

Solutions for control-statements

if

1.

- a) bookBigRoom
- b) bookMediumRoom
- c) bookMediumRoom

2.

- a) bookBigRoom, since 123 is greater than 90
- b) bookMediumRoom, since 90 is not greater than 90 but greater than 20
- c) bookMediumRoom, since 89 is not greater than 90 but greater than 20
- d) bookMediumRoom, since 21 is not greater than 90 but greater than 20
- e) bookSmallRoom, since 21 is not greater than 90 or 20
- f) bookSmallRoom, since 5 is not greater than 90 or 20
- g) bookSmallRoom, since 0 is not greater than 90 or 20

3.

- a) bookSmallRoom
- b) no method is called

4.

Verify yourself.

5.

Verify yourself.

6.

See solutions source code.

for

1.

Let's calculate.

The loops starts with $i=0$, which is less than 3. One loop so far. After that loop, i is incremented ($i++$).

Next loop $i=1$. Still less than 3. One more loop, so 2 loops in total. After that loop, i is incremented ($i++$).

Next loop $i=2$. Still less than 3. One more loop, so 3 loops in total. After that loop, i is incremented ($i++$).

Next loop $i=3$, which is NOT less than 3, so we're exiting the loop.

3 loops in total.

2.

1 loop.

3.

0 loops

4.

3 loops.

First loop $i=3$, which is bigger than 0. Decrease i . One loop so far

Next loop $i=2$, which is still bigger than 0. Decrease i . Two loops so far.

Next loop $i=1$, which is still bigger than 0. Decrease i . Three loops so far.

Next loop $i=0$, which is NOT bigger than 0. loop is exited.

5.

```
for (int counter=0; counter<3; counter++) {  
    setColor(RED);  
}
```

while

1.

For ever. The while loop continues until the expression is false. Since the expression is always true the loop will continue for ever.

2.

None. The while loop starts if and continues until the expression is false. Since the expression is always false the loop will never be entered.

3.

Let's calculate this ourselves. We start with counter having the value 0, which is less than 3 so we're entering the loop. In that loop we increase, using ++, counter with 1.

counter is now 1, which is still less than 3, so let's loop one more time and increase counter.

counter is now 2, which is still less than 3, so let's loop one more time and increase counter.

counter is now 3, which is NOT less than 3 so let's NOT loop anymore.

4.

For ever. The expression checks if counter is less than 3. Since counter is 0 it is also less than 3. In the loop no changes are made to the counter variable so the loop continues for ever.

5.

Until the temperature is 20 degrees or higher we're calling heatUp method. When the room is 20 we continue with some other thing... (the code below).

6.

See solution source code.