# CMPT435 Assignment4

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## 1 Introduction

This is my LaTeX document for Assignment 4. In this document you will find an explanation of the asymptotic run times of depth-first and breadth-first traversals, as well as an explanation of the asymptotic run time of a binary search tree.

Figure 1: Java

## 2 Asymptotic Run Time: Depth-First and Breadth-First Searches

The asymptotic run time of both depth-first and breadth-first searches is O(n). This is because the complexity of both searches is O(V+E), where V is the

number of vertices and E is the number of edges. This comes out to a number n, which makes the asymptotic run time O(n).

## 3 Asymptotic Run Time: Binary Search Tree

The asymptotic run time of a binary search tree is also O(n). This is because the time complexity of a binary search tree is O(h) where h is the height of a tree. This once again comes out to a number n, making the worst case run time O(n).