

Part I — Questions

1. Assume you are given an un-assigned **string** variable `letterGrade`, and an already assigned **float** variable `numberGrade`. Write a small program that assigns “A” to `letterGrade` if `numberGrade` is between 100 and 90 (both included), “B” to `letterGrade` if `numberGrade` is between 90 (excluded) and 80 (included), etc., and “Invalid data” if `numberGrade` is strictly lower than 0 or strictly greater than 100.

Should you use a **switch** statement or a **if...else if...else?**

2. Given an **int** variable `counter`, write three statements to decrement its value by 1.

3. What will be displayed on the screen?

```
int x = 3, y = 7;
Console.WriteLine (x++ + " and " + --y);
```

4. What will be displayed at the screen by the following program?

```
int counter = 2;
while (counter != 5)
{
    Console.Write(counter + "\n");
    counter++;
}
```

5. What will be displayed at the screen by the following program?

```
int counter = 10;
while (counter != 5) ;
Console.Write(counter + "\n");
counter--;
```

6. What will be displayed at the screen by the following program?

```
int counter = 7;
while (counter != 2)
    Console.Write(counter + "\n");
counter--;
```

7. What is input validation? Name a control structure that can be used to perform it. Why is it important?

8. What do we name a variable that is incremented at every iteration of a loop, i.e., that keeps the running total?

9. What is a sentinel value?

10. Write a program that asks the user to enter a value between 0 and 10, and asks again as long as the user enters integers outside that range.

11. Write a small program that asks the user for an integer, and displays “It is positive” if the number entered is positive, “It is negative” if the number entered is negative, and “Not a number” if the user entered a string that is not an integer.

Part II – Problems

Problem 1

Write a `switch` statement that calculates the number of days in a particular month. You should assume that you are given already assigned month and year `int` variables, and that your program should set an already declared `int` `numberOfDays` variable to 28, 29, 30 or 31 depending on the month / year combination.

Your program should start with a `switch` matching month against certain values, and, if month is 2, uses an `if` statement to decide whenever the number of days is 28 or 29. You can use something like

```
switch (month) {  
    :  
    case (2):  
        if ...  
        :  
        break;  
    :  
}
```

