

CSc4710 / CSc6710
Fall 2006
Assignment 2
Due Date: October 3rd @ 5:30PM

Problem 1 (100 points)

Consider the following relational schema (the primary keys are underlined) for Problem 4 in Assignment 1:

webpage(webID, webTitle, url, base, hits)
httpLink(sourceWebID, targetWebID)
graphic(gID, gName, gType, gLocation)
display(webID, gID)
courseware(cID, cDescription, ftpLocation, category)
ftpLink(webID, cID)

Write the following queries in (a) relational algebra, (b) domain relational calculus, (c) tuple relational calculus, and (d) SQL.

- (1) Which pages contain ftp links to the class notes?
- (2) Which pages display graphics having the name 'gsulogo'?
- (3) Which pages do not display any graphics?
- (4) Which pages use 'gif' graphics but not 'jpg' graphics?
- (5) Which pages contain more than one ftp link to courseware?
- (6) Which pages contain only one http link to another Web page?
- (7) Which pages have the most hits?
- (8) Which pages contain ftp links to all courseware in the publications category?
- (9) For each Web page and graphic type, give the number of graphics of that type displayed on that page. Display your results in ascending order on webID and, within that, in ascending order on graphic type (gType).
- (10) For each group of pages belonging to a base, give the average number of hits, the minimum number of hits in that group, the maximum number of hits in that group, and the sum of hits for that group. Display your results in descending order on average number of hits.