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CHAPTER 4 SNACKS

Fill in the blanks in each of the following statements:

a) All programs can be written in terms of three types of control structures: \_\_\_\_\_\_\_, \_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_.

Ans: sequence structure, selection structure and iteration structure.

b) The statement is used to execute one action when a condition is true and an

other when that condition is false.

Ans: selection statement

c) Repeating a set of instructions a specific number of times is called iteration.

Ans: counter control iteration

d) When it’s not known in advance how many times a set of statements will be repeated,

a(n) value can be used to terminate the iteration.

Ans: Sentinel value

e) The structure is built into Java; by default, statements execute in the order

they appear.

Ans: Sequence

f) Instance variables of types char, byte, short, int, long, float and double are all given the value by default.

Ans: zero

g) If the increment operator is\_\_\_\_\_\_ to a variable, first the variable is incremented by 1, then its new value is used in the expression.

Ans: preincrement

h) When the declaration int y = 5; is followed by the assignment y += 3.3; the value of y is \_\_\_\_\_\_\_

Ans: 8.3

State whether each of the following is true or false. If false, explain why.

a) An algorithm is a procedure for solving a problem in terms of the actions to execute and

the order in which they execute.

Ans: TRUE

b) A set of statements contained within a pair of parentheses is called a block.

Ans: False (A set of statements contained within a pair of curly braces is a block)

c) A selection statement repeats an action while a condition remains true.

Ans: True

d) A nested control statement appears in the body of another control statement.

Ans: True

e) Java provides the arithmetic compound assignment operators +=, -=, \*=, /= and %= for abbreviating assignment expressions.

Ans: True

f) The primitive types (boolean, char, byte, short, int, long, float and double) are portable across only Windows platforms.

Ans: False

g) Specifying the order in which statements execute in a program is called program control.

Ans: True

h) The unary cast operator (double) creates a temporary integer copy of its operand.

Ans: False

i) Instance variables of type boolean are given the value true by default.

Ans:True

j) Pseudocode helps you think out a program before attempting to write it in a programming language.

Ans: true

4.3 Write four different Java statements that each add 1 to integer variable x.

Ans: int x = 1; int x += 1 ; x++ int x /= 1;

4.4 Write Java statements to accomplish each of the following tasks:

a) Use one statement to assign the sum of x and y to z, then increment x by 1.

Ans: int z = y + x++;

b) Test whether variable count is greater than 10. If it is, print "Count is greater than 10".

Ans: int count > 10;

System.out.print("count is greater than 10");

c) Use one statement to decrement the variable x by 1, then subtract it from variable total and store the result in variable total.

Ans: total -= --x;

d) Calculate the remainder after q is divided by divisor, and assign the result to q. Writethis statement in two different ways.

Ans: q = q % divisor;

q %= divisor;

4.5 Write a Java statement to accomplish each of the following tasks:

a) Declare variable sum of type int and initialize it to 0.

Ans; int sum = 0;

b) Declare variable x of type int and initialize it to 1.

Ans: int x = 1;

c) Add variable x to variable sum, and assign the result to variable sum.

Ans: sum += x

d) Print "The sum is: ", followed by the value of variable sum.

Ans: System.out.print("the sum is " + sum);

4.6 Combine the statements that you wrote in Exercise4.5 into a Java application that calculates and prints the sum of the integers from 1 to 10. Use a while statement to loop through the calculation and increment statements. The loop should terminate when the value of x becomes 11

Ans: public class SumOfInteger {

public static void main (String [] args) {

for (int x = 0; x < 10; x++) {

sum += x;

}

System.out.print("The sum is " + sum);

}

}

4.7 product is 5, x is 5

int product \*= x++;

the value is 30

4.8 a) the error is no right curly braces;

b) the semicolon after the else keyword should be removed.

4.9) There is no initialization of z, no increment and also no output

4.10) The if selection statement execute if only the condition given is true and skips if it is false. The while iteration statement also executes if the condition is met but the differences is while loop is repetitive.

4.11) if a divisor divides the dividend the fractional part is truncated. To avoid the outcome, the we have to use the remainder operator.

4.12) Control statement can be combine in a block of code, we can combine the selection statement with the iteration statement.

4.13) Sentinel loop control

4.14) the value of x = y++ is 28 and x = ++y? is 28

4.15) the semicolon after the if method

b) the x and total variable should include one assignment operator when assigning it to a value, also total should be added to the x before incrementing the x

c) there is no value for x and the right and left curly braces are missing and there is no output;

d) the not equals to should be written as != and the right curly braces is missing

e) Y is: 0 and total is 0

Y is: 1 and total is 1

Y is: 2 and total is 3

Y is: 3 and total is 6

Y is: 4 and total is 10

Y is: 5 and total is 15

Y is: 6 and total is 21

Y is: 7 and total is 28

Y is: 8 and total is 36

Y is: 9 and total is 45

Y is: 10 and total is 55

Y is: 11 and total is 66

Y is: 12 and total is 78