COMP9315 20T1 Final Exam Q6

Type your answer(s) to replace the xxx's
Submit this file as your answer for Q6

a.

Quad tree:

```
                        NW   NE   SW   SE
                      +----+----+----+----+
                      |    |    |    |    |
                      +-|--+-|--+--|-+--|-+
                 +--------+    |      |    +----------+
                 |             |      |               |
                 |             |      +---------+     |
                 |             v                |     |
                 |      NW   NE   SW   SE       |     |
                 |    +----+----+----+----+     |     |
                 |    |    |    |    |    |     |     |
                 |    +-|--+-|--+--|-+--|-+     |     |
                 |      |    |      |    |       |     |
                 |      |    |      |    |       |     |
                 v      v    v      v    v       v     v
              +-----+-----+-----+-----+-----+-----+-----+
Data pages    | x x |  x  | x x | x x |  x  | x x |  x  |
              +-----+-----+-----+-----+-----+-----+-----+
```

- The quad-tree has 2 nodes

b.
- NW and NE contain relevant regions
- All sub-quadrants of NE contain relevant regions

- So 6 quadrants and sub-quadrants are examined:
  - NW, NE, NE-NW, NE-NE, NE-SW, NE-SE

c.
- Assuming that the tuple in NE-SE doesn't have a value less than 'f' for B

- 4 tuples in the result set:
  - One from NE-NW
  - Two from NE-NE
  - One from NE-SW