**COEN 313**

**Spring2020**

**Class Project Assignment**

The project addresses the topic of branch prediction. It will use a software framework and benchmarks used earlier in a branch prediction competition. The framework and benchmark are zipped together and were uploaded to the project folder in Camino.

**Project Tasks:**

**Base Configuration:** The base configuration that comparisons are made to is a 32-entry Branch History Table (BHT) implementing a one-bit predictor. The 32 entries are indexed by bits [6:2] of the branch address.[[1]](#footnote-1)

**Task I:**  The base configuration is a (0,1) predictor with a 32 entry BHT. Keep the number of entries fixed (32) and implement (0,1), and (0,2) predictors.

**Task II:** Use a (0,2) predictor and change the number of entries in the BHT to 64, 128 and 256.

**Task III:** Keep the number of entries fixed (32) and implement (1,2), and (4,2) predictors.

**Task IV:** Implement some more complex predictor you choose. Here are some ideas, but do not feel obliged to use one of them.

1. A tournament predictor (you chose the two predictor used).
2. A predictor that include the branch addresses history beside the shift register.
3. A simplified version of the Tage predictor covered in the textbook.

**Project Report:**

I have uploaded a MS Word document describing the expected formatting. Use it as a template. **Read it** and avoid the pitfalls listed there. The report is equally important as your work.

**Due Date:**

**Final project report: Friday of the finals week.**

1. Bits [1:0] of the address are 0. [↑](#footnote-ref-1)