INFORMATION AND COMMUNICATION TECHNOLOGY – 2
SECOND OPPORTUNITY PORTFOLIO

Students:
If you fail ict-2 in first opportunity, it is required for you to turn in a second opportunity portfolio no later than JUNE 15, 2018. You must hand in the portfolio sections depending on the stages you failed during the course. Please bring them to my office. All sections will be delivered in a single bundle with a single cover page. The cover page must contain all your identification information. Check in your FINAL REPORT CARD which where the stages you failed.

STAGE 1

All sections of this portfolio must be done or answered by hand. For that reason, it's very important that you use your BEST HANDWRITING. Also, please scratch paper. The document must have a cover page with all the important information.

PART 1. DO THE FOLLOWING.

1. Define the following: program, programming and programming language.
2. List and define the steps of the programming methodology. (Use a two column table.)
3. List and define the types of algorithms. (Use a two column table.)
4. List, draw and define all the blocks for a flowchart. (Use a three column table.)

PART 2. BE SURE EACH OF THE FOLLOWING SECTIONS CAN BE CLEARLY IDENTIFIED.

5. Read the information on tables 1 thru 3 of this document and answer the requested.

STAGE 2

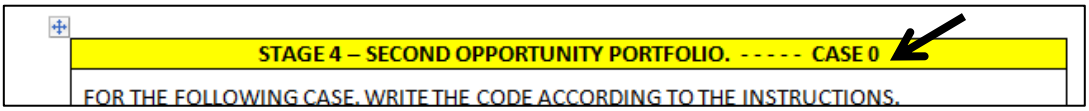
Hand in the Stage 2 Review document I sent you for the global exam. Please add a cover page if needed. Make sure to answer it **by hand**.
https://drive.google.com/open?id=1CmnyvWWZ0MVpzy2wxQXFNtMCq6HreWfk

STAGE 3

Answer by hand the metacognition activity of this stage (page 133).
Don't forget the cover page with all your personal information.

STAGE 4

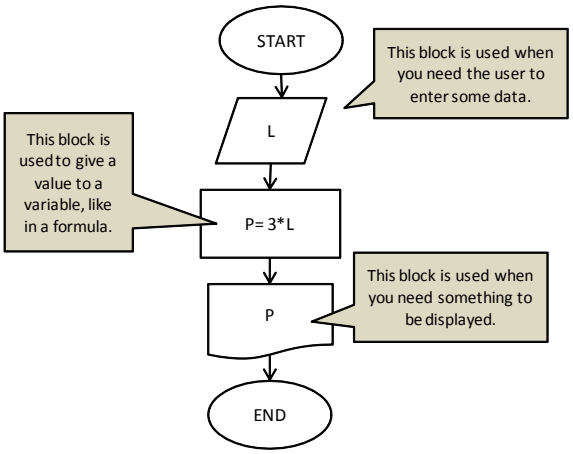
On pages 5 to 24 in this document you will find 10 exercises identified by a **Case** number. You will answer the case which number corresponds to the last digit in your id number.



Print the two sheets of the case and answer the exercise **by hand**. Hand in only the exercise you answered. Add a cover page if needed.

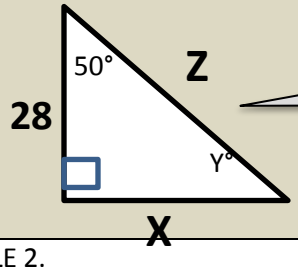
TABLE 1. Review the given information and answer the questions at the end.

SEQUENTIAL ALGORITHMS

STATEMENT: Calculate the perimeter of an equilateral triangle.	
1. Problem definition *What am I looking for?* ⇨	Perimeter of an equilateral triangle
2. Problem analysis *What data and processes are needed to obtain what I'm looking for?* ⇨	INPUT: Length of one side PROCESS: Multiply the length of the side by 3 OUTPUT: The previous result is the Perimeter of the equilateral triangle
3. Algorithm Explain what must be done, step by step. ⇨	1. Start 2. Know the length of the side (L) 3. Calculate the perimeter (P=3*L) 4. Show/Display/Print the perimeter (P) 5. End
4. Flowchart Each step of the algorithm must match the flow, variables and blocks in the flowchart.	

