

# cc-practice-switch

## Table of Contents

- [1. READ README](#)
- [2. TODO Identify yourself](#)
- [3. Switch output example](#)
- [4. Write a switch statement](#)
- [5. References](#)

## 1. READ README

- This file is a practice file for logical and compound operators
- Time: approx. 30 min.
- When you're done with a section move the cursor on the section heading and type S-<right> (or SHIFT+<right-arrow>).
- This section follows chapter 3 in Davenport/Vine (2015) and chapters 4 and 5 in King (2008).

## 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. Switch output example

- What output does the following program fragment produce if i=1?
- Tip: % is the modulo operator - i % j returns the remainder of

i/j. E.g.  $5 \% 4 = 4/4 + 1 = 1$ , and  $3 \% 4 = 3$  <sup>1</sup>.

- Guess the answer first, then replace the ??? by 1 and run the block.

```
int i = ???;
switch ( i % 3 ) {
  case 0: printf("zero");
  case 1: printf("one");
  case 2: printf("two");
}
```

— SOLUTION —

```
int i = 1;
switch ( i % 3 ) {
  case 0: printf("zero");
  case 1: printf("one");
  case 2: printf("two");
}
```

onetwo

- Fix the code in [1](#) below so that the output for i=1,2, or 3 is only one of "one", "two", or "three". Test your result.

```
int i = 3;
switch ( i % 3 ) {
    case 0: printf("zero");
    case 1: printf("one");
    case 2: printf("two");
}
```

zeroonetwo

— SOLUTION —

```
int i = 1;
switch ( i % 3 ) {
    case 0: printf("zero");
        break;
    case 1: printf("one");
        break;
    case 2: printf("two");
        break;
}
```

one

## 4. Write a switch statement

1. The following table shows a few of the telephone area codes in GA along with the largest city in the area.

AREA CODE	MAJOR CITY
229	Albany
404	Atlanta
470	Atlanta
478	Macon
678	Atlanta
912	Savannah

2. Write a switch statement whose controlling expression is the variable `area_code` - if the value of `area_code` is in the table, the switch statement should print the corresponding city name. Otherwise, it should print the message "Area code not recognized".

In the code block [1](#), the variables and input statements have already been written for you, and the switch statement has been started - all you need to do is complete the switch statement.

*Tip: to save space, you can place case labels leading to the same statement on one line.*

```
int area_code;

scanf("%d", &area_code);

switch (...) {
    ...
}
```

## — SOLUTION —

```
int area_code;

scanf("%d", &area_code);

switch (area_code) {
    case 404: case 470: case 678:
        printf("Atlanta");
        break;
    case 229:
        printf("Albany");
        break;
    case 478:
        printf("Macon");
        break;
    case 912:
        printf("Savannah");
        break;
    default:
        printf("Area code not recognized");
        break;
}
```

Albany

1. Run and test the file right here with the input file [1](#). The following code block initializes the file with 229 - replace it and run the block to try other input numbers.

```
echo 229 > ./src/areacode
cat ./src/areacode
```

## 5. References

- Davenport/Vine (2015) C Programming for the Absolute Beginner (3ed). Cengage Learning.
- Kernighan/Ritchie (1978). The C Programming Language (1st). Prentice Hall.
- King (2008). C Programming - A modern approach (2e). W A Norton.
- Orgmode.org (n.d.). 16 Working with Source Code [website]. [URL: orgmode.org](https://orgmode.org)

## Footnotes:

<sup>1</sup> If this puzzles you: to find  $3\%4$ , we first find the highest multiple of the divisor (4) that is equal or less than the dividend (3) - this is 0. Then we subtract the highest multiple from the dividend to get the answer:  $3 - 0 = 3$ .

Created: 2022-06-14 Tue 11:43