CS 170 ch.3 Lab 2

# Task 1

Question: Write a program with the class name DaysInMonth that asks the user to enter a month (1 for January, 2 for February, and so on) and then prints the number of days in the month. For February, print “28 or 29 days”.

You must use a **switch** statement in this program.

**Your program must be efficient** (do not repeat code)

**Test Case 1**

Enter a month (1-12) and I will print the number of the days in that month:**3**

This month has 31 days

**Test Case 2**

Enter a month (1-12) and I will print the number of the days in that month: **2**

This month has 28 or 29 days

**Test Case 3**

Enter a month (1-12) and I will print the number of the days in that month: **11**

This month has 30 days

**Test Case 4**

Enter a month (1-12) and I will print the number of the days in that month: **14**

Invalid Month

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# Task 2

Question: What is the value of each of the following boolean expressions if x is 5, y is 10, and z is 15? (Chose either True or False.) Include each BE(boolean expression) and your answer in your word document. Show your full evaluation in steps, not just the final answer.

 (x < 5 && y > x)                                               True    False

 (x < 5 || y > x)                                                   True   False

 (x > 3 || y < 10 && z == 15)                            True    False

 ( (!(x > 3) && (x != z) ) || ( (x + y) == z) )          True   False

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| *Tracing:* x is 5, y is 10, and z is 15   |  |  | | --- | --- | | Boolean expressions | solution | | (x < 5 && y > x) | x<5 : 5<5 : false  y>x : 10>5 : true  false && true : false  FALSE | | (x < 5 || y > x) | x<5 : 5<5 : false  y>x : 10>5 : true  false || true : true  TRUE | | (x > 3 || y < 10 && z == 15) | x>3 : 5>3 : true  y<10 : 10 < 10 : false  z==15 : 15==15 : true  false && true : false  true || false : true  TRUE | | ((!(x > 3) && (x != z)) || ((x + y) == z)) | !x>3 : !5>3 : !true : false  x!=z : 5!=15 : true  x+y==z : 5+10==15 : 15==15 : true  false && true : false  false || true : true  TRUE | |

# Task 3

Question:

**Part One:**

Write a class called Gpa.java that calculates the GPA of the letter grade input by the user. If the user enters:

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| Letter Grade | GPA |
| A or a | 4.0 |
| B or b | 3.0 |
| C or c | 2.0 |
| D or d | 1.0 |
| F or f | 0 |
| anything else | "invalid entry" |

* first, use multi-branching (if statements) **(introduce the logical operator ||)**

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**Part Two:**

- Next, comment out the if statements (use a multi-line comment /\*…\*/) and replace them with a switch statement.

**( remember to take into account upper case and lower case)**

**Test Case 1:**

What is your letter grade:C

Your GPA is: 2.0

**Test Case 2:**

What is your letter grade:**b**

Your GPA is: 3.0

**Test Case 1:**

What is your letter grade:Z

Your GPA is: invalid entry

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