*2022-2023*

**OSU Supplemental Instruction Session Planning Form**

SI Leader: \_\_\_Thomas Morton\_\_\_\_\_\_\_\_\_ Week of Semester:\_\_\_\_\_\_\_\_10\_\_\_\_\_\_\_\_\_\_\_\_\_

Course: \_\_\_\_\_\_\_CS 1113\_\_\_\_\_\_\_\_\_ Instructor: \_\_\_\_\_\_\_Dr. Crick\_\_\_\_\_\_\_\_\_\_

Session Objectives

1. Students will review the utility of arrays & cases where arrays help organize data

2. Students will apply the concepts from looping statements to populate and iterate through arrays

3. Students will understand the distinction between perfect- and over-size arrays

Professor Meeting Notes:

Dr. Crick mentioned that a thorough understanding of arrays will be important for students in developing their final project. From this, he emphasized covering how to create and modify arrays as well as how to iterate through them using looping statements.

Opening/Introductory Activity

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| Activity Name:  Categorical Collections | Session Objective(s) Met:  Objective 1 & 3 | Time Allotted:  5 minutes | Materials Needed:  None | Targeted Learning Style(s):  Audial  Visual  Kinesthetic | Bloom’s Levels Used:  Analyzing  Applying  Understanding  Remembering |
| Explanation/Notes:  Going around the room, each participant will list off a group of items they have a variety of (think make-up, styles of shoes, musical instruments). Next, the participant will name how they keep this grouping of items organized.  Afterwards, a parallel will be drawn between these organization methods and array utility. A note on oversize arrays will be mentioned (EX: a shoe rack can hold more shoes than there may currently be present.) | | | | | |

Main Session Activity 1

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| Activity Name:  The ‘Array’-zing Race | Session Objective(s) Met:  Objectives 1, 2, & 3 | Time Allotted:  15 minutes | Materials Needed:  Colored Construction Paper  Tape  Whiteboard  Paper for scoring suggested  Candy prize for winner | Targeted Learning Style(s):  Visual  Kinesthetic | Bloom’s Levels Used:  Evaluating  Analyzing  Applying  Understanding  Remembering |
| Explanation/Notes:  Participants will be split into two teams (teams pick their team-name). Contestants will then line up to compete in a series of 3 races to gather the sufficient ‘data’ from a series of 3 arrays on the whiteboard containing squares of construction paper for each array ‘index’.  . The first person in line will run to the board and ‘iterate’ through the array up to an element according to a constraint given by a ‘for’ loop. For loop constraints will be written next to the array and the contestant will cross it off when picking their element. They will select a number from this array and run it back to their team for a point total, then head to the back of the line. Optionally, they may return one element to an empty place in an array if the constraints allow access to that index.  Once a team has a total score greater than 100 and less than 110, that team wins.  The second round will do the same with strings, but teams must gather 5 items that have a related category (written on the paper) for the win.  The final race will require teams to organize elements in an array until the elements are all in ascending order. No for loop constraints will be applied, but contestants may only swap two elements each time they reach the board. (This ties into sort & search algorithms later in the semester, but they won’t be discussed here.)  The team with 2 wins will receive a candy prize! (if we have any!) | | | | | |
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Main Session Activity 2

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| Activity Name:  Coding Activity    (I don’t have a creative name, so pretend I put one here) | Session Objective(s) Met:  Objectives 1, 2, & 3 | Time Allotted:  25 minutes | Materials Needed:  Computer With Java Compiler  Or  Pencil & Paper  SI leader solution for last few minutes | Targeted Learning Style(s):  Visual  Kinesthetic  (Audial if team) | Bloom’s Levels Used:  Creating  Evaluating  Analyzing  Applying  Understanding  Remembering |
| Participants will group up to write a simple program that finds the second-smallest number and smallest number in an array. This problem comes up frequently in coding interviews and homework assignments, so it’s a good idea for participants to understand this algorithm.  Explanation/Notes:   1. Declare a constant integer variable with the number 15 2. Declare an integer array with a size set by the variable from #1 3. Create a Scanner object to read in user input 4. Using any type of loop, read in 10 integers (1 through 10) and populate the array from #2 with these numbers 5. Declare a variable to store the minimum number from the array from #2 6. Write another loop that iterates through the array until it finds the minimum number from the numbers given in #4 7. Declare another variable to store the second-most minimum number from the array 8. Using another loop, iterate through the same array until the largest number is found 9. Use another loop to find the second-most minimum number and assign the number to the variable from #7 (Hint: you need the number from #8) 10. Write a print statement to output the minimum and second-most minimum number   This activity will reinforce an understanding of oversize arrays as empty elements are filled with 0s in Java. The smallest number I give for input is 1, so if the oversize array is not handled properly their answer in step 10 will be incorrect.  It additionally reinforces critical thinking on how to access array elements, as there are several ways to approach a solution, though the algorithm is pretty much the same. | | | | | |

Closing Activity

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| Activity Name:  Identify the ‘Big Idea’ | Session Objective(s) Met:  Objectives 1, 2, & 3 | Time Allotted:  5 minutes | Materials Needed:  None | Targeted Learning Style(s):  Audial | Bloom’s Levels Used:  Analyzing  Applying  Understanding  Remembering |
| Explanation/Notes:  Going around the room, each participant will list their understanding of the most important concept from the session. Other participants will be asked to expand on how or why this concept is useful or offer their opinion instead. | | | | | |

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| Plan for extra activity:  K W L  Participants will take turns answering what they know, want to know, or have learned about arrays. For w’s, other participants will be asked if they can describe or explain the question. | Extra notes: |