COMP0022: Database and information systems (PG – Term 1)

Non-relational databases exercises

1. Convert the following JSON object to an OEM-like tree structure.


```
{
  "colors": [
    {
      "color": "black",
      "category": "hue",
      "type": "primary",
      "code": {
        "rgba": [0,0,0,1],
        "hex": "#000"
      }
    },
    {
      "color": "white",
      "category": "value",
      "code": {
        "rgba": [255,255,255, 1],
        "hex": "#FFF"
      }
    },
    {
      "color": "red",
      "category": "hue",
      "type": "primary",
      "code": {
        "rgba": [255,0,0,1],
        "hex": "#F00"
      }
    },
    {
      "color": "green",
      "category": "hue",
      "type": "secondary",
      "code": {
        "rgba": [0,255,0,1],
        "hex": "#0F0"
      }
    },
  ]
}
```

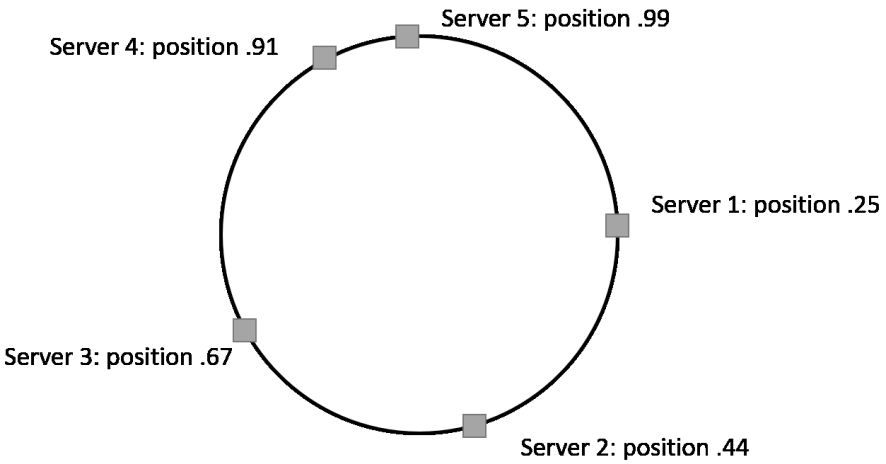
2. Convert the JSON file to (a snippet of) equivalent XML.

3. Given the XML schema you created in the previous question, create an XML query that:

    a. Selects colors that belong to the category “hue”.

    b. Returns color names sorted by green content.

4. For the following key-value sharding setup:



    a. How would storage of keys be affected if server 2 were removed?

    b. How would storage of keys be affected if a new server went up at position .78?