

1. Always Taken: 40% accurate
Always Not Taken: 60% accurate

b. 60% accurate
If this pattern is repeated forever: 60% accurate

c. 50% accurate
If this pattern is repeated forever: 40% accurate

2. BHT (branch history table) is in the fetch instruction stage and contains whether the branch was taken or not recently. It is indexed by the lower order bits of the instruction address and contains one or more bits indicating whether the branch was recently taken or not. BTB (branch target buffer) is also in the fetch instruction stage but caches the branch target address. So IM can choose whether to pick the address from the sequential instruction (PC+4) or from the branch target buffer. It allows us to avoid stalls if we predict correctly.

3. Accuracy = $1 - (1 - 85\%) / 20\% = 25\%$