Conditionals & Functions

Name: _____ Period: ____ Date: _____

Objectives

- Write and evaluate expressions using relational and logical operators (AAP-2.E, AAP-2.F).
- Determine the result of conditional and nested conditional statements (AAP-2.H, AAP-2.I).
- Call procedures and determine their result, and explain procedural abstraction (AAP-3.A, AAP-3.B).

Directions: Code is shown in AP pseudocode and App Lab (JavaScript). Trace carefully.

Section 1: Boolean, Relational & Logical Operators

1. Evaluate each as `true` or `false`.

(a) `5 > 3` _____ (b) `4 = 4` _____ (c) `7 ≠ 7` _____

2. Evaluate each logical expression.

(a) `(true AND false)` _____ (b) `(true OR false)` _____

(c) `NOT (5 > 3)` _____ (d) `(2 < 1) OR (3 = 3)` _____

Section 2: Conditional Statements

3. Trace this code. What is displayed when `temp` is 45?

```
IF (temp < 50)
{
  DISPLAY("Wear a jacket")
}
ELSE
{
  DISPLAY("No jacket needed")
}
```

Answer: _____

4. The same logic in App Lab. What appears in `"msg"` when `age` is 16?

```
if (age >= 18) {
  setText("msg", "Adult");
} else {
  setText("msg", "Minor");
}
```

Answer: _____

 CC BY-NC 4.0

Section 3: Nested Conditionals

5. Trace this nested conditional. What is displayed for `score = 85`? For `score = 72`?

```
IF (score ≥ 90)
{
  DISPLAY("A")
}
ELSE
{
  IF (score ≥ 80)
  {
    DISPLAY("B")
  }
  ELSE
  {
    DISPLAY("C")
  }
}
```

Answer: _____

Section 4: Procedures (Functions)

A procedure (also called a function or method) is a named group of instructions that may take parameters and return a value.

6. Trace this code. What is displayed?

```
PROCEDURE addOne(n)
{
  RETURN(n + 1)
}
result ← addOne(4)
DISPLAY(result)
```

Answer: _____

7. In the code above, name the **parameter** and the **argument**.

_____

8. Explain one way **procedural abstraction** (writing and reusing procedures) helps manage complexity in a large program.

_____

_____

CC BY-NC 4.0