**Team Project 3**

Project 3B – Morse Code

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# System Design

The program consists of two files, the header file BTNode and the main cpp file. The header file contains the BTNode class created by Professor Wang with additions that our group made with the tree\_builder function.

The main cpp file contained our Encode, Decode, and visual tree builder. This allows for a user inputted string to be decoded or encoded, from or to Morse Code. The visual tree builder takes the tree\_builder function and prints out a console text of a binary tree for a nice and creative visualization of the binary tree.

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# UML Diagram

Diagram

Description automatically generated

# Test Cases

Right and Left sides of the Binary Tree, created by our Binary Tree visualizer that vertically outputs the binary tree on the console.

A screenshot of a computer

Description automatically generated with low confidence

A picture containing outdoor object, night, star, dark

Description automatically generated

Graphical user interface, text

Description automatically generated

Text

Description automatically generated

A screenshot of a computer

Description automatically generated with medium confidence

Text

Description automatically generated

As we see here, our test cases encoded and decoded correctly!

# Team Member Contribution

Bryce Thornton – Bryce was responsible for the development of the code for the project. He helped work on the Encode and Decode functions, while also reviewing the main program to help fix errors or issues. Bryce helped troubleshoot and create a working program.

Robert Blocker – Robert was responsible for the development of the code for the project and for doing the project report. He worked on the functions and logic of the project, helping to create the code in a efficient way.

# Possible Improvements

Our group developed a project that we believe to be a well thought out and designed program. Our code could be tightened up and reviewed to see if there is a way to create a more efficient program. Less lines of code to complete the same task or a more well developed/professional way to write our code could be a possible improvement.