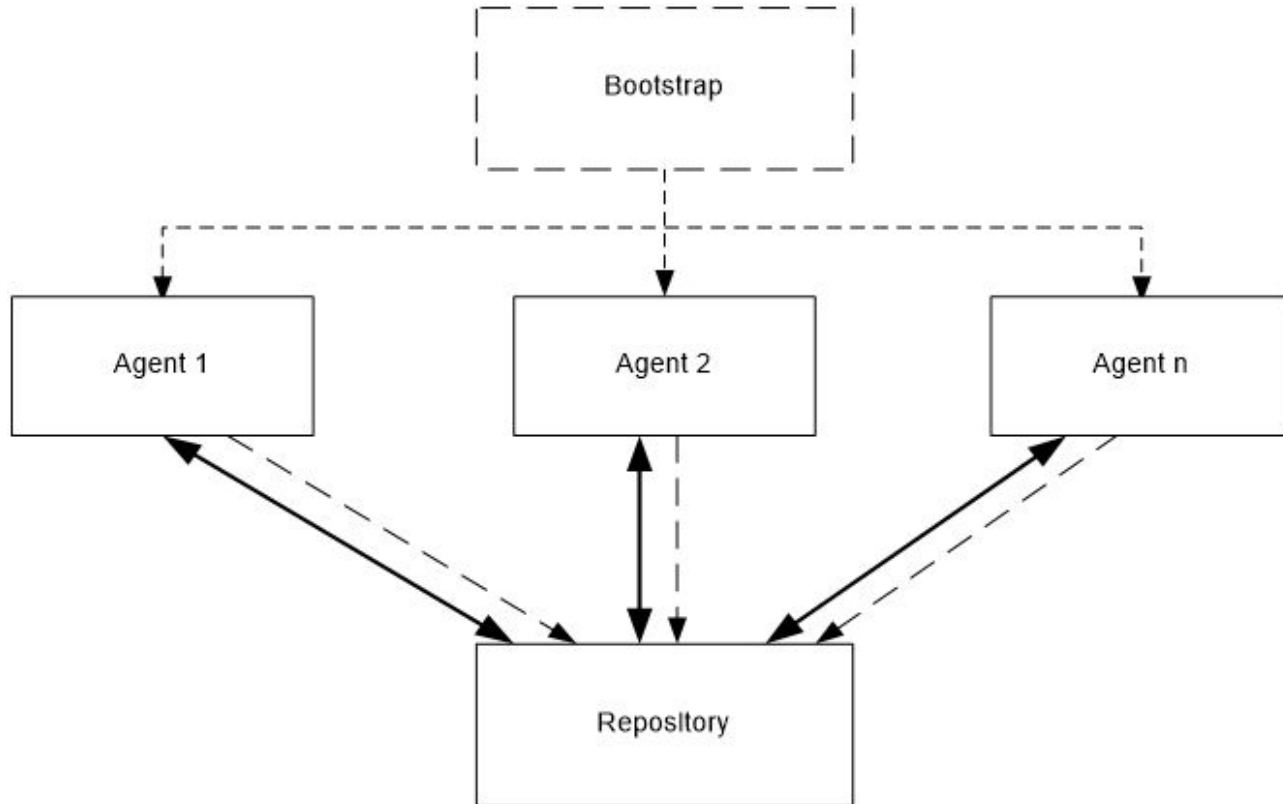# REPOSITORY AND BLACKBOARD ARCHITECTURE

Lead to future architect
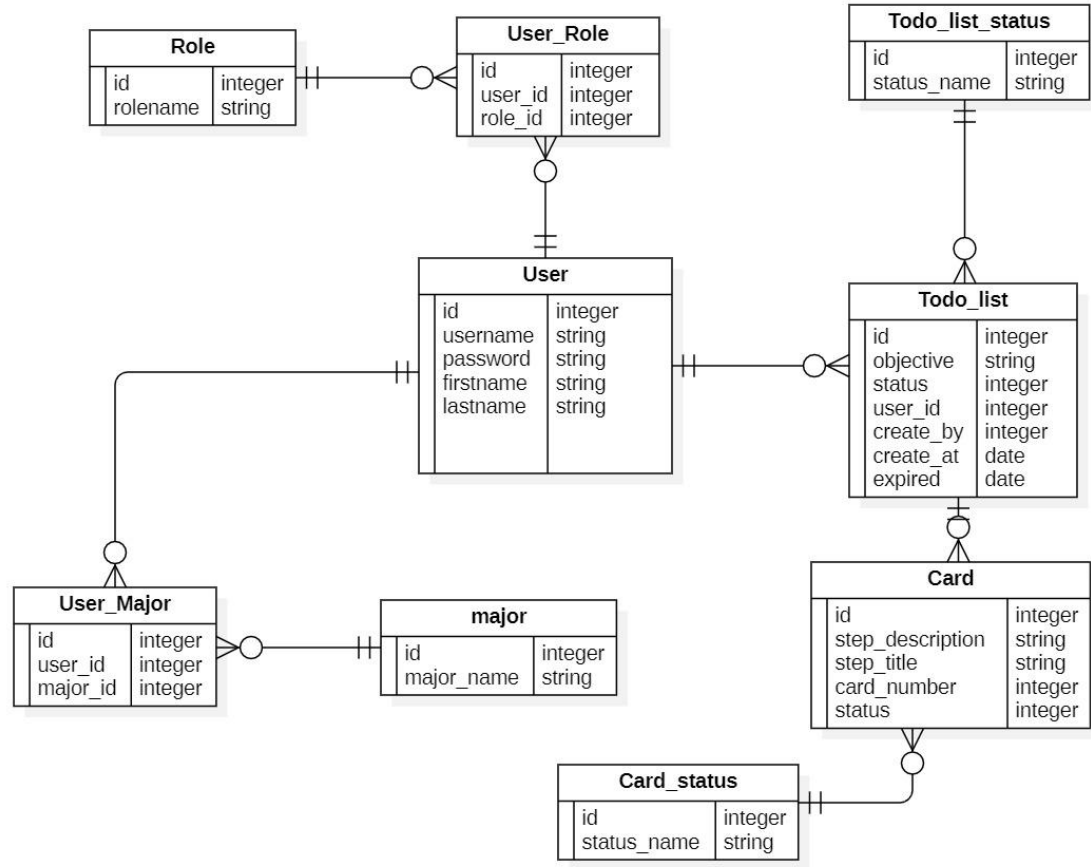
Repository

Repository

Advantages

- Provides data integrity, backup and restore features.
- Provides scalability and reusability of agents as they do not have direct communication with each other.
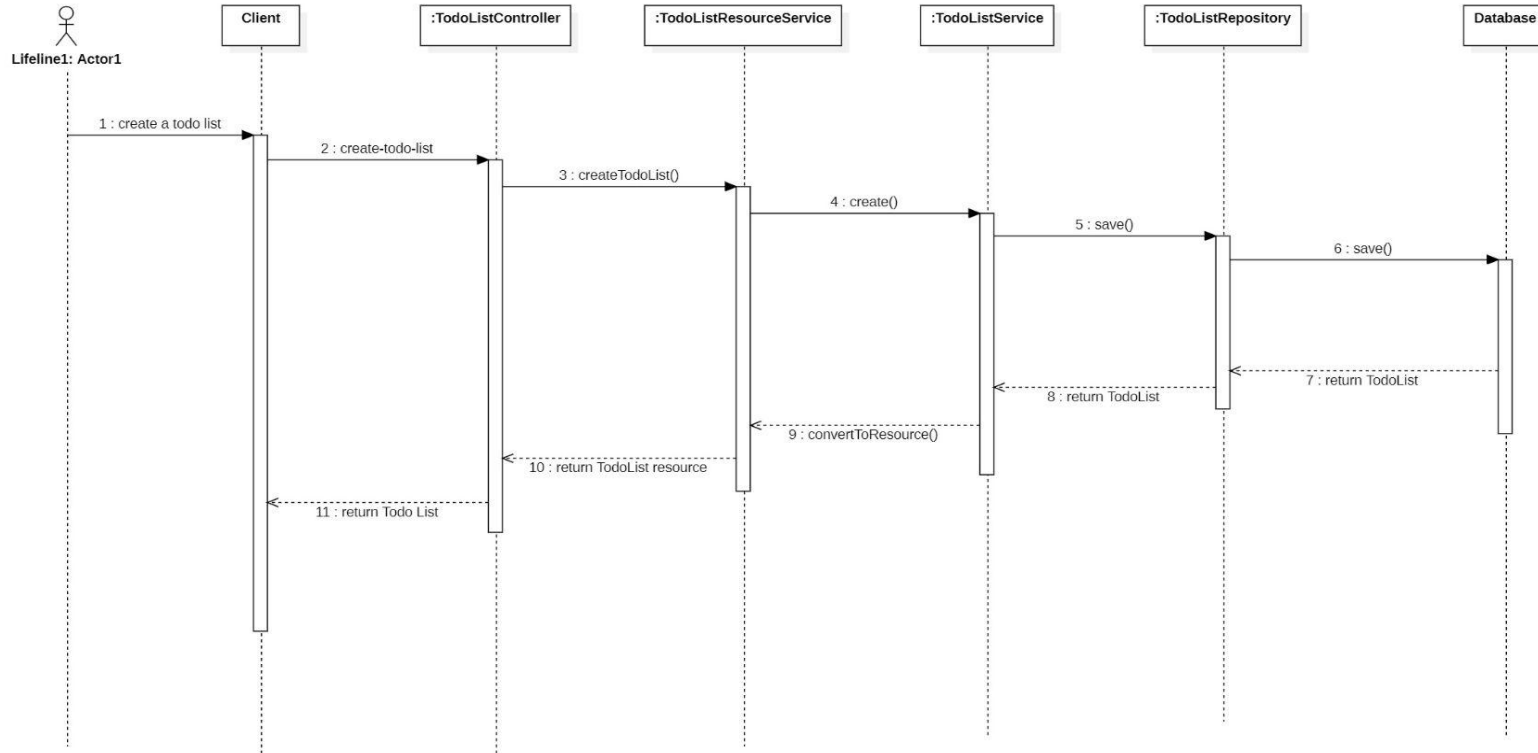- Reduces overhead of transient data between software components.

Disadvantages

- It is more vulnerable to failure and data replication or duplication is possible.
- High dependency between data structure of data store and its agents.
- Changes in data structure highly affect the clients.
- Evolution of data is difficult and expensive.
- Cost of moving data on network for distributed data.

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Role

id	integer
rolename	string

User_Role

id	integer
user_id	integer
role_id	integer

Todo_list_status

