Q1.

a.

```xml
<menu>
        <id>file</id>
        <value>File</value>
        <popup>
                <menuitem>
                        <value>New</value>
                        <onclick>CreateNewDoc()</onclick>
                </menuitem>
                <menuitem>
                        <value>Open</value>
                        <onclick>OpenDoc()</onclick>
                </menuitem>
                <menuitem>
                        <value>Close</value>
                        <onclick>CloseDoc()</onclick>
                </menuitem>
        </popup>
</menu>
```

b.

```json
{
  "configuration-file": {
   "section": [
    {
     "name": "section1",
     "entry": [
      {
       "name": "name1",
       "value": "value1"
      },
      {
       "name": "name2",
       "value": "value2"
      }
     ]
    },
    {
     "name": "section2",
     "entry": {
      "name": "someothername",
      "value": "someothervalue"
```

```
    }
   }
  ]
 }
}
```

Q2.

Bucket 0 (Crick, Wu, Califieri)
Bucket 1 (Kim, Singh)
Bucket 2 (Srinivasan, Katz, ElSaid, Gold)
Bucket 3 (Brandt, Mozart, Einstein)

Crick (492) -> 0
Srinivasan (1054) -> 2
Katz (410) -> 2
Brandt (604) -> 3
Kim (289) -> 1
Wu (204) -> 0
Singh (505) -> 1
ElSaid (562) ->2
Califieri (904) -> 0
Mozart (523) -> 3
Einstein (831) -> 3
Gold (390) -> 2

Q3.

1. First execution

$\prod$ name (σ S.sid = R.sid ^ B.isbn = R.isbn ^ B.author = "Shakespeare" ^ S.age > 15 ^ S.age < 20 (S X R X B))

2. Second execution

$\prod$ name ((RENAME r_s (σ B.isbn = R.isbn ^ B.author = "Shakespeare" (R X S)) r_s $\bowtie$ r_s.sid = S.sid (σ S.age > 15 ^ S.age < 20 (S)))