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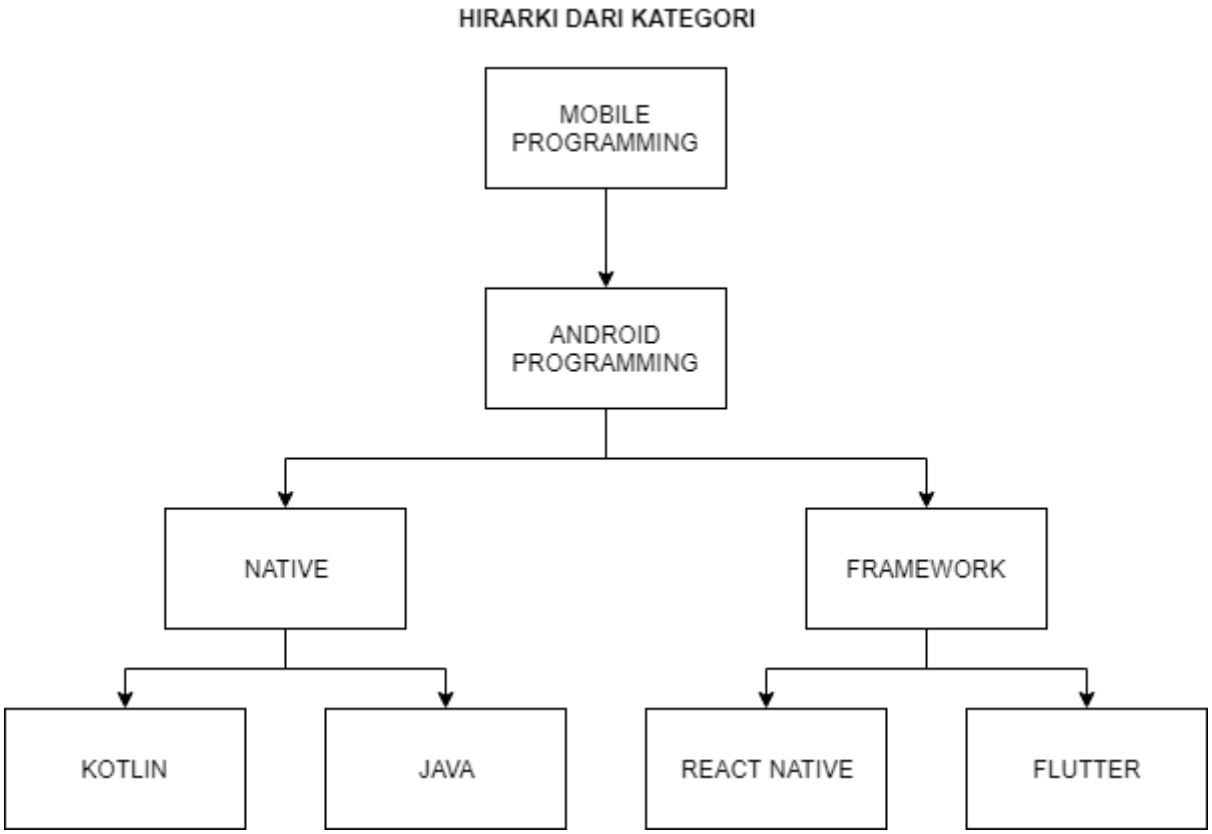
TUGAS BASIS DATA LANJUT

MODEL TREE STRUKTUR



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Parent References :

Create db untuk Parent References:

```
> db
belajar_tree2
```

Insert db untuk Parent References:

```
> db.kategori.insert({_id:"ReactNative", parent:"Framework"})
WriteResult({ "nInserted" : 1 })
> db.kategori.insert({_id:"Flutter", parent:"Framework"})
WriteResult({ "nInserted" : 1 })
> db.kategori.insert({_id:"Framework", parent:"AndroidProgramming"})
WriteResult({ "nInserted" : 1 })
> db.kategori.insert({_id:"Kotlin", parent:"Native"})
WriteResult({ "nInserted" : 1 })
> db.kategori.insert({_id:"Java", parent:"Native"})
WriteResult({ "nInserted" : 1 })
> db.kategori.insert({_id:"Native", parent:"AndroidProgramming"})
WriteResult({ "nInserted" : 1 })
> db.kategori.insert({_id:"AndroidProgramming", parent:"MobileProgramming"})
WriteResult({ "nInserted" : 1 })
```

