Notepad application

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1. Introduction

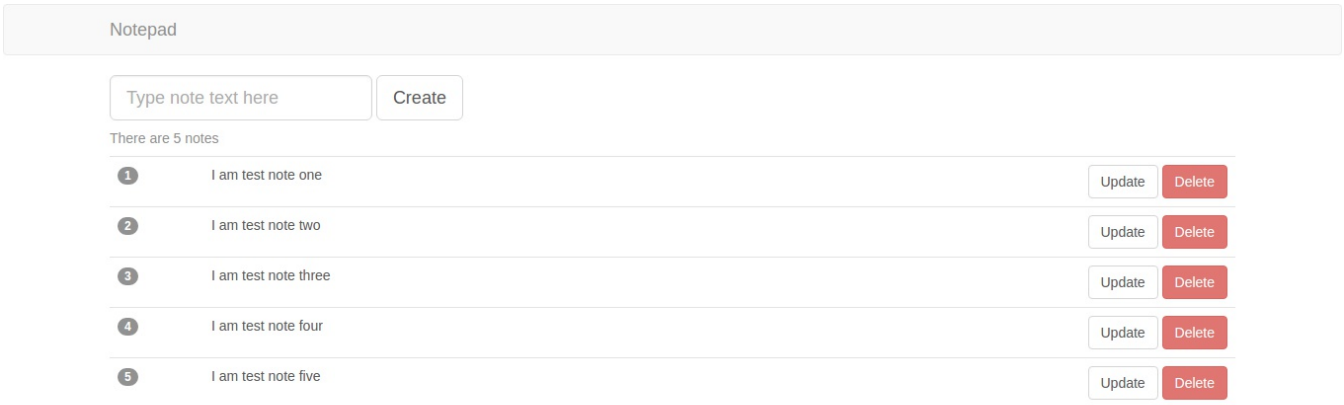
This document explains what Notepad application is and what it is not. The sections below describe the intentions behind Notepad application, boring technical details and fancy diagrams.

1.1. Goals

Making notes is crucial. It's a well-known fact that 98.37611% of the people who don't make any notes forget about things and miss opportunities. Notepad application addresses this problem by providing unbelievably ultimate functionality:

- Creating the notes
- Retrieving the notes
- Updating the notes
- Deleting the notes

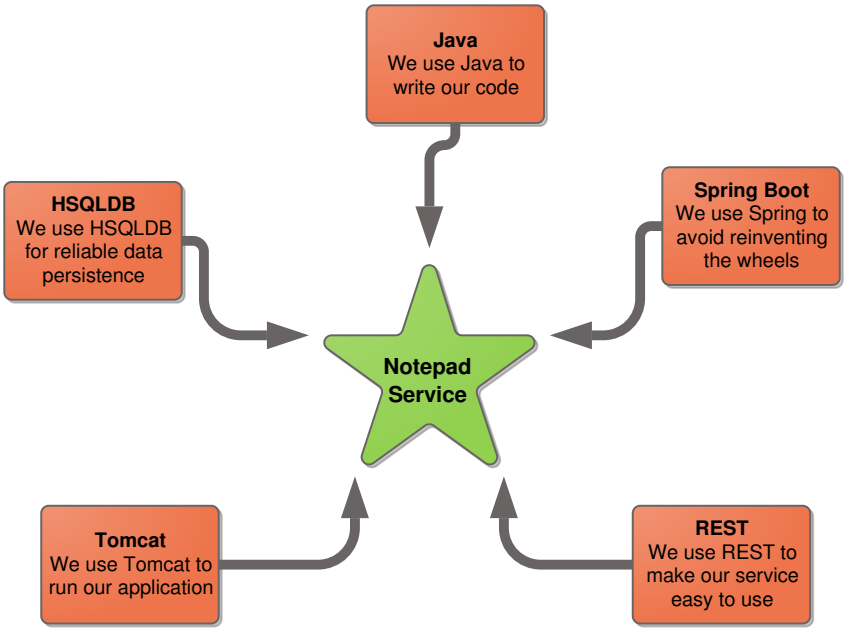
The Notepad application team firmly believes that our application makes the world better. Here's what the application looks like:



