

C Programming Language

Else-IF

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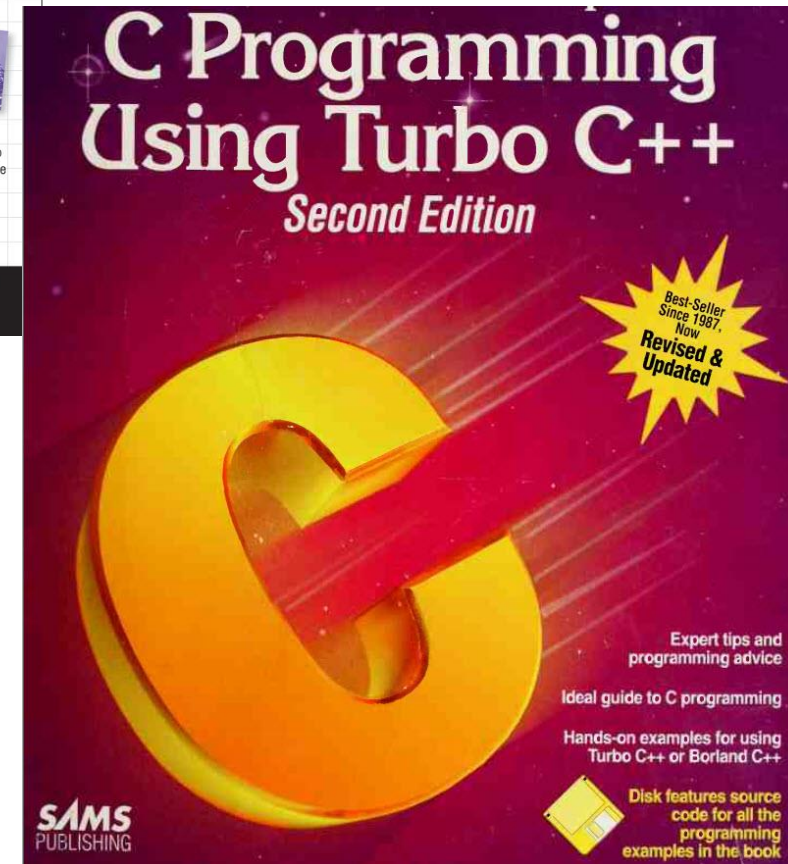
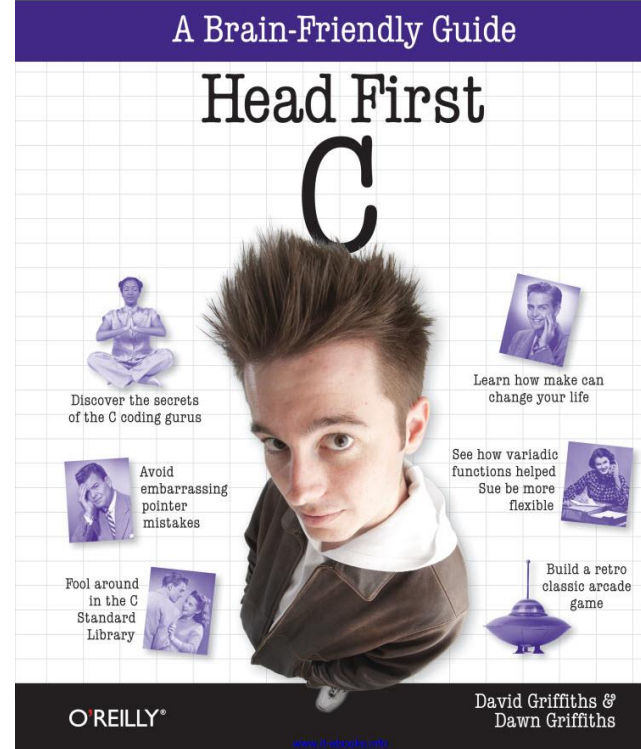
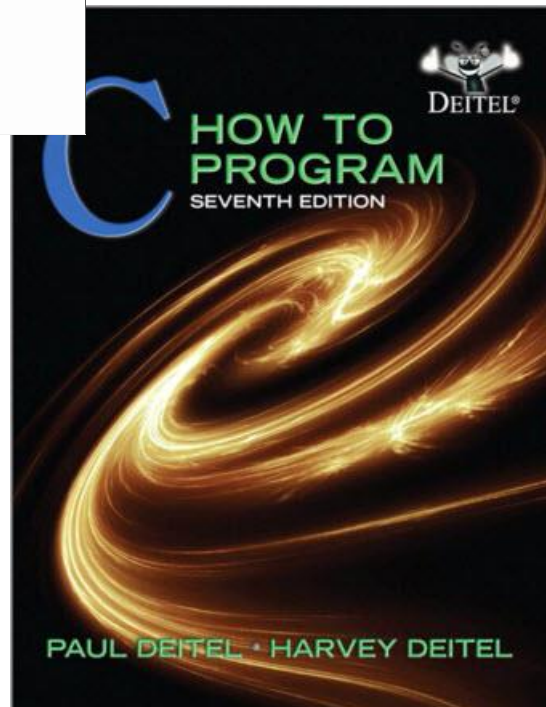
SECOND EDITION

