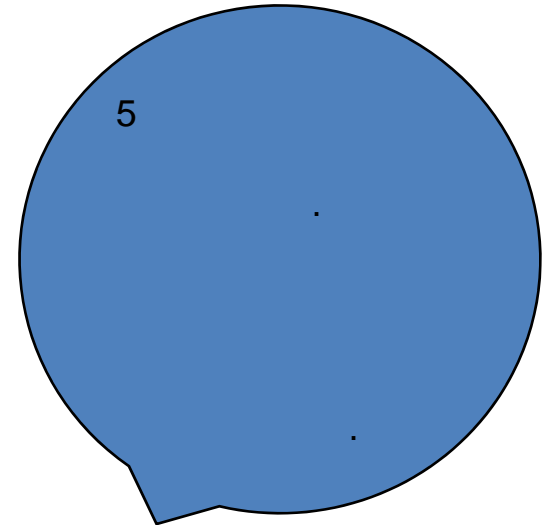
Lesson 5

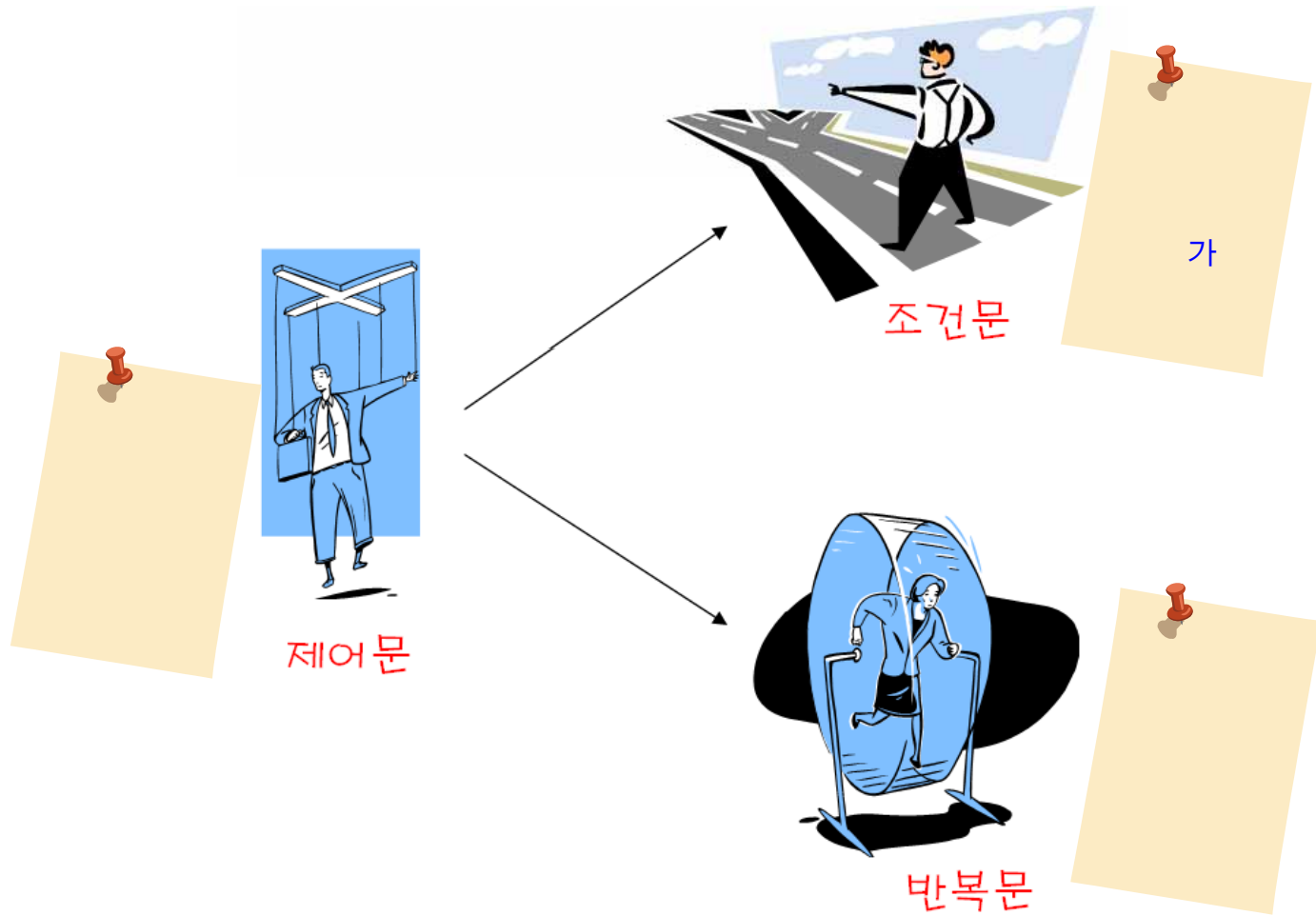
- 6

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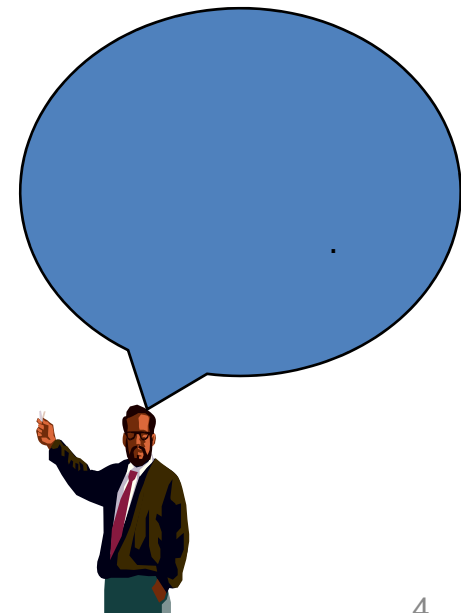
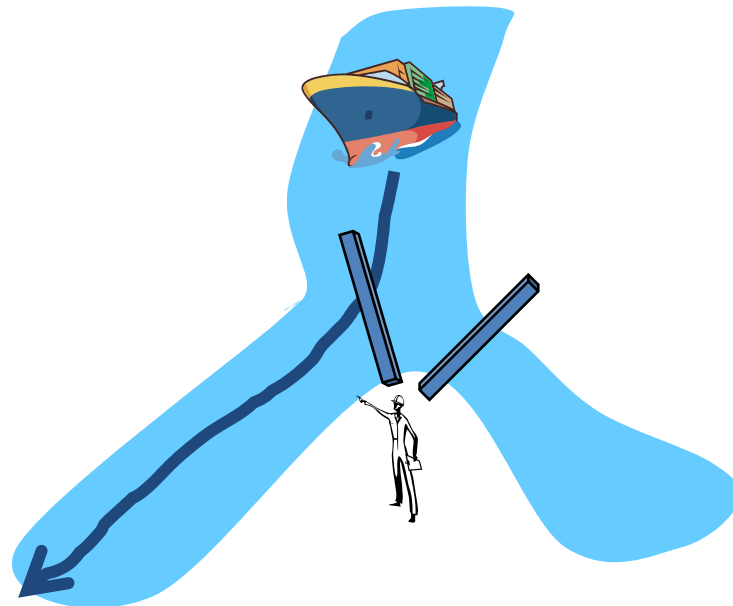


