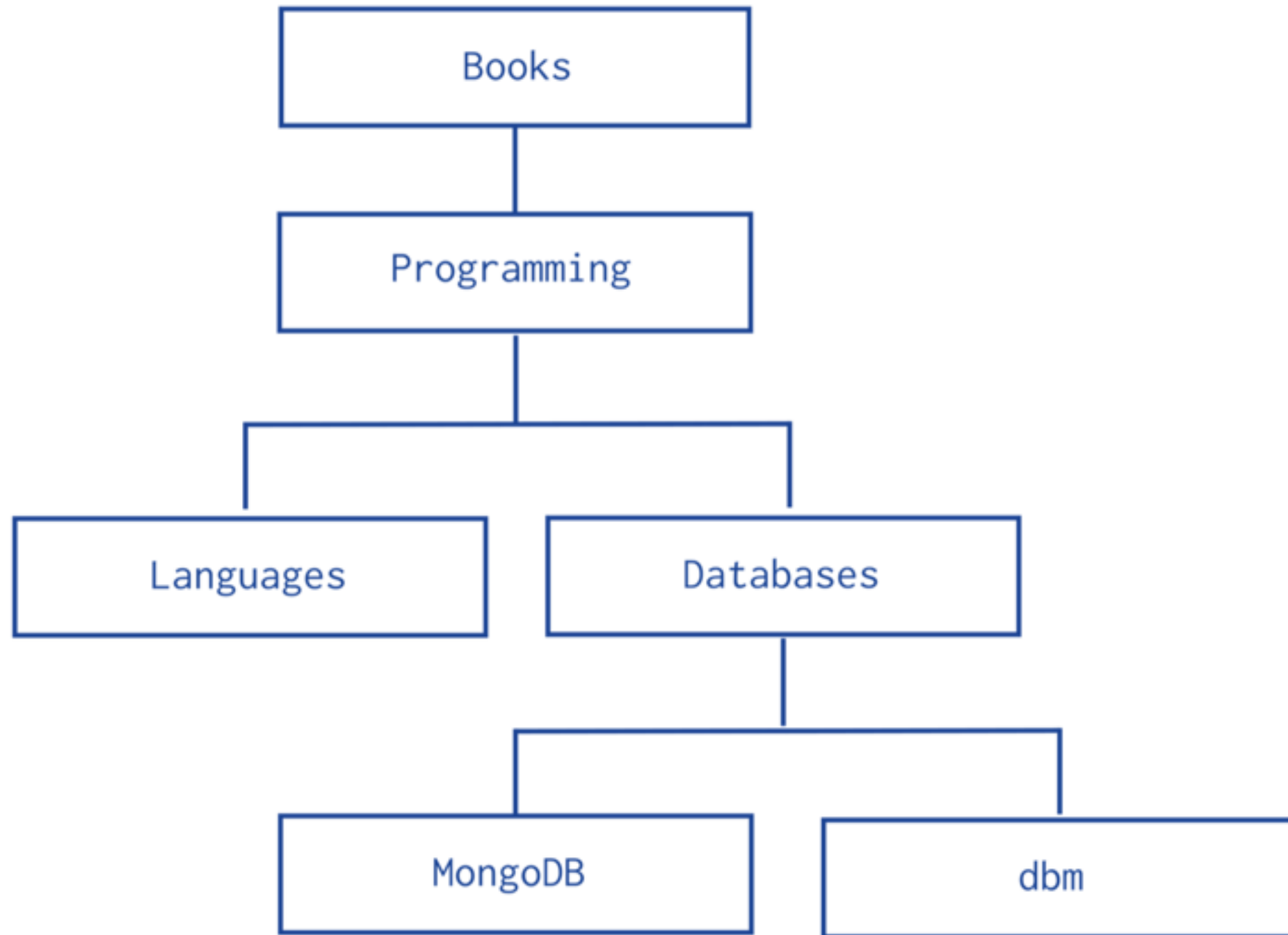


MongoDB

Data modeling with Tree

Entity



Parent reference

```
{ _id: "MongoDB", parent: "Databases" }
```

```
{ _id: "dbm", parent: "Databases" }
```

Child reference

```
{ _id: "MongoDB", children: [] }
```

```
{ _id: "dbm", children: [] }
```

```
{ _id: "Databases", children: [ "MongoDB", "dbm" ] }
```

Parent + Ancestors

```
{ _id: "MongoDB",  
  ancestors: [ "Books", "Programming", "Databases" ],  
  parent: "Databases"  
}
```

