ABSTRACTION, AUTOMATION, FINITE STATE MACHINES & TURING MACHINES

Year 13 Wednesday 22nd February 2023 – Mr Woodley

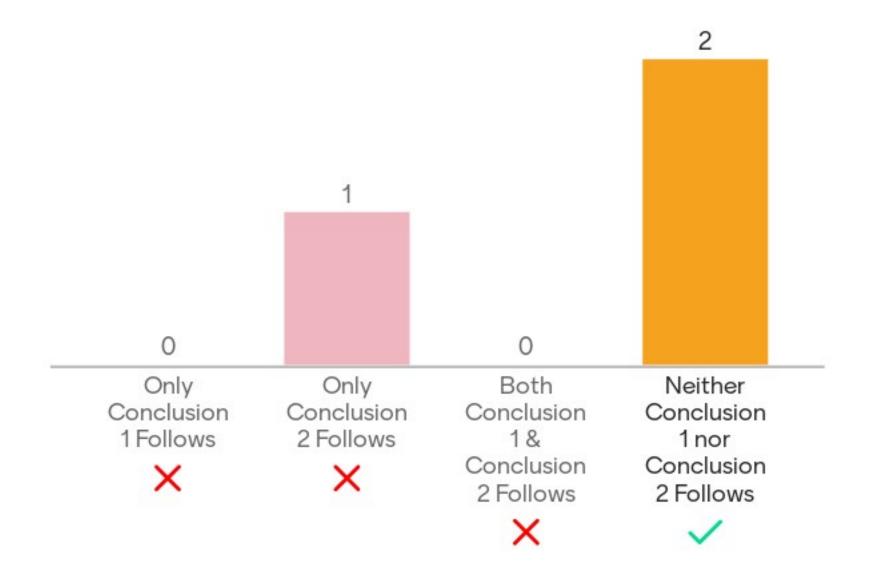
Read the statements then select the correct conclusions

Statements: All computing students drink energy drinks

Anyone that drinks any drinks don't go outside.

Conclusion 1: A computing student goes outside.

Conclusion 2: Nobody outside drinks energy drinks.





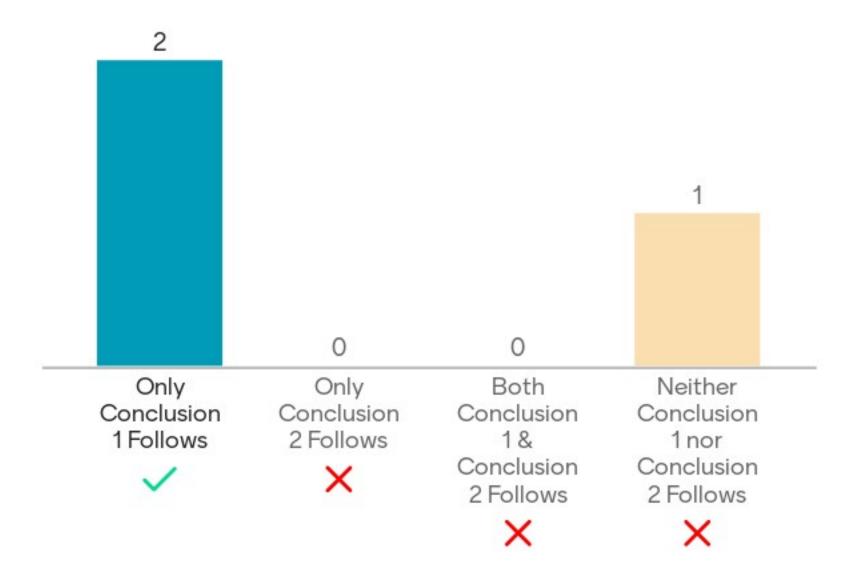
Statements: If it rains the street will be wet.

If the streets are wet, accidents will happen.

Conclusion 1: Accidents will happen when it rains.

Conclusion 2: The streets will never be dry.

Read the statements then select the correct conclusions





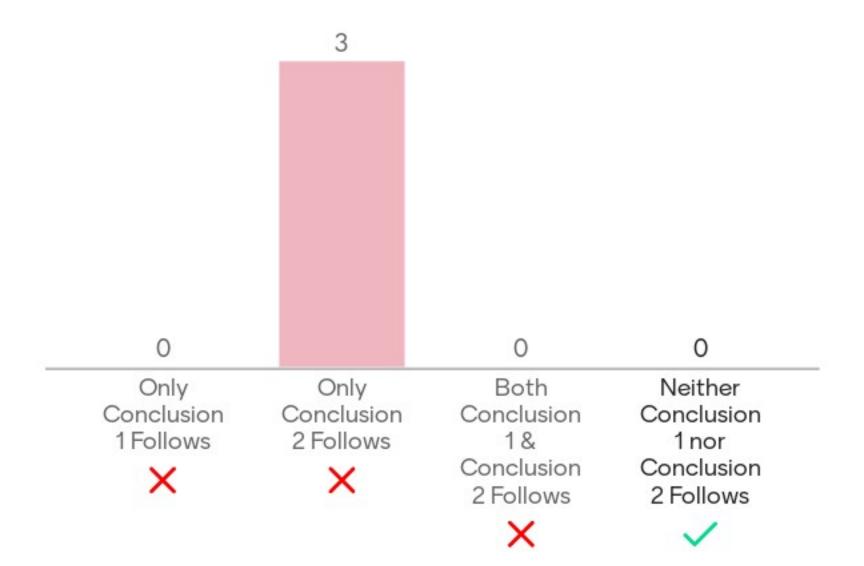
Read the statements then select the correct conclusions

Statements: Some computer scientists are teachers.

