Quiz 7: Calling functions SOLUTION

CSCI 110 Section 1

Wednesday, August 31, 2016

1) What's the value returned if you call `functionA()`? [25 points]

```
String functionA() {
    String s = "starts";
    if (!s.equals("ends")) {  // true
        s += "with";
        if (s.length() < 10) {  // false since "startswith".length() == 10
            s += "not";
        } else {
            s += "done";                        "startswithdone"
        }
    } else {
        s += "phew";
    }
    return s;
}
```

2) What's the value returned if you call `functionB(6.0f)`? [25 points]

```
boolean functionB(float f) {
    if (f > 2.0) {  // first condition is true
        return false || true;  // so here the function returns immediately
    } else if (f >= 4.0) {
        return false && true;                    true
    } else if (f > 6.0) {
        return true && true;
    }
    return false && false;
}
```

3) What's the value returned if you call `functionC(true)`? [25 points]

```
int functionC(boolean b) {
    int start = 2;
    int end = 5;
    int result = 1;
    while (start <= end) {                  15  (1 + 2 + 3 + 4 + 5)
        if (b) {
            result += start;
        } else {
            result *= start;
        }
        start += 1;
    }
    return result;
}
```

4) What's the value returned if you call `functionD(6, 3)`? [25 points]

```
boolean functionD(int a, int b) {
    boolean result1 = false;
    boolean result2 = true;
    if (a + b < 10) {  // true
        result1 = false;
    }
    if (a * b > 60) {  // false
        result2 = false;
    }
    if (a / b == 2) {  // true
        result1 = true;
    }
    if (a % b == 1) {  // false
        result2 = true;
    }
    if (a - b != 3) {  // false
        result1 = false;
    }
    // here result1 == true and result2 == true
    return result1 && result2;
}
```

true

5) What's the value returned if you call `functionE(2)`? [extra credit, 25 points]

Note: creating a `StringBuilder` and calling `builder.append("...");` is equivalent to declaring `String s = "";` and doing `s += "...";` but using a `StringBuilder` is more efficient in loops like this.

```
String functionE(int end) {
    int a = 0;
    int b = 0;
    StringBuilder builder = new StringBuilder();
    while (a <= end) {
        while (b <= end) {
            builder.append((a + b) + "\t");
            b += 1;
        }
        builder.append("\n");
        a += 1;
        b = 0;
    }
    return builder.toString();
}
```

```
0    1    2
1    2    3
2    3    4
```

Try it out: https://repl.it/DEH5