Assignment 3 For practice only No marking

1. Consider two branches that are executed as following (Branch number, outcome) in the following sequence. Assume that the two branches are mapped to two different entries in the branch prediction table.

   (B1,T) (B1,T), (B1,N), (B1,T) (B2,T) (B1,NO (B2,T) (B2,N), (B1,N), (B1,T) (B2,T) (B1,T) (B1,T), (B2,N) (B2,T).

2. How many miss-predictions using the following techniques
   - 1-bit bimodal predictor
   - 2-bit predictor (assume deep not taken)
   - Correlating 1-bit predictor where we consider the last branch result only.

3. Consider a DRAM where it takes 20 nsec if the page is open. 40 seconds if there is no open page, and 60 second if there is another page in the buffer (that implies closing a page takes 20 nsec.).

   Write the time at which the following memory requests are completed. By completed we mean sent to the chip pins. Consider both open page and close page policy. Note that X, X+1, X+2 maps to the same row, Y, Y+1, Y+... maps to the same row and is different than X

Request	Time of arrival	Completion time	
		Open page	Closed page
X	0ns		
Y	70 ns		
X+1	100		
X+2	200		
X+3	250		
Y+3	300		