

# Introduction to Databases

## Homework 3

Handed out: Wednesday, November 1, 2006  
Due back: Friday, November 17, 2006 (at the start of class)  
Notes: To be done individually

1. Textbook exercise 5.2.1b-e,g,i,k  
Your final answer should be formal functional notation. You might find it helpful to work out expression trees first, however.
2. Textbook exercise 5.2.8
3. Textbook exercise 5.2.9
4. Textbook exercise 5.3.3
5. Textbook exercise 5.3.4c,f,g
6. Textbook exercise 5.4.1h,j,l
7. Textbook exercise 5.4.2d,e
8. Textbook exercise 5.5.1b,c
9. Textbook exercise 5.5.4

Extra Credit: Define an XML DTD for microblog messages. The DTD must capture the notion of nesting of messages. Write an XPATH query for your DTD that selects all messages written by a particular user.

Extra Credit: A Distributed Hash Table (DHT) is a kind of primitive peer-to-peer distributed database that balances load across all peers. The most widely cited DHT in academia is Chord. The most widely used DHT in practice is probably Magnet, as included in the Azureus implementation of BitTorrent. Read about Magnet and Chord and compare and contrast them.