QUESTIONS

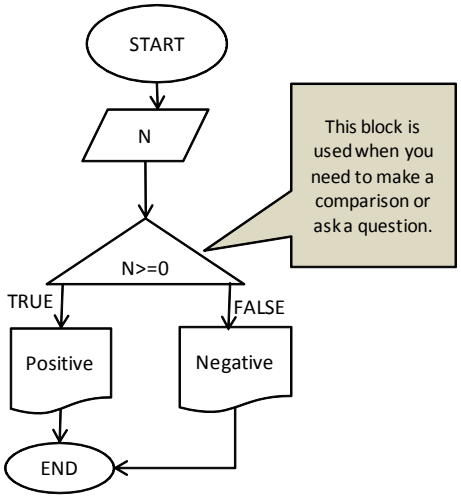
1. **Compare the Problem analysis section and the algorithm. In what ways are they similar?**
2. **Compare the algorithm and the flowchart. In what ways are they similar?**
3. **Compare the Problem definition step and the flowchart. In what ways are they similar?**
4. **Make a similar table (steps 1 to 4) for the following case.**
   a) Calculate the unknown values for the next right triangle.



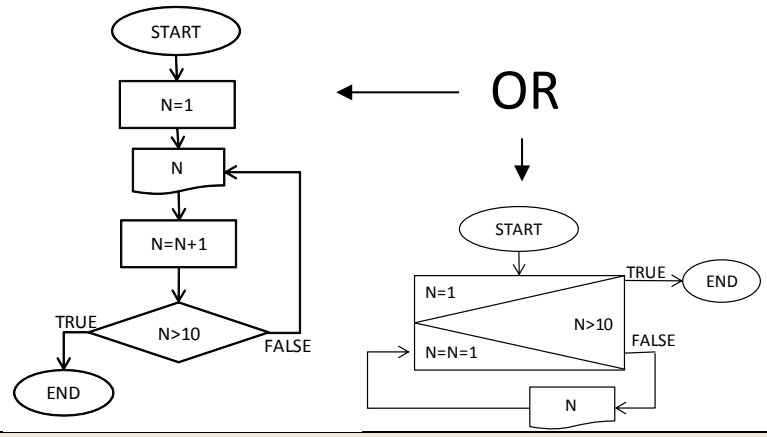
In don´t want the answers for x, y and z. I want the procedure to solve the problem.

TABLE 2.

CONDITIONAL ALGORITHMS

STATEMENT: Determine if a given number is positive or negative.	
1. Problem definition *What am I looking for?*	Final answer must be “Positive” or “Negative” considering a given number.
2. Problem analysis *What data and processes are needed to obtain what I’m looking for?*	INPUT: Any number PROCESS: Compare the given number is larger or smaller than zero. OUTPUT: “Positive” must be displayed if given number is larger than zero, otherwise, show the text “Negative”.
3. Algorithm Explain what must be done, step by step.	1. Start 2. Get the number from the user(N). 3. If the number is greater than or equal to zero then display “Positive” else display “Negative”. 4. End
Question: **5. Compare the Problem analysis section and the algorithm.** **6. In what ways are they similar?**	
4. Flowchart Each step of the algorithm must match the flow, variables and blocks in the flowchart.	
Questions: **7. Compare the algorithm and the flowchart. In what ways are they similar?** **8. Compare the Problem definition step and the flowchart. In what ways are they similar?** **9. What are the key words in any conditional expression in an algorithm?** **10. What is the syntax rule to extablish a condition in an algorithm?** **11. Why is it important to identify the true and false exits of a condition in the flowchart?**	

CYCLIC ALGORITHMS

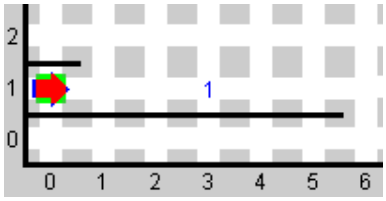
STATEMENT: Make the computer print all whole numbers from 1 to 10.	
1. Problem definition *What am I looking for?*	Final display must be 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.
2. Problem analysis *What data and processes are needed to obtain what I'm looking for?*	INPUT: No external information is needed. PROCESS: Count from 1 to 10 and print each number. OUTPUT: 1,2, 3, 4, 5, 6, 7, 8, 9, 10
3. Algorithm Explain what must be done, step by step.	1. Start 2. Begin counting at 1 (N=1) 3. Print N 4. Add one unit to N (N=N+1) 5. If N is greater than 10 then End else go to step 3.
4. Flowchart Each step of the algorithm must match the flow, variables and blocks in the flowchart.	