- ?
- if
- if, else
- if
- switch
- break
- continue
- goto



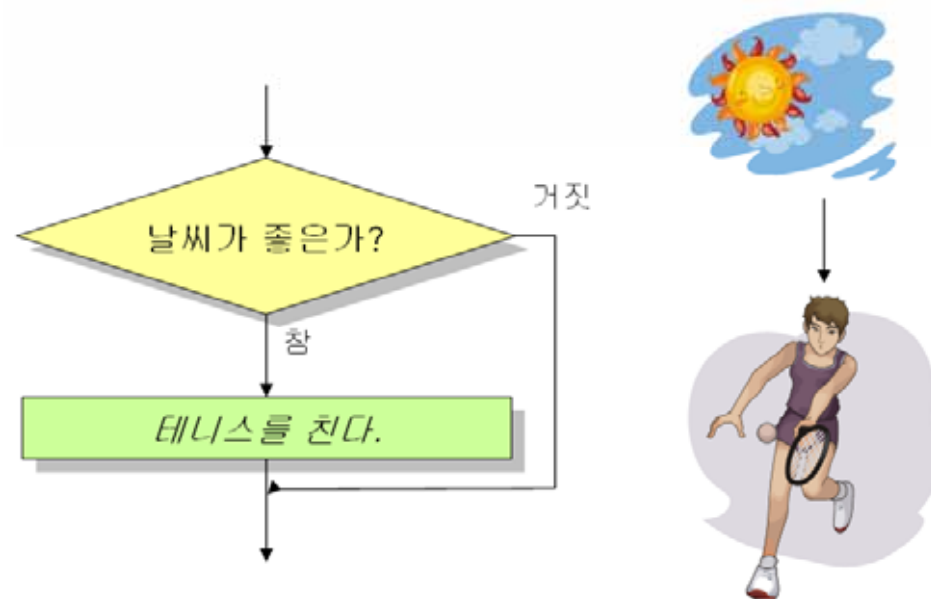


- 가
- $1/3$ F
-
- 가
- 가 60

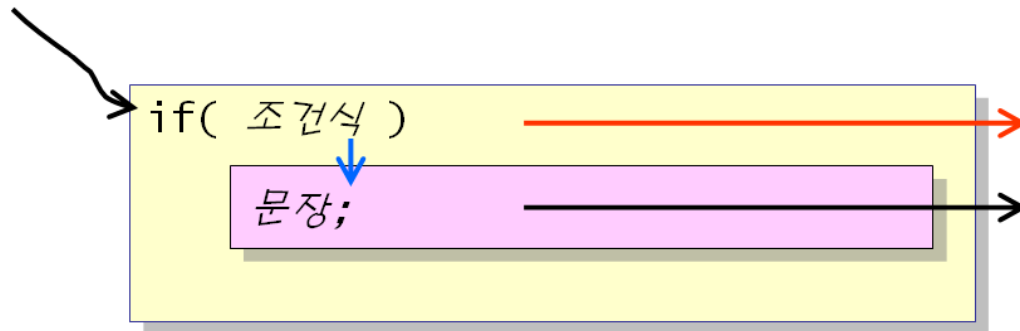


if

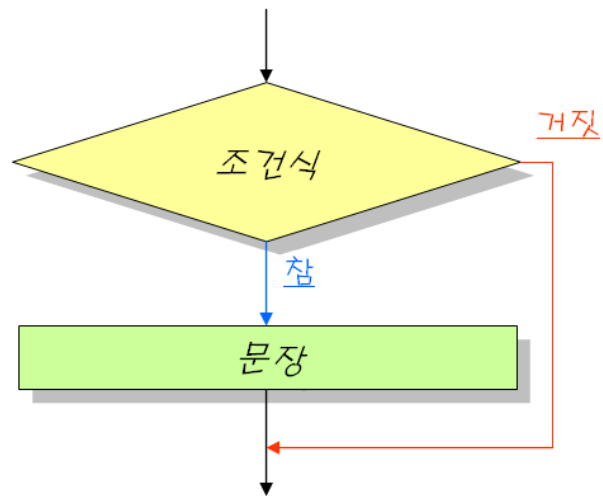
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if



파란 화살표는 조건이 참인 경우이고 빨간색 화살표는 조건이 거짓인 경우이다.

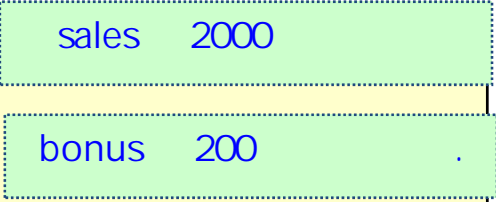


If

```
if( sales > 2000 )
    bonus = 200;

if( score >= 60 )
    printf("                .\n");

if( height >= 130 && age >= 10 )
    printf("                .\n");
```



- if if .

```
if ( temperature < 0 )
    printf("                .\n"); //
printf("                %                .\n", temperature); //
```

- (compound statement)

- ,
- (block)
- .

```
if( score >= 60 )  
{  
    printf(" .\n");  
    printf(" .\n");  
}
```

The diagram shows a code block with a yellow background. The code is: `if(score >= 60)`, `{`, `printf(" .\n");`, `printf(" .\n");`, `}`. A pink highlight covers the two `printf` statements. A green callout box with a dotted border contains the number `2`. A dotted arrow points from the callout box to the second `printf` statement.

