

Code Examples for Week-01 Lectures

A simple program demonstrating the use of printf

Compile by typing

```
gcc -o hello_world hello_world.c
```

or at home

```
gcc -Wall -O -o hello_world hello_world.c
```

Run by typing:

```
./hello_world
```

```
#include <stdio.h>

int main(void) {
    printf("Hello World!\n");
    return 0;
}
```

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

```
// This is a simple template for your first C programs
// Description
// Author
// Date

#include <stdio.h>

int main(void) {

    printf("REPLACE THIS PRINTF WITH YOUR CODE\n");

    return 0;
}
```

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

```
// This is a simple template for your first C programs
// Description
// Author
// Date

#include <stdio.h>

int main(void) {

    //YOUR CODE GOES IN HERE

    return 0;
}
```

A simple program demonstrating the use of scanf and printf to read and print integer and double values (right-click on the link below to download)

[ex1.c](#)

```
#include <stdio.h>

int main (void) {

    int mark = 0;
    double val = 0;

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

    printf("Enter val: ");
    scanf("%lf", &val);
    printf("val is %lf \n", val);

    return 0;
}
```

A simple program demonstrating the use of arithmetics operators (right-click on the link below to download)

[ex2.c](#)

```
#include <stdio.h>

int main (void) {

    int x = 0;
    double y = 0;

    x = x + 5;
    x = x + 20 ;

    y = 17 % 5;

    printf("x is %d \n", x);
    printf("y is %lf \n", y);

    return 0;
}
```

A simple program demonstrating the use of if ... else ... statement (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);

    if( (mark < 0) || (mark > 100) ) {
        printf("Invalid mark \n");
    }
    else {
        printf("Mark is valid \n");
    }

    printf("mark is %d \n", mark);

    return 0;
}
```

A simple program demonstrating the use of scanf (right-click on the link below to download)

[squares.c](#)

```
#include <stdio.h>

int main(void) {
    int x, y;
    int answer;

    printf("Enter x: ");
    scanf("%d", &x);
    printf("Enter y: ");
    scanf("%d", &y);
    answer = x * x + y * y;
    printf("x squared + y squared = %d\n", answer);
    return 0;
}
```

A simple program demonstrating the use of "if" statement. (right-click on the link below to download)

[driving0.c](#)

```
#include <stdio.h>

int main(void) {

    // ask their age
    int age;
    printf("What is your age?\n");
    scanf("%d", &age);

    // if they are 16+ print you can drive
    if (age >= 16) {
        printf("You can drive!\n");
        printf("you are over 16!\n");
    } else {
        printf("You are not allowed to drive!!! go back to school\n");
    }

    // print have a nice day
    printf("Have a nice day!\n");

    return 0;
}
```

A simple program to print out whether somebody can drive using of "if" statement. (right-click on the link below to download)

[driving1.c](#)

```
#include <stdio.h>

int main(void) {

    // ask their age
    int age;
    printf("What is your age?\n");
    scanf("%d", &age);

    // if they are 16+ print you can drive
    if (age >= 16 && age <= 25) {
        printf("You can drive!\n");
        printf("you are over 16 and less than 25!\n");
    } else {
        printf("You are not allowed to drive!!! go back to school\n");
        printf("or maybe you're too old go to work!\n");
    }

    // print have a nice day
    printf("Have a nice day!\n");

    return 0;
}
```

Convert a measurement in feet to metres.

A simple program demonstrating the use of scanf and #define for constants (right-click on the link below to download)

[feet2metres.c](#)

```
#include <stdio.h>

#define INCHES_IN_FOOT  12
#define CM_IN_INCH      2.54
#define CM_IN_METRE     100

int main(void) {
    double feet;
    double metres;

    printf("Enter number of feet: ");
    scanf("%lf", &feet);

    metres = feet * INCHES_IN_FOOT * CM_IN_INCH / CM_IN_METRE;

    printf("%.2lf", feet);
    printf(" feet is ");
    printf("%.2lf", metres);
    printf(" metres\n");

    return 0;
}
```

A simple program to print absolute value, demonstrating the use of scanf, printf and an if statement (right-click on the link below to download)

[absolute.c](#)

```
#include <stdio.h>

int main(void) {
    int x, absoluteValue;

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

    absoluteValue = x;
    if (x < 0) {
        absoluteValue = -1 * x;
    }

    printf("The absolute value of %d is %d\n", x, absoluteValue);
    return 0;
}
```

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