## Spatial Database Exercise on Spatial SQL: SOLUTIONS

3. Create an Oracle SQL query to report the `woodID` values of Woodland objects that are inside the county object `countyA` using the "inside" topological relationship, i.e. using the `SDO_INSIDE` operator – remember that its value must be tested against `'TRUE'` (in capitals).

**Answer**

```
Select W.woodID
From Woodland W, County C
Where  C.countyID = 'countyA'  AND SDO_CONTAINS(C.shape, W.shape) = 'TRUE';
```

4. Create an Oracle SQL query to find woodlands that are more than 1 unit away from woodC.

**Answer**

```
Select W1.woodID
From Woodland W1, Woodland W2
Where  W2.woodID = 'woodC' AND
SDO_GEOM.SDO_DISTANCE(W1.shape, W2.shape, 0.005) > 1;
```

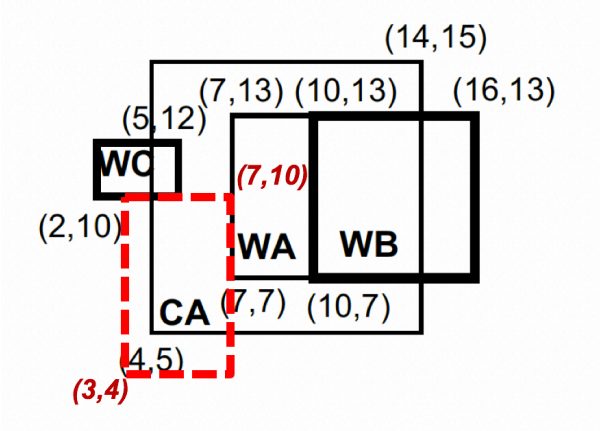


5. Insert a new Woodland object with `woodID = 'woodD'` into the Woodland table, such that it touches the lower boundary of woodC and the left boundary of woodA, and has its lower left corner at coordinates (3,4).



**Answer**

```
INSERT INTO Woodland VALUES ('woodD',
SDO_GEOMETRY(2003,null,null,SDO_ELEM_INFO_ARRAY(1,1003,1),
SDO_ORDINATE_ARRAY(3,4,7,4,7,10,3,10,3,4)));
```



6. Create an Oracle SQL query to verify that the object woodD does in fact touch woodC and woodA.

**Answer**

```
SELECT W1.woodID
FROM Woodland W1, Woodland W2
WHERE W2.woodID = 'woodD' AND SDO_TOUCH(W1.shape, W2.shape) = 'TRUE';
```

7. Create an Oracle SQL query to measure the area of overlap between woodD and the county object countyA.

**Answer**

```
SELECT SDO_GEOM.SDO_AREA
(SDO_GEOM.SDO_INTERSECTION(W.shape, C.shape, 0.005), 0.005)
FROM Woodland W, County C
WHERE W.woodID = 'woodD' and C.countyID = 'countyA' ;
```