id	integer
status_name	string

User

id	integer
username	string
password	string
firstname	string
lastname	string

Todo_list

id	integer
objective	string
status	integer
user_id	integer
create_by	integer
create_at	date
expired	date

User_Major

id	integer
user_id	integer
major_id	integer

major

id	integer
major_name	string

Card

id	integer
step_description	string
step_title	string
card_number	integer
status	integer

Card_status

id	integer
status_name	string

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interaction SequenceDiagram1

Lifeline1: Actor1 | Client | :TodoListController | :TodoListResourceService | :TodoListService | :TodoListRepository | Database

1 : create a todo list
2 : create-todo-list
3 : createTodoList()
4 : create()
5 : save()
6 : save()
7 : return TodoList
8 : return TodoList
9 : convertToResource()
10 : return TodoList resource
11 : return Todo List

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- Using Spring Boot framework for backend
  - Spring Boot using Jpa to connect with database through entity.
  - Each service use to load or interact with database is required to use each repository.

Blackboard

- Based on the blackboard architectural mode
- Data is saved as model
- Client directly interacts with blackboard to process data

Blackboard

Pros

- Provides scalability which provides easy to add or update knowledge source.
- Provides concurrency that allows all knowledge sources to work in parallel as they are independent of each other.
- Supports experimentation for hypotheses.
- Supports reusability of knowledge source agents.

Cons

- All of its agents as close dependency exists between blackboard and knowledge source.
- It can be difficult to decide when to terminate the reasoning as only approximate solution is expected.
- Problems in synchronization of multiple agents.
- Major challenges in designing and testing of system.