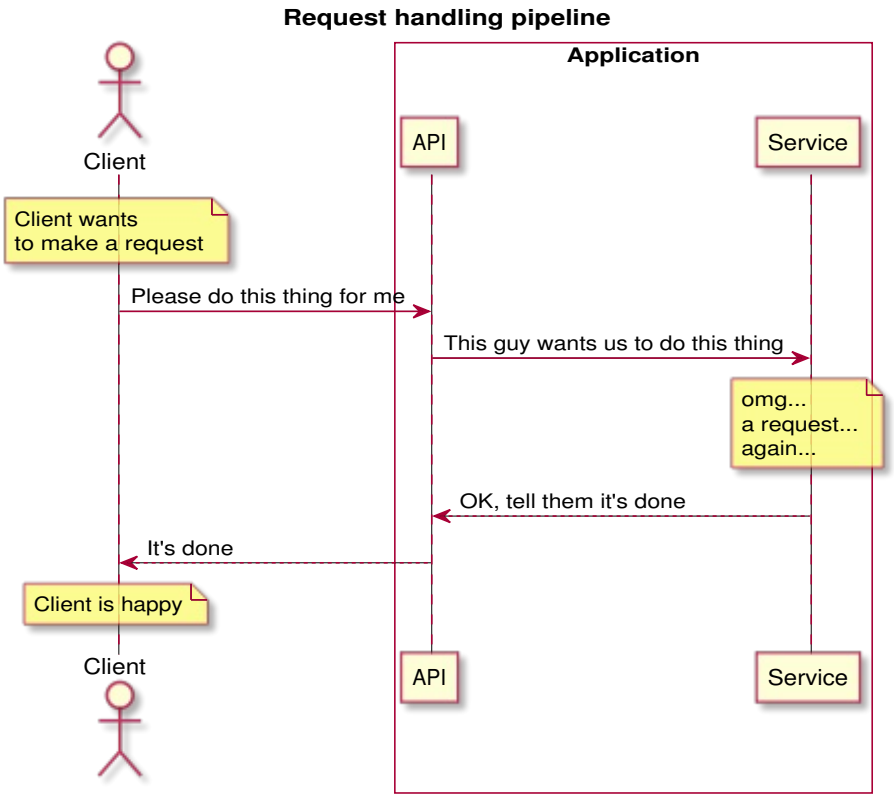
Isn't this application really nice?

1.2. Technical overview

Notepad application is a web application that exposes all its functionality via REST API. It uses Java and Spring as a foundation, and HSQLDB as a reliable production-grade data store.



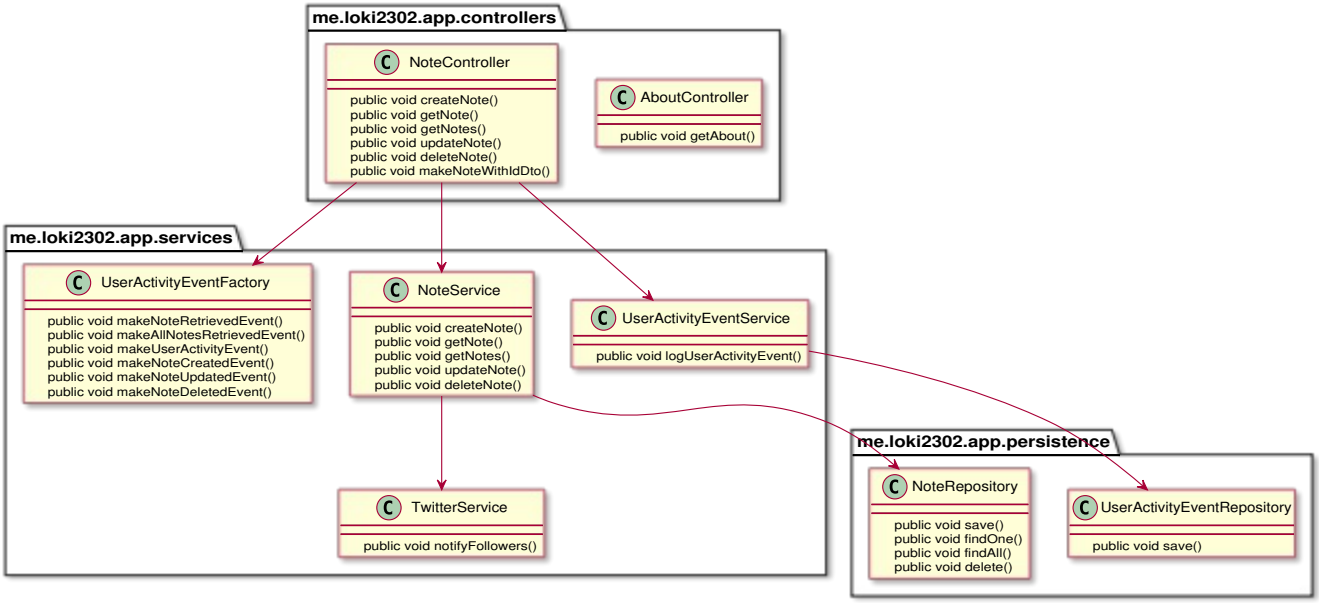
A typical request is handled like this:



