DM205 – On-Line Algorithms – Lecture 5

Lecture, September 9

- Borodin & El-Yaniv, Sections 12.0–12.2.

Lecture, September 14

- Borodin & El-Yaniv, Chapter 3.

Lecture, September 20

- Borodin & El-Yaniv, Chapter 4.

Exercises, September 21

All references are to the textbook by Borodin & El-Yaniv unless otherwise stated.

1. Exercise 3.2.

2. Exercise 3.3.

3. Exercise 3.6.

4. Exercise 3.7.

5. Exercise 3.8.

6. Exercise 3.9.

7. Exercise 3.10.

8. Prove that for any pair of deterministic lazy paging algorithms, A and B, any sequence length n, cache size k, and memory size N, for any number of faults s, the number of sequences of length n where A has s faults is equal to the number of sequences of length n where B has s faults. Do this by induction on the length of the sequence, n, by finding a bijection f which maps sequences where A has a particular number of faults to sequences where B has the same number of faults.