

Code Examples for Week-02 Lectures

Example : **nested "if"**

[ex1.c](#) (right-click on the link to download)

```
#include <stdio.h>

int main (void) {

    int mark = 0;

    printf("Enter mark: ");
    scanf("%d", &mark);
    printf("mark is %d \n", mark);

    if( (mark >=0) && (mark <=100) ) {
        if( mark >= 50 ) {
            printf("Pass\n");
        }
        else {
            printf("Fail\n");
        }
    }
    else {

        if(mark < 0){
            printf("Negative mark not allowed! \n");
        }
        else {
            printf("mark must be <= 100 ! \n");
        }
    }

    return 0;
}
```

Example : **"if ... else if ... "** (right-click on the link below to download)

[ex2.c](#)

```
#include <stdio.h>

int main (void) {

    int mark = 0;

    printf("Enter mark: ");
    scanf("%d", &mark);
    printf("mark is %d \n", mark);

    if( mark >= 85 ) {
        printf("HD");
    }
    else if( mark >= 75 ) {
        printf("DN");
    }
    else if(mark >= 65){
        printf("CR");
    }
    else if(mark >= 50){
        printf("PS");
    }
    else {
        printf("FL");
    }

    printf("\n");

    return 0;
}
```

Example : **"if ... else if ... "** (right-click on the link below to download)

[ex3.c](#)

```
#include <stdio.h>

int main (void) {

    int mark = 0;

    printf("Enter mark: ");
    scanf("%d", &mark);
    printf("mark is %d \n", mark);

    if( mark < 50 ) {
        printf("FL");
    }
    else if( mark < 65 ) {
        printf("PS");
    }
    else if(mark < 75){
        printf("CR");
    }
    else if(mark < 85){
        printf("DN");
    }
    else {
        printf("HD");
    }

    printf("\n");

    return 0;
}
```

Example : **function** with "if ... else if ... " (right-click on the link below to download)

[ex4.c](#)

```
#include <stdio.h>

void print_grade(int mark) ;

int main (void) {

    int mark = 0;

    printf("Enter mark: ");
    scanf("%d", &mark);
    printf("mark is %d \n", mark);

    print_grade( mark );

    return 0;
}

void print_grade(int mark) {

    if( mark < 50 ) {
        printf("FL");
    }
    else if( mark < 65 ) {
        printf("PS");
    }
    else if(mark < 75){
        printf("CR");
    }
    else if(mark < 85){
        printf("DN");
    }
    else {
        printf("HD");
    }

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

Example : simple **while loop** (right-click on the link below to download)

[loop1.c](#)

```
#include <stdio.h>

int main (void) {

    int loop_counter = 0;

    loop_counter = 0;
    while (loop_counter < 5) {

        printf("*");

        loop_counter = loop_counter + 1;

    }
    printf("\n");

    return 0;
}
```

Example : simple **while loop** (right-click on the link below to download)

[loop2.c](#)

```
#include <stdio.h>

int main (void) {

    // read an integer n
    // print n asterisks
    int loop_counter, n;

    printf("How many asterisks? ");
    scanf("%d", &n);

    loop_counter = 0;
    while (loop_counter < n) {

        printf("*");

        loop_counter = loop_counter + 1;
    }
    printf("\n");

    return 0;
}
```

Example : use of **sentinel value** , and updating a **counter** inside loop (right-click on the link below to download)

[loop3.c](#)

```
// Example : use of sentinel value (here, mark != -1)
// Alternatively, we can also say (mark >= 0)

#include <stdio.h>

int main (void) {
    int mark;
    int count = 1;

    printf("%d: Enter mark? ", count);
    scanf("%d", &mark);

    while ( mark != -1 ) {

        if(mark >= 50) {
            printf("You Passed!\n");
        }
        else {
            printf("Sorry, you Failed!\n");
        }

        // Get next mark
        count = count + 1;

        printf("%d: Enter mark? ", count );
        scanf("%d", &mark);
    }
    return 0;
}
```

Example : **while loop using scanf** (right-click on the link below to download)

[loop4.c](#)

```
// Example :  
// Read int values until the end of an input stream.  
  