2. Back end classes

This sections describes how Notepad application is organized in terms of back end packages and classes. All classes are logically organized into packages:

- Controllers - API endpoints implementation.
- Services - business logic implementation.
- Repositories - data access implementation.



See how controllers never depend directly on data access layer.

2.1. Controllers

This section describes Notepad application API facade classes.

2.1.1. AboutController

Implements an "about" REST resource. Provides functionality to retrieve API details.

getAbout

```java
public ResponseEntity getAbout()
```

Provides API description and version

Returns: Response entity with API details

2.1.2. NoteController

Implements a "notes" REST resource. Provides functionality to create, retrieve, update and delete notes.

createNote

```java
public ResponseEntity createNote(
  NoteDto noteDto
)
```

Given all necessary note attributes, create a new note.

Name	Type	Description
`noteDto`	`NoteDto`	an object containing note attributes

Returns: a 201 response with Location header

---

getNote

```java
public ResponseEntity getNote(
  long noteId
)
```

Given a note ID, provide a note.

Name	Type	Description
`noteId`	`long`	a note ID

Returns: a 200 response with note attributes

---

getNotes

```
public ResponseEntity getNotes()
```
JAVA

Provide all notes.

Returns: a collection of all notes

---

updateNote

```
public ResponseEntity updateNote(
  long noteId,
  NoteDto noteDto
)
```
JAVA

Given a note ID and all necessary attributes, update the note if it exists.

Name	Type	Description
`noteId`	`long`	a note ID
`noteDto`	`NoteDto`	an object containing note attributes

Returns: a 204 response

---

deleteNote

```
public ResponseEntity deleteNote(
  long noteId
)
```
JAVA

Given a note ID, delete a note.

Name	Type	Description
`noteId`	`long`	a note ID

Returns: a 204 response

2.2. Services

This section describes Notepad application service layer classes.

2.2.1. TwitterService

Twitter notification service

notifyFollowers

```java
public void notifyFollowers()
```

Notify Twitter followers about a very important event.

Returns: void

2.2.2. NoteService

Implements business logic for Notes.

createNote

```java
public long createNote(
  String text
)
```

Given note text, create a new note and provide its ID.

Name	Type	Description
`text`	`String`	a note text

Returns: a newly created note ID

---

getNote

```java
public Note getNote(
  long noteId
)
```

Get an existing note by ID

Name	Type	Description
`noteId`	`long`	a note ID

Returns: an existing note, or null if it does not exist

---

getNotes

```java
public List getNotes()
```

Get all notes

Returns: a list of all existing notes

---

updateNote

```java
public Note updateNote(
  long noteId,
  String text
)
```

Update an existing note.

Name	Type	Description
`noteId`	`long`	an ID of note to update
`text`	`String`	a new text to update the note with

Returns: an updated note, or null if requested note doesn't exist

---

deleteNote

```java
public void deleteNote(
  long noteId
)
```

Delete a note by ID.

