T1-tsa-ra.docx

Student ID: 30613043
Student Name: Grant Fullston
Unit Code: FIT2094
Applied Class No: A09

Comments for your marker:

Write the **relational algebra operations** for each of Task 1 queries below (your answer must show an *understanding of query efficiency*).

List of symbols for copying/pasting as you enter your answers below:
project: π, select: σ, join: ⋈, intersect: ∩, union: ∪, minus: -

1(a) List the id, name and state of all towns which do not have any point of interest

$R = \pi_{town\_id, town\_name, town\_state} (\sigma_{R1} TOWN)$
$R1 = (\sigma_{town\_id} TOWN - \sigma_{town\_id} POINT\_OF\_INTEREST)$

1(b) List the id, name, street address and description of all points of interests which fall under 'Nature and Wildlife' type and have a review rating above 3.

$\pi_{poi\_id, poi\_name, poi\_street\_address, poi\_description}(\sigma_{poi\_review\_rating>3, poi\_type\_id =R1} POINT\_OF\_INTEREST )$

$R1 = \pi_{poi\_type\_id} (\sigma_{poi\_type\_descr = \text{'Nature and Wildlife'}} POI\_TYPE )$

1(c) List member id, member given name, poi id, poi name, review date time, review rating and review comment of all reviews written for POIs which are located in a town named Broome (latitude:-17.9644, longitude:122.2304)

$\pi_{member\_id, member\_gname, poi\_id, poi\_name, review\_date\_time, review\_rating, review\_comment} ( POINT\_OF\_INTEREST \bowtie_{R3=REVIEW.poi\_id} REVIEW \bowtie_{R5=MEMBER.member\_id} MEMBER)$

$R5 = \pi_{member\_id} (R4)$
$R4 = \sigma_{poi\_id =R3} (REVIEW)$ – get all reviews for broom
$R3 = \pi_{poi\_id} (R2)$ – get poi_id for broom
$R2 = \sigma_{town\_id =R1} (POINT\_OF\_INTEREST)$ – get all poi details for broom
$R1 = \pi_{town\_id} (\sigma_{town\_lat = -17.9644, town\_long= 122.2304} TOWN)$ – Get broom town id