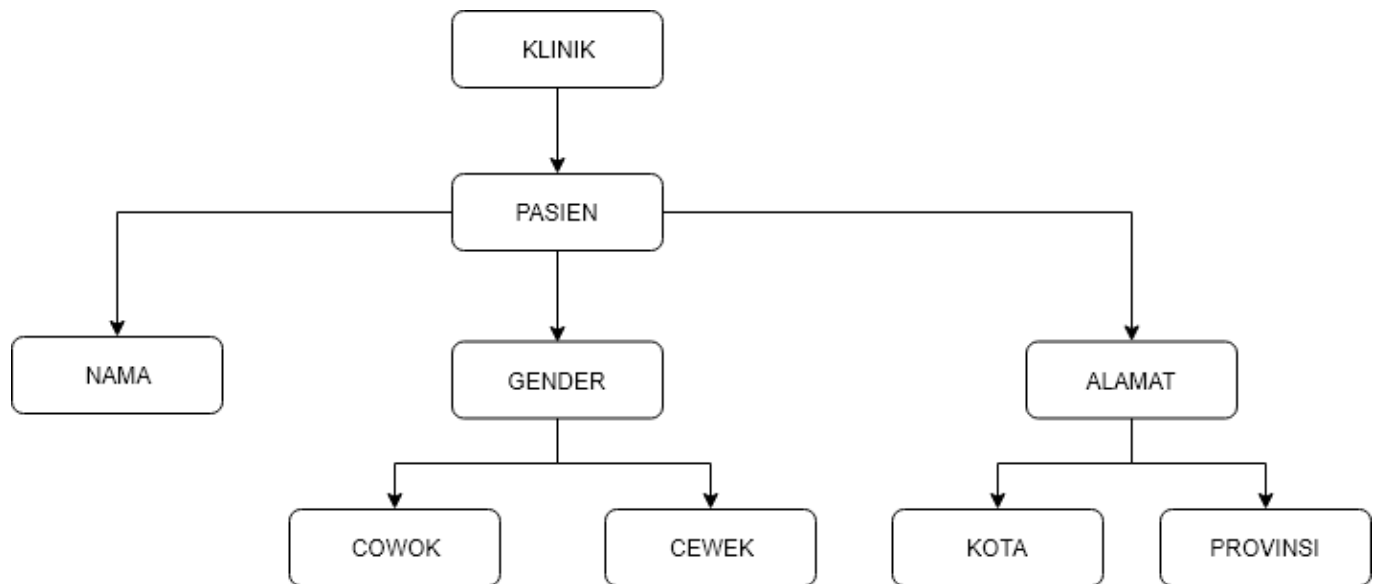


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🚦 MODEL TREE STRUCTURES WITH PARENT REFERENCES

Select C:\WINDOWS\system32\cmd.exe - mongo

```
> use puskesmas_2
switched to db puskesmas_2
> db
puskesmas_2
> db.klinik_pasien.insert( { _id: "kota", parent: "alamat" } )
WriteResult({ "nInserted" : 1 })
> db.klinik_pasien.insert( { _id: "provinsi", parent: "alamat" } )
WriteResult({ "nInserted" : 1 })
> db.klinik_pasien.insert( { _id: "cowok", parent: "gender" } )
WriteResult({ "nInserted" : 1 })
> db.klinik_pasien.insert( { _id: "cewek", parent: "gender" } )
WriteResult({ "nInserted" : 1 })
> db.klinik_pasien.insert( { _id: "alamat", parent: "pasien" } )
WriteResult({ "nInserted" : 1 })
> db.klinik_pasien.insert( { _id: "gender", parent: "pasien" } )
WriteResult({ "nInserted" : 1 })
> db.klinik_pasien.insert( { _id: "nama", parent: "pasien" } )
WriteResult({ "nInserted" : 1 })
> db.klinik_pasien.insert( { _id: "pasien", parent: "klinik" } )
WriteResult({ "nInserted" : 1 })
> db.klinik_pasien.insert( { _id: "klinik", parent: null } )
WriteResult({ "nInserted" : 1 })
> db.klinik_pasien.find().pretty()
{ "_id" : "kota", "parent" : "alamat" }
{ "_id" : "provinsi", "parent" : "alamat" }
{ "_id" : "cowok", "parent" : "gender" }
{ "_id" : "cewek", "parent" : "gender" }
{ "_id" : "alamat", "parent" : "pasien" }
{ "_id" : "gender", "parent" : "pasien" }
{ "_id" : "nama", "parent" : "pasien" }
{ "_id" : "pasien", "parent" : "klinik" }
{ "_id" : "klinik", "parent" : null }
> db.klinik_pasien.findOne( { _id: "cowok" } ).parent
gender
> db.klinik_pasien.createIndex( { parent: 1 } )
{
  "createdCollectionAutomatically" : false,
  "numIndexesBefore" : 1,
  "numIndexesAfter" : 2,
  "ok" : 1
}
> db.klinik_pasien.find( { parent: "gender" } )
{ "_id" : "cowok", "parent" : "gender" }
{ "_id" : "cewek", "parent" : "gender" }
>
```