Questions:

Compare the Problem definition step, the algorithm and the flowchart. In what ways are they similar?

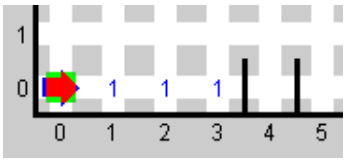
Develop the algorithm and flowachart to solve the next cases.
Use the given algorithm (step 3) and flowchart (step 4) as templates.

12. **Print from 1 to 100?**
13. **Print from 5 to 10?**
14. **Print all multiples of number 2 from 2 to 20?**
15. **Print in inverse order?**

STAGE 4 – SECOND OPPORTUNITY PORTFOLIO. - - - - - CASE 0		
FOR THE FOLLOWING CASE, WRITE THE CODE ACCORDING TO THE INSTRUCTIONS.		
Karel knows a beeper fell out from her bag. Help her find it and go back home.		1. USE ONLY BASIC INSTRUCTIONS. 2. USE ITERATE. 3. USE CONTROL STATEMENTS IF/WHILE. 4. USE MODULES AND PARAMETERS

1. USE ONLY BASIC INSTRUCTIONS.	2. USE ITERATE.

3. USE CONTROL STATEMENTS IF/WHILE.	4. USE MODULES AND PARAMETERS

STAGE 4 – SECOND OPPORTUNITY PORTFOLIO. - - - - - CASE 1		
FOR THE FOLLOWING CASE, WRITE THE CODE ACCORDING TO THE INSTRUCTIONS.		
Karel wants to pick up all the flowers in her garden to put them in the flower vase.		1. USE ONLY BASIC INSTRUCTIONS. 2. USE ITERATE. 3. USE CONTROL STATEMENTS IF/WHILE. 4. USE MODULES AND PARAMETERS

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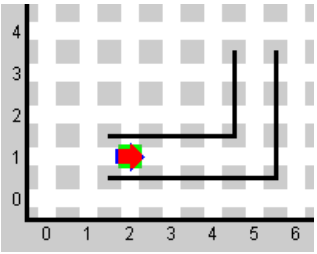
STAGE 4 – SECOND OPPORTUNITY PORTFOLIO. - - - - - CASE 2		
FOR THE FOLLOWING CASE, WRITE THE CODE ACCORDING TO THE INSTRUCTIONS.		
Karel is carrying a bunch of hot potatoes in her hands. Help Karel get out of the hallway and put all the potatoes on the floor.		1. USE ONLY BASIC INSTRUCTIONS. 2. USE ITERATE. 3. USE CONTROL STATEMENTS IF/WHILE. 4. USE MODULES AND PARAMETERS

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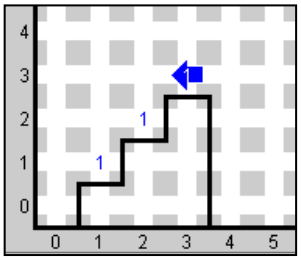
STAGE 4 – SECOND OPPORTUNITY PORTFOLIO. - - - - - CASE 3		
SECOND OPPORTUNITY PORTFOLIO – SECOND PART CODING EXERCISE --- VALUE 20% OF FINAL GRADE.		
FOR THE FOLLOWING CASE, WRITE THE CODE ACCORDING TO THE INSTRUCTIONS.		
Go downstairs picking all beeper on each step.		1. USE ONLY BASIC INSTRUCTIONS. 2. USE ITERATE. 3. USE CONTROL STATEMENTS IF/WHILE. 4. USE MODULES AND PARAMETERS

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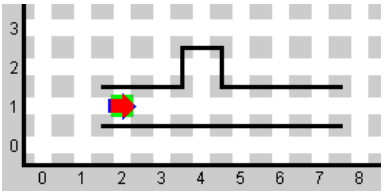
STAGE 4 – SECOND OPPORTUNITY PORTFOLIO. - - - - - CASE 4		
SECOND OPPORTUNITY PORTFOLIO – SECOND PART CODING EXERCISE --- VALUE 20% OF FINAL GRADE.		
FOR THE FOLLOWING CASE, WRITE THE CODE ACCORDING TO THE INSTRUCTIONS.		
Karel is being chased by a thief. She will hide in the first open door she finds.		1. USE ONLY BASIC INSTRUCTIONS. 2. USE ITERATE. 3. USE CONTROL STATEMENTS IF/WHILE. 4. USE MODULES AND PARAMETERS

