

Lecture 7.1

Topics

1. Conditional Statements/Structures – **if**, **if-else**

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There are several conditional structures such as **if**, **if-else**, **if-else-if**, **switch**. Two of these structures are introduced here first:

(1) **if**

and

(2) **if-else**

1.1 Simple **if** Structure -- Flowchart

Syntax of **if** Structure

```
if (testExpression) {
    /*if testExpression is true, do something here.*/
}
```

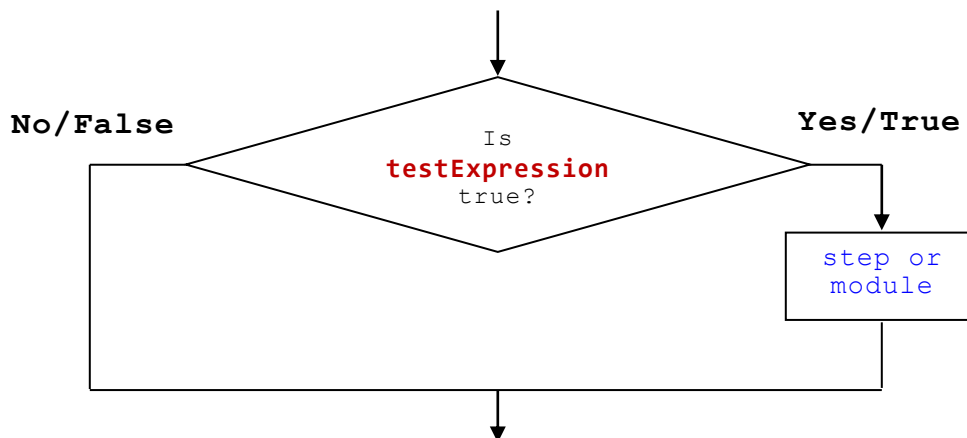


Figure 2 Conditional structure with one option — **if** structure

Example – Conditional **if** structure

```
/**
 * Program Name: cis6L0711.c
 * Discussion:   if Structure
 */

#include <stdio.h>

/*Function prototypes*/
void printPositive(int);
void getPrintPositive(void);

/*Application driver*/
int main() {
```

```

int iA;

printf("1234567890123456789012345678901234567890\n");

printf("\nEnter an integer value: ");
scanf("%d", &iA);

printPositive(iA);

getPrintPositive( );

printf("\n");
return 0;
}

/*Function definitions*/
/**
 * Function Name: printPositive()
 * Description:   Printing information for an integer
 * Pre:          Integer to be assessed and printed
 * Post:         None
 */
void printPositive(int iOld) {
    if (iOld > 0) {
        printf("\n%d is positive.\n", iOld);
    }

    return;
}

/**
 * Function Name: getPrintPositive()
 * Description:   Printing information for an integer
 * Pre:          Nothing
 * Post:         None
 */
void getPrintPositive() {
    int iA;

    printf("\nEnter an integer value: ");
    scanf("%d", &iA);

    if (iA > 0) {
        printf("\n%d is positive.\n", iA);
    }

    return;
}

```

OUTPUT – Run #1

1234567890123456789012345678901234567890

Enter an integer value: 8

8 is positive.

Enter an integer value: 9

9 is positive.

OUTPUT – Run #2

1234567890123456789012345678901234567890

Enter an integer value: -8

Enter an integer value: 9

9 is positive.

OUTPUT – Run #3

1234567890123456789012345678901234567890

Enter an integer value: -8

Enter an integer value: -9

In the above flowchart, if the **testExpression** is **false** then no action would take place. However, it is possible to have different action for this (false) option with respect to the other (true) case.

Let us look at this conditional structure next.

1.2 if-else Flowchart

Syntax of if-else Structure

```
if (testExpression) {
    /*if testExpression is true, do something here.*/
} else {
    /*if testExpression is false, do something else.*/
}
```

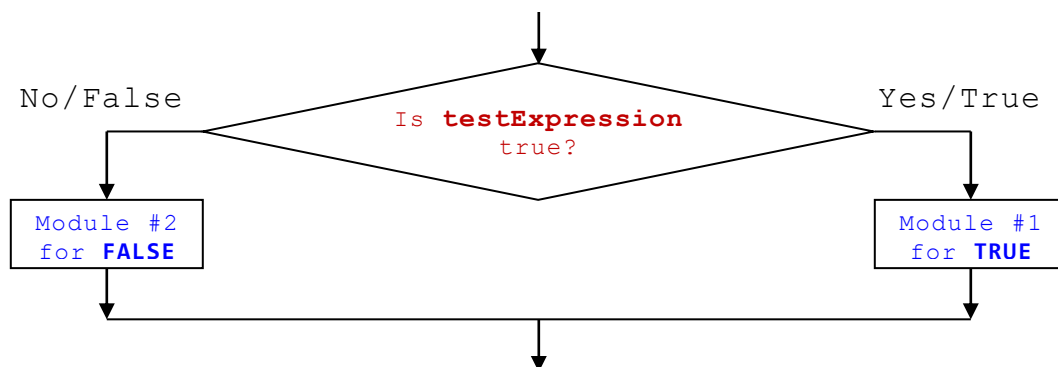


Figure 3 if-else conditional structure

Let us look at a revised version of the above functions.

```
/**
 * Function Name: printPositiveNegative()
```

```

* Description:   Printing information for an integer
* Pre:          Integer to be assessed and printed
* Post:         None
*/
void printPositiveNegative(int iOld) {
    if (iOld > 0) {
        printf("\n%d is positive.\n", iOld);
    } else {
        printf("\n%d is non-positive.\n", iOld);
    }

    return;
}

/**
* Function Name: getPrintPositive()
* Description:   Printing information for an integer
* Pre:          Nothing
* Post:         None
*/
void getPrintPositive() {
    int iA;

    printf("\nEnter an integer value: ");
    scanf("%d", &iA);

    if (iA > 0) {
        printf("\n%d is positive.\n", iA);
    } else {
        printf("\n%d is non-positive.\n", iOld);
    }

    return;
}

```