

Project 4: Binary Search Tree Examination and Report

Due Date: Monday, December 6, 2021 at 11:59 pm.

5-point Bonus Point Due Date: Wednesday, December 1, 2021 at 11:59 pm

- **Upon early submission, make a comment “5-point Bonus” on the assignment comments**

Late Policy: You may submit a project late for up to 24 hours after the deadline with an automatic 20% reduction from the total possible points. You will have a 30-minute grace period to account for any time discrepancies. No work will be accepted after the late date.

Experiment: Design an experiment in C++ to determine how the height of a BST and the number of nodes in the BST are related. Your experiment should take into consideration a variety of different input sequences in order to support your relationship hypothesis.

Report: Write and submit a laboratory report of your experiment and the results. The report must be 3-7 pages, including the cover page and supporting source code, not including the Appendix (BST source code).

Your document should have the following sections:

- Cover page (name, class, brief assignment description, due date)
- Introduction (research question(s), background information, and hypothesis)
- Experimental methodology (how you answered the research question(s) and supporting source code)
- Results and Justification (explain what you found and why)
- Appendix (the code for your entire BST)

Report hints:

The primary purpose of the introduction is to acquaint the reader with the problem you are investigating. The introduction must include the problem statement, objectives of the research, and your hypothesis. You may also include some background information to help the reader understand the nature of the problem.

The methodology section should contain a detailed description of your approach. The reader should be able to reproduce your experiment by following your procedure. Do not summarize this section or omit steps. Since this experiment is carried out using a computer, be sure to include your source code that is applicable to this section.

The results section will discuss what you have discovered or confirmed through your research. Carefully explain your research findings using the evidence and data from your experiment. You may use illustrations, graphs, or tables in your results section to support your findings and clarify your narrative.

If you utilize any reference material preparing your report, you must include citations to that material. These citations must be formatted using the Association of Computing Machinery (ACM) style. See the following web page for assistance with references: <http://dal.ca.libguides.com/content.php?pid=860&sid=11818>

Deliverables:

Upload your paper (minus the Appendix) to Canvas before the deadline.
Upload your code to the Appendix box in Canvas before the deadline.

Assistance:

For help concerning the content of your document, email me for an appointment or stop by office hours. If you need help with style or grammatical issues, visit the University Writing Center (www.una.edu/writingcenter/).