C Fun

Fun and Adventures in C Language Programming

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Chapter 1: Compiling and Running

Your first program

Greet Hello World

```c
/* HelloWorld.c */
#include <stdio.h>
int main(void) {
    printf("Hello World\n");
    return 0;
}
```

Compiling

Compiling the Source Code

```
gcc HelloWorld.c -o HelloWorld
```

Running

Running the Executable

```
./HelloWorld
```

Chapter 2: Basic Data Types

Character

`char` or `signed char` has a range from -128 to 127.
`unsigned char` has a range from 0 to 255.
Can contain an ascii character or a number.

Integer

`int` or `signed int` has a range from -2,147,483,648 to 2,147,483,647
`unsigned int` has a range from 0 to 4,294,967,295
`signed short int` has a range from -32668 to 32767
`unsigned short int` has a range from 0 to 65535
`long int` has a range from -2,147,483,648 to 2,147,483,647
`long long int` has a range from -9,223,372,036,854,775,808 to 9,223,372,036,854,775,807.
Can contain only integers.

Float

`float` Has a range from 1.2E-38 to 3.4E+38
Can contain decimal numbers.

Double

`double` Has a range from 1.7E-308 to 1.7E+308
`long double` Has a range from 3.4E-4932 to 1.1E+4932.
Can contain decimal numbers.

Chapter 3: Basic Input/Output

Input

Basic Input

```
scanf( fmt, ...args );
```

Output

Basic Output

```
printf( fmt, ...args );
```

Format Specifiers

Table 1. Format Specifiers

Format	Definition
%c	char
%d,%i	int
%hd	short int
%u	unsigned int
%hu	unsigned short int
%f	float
%lf	double
%llf	long double
%s	string

Chapter 4: Variables

Printing a Variable

Printing a Variable

```c
/* printvar.c */
#include <stdio.h>
int main(void) {
    char name[20]="fria";
    int age=16;
    float grade=2.75;
    printf("name: %s age: %d grade: %.2f\n",name,age,grade);
    return 0;
}
```

Scanning a Variable

Scanning a Variable

```c
/* scanvar.c */
#include <stdio.h>
int main(void) {
    char name[20];
    int age;
    float grade;

    printf("Input name: ");
    scanf("%s",name);

    printf("Input age: ");
    scanf("%d",&age);

    printf("Input grade: ");
    scanf("%f",&grade);

    printf("Name: %s\nAge: %d\nGrade: %.2f\n",name,age,grade);

    return 0;
}
```

Chapter 5: Mathematical Operations

Mathematical Operators

Table 2. Mathemathical Operators

Operator	Definition
+	add
-	subtract
*	multiply
/	divide
%	modulo

Basic Math Operations

Getting the Average

```
/* mathoper.c */
#include <stdio.h>
int main(void) {

    float grade1, grade2, grade3;
    float ave;

    printf("input grade 1 :");
    scanf("%f",&grade1);

    printf("input grade 2 :");
    scanf("%f",&grade2);

    printf("input grade 2 :");
    scanf("%f",&grade3);

    ave=(grade1+grade2+grade3)/3;

    printf("Average grade: %.2f\n",ave);

    return 0;
}
```

Chapter 6: Relational Operation

Chapter 7: Logical Operation