

EEOS 472 – Programming for GIScience Applications – Spring 2011

Exercise 7A

Additional Instructions/Notes

1. For all exercises in this course, you will want to make a copy of the exercise .mxd to your H:\ space and open that, rather than using the one in the course data directory on S:\ because the exercises almost always involve customizing the project document, which you cannot do to the one on S:\, since you do not have write access there.

Question 7A-1 (2 marks)

The modern (Summer) Olympic Games have run every four years, beginning in 1896 and most recently in 2008. Write the first line of a For loop that steps through each year that the modern (Summer) Olympic Games occurred. Use correct ArcGIS VBA syntax.

Question 7A-2 (2 marks)

For loops can also be very useful in sampling a subset of data. For example, imagine we have a database containing student records numbered 1 through 10000 and sorted in alphabetical order by last name, and we wish to select 2 percent of the records in such a way that we step through the alphabetical last names using equal intervals. Write the first line of a For loop that would identify the record numbers accordingly. Use correct ArcGIS VBA syntax.

Exercise 7B

Additional Instructions/Notes

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12. Remember to change the filename in this line to the appropriate path for where our version of the file is located.

Question 7B-1 (1 mark)

For loops are appropriately applied when there are a known number of iterations required. Is this the case for Do loops?

Question 7B-2 (1 mark)

The text (on p. 117) gives a fairly trivial example of an endless loop. However, it is possible to accidentally create an endless loop when it is not quite so obvious that the condition being evaluated will never change. Suppose our Do loop's condition for completion does not contain an obvious error (like the example): For it to be possible for our loop to end, i.e. what has to be contained somewhere in the lines between the Do until beginning line and Loop end line of any given loop?

Exercise 8

Additional Instructions/Notes

1. For all exercises in this course, you will want to make a copy of the exercise .mxd to your H:\ space and open that, rather than using the one in the course data directory on S:\ because the exercises almost always involve customizing the project document, which you cannot do to the one on S:\, since you do not have write access there.

Question 8-1 (2 marks)

The example debugging we do in this exercise works on a fairly short codebase (i.e. there are not too many lines of code in total). When working with complex software, there could be 1000's of lines of code, and stepping through every line is simply impractical. How might we use breakpoints in such a situation? What approach could we use to decide where to put the breakpoints?

Question 8-2 (2 marks)

Debug tools cannot detect logic errors; the only obvious sign that the code contains these is the fact that it produces results other than those desired. How can we test our code for logic errors? How should we decide what set of inputs to use to do this?