Name	Type	Description
`noteId`	`long`	an ID of note to delete

Returns: void

2.2.3. UserActivityEventService

A service that handles user activity events

logUserActivityEvent

```java
public void logUserActivityEvent(
  UserActivityEvent userActivityEvent
)
```

Log user activity event

Name	Type	Description
`userActivityEvent`	`UserActivityEvent`	a user activity event to log

Returns: void

2.2.4. UserActivityEventFactory

A factory that constructs instances of UserActivityEvent

makeNoteRetrievedEvent

```java
public UserActivityEvent makeNoteRetrievedEvent(
  long id
)
```

Construct a "note retrieved" event

Name	Type	Description
`id`	`long`	a note ID

Returns: an event instance

makeAllNotesRetrievedEvent

```java
public UserActivityEvent makeAllNotesRetrievedEvent()
```

Construct an "all notes retrieved" event

Returns: an event instance

makeNoteCreatedEvent

```java
public UserActivityEvent makeNoteCreatedEvent(
  long id
)
```

Construct a "note created" event

Name	Type	Description
`id`	`long`	a note ID

Returns: an event instance

makeNoteUpdatedEvent

```java
public UserActivityEvent makeNoteUpdatedEvent(
  long id
)
```

Construct a "note updated" event

Name	Type	Description
`id`	`long`	a noteID

Returns: an event instance

makeNoteDeletedEvent

```java
public UserActivityEvent makeNoteDeletedEvent(
  long id
)
```

Construct a "note deleted" event

Name	Type	Description
`id`	`long`	a note ID

Returns: an event instance

2.3. Repositories

This section describes Notepad application data access layer classes.

2.3.1. NoteRepository

A repository for Notes.

save

```java
public Note save(
  Note entity
)
```

Save or update a note.

Name	Type	Description
`entity`	`Note`	note to be saved

Returns: saved or updated not instance

---

findOne

```java
public Note findOne(
  Long id
)
```

Find a note by ID.

Name	Type	Description
`id`	`Long`	a note ID

Returns: a note with given ID or null

---

findAll

```java
public List findAll()
```

Find all notes.

Returns: a list of notes

---

delete

```java
public void delete(
  Long id
)
```

Delete a note by ID.

Name	Type	Description
`id`	`Long`	a note ID

Returns: void

2.3.2. UserActivityEventRepository

A repository for user activity events

save

```java
public UserActivityEvent save(
  UserActivityEvent entity
)
```

Save an instance of UserActivityEvent

Name	Type	Description
`entity`	`UserActivityEvent`	an event to save

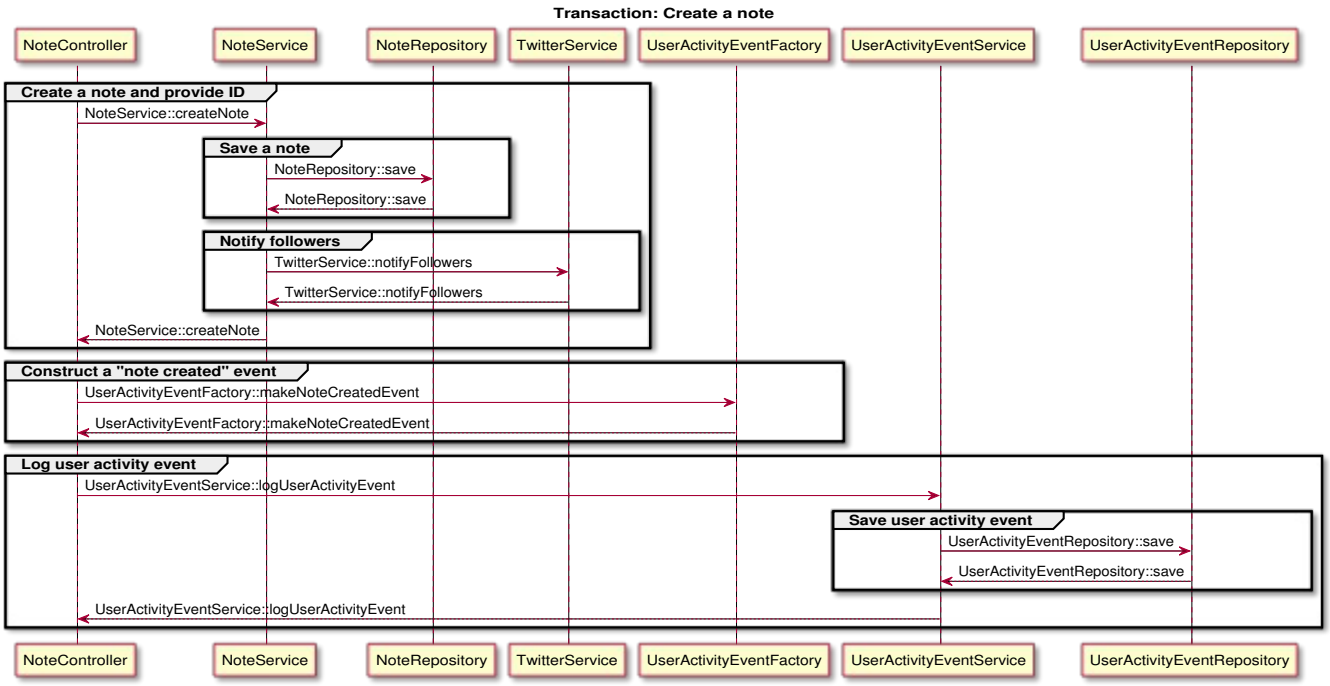
Returns: a saved instance of original event

