

# Problem Set 4 Report

## Task 1

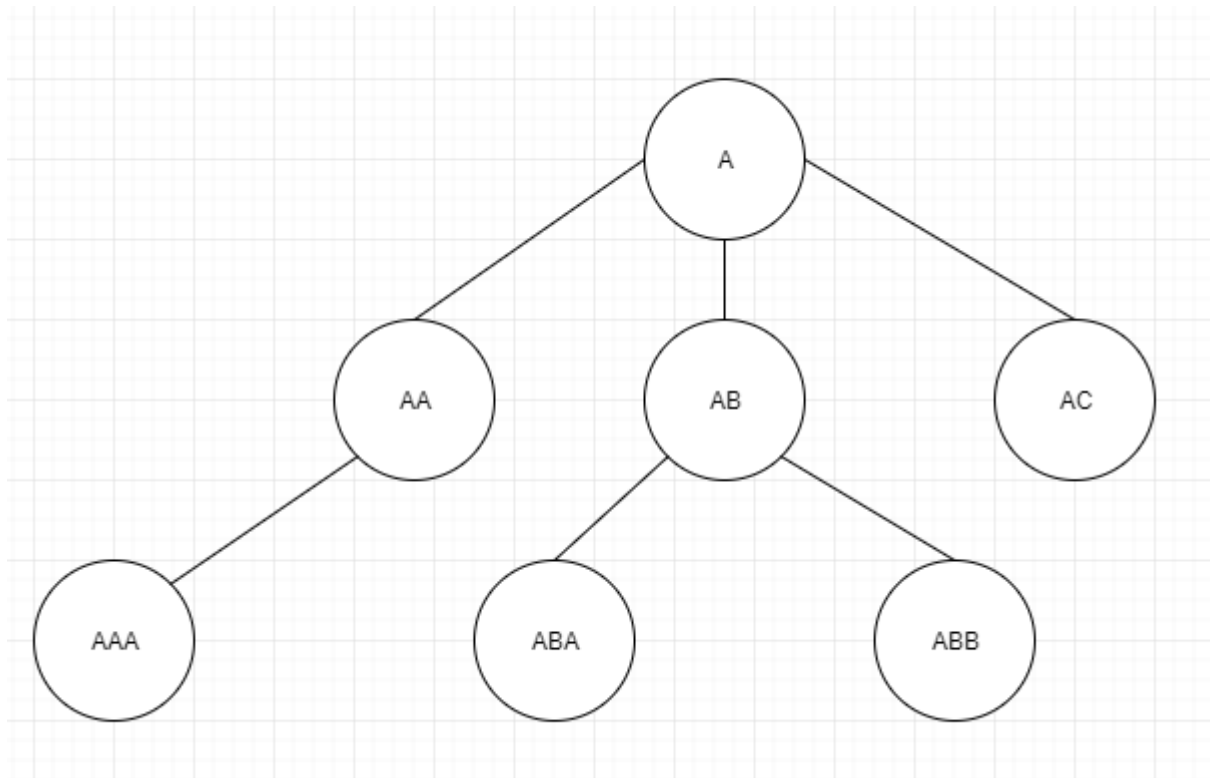
A screenshot of a Windows command prompt window. The title bar shows the path 'C:\Users\rmuku\OneDrive - Swinburne U'. The command prompt displays the following text:

```
root: A
root[0]: AA
root[1]: AB
root[2]: AC
root[0][0]: AAA
root[1][0]: ABA
root[1][1]: ABB
Pre-Order Traversal
A AA AAA AB ABA ABB AC
Post-Order Traversal
AAA AA ABA ABB AB AC A
Detach succeeded.
Press any key to continue . . .
```

*Figure 1: Output of Task 1 program*

As seen in the image above, the program runs successfully. 7 nodes are created, including the root node “A”. The root node has child nodes of “AA”, “AB”, and “AC”. Child node “AA” has another child node of “AAA”. Child node “AB” has other child nodes of “ABA” and “ABB”. 2 visitor classes of pre-order traversal and post-order traversal were create to traverse through the said tree structure. The results of both traversal methods are outputted on the console.

## Task 2



*Figure 2: Tree figure of Task 1 program*

Node	Depth	Height	Balance factor
A	0	2	0
AA	1	1	0
AB	1	1	0
AC	1	0	0
AAA	2	0	0
ABA	2	0	0
ABB	2	0	0

*Table 1: Table of Depth, Height, and Balance factor of each node*

## Task 3

Pre-Order traversal: A, B, D, E, C, F, G, H

In-Order traversal: D, B, E, A, F, C, G, H

Post-Order traversal: D, E, B, F, H, G, C, A