

Programming Project:

Instructions:

- The project is due by **December 03, 2025**.
- Your objective is to develop a Huffman coding compressor application [read chapter 16.3 for details].
- The application must support and have a prompt command for the following operations:
 - Read a file.
 - Display the character-insensitive frequency table of a file input.
 - Display the prefix binary tree visualization that groups subtrees in parentheses of the frequency table.
 - Output the encoded string into a file.
- You must use the *BiTree* class from 'BiTree.h'.
- All classes that display content must inherit the *Object* class from 'Object.h'.
- All classes must be defined in header files and have a unique test cpp file.
- The header files can only use the libraries *iostream*, *string*, *sstream*, *cctype*, *omanip*, *cmath*, 'Object.h', 'BiTree.h', and any header file you define.
- Your final submission must be a report that should include:
 - a summary of the Huffman coding compressor:
 - a description of what it does and its algorithm
 - a list of data structures it uses
 - the source codes with comments.
 - documentation file (.pdf or .md) that contains:
 - a description of each class that includes:
 - the class name
 - the name and type of each public field.
 - the pseudocode for each method that begins with the preconditions (what must be true before the call).
 - the pseudocode for each function that begins with the preconditions (what must be true before the call).
 - a flowchart or instructions on how to run your program.
- Cheating of any kind is prohibited and will not be tolerated.
- **Violating and/or failing to follow any rules will result in an automatic zero (0) for the project.**