Assignment 3: Relational Algebra

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CS 482

Q01.) Find the information of a client named ‘Peter Smith’

$\sigma_{name = \text{“Peter Smith”}}(Client)$

Q02.) Find all the air packages whose broadcasting frequency is more than 5.

$\sigma_{frequency > 5}(AirtimePackage)$

Q03.) 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.

$\prod_{Video.videoCode}(\sigma_{siteCode = \text{‘S345’}}(Broadcasts \bowtie Video))$

Q04.) 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.

$\prod_{DigitalDisplay.serialNo}(\sigma_{type = \text{‘restaurant’}}(DigitalDisplay \bowtie Locates \bowtie Site))$

Q05.) 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 support.

$\prod_{TechnicalSupport.empId,TechnicalSupport.name}(\sigma_{modelNo = \text{‘M456781’}}($
$TechnicalSupport \bowtie Specializes))$

Q06.) Find the distinct model that employee ‘Peter’ specializes in. Show such model Nos.

$\prod_{modelNo}(\sigma_{name=\text{’Peter’}}(TechnicalSupport \bowtie Specializes))$

Q07.) Find the videos that are shown at site 111, but not site 112. Show the code and length of such videos.

$\prod_{Video.videoCode,Video,videoLength}(\sigma_{siteCode=111}(Video \bowtie Broadcasts))-$
$\prod_{Video.videoCode,Video,videoLength}(\sigma_{siteCode=112}(Video \bowtie Broadcasts))$

Q08.) Find the names of all employees (including administrators, salesmen, and technical supports) working in this company.

$\prod_{name}$(Administrators)U
$\prod_{name}$(Salesman)U
$\prod_{name}$(TechnicalSupport)

Q09.) 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.

$\prod_{empId,name}(\sigma_{DigitalDisplay.modelNo = 'M01' \wedge Locates.siteCode = 111}$
(TechnicalSupport⋈Specializes⋈Model⋈DigitalDisplay⋈Locates))

Q10.) 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.

$\prod_{empId.name}$(Salesman)-
$\prod_{empId.name}$((Salesman⋈Purchases))