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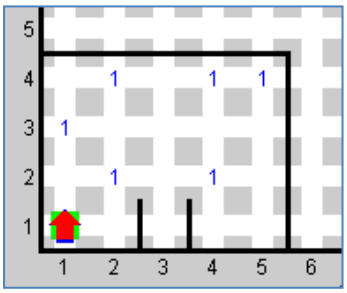
STAGE 4 – SECOND OPPORTUNITY PORTFOLIO. - - - - - CASE 5		
FOR THE FOLLOWING CASE, WRITE THE CODE ACCORDING TO THE INSTRUCTIONS.		
Pick up all beepers and put them in the niche.		1. USE ONLY BASIC INSTRUCTIONS. 2. USE ITERATE. 3. USE CONTROL STATEMENTS IF/WHILE. 4. USE MODULES AND PARAMETERS

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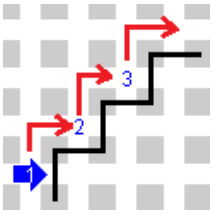
STAGE 4 – SECOND OPPORTUNITY PORTFOLIO. - - - - - CASE 6		
FOR THE FOLLOWING CASE, WRITE THE CODE ACCORDING TO THE INSTRUCTIONS.		
Move all the beepers to the last level.		1. USE ONLY BASIC INSTRUCTIONS. 2. USE ITERATE. 3. USE CONTROL STATEMENTS IF/WHILE. 4. USE MODULES AND PARAMETERS

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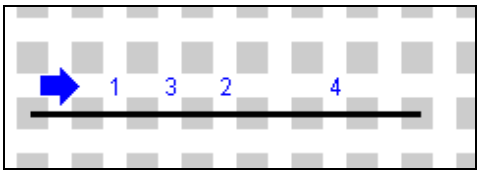
STAGE 4 – SECOND OPPORTUNITY PORTFOLIO. - - - - - CASE 7		
FOR THE FOLLOWING CASE, WRITE THE CODE ACCORDING TO THE INSTRUCTIONS.		
Karel was punished for littering at school. She must pick up all the garbage on the school front yard and store it in her bag.		1. USE ONLY BASIC INSTRUCTIONS. 2. USE ITERATE. 3. USE CONTROL STATEMENTS IF/WHILE. 4. USE MODULES AND PARAMETERS

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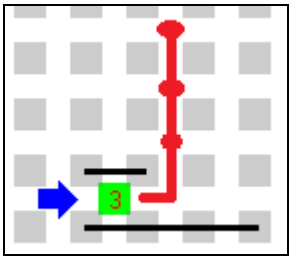
STAGE 4 – SECOND OPPORTUNITY PORTFOLIO. - - - - - CASE 8		
SECOND OPPORTUNITY PORTFOLIO – SECOND PART CODING EXERCISE --- VALUE 20% OF FINAL GRADE.		
FOR THE FOLLOWING CASE, WRITE THE CODE ACCORDING TO THE INSTRUCTIONS.		
Karel is volunteering to hand out toys to children on Children's day. The kids are making a line going North.		1. USE ONLY BASIC INSTRUCTIONS. 2. USE ITERATE. 3. USE CONTROL STATEMENTS IF/WHILE. 4. USE MODULES AND PARAMETERS

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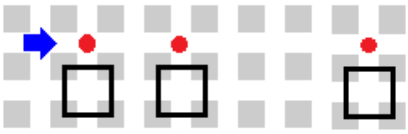
STAGE 4 – SECOND OPPORTUNITY PORTFOLIO. - - - - - CASE 9		
SECOND OPPORTUNITY PORTFOLIO – SECOND PART CODING EXERCISE --- VALUE 20% OF FINAL GRADE.		
FOR THE FOLLOWING CASE, WRITE THE CODE ACCORDING TO THE INSTRUCTIONS.		
Drop a cherry on each of 3 muffins		1. USE ONLY BASIC INSTRUCTIONS. 2. USE ITERATE. 3. USE CONTROL STATEMENTS IF/WHILE. 4. USE MODULES AND PARAMETERS

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3. USE CONTROL STATEMENTS IF/WHILE.	4. USE MODULES AND PARAMETERS