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Iteration: Infinite Loops

- ❖ **CONCEPT:** If you don't properly change your iteration variable – so that the conditional eventually evaluates to false – then you will never exit the loop
- ❖ We call that situation an *infinite loop*
- ❖ The only of breaking out of an infinite loop is by “stopping” the program from outside of the program itself
- ❖ In VB6, press the CTRL + BREAK keys to end an infinite loop

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Summary Of Iteration

- ❖ Iteration is useful when you want the program to repeat a sequence of steps
- ❖ Iteration requires:
 - ❑ Loop Body – the steps to be repeated
 - ❑ Stop Condition – a way to exit the loop
- ❖ When the loop ends, execution continues with the regular sequence of program statements
- ❖ VB6, like most languages, has several iteration statements – we have introduced you to one, the Do-While
- ❖ **CONCEPT:** Although other control structures exist, with *conditionals* (If-Then-Else) and *iteration* (Do-While) you can do any programming!!

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Yes, But Is it Art?



Computers can be programmed to produce graphics, but are these graphics art? Can computers be creative?

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Discussion Questions

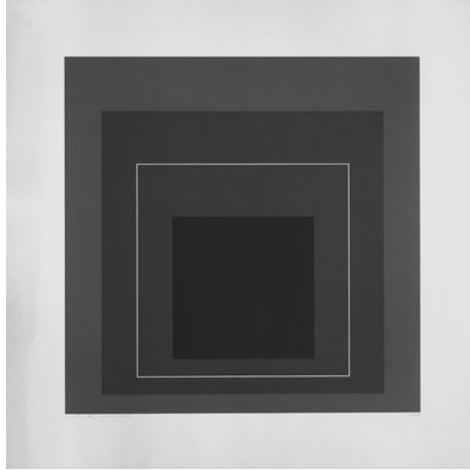
Given what you now know about how computers work:

- ❖ Can a computer be creative? Why?
- ❖ Can a computer create art? Why?
- ❖ Take out a piece of paper. Write your name(s) on it.
- ❖ Discuss these two questions with the person to your right or left. Write down two or three ideas that arise in your discussion about each question.
- ❖ (I'll collect these at the end of class today. These won't be graded.)

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Did a Computer Do This?

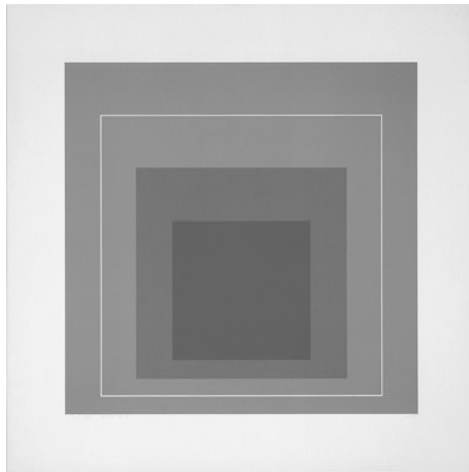


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Or This?

(2)



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Or This?

(3)

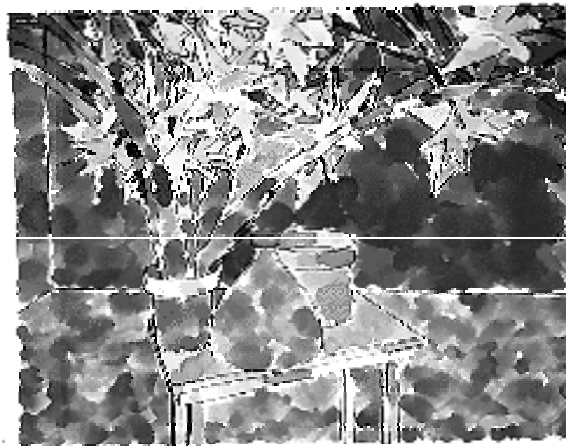


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Or This?

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Or This?

(5)

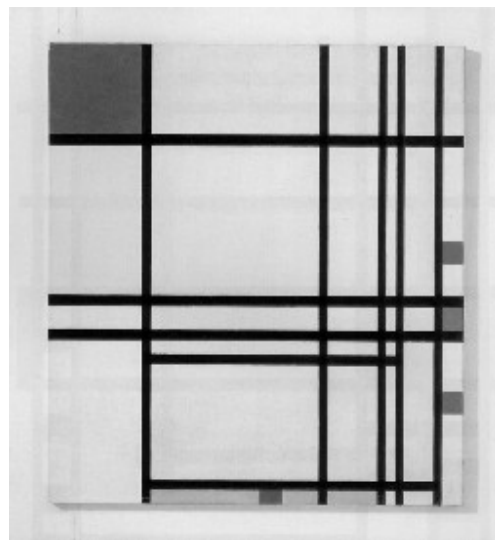


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Or This?

(6)

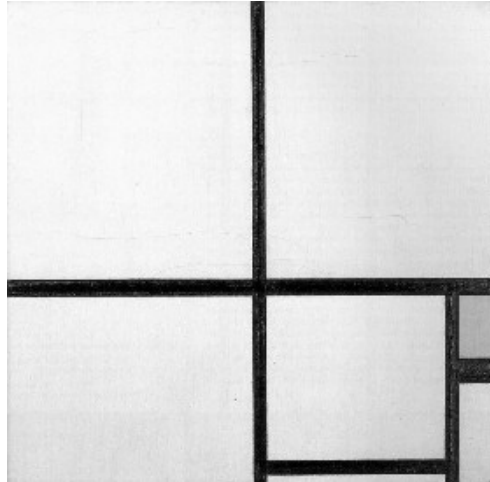


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Or This?