Query untuk pencarian Parent dari suatu Child :

```
> db.kategori.findOne({_id:"Flutter"}).parent
Framework
```

Query untuk membuat index pada Parent untuk mengaktifkan pencarian cepat oleh simpul parent:

```
> db.kategori.createIndex({parent:1})
{
        "createdCollectionAutomatically" : false,
        "numIndexesBefore" : 1,
        "numIndexesAfter" : 2,
        "ok" : 1
}
```

Query Pencarian Child melalui Parent :

```
> db.kategori.find({parent:"Framework"})
{ "_id" : "ReactNative", "parent" : "Framework" }
{ "_id" : "Flutter", "parent" : "Framework" }
```

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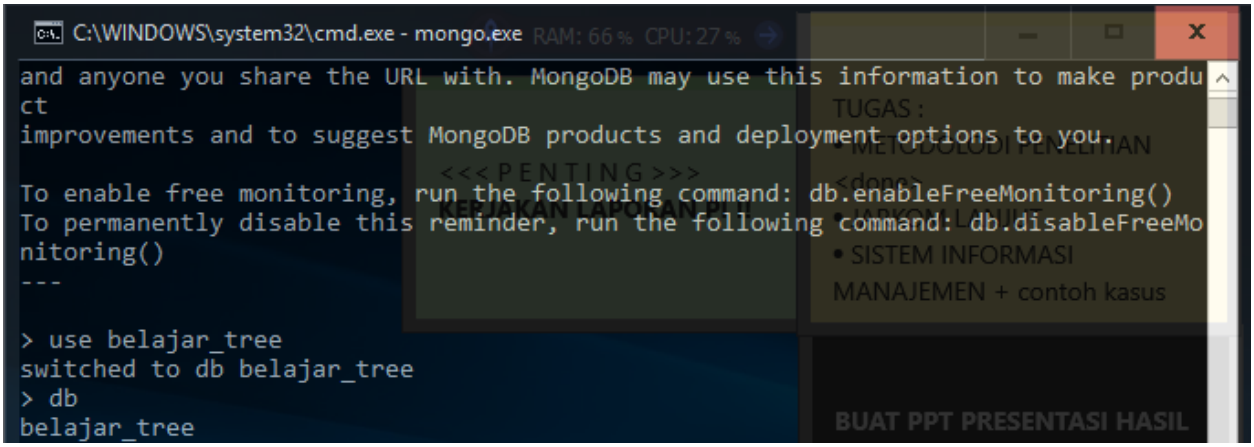
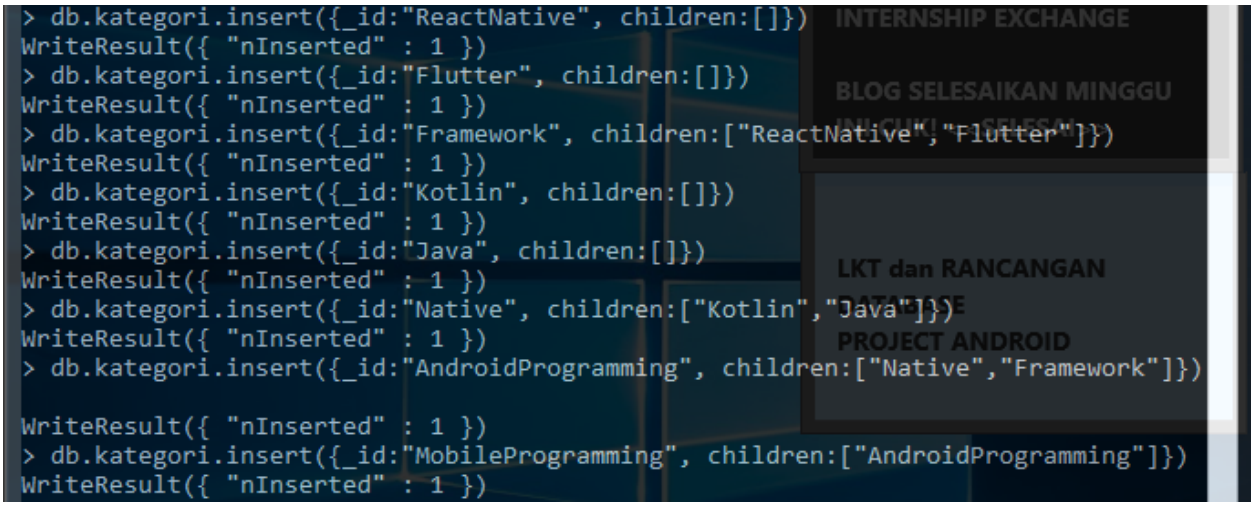
Child Reference

