**ABET Student Outcomes:**

SO2:Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program’s discipline.

**Student Learning Outcomes:**

SL 06 explain and create small programs in several programming language paradigms

**Directions:**

Create a binary search tree program in the two programming languages. This program should include:

**Part I:** requirements for each language

1. Create an array of 20 integers that is filled with Random numbers from 1-100
2. Add the elements from the array into a Binary Search tree
3. Output the tree in a representation you choose, but make sure it is clear what the nodes and children are. Be sure to identify the root node.
4. Select a node that is not a leaf node and delete it from the tree
5. Output the tree representation
6. Add a node to the tree with a random value
7. Output the tree representation

**Create a video of your programs compiling and executing all 7 steps.**

**Part II:** Presentation requirements: (You can use Power Point or Google Slides)

1. Create a slide presentation with voice over narration
   1. The presentation should not be more than 10 minutes in length
   2. You must record your voice giving the presentation
      1. DO NOT JUST READ THE SLIDES, it should be a presentation. The slides should be the talking points and you should fill in the information that doesn’t appear on the slides
      2. PRACTICE this!
      3. THIS IS NOT A VIDEO. Just a voice over presentation.
   3. The slide presentation should include no more than 8 slides and no more than 35 words on a slide.
      1. Slides needed:
         1. Introduction (Your name, Class, Date)
         2. Overview of what you did for the first language
         3. Overview of what you did for the second language
         4. Challenges and differences with the two language implementations (up to three slides)
         5. Conclusion
         6. Resource slide if you used any external sources (optional)

What you will turn in:

1. The source code for the two programs with the naming conventions YourLastNameFirstInitial\_BTree.FileExtension
2. The video in MP4 format with the naming convention YourLastNameFirstInitial\_BTree.MP4
3. The slide presentation in PPT format with the naming convention YourLastNameFirstInitial\_BTree.ppt

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| Rubric | | Levels of Performances | | | |
| UNSATISFACTORY  0 | DEVELOPING  2 | SATISFACTORY  3 | EXEMPLARY  5 |
| Performance Dimensions | Performance Indicator #1:  The software meets the specification in the first language | The software doesn’t meet the specification. | The software meets some of the specification | The software meets all of the specification but there are minor issues. | The software meets all of the specification and handles all cases. |
| Performance Indicator #1A:  The software meets the specification in the second language | The software doesn’t meet the specification. | The software meets some of the specification | The software meets all of the specification but there are minor issues. | The software meets all of the specification and handles all cases. |
| Performance indicator #2A  The code is well formatted and properly documented and uses good variable names in the first language | The code is not well formatted or not displayed in video | The code is displayed in video but there is no organization to the code | The code is displayed in the video but there are some organizational issues | The code is displayed and well organized |
| Performance indicator #2A  The code is well formatted and properly documented and uses good variable names in the second language | The code is not well formatted or not displayed in video | The code is displayed in video but there is no organization to the code | The code is displayed in the video but there are some organizational issues | The code is displayed and well organized |
| Performance Indicator #3:  PRESENCE -- PPT  -Number of slides is proper  - Slides are well organized  - There are no more than 35 words on a slide | The student presents well in one of the factors | The student presents well in two of the factors | The student presents well in three of the factors | The student presents well in all of the factors |
| Performance Indicator #4:  LANGUAGE SKILLS --PPT  -correct usage  -appropriate vocabulary and grammar  -understandable (rhythm, intonation, accent)  -spoken loud enough to hear easily | The student presents well in one of the factors | The student presents well in two of the factors | The student presents well in three of the factors | The student presents well in all of the factors |
| Performance Indicator #5:  MASTERY OF THE SUBJECT --PPT  -pertinence  -depth of commentary  -spoken, not read  -code is clear after commentary | The student presents well in one of the factors | The student presents well in two of the factors | The student presents well in three of the factors | The student presents well in all of the factors |
| Special Notes: | If your program fails to compile, you will receive a grade of 0.  If there is no PPT then you will receive a 0 for the assignment. | | | | |