#1



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

int main(void)
{
    int number;

    printf("      :");
    scanf("%d", &number);

    if( number > 0 )
        printf("                .\n");

    if( number == 0 )
        printf("      0                .\n");

    if( number < 0 )
        printf("                .\n");

    return 0;
}
```

가 25



25

#2



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

```
int main(void)
```

```
{
```

```
    int number;
```

```
    printf("
scanf("%d", &number);
```

```
");
```

가 23

```
    if( number % 2 == 1 )
```

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

```
    if( number % 2 == 0 )
```

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

```
    return 0;
```

```
}
```



:23

#3



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

int main(void)
{
    int number;

    printf("Enter a number: ");
    scanf("%d", &number);

    if( number < 0 )
        number = -number;

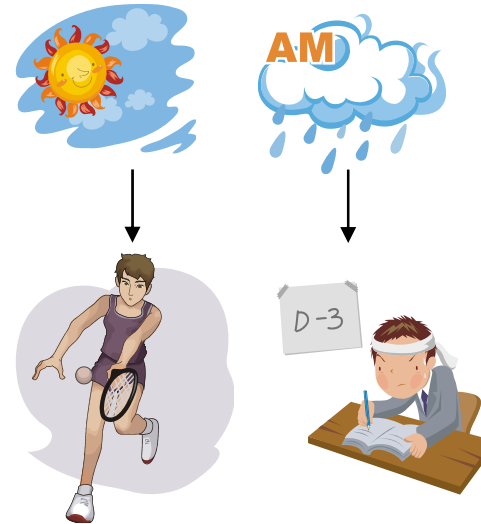
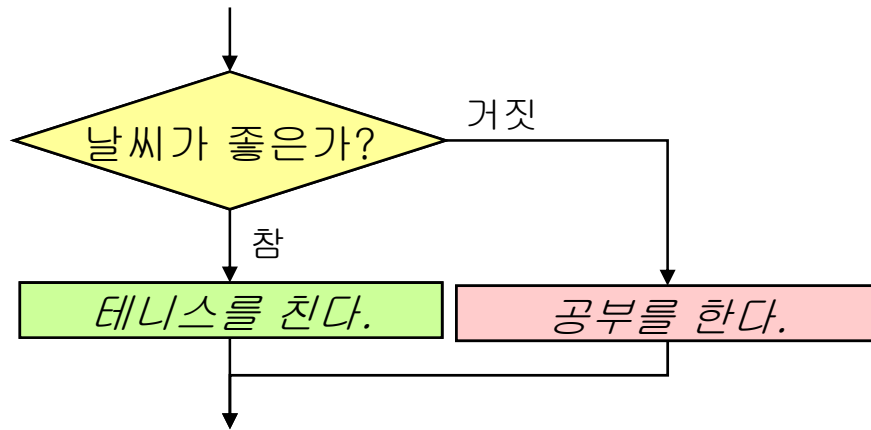
    printf("The absolute value of %d is %d.\n", number);

    return 0;
}
```



```
5      :-5
.
```

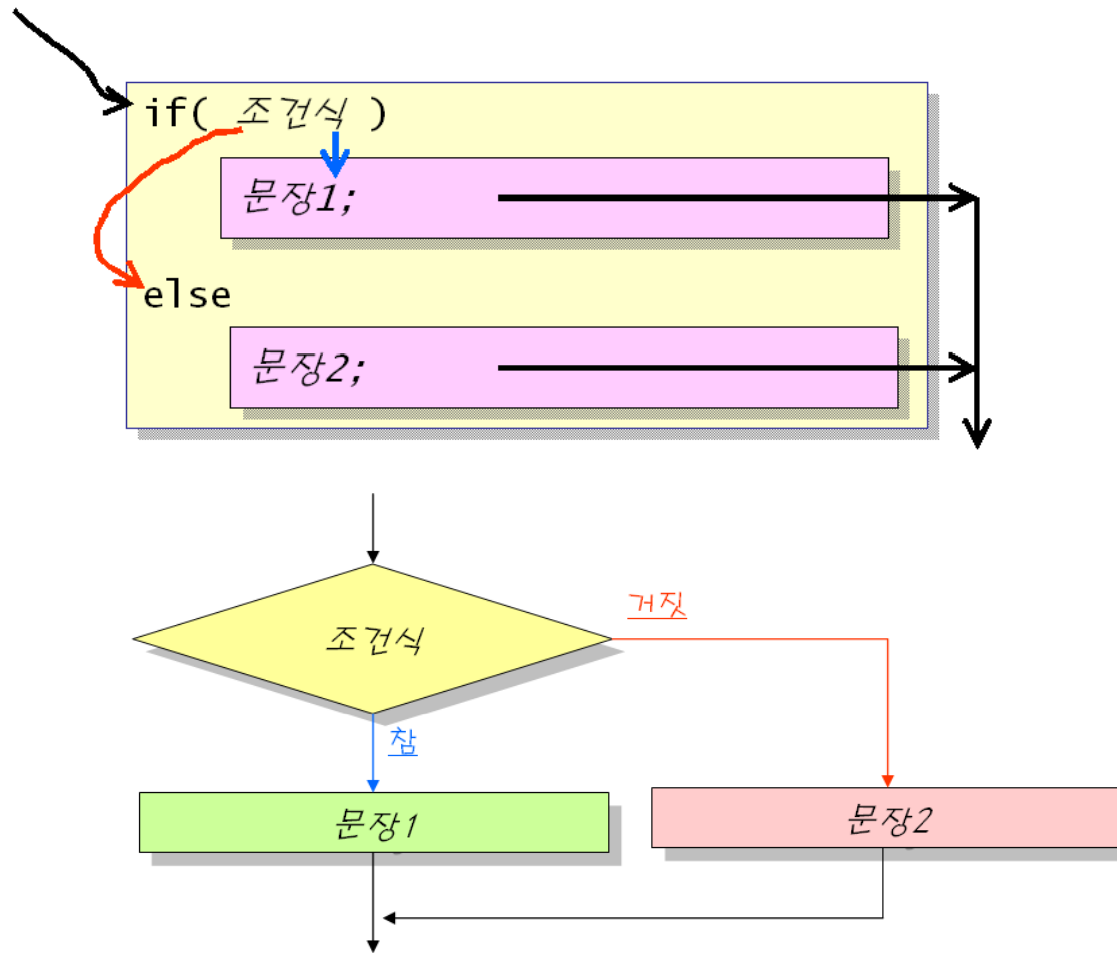
if-else



```
if(      )
    1;
else
    2;
```