THE



PROGRAMMING LANGUAGE

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Revise

✂ IF- ELSE

- How it works

Agenda

✂ Conditional statement

- ELSE IF statement
- How it works
 - Else : default values

✂ Examples

- Grade Letter
- Calculator
- Sales
- Digit // Upper case // Lower case

≡ ①

if (x < 10)

{

≡ ②

}

elseif (x > 20)

{

≡ ③

}

elseif (x == 40)

{

≡ ④

}

else

{

≡ ⑤

}

≡ ⑥

■ Else-if

```
1  #include <stdio.h>
2  int main()
3  {
4      float x;
5      puts("Number: ");
6      scanf("%f", &x);
7      if(x<8)
8          printf("your number less than 8");
9      else if(x<20)
10         printf("you number in between 8 and 20");
11     else
12         printf("Greater than 20");
13     printf("\nBye");
14 }
```

```
1  #include <stdio.h>
2  #include <stdlib.h>
3  main()
4  {
5      float num1, num2;
6      char op;
7      puts("\nType number, operator, number:\n");
8      scanf("%f,%c,%f", &num1, &op, &num2);
9      if(op == '+')
10         printf("sum = %f", num1+num2);
11     else if (op == '*')
12         printf("Mul = %f", num1*num2);
13     else if (op == '/')
14         printf("Div = %f", num1/num2);
15     else if (op == '-')
16         printf("Sub = %f", num1-num2);
17     else
18         printf("invalid op");
19 }
```

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Type number, operator, number:

6,*,3

Mul = 18.000000

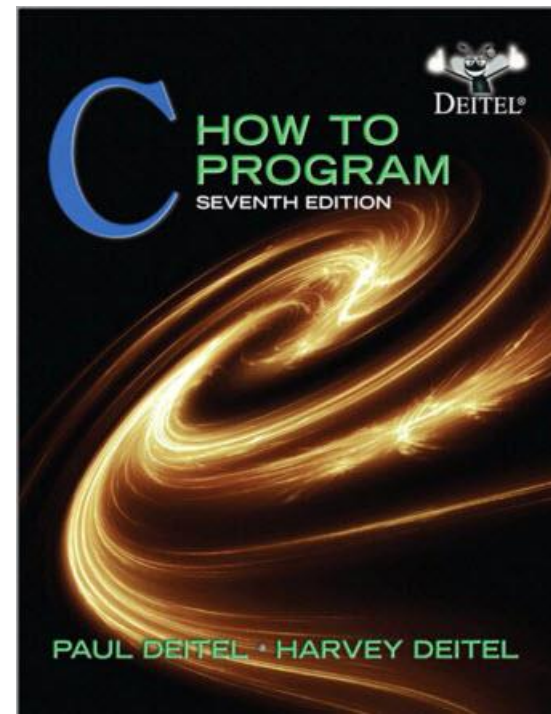
Process returned 0 (0x0) exec

Press any key to continue.