MODEL TREE STRUCTURES WITH CHILD REFERENCES

```
C:\WINDOWS\system32\cmd.exe - mongo
> use puskesmas-5
switched to db puskesmas-5
> db.klinik_pasien.insert( { _id: "kota", children: [] } )
2019-03-28T02:05:12.735+0700 E QUERY [js] SyntaxError: missing : after property id @(shell):1:49
> db.categories.insert( { _id: "kota", children: [] } )
WriteResult({ "nInserted" : 1 })
> db.categories.insert( { _id: "provinsi", children: [] } )
WriteResult({ "nInserted" : 1 })
> db.categories.insert( { _id: "cowok", children: [] } )
WriteResult({ "nInserted" : 1 })
> db.categories.insert( { _id: "cewek", children: [] } )
WriteResult({ "nInserted" : 1 })
> db.categories.insert( { _id: "alamat", children: [ "kota", "provinsi" ] } )
WriteResult({ "nInserted" : 1 })
> db.categories.insert( { _id: "gender", children: [ "cewek", "cowok" ] } )
WriteResult({ "nInserted" : 1 })
> db.categories.insert( { _id: "nama", children: [ ] } )
WriteResult({ "nInserted" : 1 })
> db.categories.insert( { _id: "pasien", children: [ "nama", "gender", "alamat" ] } )
WriteResult({ "nInserted" : 1 })
> db.categories.insert( { _id: "klinik", children: [ "pasien" ] } )
WriteResult({ "nInserted" : 1 })
> db.categories.findOne( { _id: "gender" } ).children
[ "cewek", "cowok" ]
> db.categories.createIndex( { children: 1 } )
{
  "createdCollectionAutomatically" : false,
  "numIndexesBefore" : 1,
  "numIndexesAfter" : 2,
  "ok" : 1
}
> db.categories.find( { children: "cewek" } )
{ "_id" : "gender", "children" : [ "cewek", "cowok" ] }
>
```

MODEL TREE STRUCTURES WITH AN ARRAY OF ANCESTORS

```
C:\WINDOWS\system32\cmd.exe - mongo
> use puskesmas-4
switched to db puskesmas-4
> db.klinik_pasien.insert( { _id: "klinik", path: null } )
WriteResult({ "nInserted" : 1 })
> db.klinik_pasien.insert( { _id: "pasien", path: ",klinik," } )
WriteResult({ "nInserted" : 1 })
> db.klinik_pasien.insert( { _id: "nama", path: ",klinik,pasien," } )
WriteResult({ "nInserted" : 1 })
> db.klinik_pasien.insert( { _id: "alamat", path: ",klinik,pasien," } )
WriteResult({ "nInserted" : 1 })
> db.klinik_pasien.insert( { _id: "gender", path: ",klinik,pasien," } )
WriteResult({ "nInserted" : 1 })
> db.klinik_pasien.insert( { _id: "cowok", path: ",klinik,pasien,gender," } )
WriteResult({ "nInserted" : 1 })
> db.klinik_pasien.insert( { _id: "cewek", path: ",klinik,pasien,gender," } )
WriteResult({ "nInserted" : 1 })
> db.klinik_pasien.insert( { _id: "kota", path: ",klinik,pasien,alamat," } )
WriteResult({ "nInserted" : 1 })
> db.klinik_pasien.insert( { _id: "provinsi", path: ",klinik,pasien,alamat," } )
WriteResult({ "nInserted" : 1 })
> db.klinik_pasien.find().sort( { path: 1 } )
{ "_id" : "klinik", "path" : null }
{ "_id" : "pasien", "path" : ",klinik," }
{ "_id" : "nama", "path" : ",klinik,pasien," }
{ "_id" : "alamat", "path" : ",klinik,pasien," }
{ "_id" : "gender", "path" : ",klinik,pasien," }
{ "_id" : "kota", "path" : ",klinik,pasien,alamat," }
{ "_id" : "provinsi", "path" : ",klinik,pasien,alamat," }
{ "_id" : "cowok", "path" : ",klinik,pasien,gender," }
{ "_id" : "cewek", "path" : ",klinik,pasien,gender," }
> db.klinik_pasien.find( { path: /,alamat,/ } )
{ "_id" : "kota", "path" : ",klinik,pasien,alamat," }
{ "_id" : "provinsi", "path" : ",klinik,pasien,alamat," }
> db.klinik_pasien.find( { path: /^,klinik,/ } )
{ "_id" : "pasien", "path" : ",klinik," }
{ "_id" : "nama", "path" : ",klinik,pasien," }
{ "_id" : "alamat", "path" : ",klinik,pasien," }
{ "_id" : "gender", "path" : ",klinik,pasien," }
{ "_id" : "cowok", "path" : ",klinik,pasien,gender," }
{ "_id" : "cewek", "path" : ",klinik,pasien,gender," }
{ "_id" : "kota", "path" : ",klinik,pasien,alamat," }
{ "_id" : "provinsi", "path" : ",klinik,pasien,alamat," }
> db.klinik_pasien.createIndex( { path: 1 } )
{
  "createdCollectionAutomatically" : false,
  "numIndexesBefore" : 1,
}
```