A diagram showing two code blocks. The first block is a yellow rectangle containing the text "if()" followed by a line of code "1;". A dotted arrow points from this line to a green rectangular box on the right. The second block is a yellow rectangle containing the text "else" followed by a line of code "2;". A dotted arrow points from this line to another green rectangular box on the right.

If-else



If-else

```
if ( score >= 60 )  
    printf("      .\n");  
else  
    printf("      .\n");
```

score가 60

score가 60

```
if ( score >= 60 )  
{  
    printf("      .\n");  
    printf("      .\n");  
}  
else  
{  
    printf("      .\n");  
    printf("      .\n");  
}
```

score가 60

score가 60

#1



```
// if-else
#include <stdio.h>

int main(void)
{
    int number;

    printf("Enter a number: ");
    scanf("%d", &number);

    if( number % 2 == 0 )
        printf("It is an even number.\n");
    else
        printf("It is an odd number.\n");

    return 0;
}
```

2

가 0



: 50

#2



```
//          가 0      if-else
#include <stdio.h>

int main(void)
{
    int n1, n2, n3;

    printf("          : ");
    scanf("%d", &n1);

    printf("          : ");
    scanf("%d", &n2);

    if( n2 == 0 )          // 가 0
    {
        printf("0          .\n");
    }
    else
    {
        n3 = n1 / n2;          //
        printf("          %d          .\n", n3);
    }
    return 0;
}
```



```
          : 5
          : 4
1 .
```


#3



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

int main(void)
{
    int year;

    printf("                : ");
    scanf("%d", &year);

    if((year % 4 == 0 && year % 100 != 0) || year % 400 == 0)
        printf("%d                .\n", year);
    else
        printf("%d                .\n", year);

    return 0;
}
```



```
2005                : 2005
                    .
```

if

- if if

```
if(        1)  
  if(        2)  
      ;
```

문장 자리에 if
문이 들어간 것으
로 생각할 수 있
다.

```
if( 조건식1 )  
  문장;
```

```
if( 조건식1 )  
  if( 조건식2 )  
    문장;
```

if

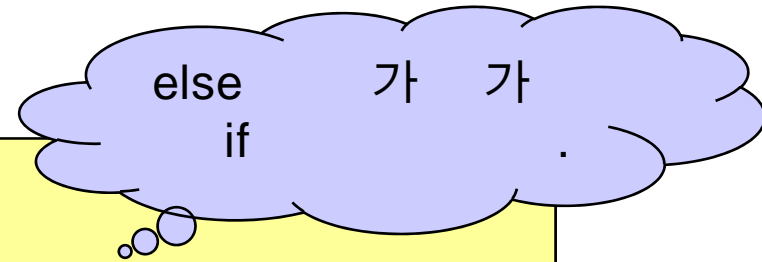
```
if( score > 80 )  
    if( score > 90 )  
        printf("      A      .\n");
```

if if

```
if( score > 80 )  
    if( score > 90 )  
        printf("      A      .\n");  
    else  
        printf("      B      .\n");
```

if if-else

if else



```
if(score > 80)
    if( score > 90)
        printf("당신의 학점은 A입니다 \n");
    else
        printf("당신의 학점은 B입니다 \n");
```

Diagram illustrating nested if-else logic. Red circles highlight the conditions and the 'else' keyword. Red arrows show the flow: one arrow points from the first 'if' to the second 'if', and another points from the 'else' to the first 'if', indicating that the second condition is only checked if the first is true. A red 'X' is placed near the first 'if'.

```
if( score > 80 )
{
    if( score > 90 )
        printf("          A          .\n");
}
else
    printf("          A   B가          .\n");
```

Diagram illustrating the same logic with a pink box highlighting the 'if else' structure. A blue line connects the 'if else' text in the pink box to the corresponding code structure.

if

```
if( score > 80 )
{
    if( score > 90 )
        printf("          A          .\n");
    else
        printf("          B          .\n");
}
else
{
    if( score > 70 )
        printf("          C          .\n");
    else
        printf("          D          F          .\n");
}
```

If-else
if-else

3



```
#include <stdio.h>
int main(void)
{
    int n1, n2, n3, min;

    printf("      3      :");
    scanf("%d %d %d", &n1, &n2, &n3);

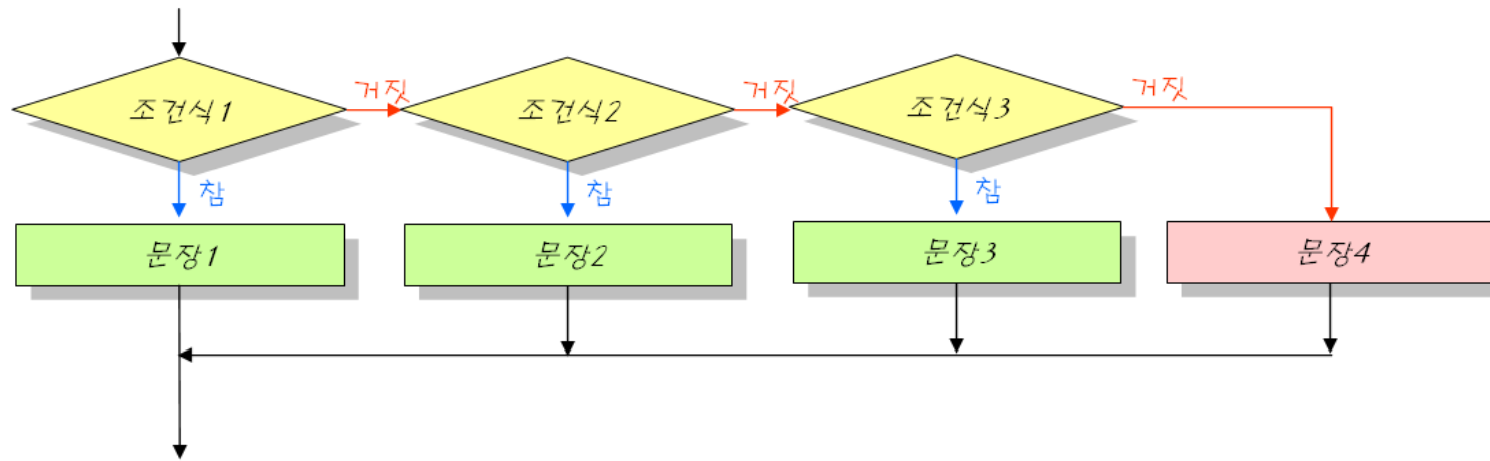
    if( n1 < n2 )
        if( n1 < n3 )
            min = n1;
        else
            min = n3;
    else
        if( n2 < n3 )
            min = n2;
        else
            min = n3;