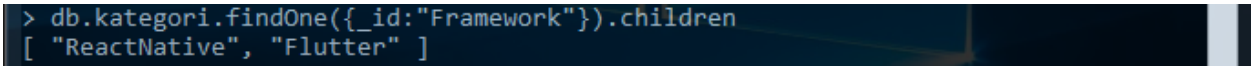
Cereate db untuk Child Reference :



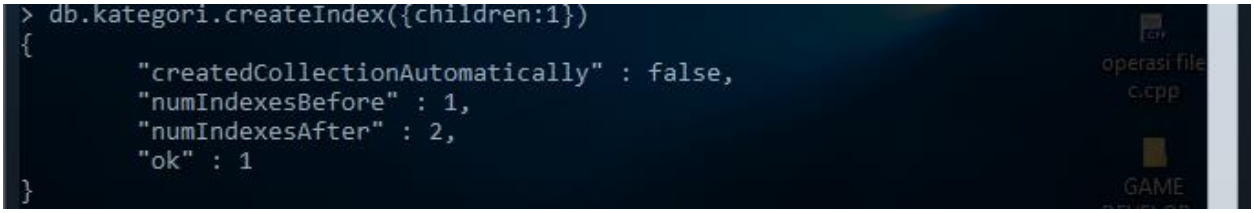
Insert db untuk Child Reference:



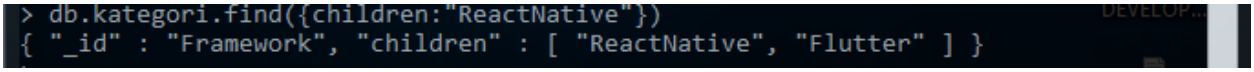
Query untuk pencarian Child dari suatu Parent :



Query untuk membuat index pada Child untuk mengaktifkan pencarian cepat oleh simpul Child:



Query Pencarian Parent melalui Child :



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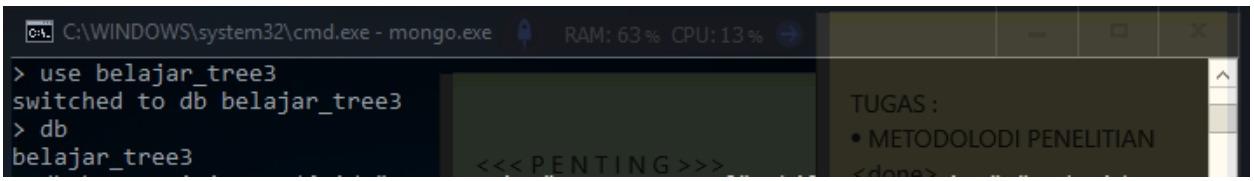
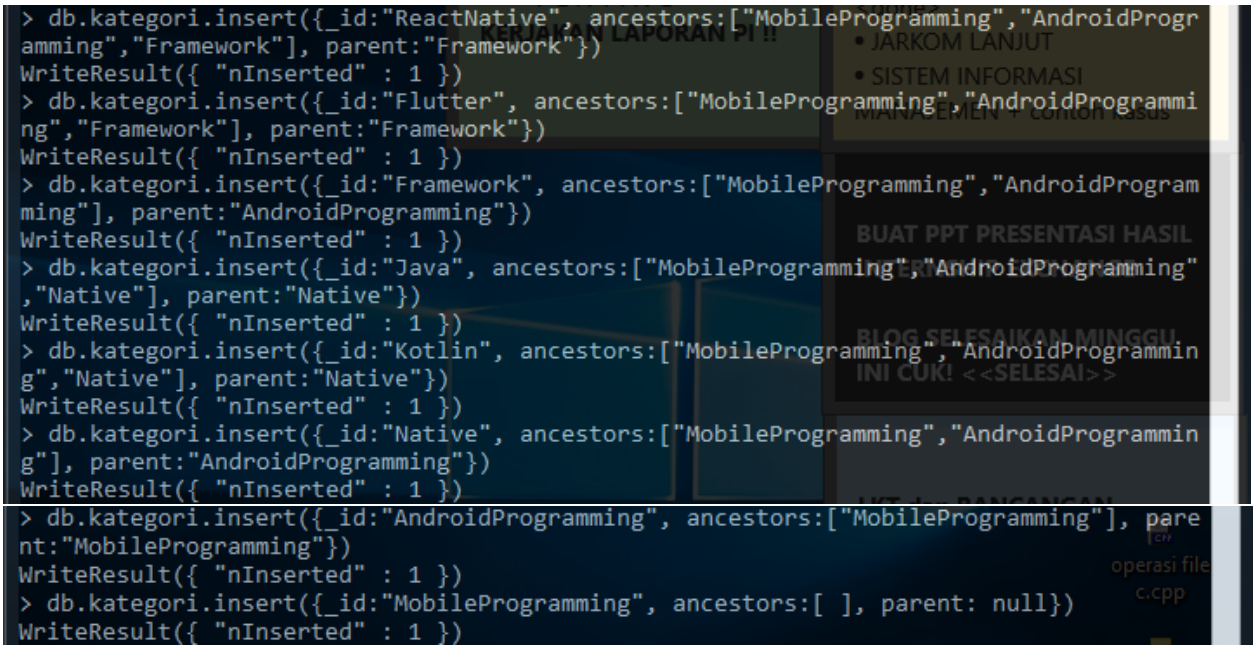
Array of Ancestors