All computer scientists love Java.

Conclusion 1: All teachers love Java.

Conclusion 2: Everyone that loves Java is a computer scientist.





How many nodes does the algorithm visit if TreeSearch(Olivia, Norbert) is called?

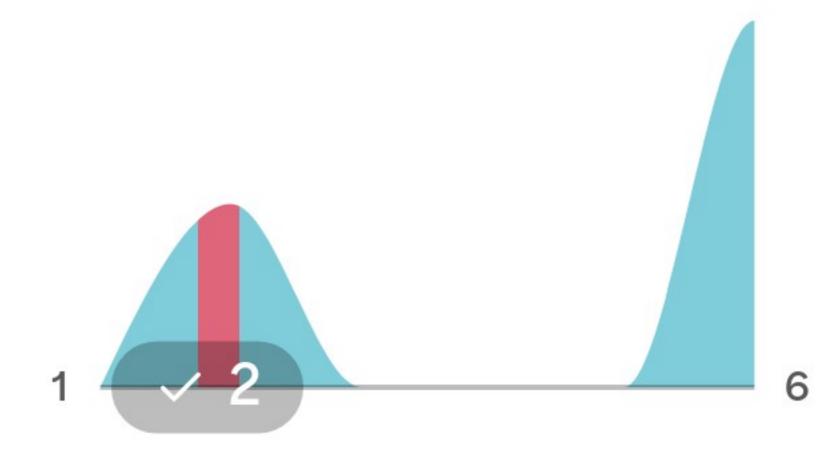


Figure 4

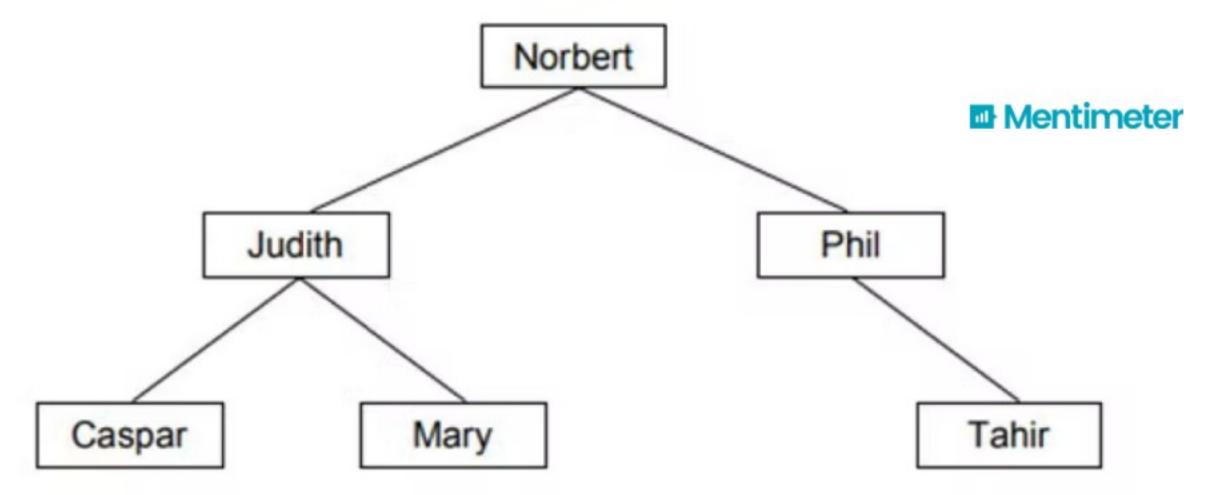


Figure 5

```
FUNCTION TreeSearch(target, node)
OUTPUT 'Visited ', node
IF target = node THEN
   RETURN True
ELSE IF target > node AND Exists(node, right) THEN
   RETURN TreeSearch(target, node.right)
ELSE IF target < node AND Exists(node, left) THEN
   RETURN TreeSearch(target, node.left)
ENDIF
RETURN False
ENDFUNCTION</pre>
```



Define Representational Abstraction?

reducing elements to make a problem simpler to solve

When the unimportant visual details of a problem are removed to show only the bare essentials to allow the problem to be solved more easily

break down a problem by removing all the unnecessary parts to the problem



Define Decomposition?

Define Automation?