    printf("      %d      \n", min);
    return 0;
}
```



3 :10 20 30
10 .

if



```
if( 1)
  1;
else if( 2)
  2;
else if( 3)
  3;
else
  4;
```

if

-

if

```
if (score >= 90)
    printf("    :    A\n");
else if (score >= 80)
    printf("    :    B\n");
else if (score >= 70)
    printf("    :    C\n");
else if (score >= 60)
    printf("    :    D\n");
else
    printf("    :    F\n");
```

score >= 80 && score
< 90



```
#include <stdio.h>

int main(void)
{
    int score;

    printf("Enter score: ");
    scanf("%d", &score);

    if (score >= 90)
        printf("Grade: A\n");
    else if (score >= 80)
        printf("Grade: B\n");
    else if (score >= 70)
        printf("Grade: C\n");
    else if (score >= 60)
        printf("Grade: D\n");
    else
        printf("Grade: F\n");
    return 0;
}
```



Enter score: 88
Grade: B



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

int main(void)
{
    char ch;

    printf("Enter a character: ");
    scanf("%c", &ch);

    if( ch >= 'A' && ch <= 'Z' )
        printf("You entered an uppercase letter.\n", ch);
    else if( ch >= 'a' && ch <= 'z' )
        printf("You entered a lowercase letter.\n", ch);
    else if( ch >= '0' && ch <= '9' )
        printf("You entered a digit.\n", ch);
    else
        printf("You entered an invalid character.\n", ch);

    return 0;
}
```



c : *C*



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

int main(void)
{
    char op;
    int x, y;

    printf("          : ");
    scanf("%d %c %d", &x, &op, &y);

    if( op == '+' )
        printf("%d %c %d = %d \n", x, op, y, x + y);
    else if( op == '-' )
        printf("%d %c %d = %d \n", x, op, y, x - y);
    else if( op == '*' )
        printf("%d %c %d = %d \n", x, op, y, x * y);
    else if( op == '/' )
        printf("%d %c %d = %d \n", x, op, y, x / y);
    else if( op == '%' )
        printf("%d %c %d = %d \n", x, op, y, x % y);
    else
        printf("          . \n");
    return 0;
}
```



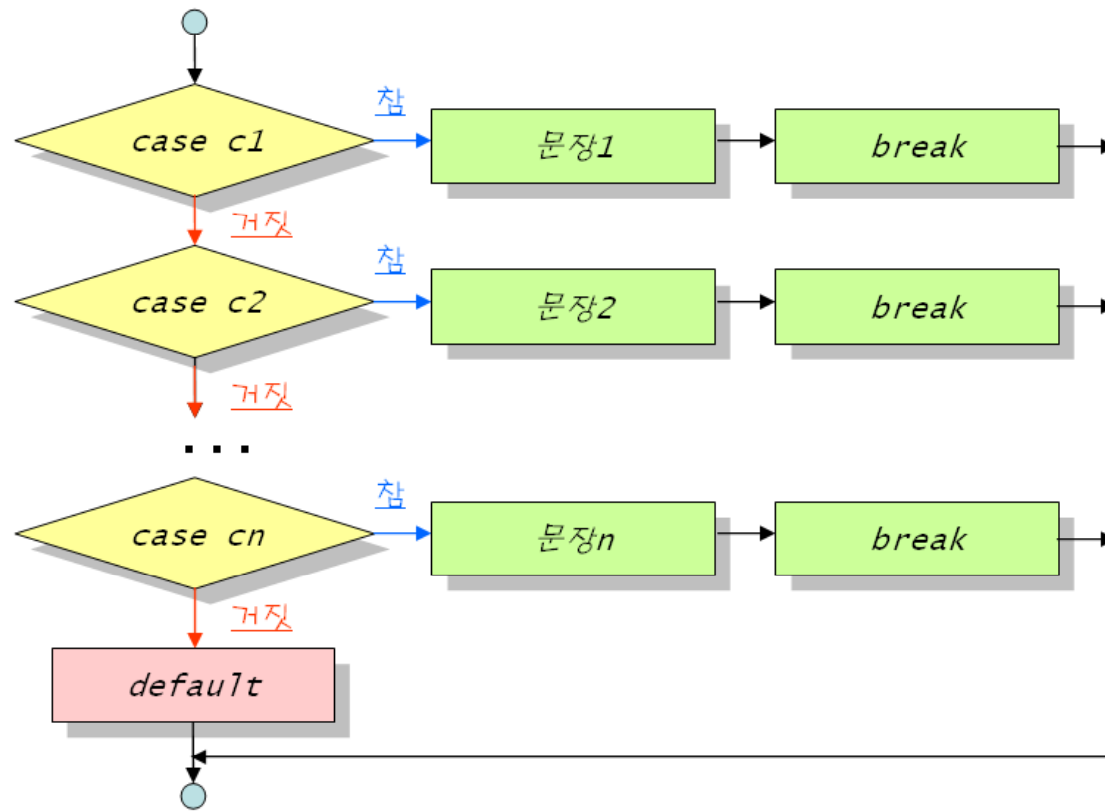
1 + 2 = 3

: 1 + 2

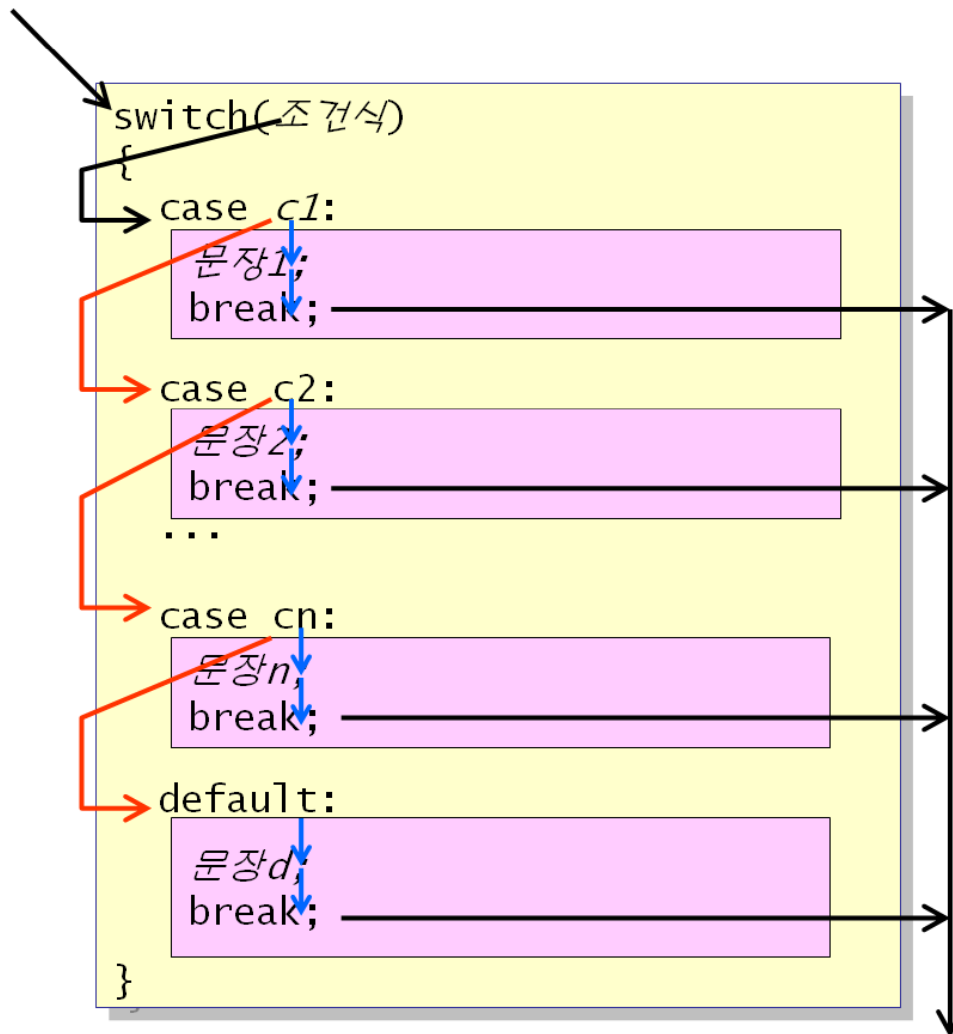
switch

- 가