Quiz

- ✕ Write a program that asks the user for the length, width, and height of a package, and displays "Reject" if any dimension is greater than 10 cm, and "Accept" if all the dimensions are less than or equal to 10 cm

Quiz



3.18 (*Sales Commission Calculator*) One large chemical company pays its salespeople on a commission basis. The salespeople receive \$200 per week plus 9% of their gross sales for that week. For example, a salesperson who sells \$5000 worth of chemicals in a week receives \$200 plus 9% of \$5000, or a total of \$650. Develop a program that will input each salesperson's gross sales for last week and will calculate and display that salesperson's earnings. Process one salesperson's figures at a time. Here is a sample input/output dialog:

3.20 (*Salary Calculator*) Develop a program that will determine the gross pay for each of several employees. The company pays “straight time” for the first 40 hours worked by each employee and pays “time-and-a-half” for all hours worked in excess of 40 hours. You’re given a list of the employees of the company, the number of hours each employee worked last week and the hourly rate of each employee. Your program should input this information for each employee and should determine and display the employee's gross pay. Here is a sample input/output dialog:

```
Enter # of hours worked (-1 to end): 39
Enter hourly rate of the worker ($00.00): 10.00
Salary is $390.00
```

```
Enter # of hours worked (-1 to end): 40
Enter hourly rate of the worker ($00.00): 10.00
Salary is $400.00
```

```
Enter # of hours worked (-1 to end): 41
Enter hourly rate of the worker ($00.00): 10.00
Salary is $415.00
```

```
Enter # of hours worked (-1 to end): -1
```

3.35 (*Printing the Decimal Equivalent of a Binary Number*) Input an integer (5 digits or fewer) containing only 0s and 1s (i.e., a “binary” integer) and print its decimal equivalent. [*Hint:* Use the remainder and division operators to pick off the “binary” number’s digits one at a time from right to left. Just as in the decimal number system, in which the rightmost digit has a positional value of 1, and the next digit left has a positional value of 10, then 100, then 1000, and so on, in the binary number system the rightmost digit has a positional value of 1, the next digit left has a positional value of 2, then 4, then 8, and so on. Thus the decimal number 234 can be interpreted as $4 * 1 + 3 * 10 + 2 * 100$. The decimal equivalent of binary 1101 is $1 * 1 + 0 * 2 + 1 * 4 + 1 * 8$ or $1 + 0 + 4 + 8$ or 13.]

3.43 (*Sides of a Triangle*) Write a program that reads three nonzero integer values and determines and prints whether they could represent the sides of a triangle.

3.44 (*Sides of a Right Triangle*) Write a program that reads three nonzero integers and determines and prints whether they could be the sides of a right triangle.

3.47 (*Target-Heart-Rate Calculator*) While exercising, you can use a heart-rate monitor to see that your heart rate stays within a safe range suggested by your trainers and doctors. According to the American Heart Association (AHA), the formula for calculating your *maximum heart rate* in beats per minute is 220 minus your age in years. Your *target heart rate* is a range that's 50–85% of your maximum heart rate. [*Note: These formulas are estimates provided by the AHA. Maximum and target heart rates may vary based on the health, fitness and gender of the individual. Always consult a physician or qualified health care professional before beginning or modifying an exercise program.*] Create a program that reads the user's birthday and the current day (each consisting of the month, day and year). Your program should calculate and display the person's age (in years), the person's maximum heart rate and the person's target-heart-rate range.

2.32 (*Body Mass Index Calculator*) We introduced the body mass index (BMI) calculator in Exercise 1.14. The formulas for calculating BMI are

$$BMI = \frac{weightInPounds \times 703}{heightInInches \times heightInInches}$$

or

$$BMI = \frac{weightInKilograms}{heightInMeters \times heightInMeters}$$

BMI VALUES

Underweight: less than 18.5

Normal: between 18.5 and 24.9

Overweight: between 25 and 29.9

Obese: 30 or greater