

Homework 2

R5.1

- a.  
k was not less than n. Therefore:  
n = 1, k = 2, and r = 1
- b.  
n was indeed less than k. Therefore:  
n = 1, k = 2, r = 2
- c.  
r was not less than k. Therefore:  
n = 1, k = 1, r = 2
- d.  
r was not less than n + k. Therefore:  
n = 1, k = 6, r = 3

R5.12

Tracing the algorithm with an appointment of 10-12 and one from 11-13:

start1 = 10, start2 = 11  
end1 = 12, end2 = 13

First if statement:

start1 is not greater than start2, so  $s = \text{start2}$  is executed.  
 $s = 11$

Second if statement:

end1 is indeed less than end2, therefore  $e = \text{end1}$  is executed.  
 $e = 12$

Third if statement:

s is indeed less than e.  
Therefore, the appointments overlap.

Tracing the algorithm with an appointment of 10-11 and one from 12-13.

start1 = 10, start2 = 12  
end1 = 11, end2 = 13

First if statement:

start1 is not greater than start2, so  $s = \text{start2}$  is executed.  
 $s = 12$

Second if statement:

end1 is indeed less than end2, so e = end1 is executed.

e = 11

Third if statement:

s is not less than e.

Therefore, the appointments do not overlap.

R5.16

Tracing Algorithm with 6-8 and 4-9		
<i>Condition</i>	<i>True/False</i>	<i>Value</i>
If start1 > start2	True	s = start1 = 6
If end1 < end2	True	e = end1 = 8
If s < e	True	Appointments Overlap

Tracing Algorithm with 8-12 and 5-10		
<i>Condition</i>	<i>True/False</i>	<i>Value</i>
If start1 > start2	True	s = start1 = 6
If end1 < end2	False	e = end2 = 10
If s < e	True	Appointments Overlap

Tracing Algorithm with 3-16 and 5-12		
<i>Condition</i>	<i>True/False</i>	<i>Value</i>
If start1 > start2	False	s = start2 = 5
If end1 < end2	False	e = end2 = 12
If s < e	True	Appointments Overlap

Tracing Algorithm with 6-10 and 11-12		
<i>Condition</i>	<i>True/False</i>	<i>Value</i>
If start1 > start2	False	s = start2 = 11
If end1 < end2	True	e = end1 = 10
If s < e	False	Appointments do not overlap