```
switch( )  
{  
  case c1:  
    1;  
    break;  
  case c2:  
    2;  
    break;  
  ...  
  case cn:  
    n;  
    break;  
  default:  
    d;  
    break;  
}
```



switch



break
switch





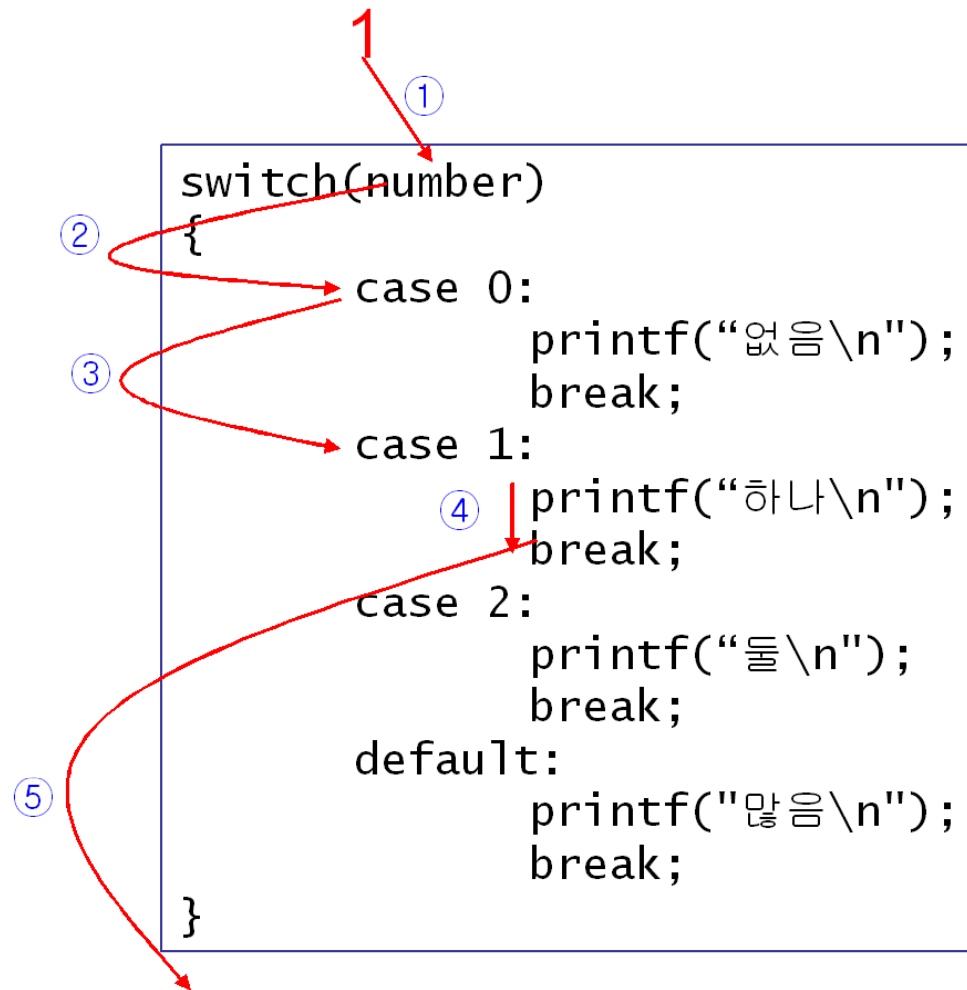
```
int main(void)
{
    int number;

