

Department of Computer Science  
New Mexico State University  
CS 482/502 Database Management Systems I

**Assignment 3: Relational Algebra**

This is an individual assignment.

**Task:** Given the database schema in the project, write Relational Algebra (RA) statements to answer the following queries.

1. (10 points) Find the information of a client named 'Peter Smith'.
2. (10 points) Find all the air packages whose broadcasting frequency is more than 5.
3. (10 points) Find the distinct videos that are broadcasted in a site with site code 'S345'. Your relational algebra should only return the video code of such videos.
4. (10 points) Find all the digital displays that are located in a 'restaurant' (i.e., site type is 'restaurant'). For such digital displays, you should only return their serial nos.
5. (10 points) Find the information of all the technical supports who specialize a model with model no 'M456781'. You should return the emp id and the name for such technical supports.
6. (10 points) Find the distinct model that employee 'Peter' specializes in. Show such model Nos.
7. (10 points) Find the videos that are shown at site 111, but not site 112. Show the code and length of such videos.
8. (10 points) Find the names of all employees (including administrators, salesmen, and technical supports) working in this company.
9. (10 points) Assume that a digital display with model no 'M01' at a specific site with site code 111 has issues, find all the technical supports who can repair this digital display. Show the employee ids and names of such technical supports.
10. (10 points) Find all the salesmen who did not sell out any airtime package yet. You should return the emp id and the name of such salesmen.

**Grading criteria:**

- Please use ONE and ONLY ONE relational algebra statement to answer each question. I.e., to answer each question, if you write multiple small RA statements, points will be deducted even though the combined multiple RA statements may answer the question correctly.
- No extra unnecessary tables should be used in each RA statement. If you use extra unnecessary tables, points will be deducted.
- Please use the symbols and notations introduced in the textbook. Points will be deducted if different symbols and notations are utilized.

**Submission:** You have to submit your assignment electronically (through Canvas). Printed copies are not accepted. Please submit .pdf file with name "hw3-answer-(your banner id)". See course syllabus for policies on late submission and plagiarism.