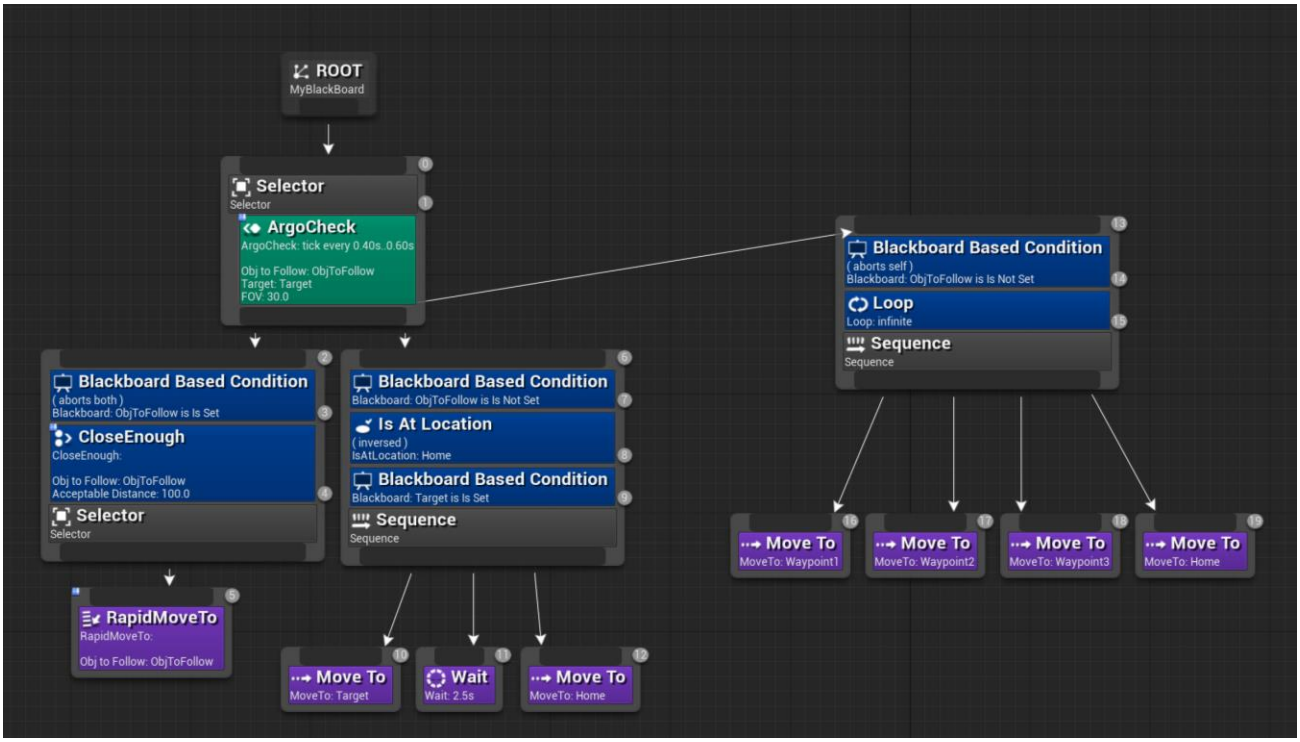
## Summary

I followed a small AI tutorial that covered the basics of behavior trees in UE4. The tutorial gave the AI character the ability to detect the player if he is in the vicinity, run after the player, and then return to the original location if the player hides for long enough. I decided to add a few way points and modify the behavior tree so that the AI could patrol. I also gave the AI a field of view so that the player could sneak behind the AI. I decided to show only the parts I put in in addition to the tutorial since the tutorial blueprints are available in the UE documentation.

## Behavior Tree

The tutorial covered the left part of the tree, giving the AI the ability to run after the player and return if the player hides.

I added the right part so that the AI would loop between patrol points if the player is not detected.



# FOV Calculation

We take the dot product of the AI pawn forward vector and the pawn to player vector. We then get the angle between the two thanks to $\cos^{-1}$. Finally we compare the angle to a desirable FOV and return the result.