    printf("          :");
    scanf("%d", &number);
    switch(number)
    {
        case 0:
            printf(" \n");
            break ;
        case 1:
            printf(" \n");
            break ;
        case 2:
            printf(" \n");
            break ;
        default:
            printf(" \n");
            break;
    }
}
```

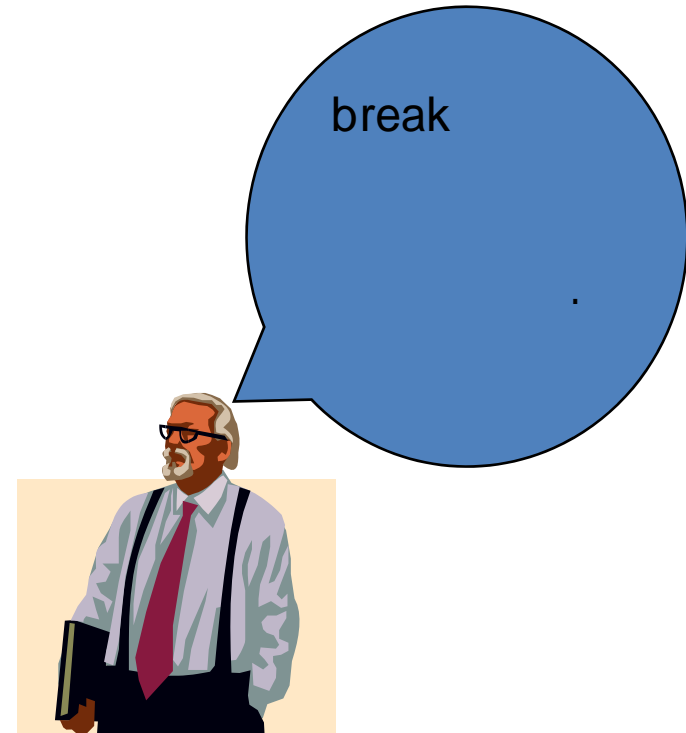
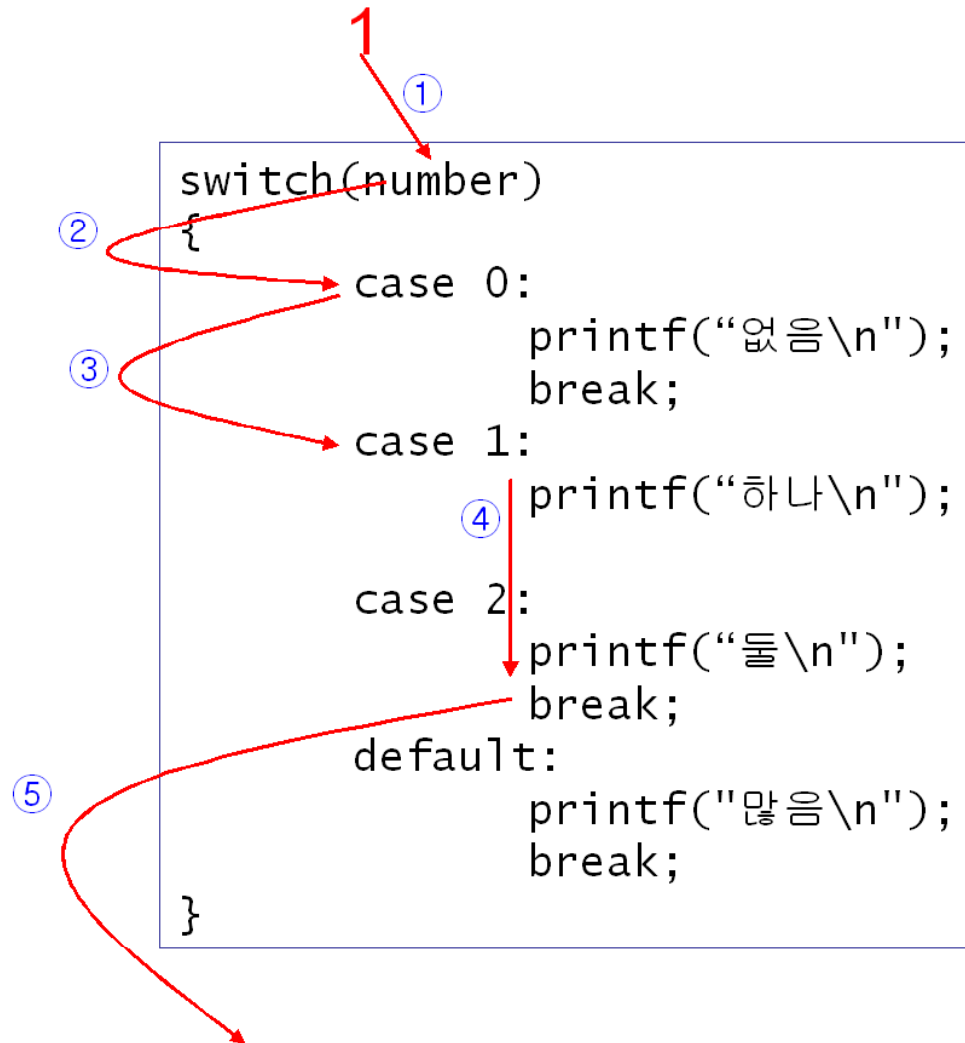


: 1

가 1

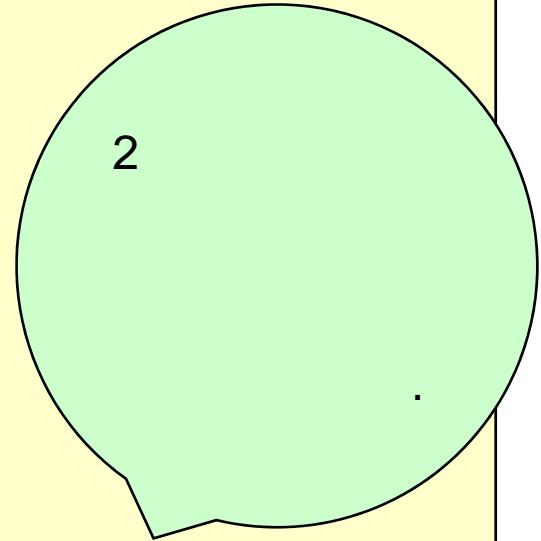


break가



break