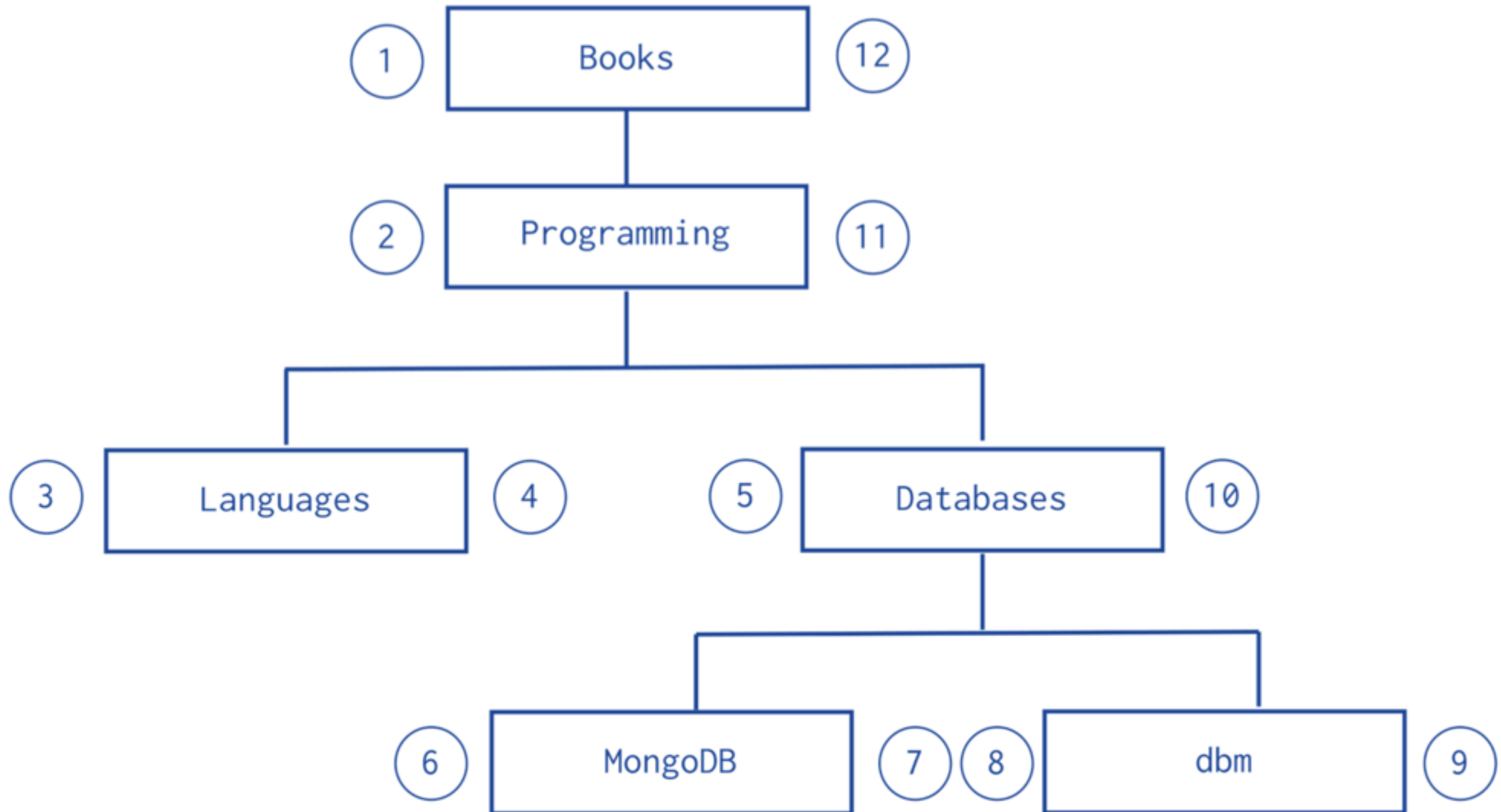
Materialized Path

```
{ _id: "Books", path: null }
```

```
{ _id: "Programming", path: ",Books," }
```

```
{ _id: "Databases", path: ",Books,Programming," } )
```

Nested set



Nested set

{ _id: "Books", parent: 0, left: 1, right: 12 }

{ _id: "Programming", parent: "Books", left: 2, right: 11 }

Workshop

- สร้างระบบ product catalog