

Exercise 1

Problem Solving

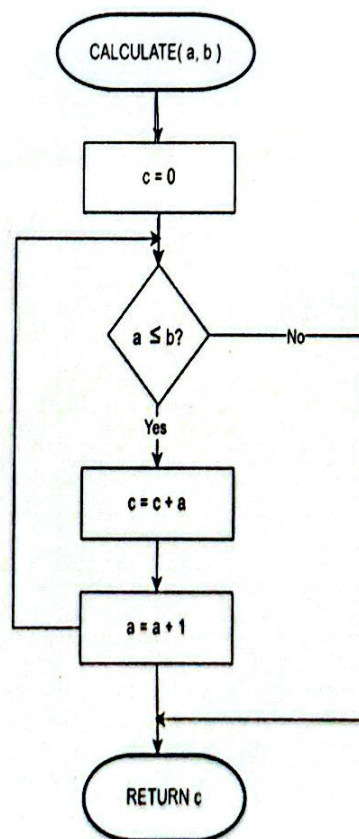
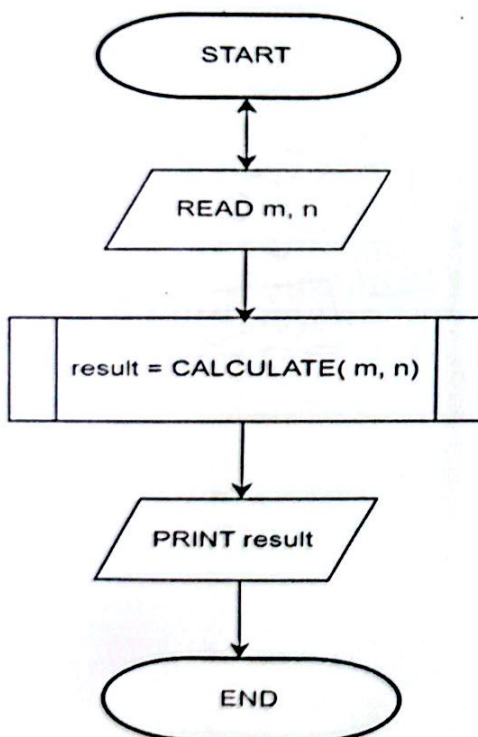
Your Name: _____ Matric Number: _____

Overview

- This is an individual assignment.
- Answer all questions in a separate paper.

Problem

Consider the algorithm given in the following flowcharts.

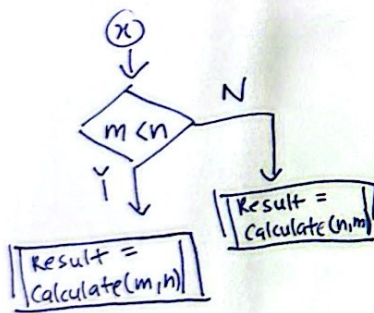


1. Trace the algorithm based on user inputs entered as 2 and 5, respectively (3 marks)
2. Base on your tracing in (a), what would you think the goal of this algorithm. (2 mark)
3. In what scenario you think the algorithm may not be working correctly. (1 mark)
4. Justify your reasoning for question 3. (2 marks)
5. Describe a solution to address the above issue while maintaining the goal of the algorithm. (2 marks)
6. Redraw the flowcharts to incorporate your solution from question 5 (3 marks)
7. Transform your flowchart from question 6 into pseudo codes (2 marks)

2. Find the total of numbers between m, n .

3.

6.



l.	m	n	result
	2	5	9

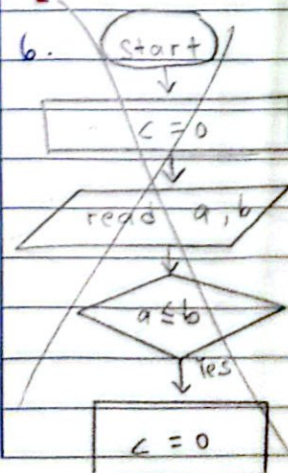
a	b	c	a < b
2	5	0	Yes
3	5	2	Yes
4	5	5	Yes
5	5	9	No
6	-	14	

2. The goal for the algorithm is to find the result by calculating (m, n) through looping the algorithm. The result for the algorithm is 9.

3. When c is not equal to zero. When logic and structure of algorithm is wrong. When input is wrong.

4. For counter-controlled loop, initialization of sum should equal to 0. Logic and structure of algorithm should be correct. The input of algo

5. Make sure the logic and structure of flowchart is correct. Make sure the initial sum is zero.



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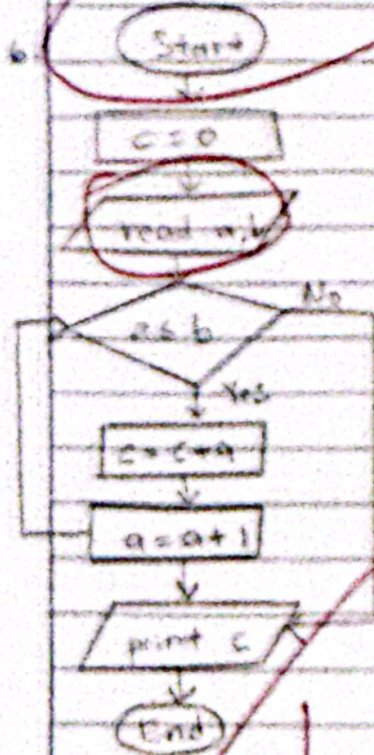


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- 7.
1. Start
 2. Set $c = 0$
 3. Read a, b
 4. do
 1. $c = c + a$
 2. $a = a + 1$
 5. while $(a < b)$
 6. Print c
 7. End