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/* Question #2
   Explain how the main program works STEP BY STEP.
   For every step, write down the line number and the values of the variables.
   e.g. 20: i set to 1; (1<=5) is true;
        21: printf, using 3 columns to display qty[1-1] whose value is 2
        20: i++; the value of i is changed to 2; (2<=5) is true
        21:
*/

#define _CRT_SECURE_NO_WARNINGS
#include <stdio.h>
#define MAX_ITEMS 5

int main (void) {
    int    qty[MAX_ITEMS] = {2, 3, 4, 5, 6}, i;          //line number 16

    double price[MAX_ITEMS] = { 0.5, 1.25, 3.99, 2.75, 1.15 },
           total[MAX_ITEMS];          //line number 18

    for (i=1; i <= MAX_ITEMS; i++ ) {                  // line number: 20
        printf( "%d\n", qty[i-1] );                    // line number: 21
    }

    for (i=MAX_ITEMS-1; i >= 0; i--)                    // line number: 24
        total[i] = qty[i] * price[i];                  // line number: 25

    for (i=1; i<MAX_ITEMS; i++) //BE CAREFUL!           // line number: 27
        printf( "$%.2lf%7d%5c$%.2lf\n",               // line number: 28
                price[i], qty[i], ' ', total[i] );     // line number: 28

    return 0;
}

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15: enter main
16: qty array of size 5 of type int declared and initialized with values 2,3,4,5,6
18: price array of size 5 of type double declared and initialized with values 0.5,1.25, 3.99, 2.75,
1.15
    total array of size 5 of type double declared
20: for i set to 1 , 1<=5 ? true enter loop
21: display 2 (qty[1-1] which is qty[0])
20 increment i , i=2, 2<=5 ? true enter loop
21: display 3 (qty[2-1] which is qty[1])
20: increment i by 1, i=3, 3<=5 ? true enter loop
21: display 4 (qty[3-1] which is qty[3])
20: increment i by 1, i=4, 4<=5 ? true enter loop
21: display 5 (qty[4-1] which is qty[4])
20: increment i by 1, i=5, 5<=5 ? true enter loop
21: display 6 (qty[5-1] which is qty[4])
20: increment i by 1, i=6, 6<=5 ? false exit loop

24: for i set to 5-1=4 , 4>=0 ? true enter loop
25: total[4] = qty[4] * price[4] = 6 * 1.15= 6.90
24: decrement i by 1, i=3, 3>=0 ? true enter loop
25: total[3] = qty[3] * price[3] = 5 * 2.75= 13.70
24: decrement i by 1, i=2, 2>=0 ? true enter loop
25: total[2] = qty[2] * price[2] = 4 * 3.99= 91.56
24: decrement i by 1, i=1, 1>=0 ? true enter loop
25: total[1] = qty[1] * price[1] = 3 * 1.25= 3.75
24: decrement i by 1, i=0, 0>=0 ? true enter loop
25: total[0] = qty[0] * price[0] = 2 * 0.5=..1.00
24: decrement i by 1, i=-1, -1>=0 ? false exit loop

27: for i set to 1 , 1<5 ? true enter loop

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28: display (4 spaces)1.25 (6 spaces)3 (5spaces) (4spaces)3.75
27: increment i by 1, i=2, 2<5 ? true enter loop
28: display (4 spaces)3.99 (6 spaces)4 (5spaces) (4spaces)91.56
27: increment i by 1, i=3, 3<5 ? true enter loop
28: display (4 spaces)2.75 (6 spaces)5 (5spaces) (4spaces)13.70
27: increment i by 1, i=4, 4<5 ? true enter loop
28: display (4 spaces)1.15 (6 spaces)6 (5spaces) (4spaces)6.90
27: increment i by 1, i=5, 5<5 ? false exit loop
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29: control shifts back to console with 0