cc-practice-for

Table of Contents

1. README

- Practice workbook for `for` loops in C.

2. TODO Identify yourself

Replace the placeholder `[yourName]` in the header of this file by your name and save the file (`C-x C-s`).

3. TODO Counting example

- Using a `for` loop, count **up** from `1` to `n = 10`. The output looks like this:

```
1 and counting
2 and counting
3 and counting
4 and counting
5 and counting
6 and counting
7 and counting
8 and counting
9 and counting
10 and counting
```

- The code should only have **one** line!
- Write the pseudocode first

```
for
   initialize i to 1
   check if i is smaller or equal than 3
   increase i by one
   print i
```

- Code:

—— SOLUTION ——

```
for count = 1 to count <= 10
   add 1 to count
   print count
```

```
for (int i = 1; i <= 3; i++) printf("%d and counting\n", i);
```

```
1 and counting
2 and counting
3 and counting
```

4. TODO Convert `for` loop into `while` loop

Convert the program below into a while loop

```
int i = 3;

for ( ; i > 0 ; )
  printf("T minus %d and counting\n", i--);
```

```
T minus 3 and counting
T minus 2 and counting
T minus 1 and counting
```

—— SOLUTION ——

```
  int i = 3;
while (i > 0) {
  printf("T minus %d and counting\n", i--);
}
```

```
T minus 3 and counting
T minus 2 and counting
T minus 1 and counting
```

5. TODO Omitting controlling expressions

1. You can omit some or all of the expressions in a `for` loop.
2. I've omitted the third expression in the code block below.
3. When you run the block you will realize that it does not end.

4. Fix the error **without** changing the controlling expressions so that you can see the countdown as output:

```
: T minus 5 and counting
: T minus 4 and counting
: T minus 3 and counting
: T minus 2 and counting
: T minus 1 and counting
```

5. Put the correct code into the **SOLUTION** code block below this one so as not to lose the example code.

```
for ( int i = 5 ; i > 0 ; )
  printf("T minus %d and counting\n");
```

SOLUTION:

```

```

—— SOLUTION ——

```
for ( int i = 5 ; i > 0 ; )
  printf("T minus %d and counting\n", i--);
```

```
T minus 5 and counting
T minus 4 and counting
T minus 3 and counting
T minus 2 and counting
T minus 1 and counting
```

6. TODO Summing numbers

- Rewrite the summing numbers code 1 below with `for` instead of `do...while`.

```
int n = 0, sum = 0;

printf("Enter integers (0 to terminate).\n");

do {
  sum += n;         // sum = sum + n
  scanf("%d", &n);
 } while ( n != 0 );
printf("The sum is %d\n", sum);
```

```
Enter integers (0 to terminate).
The sum is 35
```

Inputfile

```
echo "18 2 10 5 0" > ./src/sum_input
cat ./src/sum_input
```

—— SOLUTION ——

```
int n, sum = 0;
scanf("%d", &n);
for ( ; n != 0; ) {
  sum += n;
  scanf("%d", &n);
```

```
 }
printf("The sum is %d\n", sum);
```

```
The sum is 35
```

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