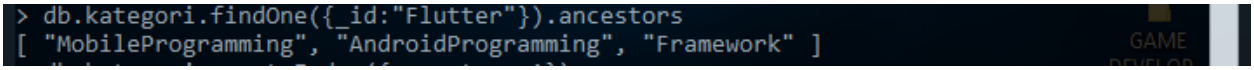
Create db untuk Array of Ancestors :



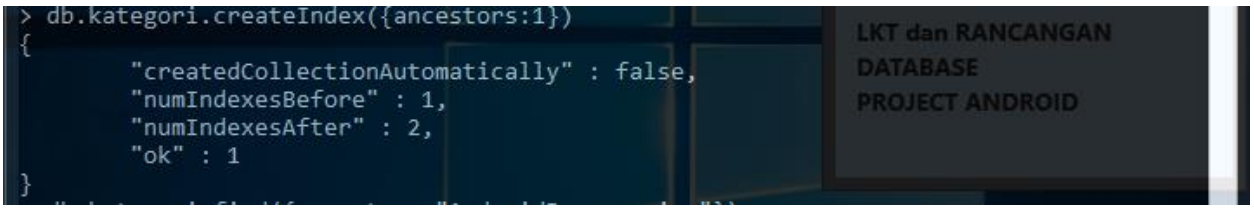
Insert db untuk Array of Ancestors :



Query untuk pencarian Child berdasarkan Ancestorsnya :



Query untuk membuat index pada Ancestors untuk mengaktifkan pencarian cepat oleh simpul ancestors:



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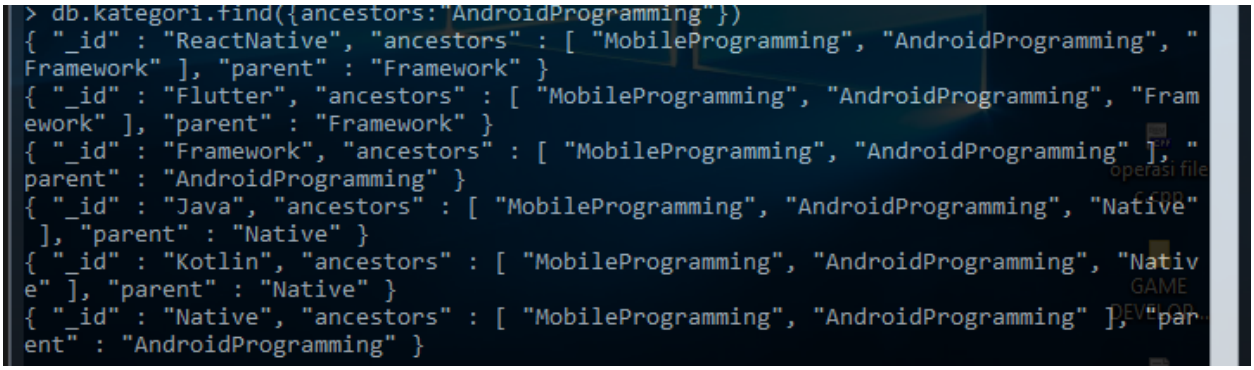
Query Pencarian Ancestors dari “AndroidProgramming” :



