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| 1. Write a program that asks the user to enter a two-digit number, then prints the number with its digits reversed.   1 #include <stdio.h>  2  3 int main(void)  4 {  5 int number;  6  7 printf("Enter a two-digit number: ");  8 scanf("%d", &number);  9  10 printf("The reversal is: %d%d \n", number % 10, number / 10);  11  12 return 0;  13 } |
| 1. Extend the program in Programming Project 1 to handle three-digit numbers.   1 #include <stdio.h>  2  3 int main(void)  4 {  5 int number;  6  7 printf("Enter a three-digit number: ");  8 scanf("%d", &number);  9  10 printf("The reversal is: %d%d%d \n",  11 number % 10, number % 100 / 10, number % 1000 / 100  12 );  13  14 return 0;  15 } |
| 1. Rewrite the program in Programming Project 2 so that it prints the reversal of a three-digit number without using arithmetic to split the number into digits.   1 #include <stdio.h>  2  3 int main(void)  4 {  5 int num1, num2, num3;  6  7 printf("Enter a three-digit number: ");  8 scanf("%1d%1d%1d", &num1, &num2, &num3);  9  10 printf("The reversal is: %d%d%d\n", num3, num2, num1);  11  12 return 0;  13 } |
| 1. Write a program that reads an integer entered by the user and displays it in octal (base 8)   1 #include <stdio.h>  2  3 int main(void)  4 {  5 int number, temp;  6  7 printf("Enter a number between 0 and 32767: ");  8 scanf("%d", &number);  9  10 temp = (number % 8);  11 number /= 8;  12  13 temp += (number % 8) \* 10;  14 number /= 8;  15  16 temp += (number % 8) \* 100;  17 number /= 8;  18  19 temp += (number % 8) \* 1000;  20 number /= 8;  21  22 temp += (number % 8) \* 10000;  23 temp += number /= 8 \* 100000;  24  25 printf("In octal, your number is: %.5d \n", temp);  26  27  28 return 0;  29 } |
| 1. Rewrite the upc.c program of Section 4.1 so that the user enters 11 digits at one time, instead of entering one digit, then five digits, and then another five digits.   1 #include <stdio.h>  2  3 int main(void)  4 {  5 int sum\_digit1, sum\_digit2, check\_digit,  6 d1, d2, d3, d4, d5,  7 d6, d7, d8, d9, d10, d11;  8  9 printf("Enter the first 11 digits of a UPC: ");  10 scanf("%1d %1d%1d%1d%1d%1d %1d%1d%1d%1d%1d",  11 &d1,  12 &d2, &d3, &d4, &d5, &d6,  13 &d7, &d8, &d9, &d10, &d11  14 );  15  16 sum\_digit1 = d1 + d3 + d5 + d7 + d9 + d11;  17 sum\_digit2 = d2 + d4 + d6 + d8 + d10;  18 check\_digit = 9 - ((sum\_digit1 \* 3 + sum\_digit2) - 1) % 10;  19  20 printf("Check digit: %d \n", check\_digit);  21  22 return 0;  23 } |
| 1. European countries use a 13-digit code, known as a European Article Number (EAN) instead of the 12-digit Universal Product Code (UPC) found in North American.   1 #include <stdio.h>  2  3 int main(void)  4 {  5 int sum\_digit1, sum\_digit2, check\_digit,  6 d1, d2, d3, d4, d5, d6,  7 d7, d8, d9, d10,d11,d12;  8  9 printf("Enter the first 12 digits of an EAN: ");  10 scanf("%1d %1d%1d%1d%1d%1d %1d%1d%1d%1d%1d%1d",  11 &d1, &d2, &d3, &d4, &d5, &d6,  12 &d7, &d8, &d9, &d10, &d11, &d12  13 );  14  15 sum\_digit1 = d2 + d4 + d6 + d8 + d10 + d12;  16 sum\_digit2 = d1 + d3 + d5 + d7 + d9 + d11;  17  18 check\_digit = 9 - ((sum\_digit1 \* 3 + sum\_digit2) - 1) % 10;  19  20 printf("Check digit: %d \n", check\_digit);  21  22 return 0;  23 } |