



C Programming Examples

Sawsan Daban

September 6, 2025

1 Declaring Variables and Constants

```
#include <stdio.h>
int main() {
    int age;
    const float pi = 3.14159;
    printf("Age and Pi are declared.\n");
    return 0;
}
```

2 Character and Escape Sequences

```
#include <stdio.h>
int main() {
    char initial = 'S';
    char newline = '\n';
    printf("Initial: %c", initial);
    printf("%c", newline);
    return 0;
}
```

3 Using const with Different Types

```
#include <stdio.h>
int main() {
    const int max = 100;
    const char symbol = '#';
    printf("Max value: %d\n", max);
    printf("Symbol: %c\n", symbol);
    return 0;
}
```

4 Declaring Multiple Variables

```
#include <stdio.h>
int main() {
    int day = 6;
    int month = 9;
    int year = 2025;
}
```

```
    printf("Date: %02d/%02d/%d\n", day, month, year);
    return 0;
}
```

5 Formatted Output Without Operations

```
#include <stdio.h>
int main() {
    int id = 123;
    float score = 88.5;
    char grade = 'A';
    printf("ID: %d\n", id);
    printf("Score: %.1f\n", score);
    printf("Grade: %c\n", grade);
    return 0;
}
```

6 Formatted Input Without Processing

```
#include <stdio.h>
int main() {
    int number;
    char letter;
    printf("Enter a number: ");
    scanf("%d", &number);
    printf("Enter a letter: ");
    scanf(" %c", &letter);
    printf("You entered: %d and %c\n", number, letter);
    return 0;
}
```

7 Escape Sequences Showcase

```
#include <stdio.h>
int main() {
    printf("Tab\tIndented\n");
    printf("Newline\nNext line\n");
    printf("Backslash: \\n");
    printf("Quotes: \"Double\" and 'Single'\n");
    return 0;
}
```

8 String Formatting with Escape Sequences

```
#include <stdio.h>
int main() {
    printf("Welcome to \"Iris Smile Studio\"\n");
    printf("Let's learn C programming with clarity.\n");
    printf("Use \\n for newline and \\t for tab.\n");
    return 0;
}
```

9 Multiple Tabs

```
#include <stdio.h>
int main() {
    printf("ID\tName\tScore\n101\tSawsan\t95\n");
    return 0;
}
```

10 Mix of All Escape Sequences

```
#include <stdio.h>
int main() {
    printf("Start\n\t\"Quoted\"\nEnd\\n");
    return 0;
}
```

11 Single Quote and Double Quote

```
#include <stdio.h>
int main() {
    printf("Single: \'S\'\n");
    printf("Double: \"D\"\n");
    return 0;
}
```

12 Quotes and Backslash

```
#include <stdio.h>
int main() {
    printf("She said: \"Hello, world!\"\n");
    printf("Path: C:\\\\Users\\\\Sawsan\n");
    return 0;
}
```

13 Right-Aligned Integer with Field Width

```
#include <stdio.h>
int main() {
    int value = 42;
    printf("Value: %5d\n", value);
    return 0;
}
```

14 Left-Aligned Integer

```
#include <stdio.h>
int main() {
    int value = 42;
```

```
printf("Value: %-5d!\n", value);  
return 0;  
}
```

15 Zero-Padded Integer

```
#include <stdio.h>  
int main() {  
    int code = 7;  
    printf("Code: %03d\n", code);  
    return 0;  
}
```

16 Float with Precision

```
#include <stdio.h>  
int main() {  
    float pi = 3.14159;  
    printf("Pi: %.2f\n", pi);  
    return 0;  
}
```

17 Float with Width and Precision

```
#include <stdio.h>  
int main() {  
    float score = 89.456;  
    printf("Score: %10.2f\n", score);  
    return 0;  
}
```

18 Percentage Symbol

```
#include <stdio.h>  
int main() {  
    float percent = 75.5;  
    printf("Completion: %.1f%%\n", percent);  
    return 0;  
}
```

19 Character with Field Width

```
#include <stdio.h>  
int main() {  
    char grade = 'A';  
    printf("Grade: %5c\n", grade);  
    return 0;  
}
```

20 String with Field Width

```
#include <stdio.h>
int main() {
    char name[] = "Sawsan";
    printf("Name: %10s\n", name);
    return 0;
}
```

21 Left-Aligned String

```
#include <stdio.h>
int main() {
    char name[] = "Sawsan";
    printf("Name: %-10s!\n", name);
    return 0;
}
```

22 Field Width with Multiple Values

```
#include <stdio.h>
int main() {
    int a = 1, b = 22, c = 333;
    printf("%5d %5d %5d\n", a, b, c);
    return 0;
}
```

23 Hexadecimal and Octal Format

```
#include <stdio.h>
int main() {
    int number = 255;
    printf("Hex: %x\n", number);
    printf("Octal: %o\n", number);
    return 0;
}
```

24 Scientific Notation

```
#include <stdio.h>
int main() {
    float mass = 0.000123;
    printf("Mass: %e\n", mass);
    return 0;
}
```