```
switch(number)
{
    case 0:
        printf(" \n");
        break;
    case 1:
        printf(" \n");
        break;
    case 2:
    case 3:
        printf(" \n");
        break;
    default:
        printf(" \n");
        break;
}
```



default

- case

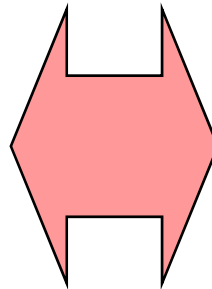
```
switch(number)
{
case 0:
    printf("없음\n");
    break;
case 1:
    printf("하나\n");
    break;
case 2:
    printf("둘\n");
    break;
default:
    printf("많음\n");
    break;
}
```

switch

if-else

```
int main(void)
{
    int number;
    scanf("%d", &number);

    if( number == 0 )
        printf(" \n");
    else if( number == 1 )
        printf(" \n");
    else if( number == 2 )
        printf(" \n");
    else
        printf(" \n");
}
```



```
switch(number)
{
    case 0:
        printf(" \n");
        break;
    case 1:
        printf(" \n");
        break;
    case 2:
        printf(" \n");
        break;
    default:
        printf(" \n");
        break;
}
```



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

int main(void)
{
    int month, days;

    printf("Enter month number: ");
    scanf("%d", &month);

    switch(month)
    {
        case 2:
            days = 28;
            break;
        case 4:
        case 6:
        case 9:
        case 11:
            days = 30;
            break;
        default:
            days = 31;
            break;
    }
    printf("%d days in month %d.\n", days, month);
    return 0;
}
```



12 31 . : 12



```
#include <stdio.h>
int main(void)
{
    char op;
    int x, y;

    printf("Enter two numbers and an operator: ");
    scanf("%d %c %d", &x, &op, &y);

    switch(op)
    {
        case '+':
            printf("%d %c %d = %d \n", x, op, y, x + y);
            break;
        case '-':
            printf("%d %c %d = %d \n", x, op, y, x - y);
            break;
        case '*':
            printf("%d %c %d = %d \n", x, op, y, x * y);
            break;
        case '/':
            printf("%d %c %d = %d \n", x, op, y, x / y);
            break;
        case '%':
            printf("%d %c %d = %d \n", x, op, y, x % y);
            break;
        default:
            printf("Invalid operator. \n");
            break;
    }
    return 0;
}
```

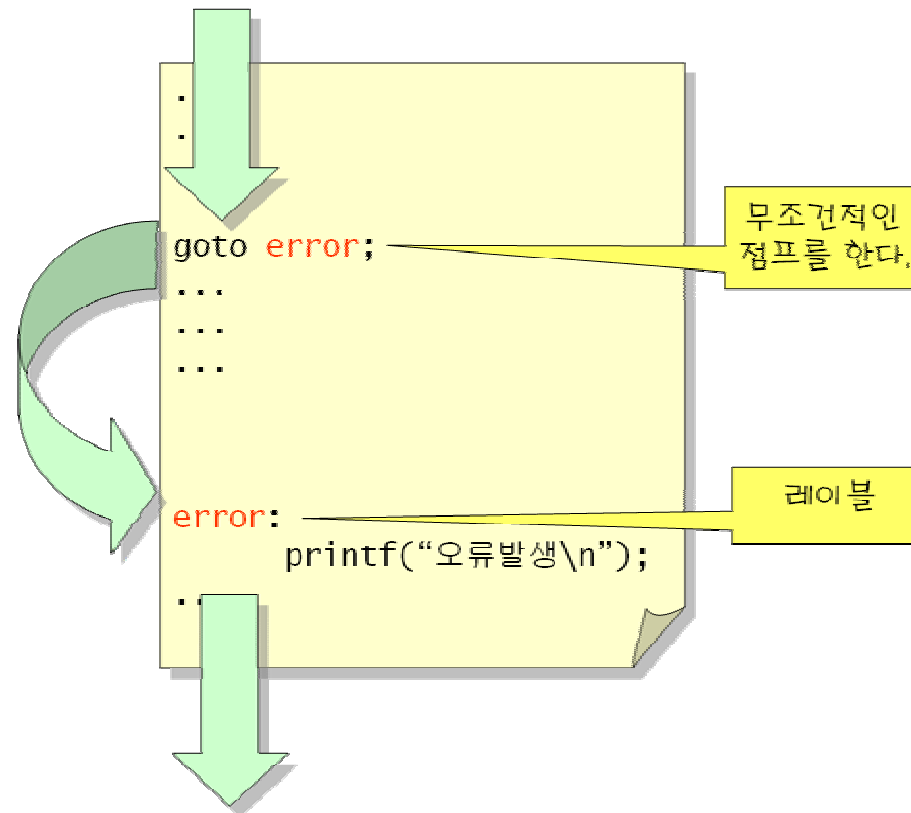


$10 \% 3 = 1$

$: 10 \% 3$

Goto

-
-





```
//  
#include <stdio.h>  
  
int main(void)  
{  
    int i = 1;  
  
loop:  
    printf("%d * %d = %d \n", 3, i, 3 * i);  
    i++;  
    if( i == 10 ) goto end;  
    goto loop;  
  
end:  
    return 0;  
}
```



```
3 * 1 = 3  
3 * 2 = 6  
3 * 3 = 9  
3 * 4 = 12  
3 * 5 = 15  
3 * 6 = 18  
3 * 7 = 21  
3 * 8 = 24  
3 * 9 = 27
```

Q & A

