

SWITCH - PRACTICE FILE

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April 2, 2024

DONE README

- This file is a practice file for the `SWITCH...CASE` selection
- 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).

DONE Identify yourself

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

DONE Switch output example

1. What output does the program below 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`¹.

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

```
int i = 1;
switch ( i % 3 ) {
```

¹If 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`.

```

case 0: printf("zero");
case 1: printf("one");
case 2: printf("two");
}

```

onetwo

2. Fix the code below so that the output for i=1,2, or 3 is only one of "one", "two", or "three". Test your result.

```

int i = 11; // 11%3 = 3 remainder 2
switch ( i % 3 ) {
    case 0: printf("zero");
        break;
    case 1: printf("one");
        break;
    case 2: printf("two");
}

```

two

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

Albany

- (a) To test your solution, create an input file `areacode` with an area code number in it - e.g. 229, which should return **Albany**.

```
echo "229" > areacode
cat areacode
```

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