Self-evaluation Exercise on Branch Predictor

Accuracy of branch predictor is defined as the percentage of guesses that are correct.

1
(a) Consider this sequence: T, NT, NT, NT, T

1.1
What is the accuracy of always-taken and always-not-taken predictors for this sequence of branch outcomes?

1.2
What is the accuracy of a predict-last-taken predictor for the first 5 branches in this sequence? Assume this predictor starts in the "Predict not taken" state.

1.3
What is the accuracy of a 2-bit predictor for the first 5 branches in this sequence, assume this predictor starts in the "Strongly not taken" state.

1.4
What is the accuracy of a 2-bit predictor if this pattern is repeated forever? Assume this predictor starts in the "Strongly not taken" state.

2. Consider this sequence T, NT, T, NT, T

2.1
What is the accuracy of always-taken and always-not-taken predictors for this sequence of branch outcomes?

2.2
What is the accuracy of a predict-last-taken predictor for the first 5 branches in this sequence? Assume this predictor starts in the "Predict not taken" state.

2.3
What is the accuracy of a 2-bit predictor for the first 5 branches in this sequence? Assume this predictor starts in the "Strongly not taken" state.

2.4 What is the accuracy of a 2-bit predictor if this pattern is repeated forever? Assume this predictor starts in the "Strongly not taken" state.