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Materialized Paths

Create db untuk Materialized Paths :

```
> use belajar_tree4
switched to db belajar_tree4
> db
belajar_tree4
```

Insert db untuk Materialized Paths :

```
> db.kategori.insert({ _id : "MobileProgramming", path : null })
WriteResult({ "nInserted" : 1 })
> db.kategori.insert({ _id : "AndroidProgramming", path : ",MobileProgramming," })
WriteResult({ "nInserted" : 1 })
> db.kategori.insert({ _id : "Framework", path : ",MobileProgramming,AndroidProgramming," })
WriteResult({ "nInserted" : 1 })
> db.kategori.insert({ _id : "Native", path : ",MobileProgramming,AndroidProgramming," })
WriteResult({ "nInserted" : 1 })
> db.kategori.insert({ _id : "ReactNative", path : ",MobileProgramming,AndroidProgramming,Framework," })
WriteResult({ "nInserted" : 1 })
> db.kategori.insert({ _id : "Flutter", path : ",MobileProgramming,AndroidProgramming,Framework," })
WriteResult({ "nInserted" : 1 })
> db.kategori.insert({ _id : "Kotlin", path : ",MobileProgramming,AndroidProgramming,Native," })
WriteResult({ "nInserted" : 1 })
> db.kategori.insert({ _id : "Java", path : ",MobileProgramming,AndroidProgramming,Native," })
WriteResult({ "nInserted" : 1 })
```

Query Pencarian seluruh data dengan mengurutkan berdasar jalur bidangnya:

```
> db.kategori.find().sort({path:1})
{ "_id" : "MobileProgramming", "path" : null }
{ "_id" : "AndroidProgramming", "path" : ",MobileProgramming," }
{ "_id" : "Framework", "path" : ",MobileProgramming,AndroidProgramming," }
{ "_id" : "Native", "path" : ",MobileProgramming,AndroidProgramming," }
{ "_id" : "ReactNative", "path" : ",MobileProgramming,AndroidProgramming,Framework," }
{ "_id" : "Flutter", "path" : ",MobileProgramming,AndroidProgramming,Framework," }
{ "_id" : "Kotlin", "path" : ",MobileProgramming,AndroidProgramming,Native," }
{ "_id" : "Java", "path" : ",MobileProgramming,AndroidProgramming,Native," }
```

Query Pencarian Ancestors dari “AndroidProgramming” :

```
> db.kategori.find({path:/,AndroidProgramming,/})
{ "_id" : "Framework", "path" : ",MobileProgramming,AndroidProgramming," }
{ "_id" : "Native", "path" : ",MobileProgramming,AndroidProgramming," }
{ "_id" : "ReactNative", "path" : ",MobileProgramming,AndroidProgramming,Framework," }
{ "_id" : "Flutter", "path" : ",MobileProgramming,AndroidProgramming,Framework," }
{ "_id" : "Kotlin", "path" : ",MobileProgramming,AndroidProgramming,Native," }
{ "_id" : "Java", "path" : ",MobileProgramming,AndroidProgramming,Native," }
```

Query Pencarian Ancestors dari “MobileProgramming” :

```
> db.kategori.find({path:/,MobileProgramming,/})
{ "_id" : "AndroidProgramming", "path" : ",MobileProgramming," }
{ "_id" : "Framework", "path" : ",MobileProgramming,AndroidProgramming," }
{ "_id" : "Native", "path" : ",MobileProgramming,AndroidProgramming," }
{ "_id" : "ReactNative", "path" : ",MobileProgramming,AndroidProgramming,Framework," }
{ "_id" : "Flutter", "path" : ",MobileProgramming,AndroidProgramming,Framework," }
{ "_id" : "Kotlin", "path" : ",MobileProgramming,AndroidProgramming,Native," }
{ "_id" : "Java", "path" : ",MobileProgramming,AndroidProgramming,Native," }
```

Query untuk membuat index pada Path untuk mengaktifkan pencarian cepat oleh simpul ancestors:

```
> db.kategori.createIndex({path:1})
{
        "createdCollectionAutomatically" : false,
        "numIndexesBefore" : 1,
        "numIndexesAfter" : 2,
        "ok" : 1
}
```