Chapter 4: Patterns (Part 2)

Lab: Tree Patterns

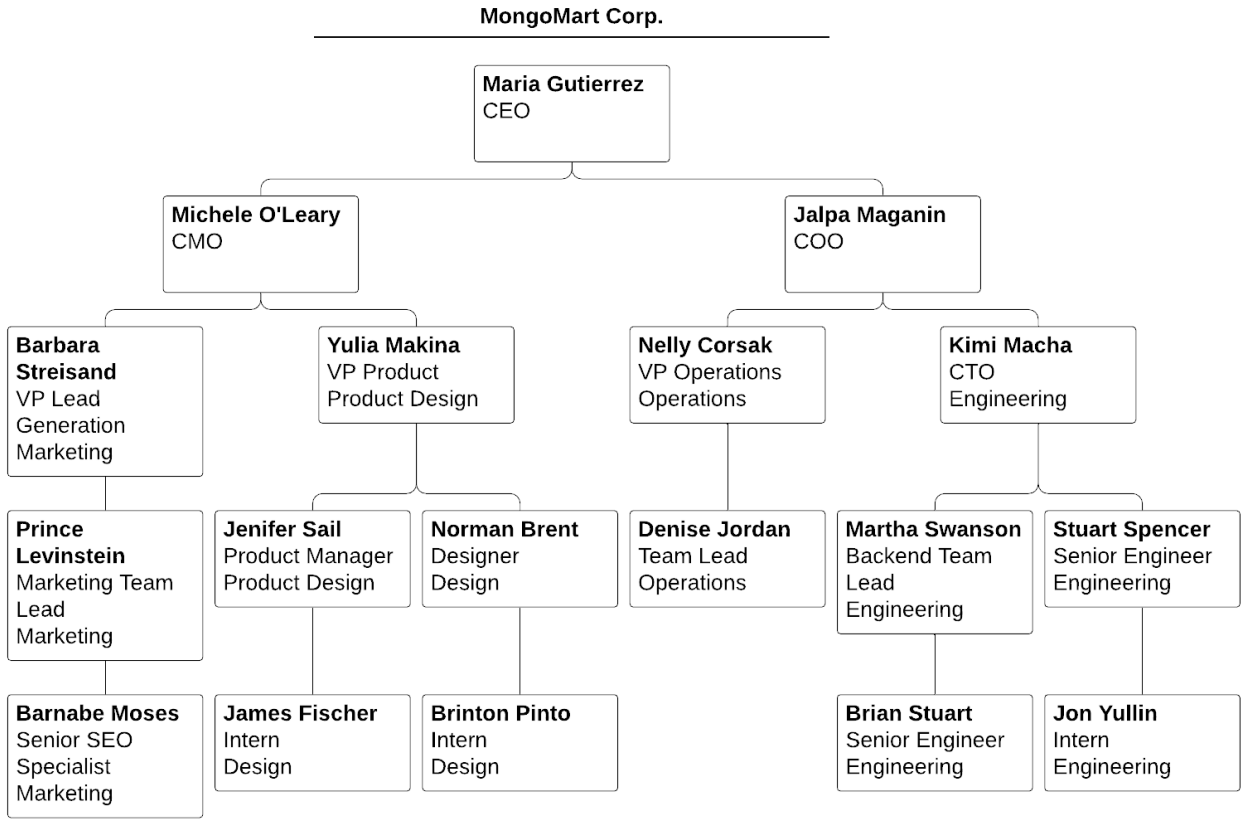
Problem:

In this lab, you will be selecting a variant of the *Tree Pattern* to improve the performance of a common set of operations for a given application.

Scenario:

Given your expertise in schema design, you have been called in to help improve the performance of a human resources management application called *Success Factions*.

This application needs to be able to map a corporate reporting structure, an organization chart, like the one this diagram represents:



Success Factions was originally designed by only taking into account the information of a single individual's data in the organization chart. Therefore, documents in the **employees** collection, where this data is stored, has the following schema:

```
{
  "_id": "<objectId>",
  "name": "<string>",
  "role": "<string>",
  "department": {
    "name": "<string>",
    "id": "<objectId>"
  }
}
```

Task:

You have been tasked to improve the schema design of the **employees** collection to better support the following set of operations:

- Issue one database request to find the direct manager of a given employee.
- Collect all direct reports of an employee with one single and *efficient* query.
- Issue one update operation to change the reporting structure of an employee.

Which of the following document notation examples and tree patterns implement all of these pieces of functionality?

Attempts Remaining: Correct Answer

Check all answers that apply:

- [ ] Child References

```
{
  "_id": "<objectId>",
  "name": "<string>",
  "role": "<string>",
  "department": {
    "name": "<string>",
    "id": "<objectId>"
  },
  "reports": [
```

```
    { "id": "<objectId>", "name": "<string>" }
  ]
}
```

- [ ] Array of Ancestors

```
{
  "_id": "<objectId>",
  "name": "<string>",
  "role": "<string>",
  "department": {
    "name": "<string>",
    "id": "<objectId>"
  },
  "reports_to": [
    { "id": "<objectId>", "name": "<string>" }
  ]
}
```

- [ ] Materialized Paths

```
{
  "_id": "<objectId>",
  "name": "<string>",
  "role": "<string>",
  "department": {
    "name": "<string>",
    "id": "<objectId>"
  },
  "reports_to": "<string>/<string>/<string>"
}
```

- [x] Parent References

```
{
  "_id": "<objectId>",
  "name": "<string>",
  "role": "<string>",
  "department": {
    "name": "<string>",
    "id": "<objectId>"
  },
  "reports_to": {
    "id": "<objectId>",
    "name": "<string>"
  }
}
```

See detailed answer

Proceed to next section

Assignment is Due

05d:03hr:08m
07 sty, 17:00 UTC

Your Grade

PASS/FAIL
Submitted