MODEL TREE STRUCTURES WITH MATERIALIZED PATHS

```
C:\WINDOWS\system32\cmd.exe - mongo
> db.categories.insert( { _id: "kota", ancestors: [ "klinik", "pasien", "alamat" ], parent: "alamat" } )
WriteResult({ "nInserted" : 1 })
> db.categories.insert( { _id: "provinsi", ancestors: [ "klinik", "pasien", "alamat" ], parent: "alamat" } )
WriteResult({ "nInserted" : 1 })
> db.categories.insert( { _id: "cowok", ancestors: [ "klinik", "pasien", "alamat" ], parent: "gender" } )
WriteResult({ "nInserted" : 1 })
> db.categories.insert( { _id: "cewek", ancestors: [ "klinik", "pasien", "alamat" ], parent: "gender" } )
WriteResult({ "nInserted" : 1 })
> db.categories.insert( { _id: "alamat", ancestors: [ "klinik", "pasien" ], parent: "pasien" } )
WriteResult({ "nInserted" : 1 })
> db.categories.insert( { _id: "gender", ancestors: [ "klinik", "pasien" ], parent: "pasien" } )
WriteResult({ "nInserted" : 1 })
> db.categories.insert( { _id: "nama", ancestors: [ "klinik", "pasien" ], parent: "pasien" } )
WriteResult({ "nInserted" : 1 })
> db.categories.insert( { _id: "pasien", ancestors: [ "klinik" ], parent: "klinik" } )
WriteResult({ "nInserted" : 1 })
> db.categories.insert( { _id: "klinik", ancestors: [ ], parent: null } )
WriteResult({ "nInserted" : 1 })

> db.klinik_pasien.createIndex( { ancestors: 1 } )
{
  "createdCollectionAutomatically" : false,
  "numIndexesBefore" : 2,
  "numIndexesAfter" : 3,
  "ok" : 1
}

> db.klinik_pasien.findOne( { _id: "gender" } ).ancestors
> db.categories.findOne( { _id: "gender" } ).ancestors
[ "klinik", "pasien" ]
> db.categories.find( { ancestors: "pasien" } )
{ "_id" : "kota", "ancestors" : [ "klinik", "pasien", "alamat" ], "parent" : "alamat" }
{ "_id" : "provinsi", "ancestors" : [ "klinik", "pasien", "alamat" ], "parent" : "alamat" }
{ "_id" : "cowok", "ancestors" : [ "klinik", "pasien", "alamat" ], "parent" : "gender" }
{ "_id" : "cewek", "ancestors" : [ "klinik", "pasien", "alamat" ], "parent" : "gender" }
{ "_id" : "alamat", "ancestors" : [ "klinik", "pasien" ], "parent" : "pasien" }
{ "_id" : "gender", "ancestors" : [ "klinik", "pasien" ], "parent" : "pasien" }
{ "_id" : "nama", "ancestors" : [ "klinik", "pasien" ], "parent" : "pasien" }
```