// Hint: End of an input stream can be indicated by  
// pressing CTRL + D  
  
#include <stdio.h>  
  
int main (void) {  
    int mark, noRead;  
  
    printf("Enter mark? ");  
    noRead = scanf("%d", &mark);  
  
    while ( noRead == 1 ) {  
  
        if(mark >= 50) {  
            printf("You Passed!\n");  
        }  
        else {  
            printf("Sorry, you Failed!\n");  
        }  
  
        // Get next mark  
        printf("Enter mark? ");  
        noRead = scanf("%d", &mark);  
    }  
    printf("\n Bye ... \n");  
    return 0;  
}
```

Example : **while, scanf, counters** (right-click on the link below to download)

[loop4b.c](#)

```
// Example :
// Read int values until the end of an input stream.
// Print number of Pass and Fail

// Hint: End of an input stream can be indicated by
// pressing CTRL + D

#include <stdio.h>

int main (void) {
    int mark, noRead;
    int countPS = 0;
    int countFL = 0;

    //printf("Enter mark? ");
    noRead = scanf("%d", &mark);
    printf("Mark is %d , ", mark);

    while ( noRead == 1 ) {

        if(mark >= 50) {
            printf("You Passed!\n");
            countPS = countPS + 1;
        }
        else {
            printf("Sorry, you Failed!\n");
            countFL = countFL + 1;
        }

        // Get next mark
        noRead = scanf("%d", &mark);
        printf("Mark is %d , ", mark);
    }

    printf("Pass: %d , Fail: %d \n", countPS, countFL);

    printf("\n Bye ... \n");
    return 0;
}
```

Example : **while loop**, calling **function** inside the loop (right-click on the link below to download)

[ex5.c](#)

```
// C program
// author: Ashesh Mahidadia
// date: 01/08/2018
// Read n , followed by n values of mark,
// and print grade for each mark

#include <stdio.h>

void print_grade(int mark) ;

int main (void) {

    int mark = 0;
    int loop_counter = 0;
    int n = 0;

    printf("Enter a number: ");
    scanf("%d", &n);
    loop_counter = 0;

    while (loop_counter < n) {

        printf("%d: Enter mark: ", (loop_counter+1) );
        scanf("%d", &mark);
        printf("mark is %d \n", mark);
        print_grade( mark );

        loop_counter = loop_counter + 1;

    }
    printf("\n");

    return 0;
}

void print_grade(int mark) {

    if( mark < 50 ) {
        printf("FL");
    }
    else if( mark < 65 ) {
        printf("PS");
    }
    else if(mark < 75){
        printf("CR");
    }
    else if(mark < 85){
        printf("DN");
    }
    else {
        printf("HD");
    }
    printf("\n");
}
```

Example : **Nested while loops** (right-click on the link below to download)

[loop5.c](#)

```
// Example : Nested while loops
//

#include <stdio.h>

int main (void) {

    // print a square of 10x10 asterisks
    int i, j;
    i = 0;
    while (i < 10) {

        j = 0;
        printf("%d: ", i);
        while (j < 10) {
            printf("* ");
            j = j + 1;
        }

        printf("\n");
        i = i + 1;
    }

    return 0;
}
```

Example : **Nested while loops** (right-click on the link below to download)

[loop6.c](#)

```
// Example : Nested while loops
//

#include <stdio.h>

int main (void) {

    int i, j;
    i = 0;
    while (i < 3) {

        j = 0;
        while (j <= 2) {
            printf("i=%d , j=%d \n", i, j);
            j = j + 1;
        }

        printf("\n");
        i = i + 1;
    }

    return 0;
}
```

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