**CSE 661 - Advanced Computer Architecture**

**Homework-2 Solutions**

3.11)



3.14) a)







3.14) b)



3.17)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Branch PC mod 4 | Entry | Prediction | Outcome | Mispredict | Table update | Global History |
| 2 | 4 | T | T | no | none | T |
| 3 | 6 | NT | NT | no | Change to NT | NT |
| 1 | 3 | T | NT | yes | Change to T misprediction | NT |
| 3 | 7 | NT | NT | no | none | NT |
| 1 | 3 | T | NT | yes | Change to NT misprediction | NT |
| 2 | 5 | T | T | no | none | T |
| 1 | 2 | NT | NT | no | none | NT |
| 2 | 5 | T | T | no | none | T |
| 3 | 6 | NT | T | yes | Change to NT misprediction | T |

Mis-rate = 3/9

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Branch PC mod 4 | Entry | Prediction | Outcome | Mispredict | Table update | Local History |
| 0 | 0 | T | T | no | Change to T | T,T |
| 1 | 4 | T | NT | yes | Change to T misprediction | T,NT |
| 1 | 5 | T | NT | yes | Change to NT misprediction | NT,NT |
| 1 | 7 | NT | NT | no | none | NT,NT |
| 1 | 7 | NT | NT | no | none | NT,NT |
| 0 | 0 | T | T | no | none | T,T |
| 1 | 7 | NT | NT | no | none | NT,NT |
| 0 | 0 | T | T | No | None | T,T |
| 1 | 7 | NT | T | yes | Change to NT misprediction | NT,T |

Mis-rate = 3/9

Grading (Total Marks: 20)

1) Local and Global predictor table – 9 marks each.

2) Miss rate calculation of each table – 1 mark each.