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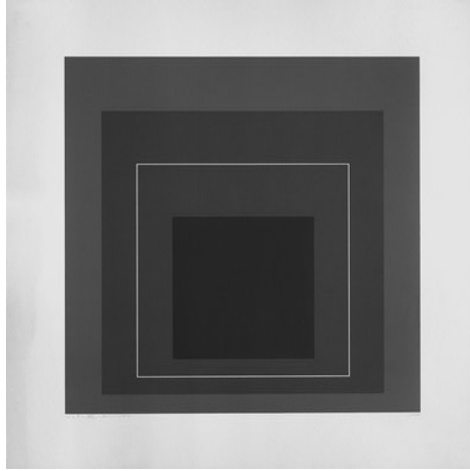
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<http://www.netlabs.net/hp/richieb/java/Mondrian.htm>

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Josef Albers

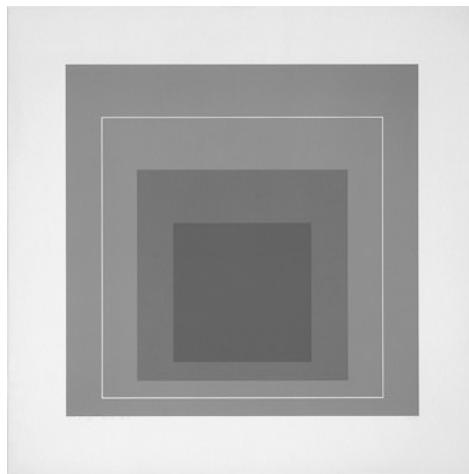


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Josef Albers

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Henri Matisse

(3)

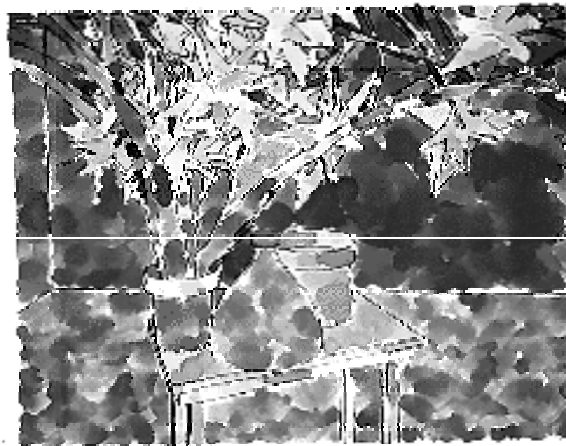


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AARON (a robot)

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AARON (a robot)

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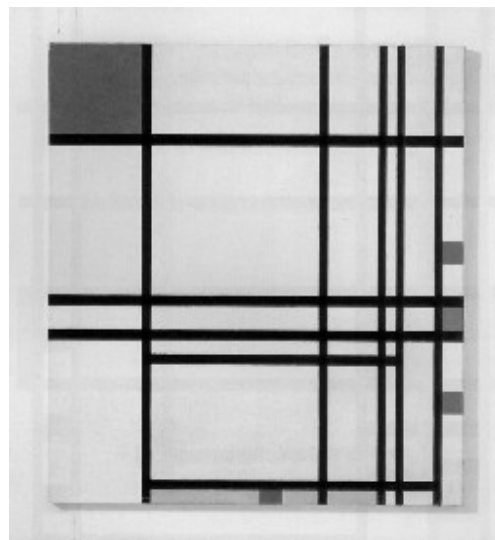


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Piet Mondrian

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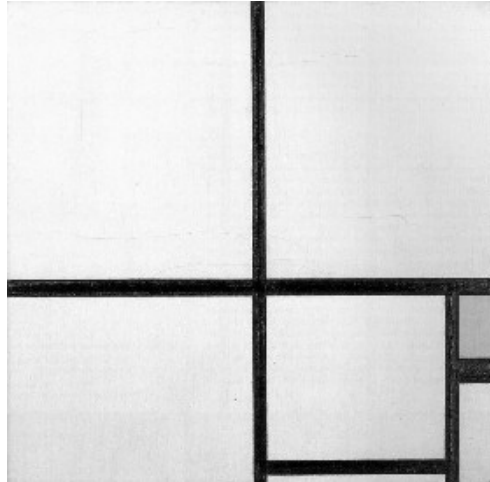


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Piet Mondrian

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A Java Applet by Richie

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<http://www.netlabs.net/hp/richieb/java/Mondrian.htm>

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Project 3

- ❖ Your challenge is to explore the question of computation and creativity.
- ❖ Part I, Due Friday, May 11, at 12 PM, noon
 - Graphical program with the following elements:
 - + A procedure with 2 or more parameters
 - + A procedure that calls another procedure
 - + A procedure that is called more than 5 times
 - + A Do While Loop
 - + A random number

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Project 3

- ❖ Part II, Due Friday, May 18, at 12 PM, noon
 - Graphical program with that is visually pleasing (cool!)
 - + It may be an extension of Part I or something entirely new
 - + It may contain some or all of the technical elements you used in Part I
 - A 2-3 paragraph discussion of your experience expressing creativity through computation

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Black Boxes on Red

An example of what you might do for Project 3....

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What You Already Know...

- ❖ How to:
 - ❑ Write procedures
 - ❑ Write procedures that use parameters
 - ❑ Write a procedure that calls another procedure
 - ❑ Use iteration (Do-While Loop)
 - + Which can call a procedure in the body of the loop
 - ❑ Use conditionals (If-Then-Else)

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What You Need to Learn

❖ How to:

- ❑ Color
- ❑ Make shapes (lines, boxes, rectangles, circles)
- ❑ Color in shapes
- ❑ Use a random number
- ❑ Convey a sense of motion ...