

1. Boolean Comparators

< > == <= >= !=

2. Compound Boolean Operators

&& || !

3. Basic **if** statement

```
if ( a condition is true)
{
    // do these
    // statements
}
```

or

```
if ( condition is true)
    // do this single statement
```

4. Basic **if-else** statement to do one of two alternatives

```
if (condition is true)
    // do this statement
else
{
    // do these
    // statements
}
```

5. "Switch-style" **if-else** statements to perform instructions based on a range of values in a single variable

```
if (condition1)
{
    // do these
}
else if (condition2)
{
    // do these
}
else if (condition3)
{
    // do these
}
else
{
    // do these if nothing else was done
}
```

6. Nested **if-else** statements to perform multi-step decision-making

```
    if (condition1)
    {
        // statement
        if (condition2)
        {
            // statements
        }
        else
        {
            // statements
        }
        // statement
    }
else
{
    // statement
    if (condition3)
    {
        // statements
    }
    else
    {
        // statements
    }
    // statement
}
```

EXERCISES

1. In a program, the number of days in a calendar year is already initialized as 365 in the **integer** variable **daysInYear**. Write a simple **if** statement that modifies that number appropriately if the boolean variable **leapYear** is true.
2. Write an **if-else** statement to print out the square root of a number, or print out a message that the square root is imaginary if the value of the **double** **aNumber** is negative.
3. Write an **if-else** statement that takes the **double** variables **a** and **b** and prints out the answer to **a / b**, but only if **b** is not **0**. Otherwise, the statement should **print** an error message.
4. Write a series of appropriate **if-else** statements (a “switch-style” statement) to **print** an appropriate **String** comment on the weather based on the temperature as given by the **double** variable **degreesFahrenheit**. Include at least 4 comments in your solution.
5. A program stores the lengths of the three sides of a triangle in the variables **a**, **b**, and **c**. Write if-else statements to **return** a **String** identifying the type of triangle: *equilateral*, *isosceles*, or *scalene*.
6. You’re trying to decide what to do this weekend. If you’re **alone** and you **haveMoney** (both boolean variables), you’ll go to the movies, but if you’re broke, you’ll stay home and read. If you’re *not* alone though, and you have money, you’ll take your friends out to dinner, but if you don’t have money, you’ll all hang out and play video games. Write a set of **if-else** statements to print out your weekend options based on the boolean variables **alone** and **haveMoney**.