---

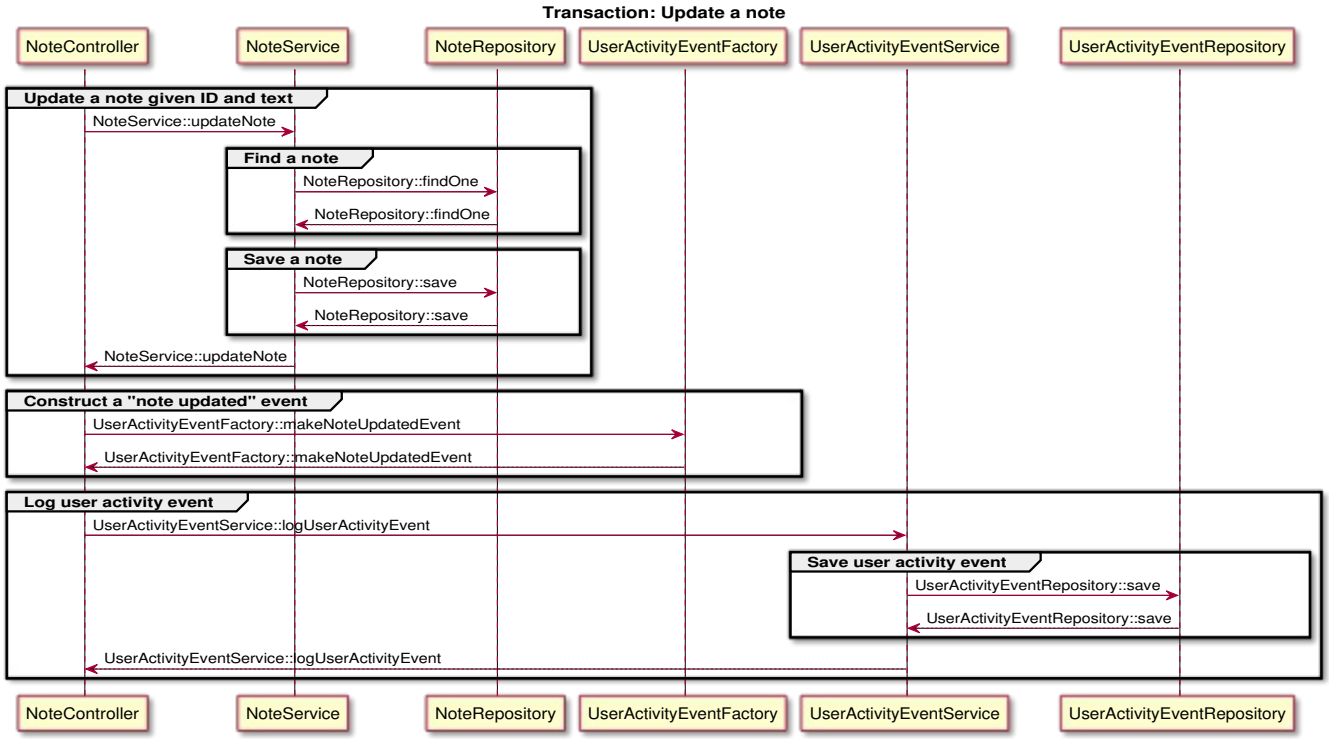
3. Back end transactions

This section describes Notepad application's transactions.

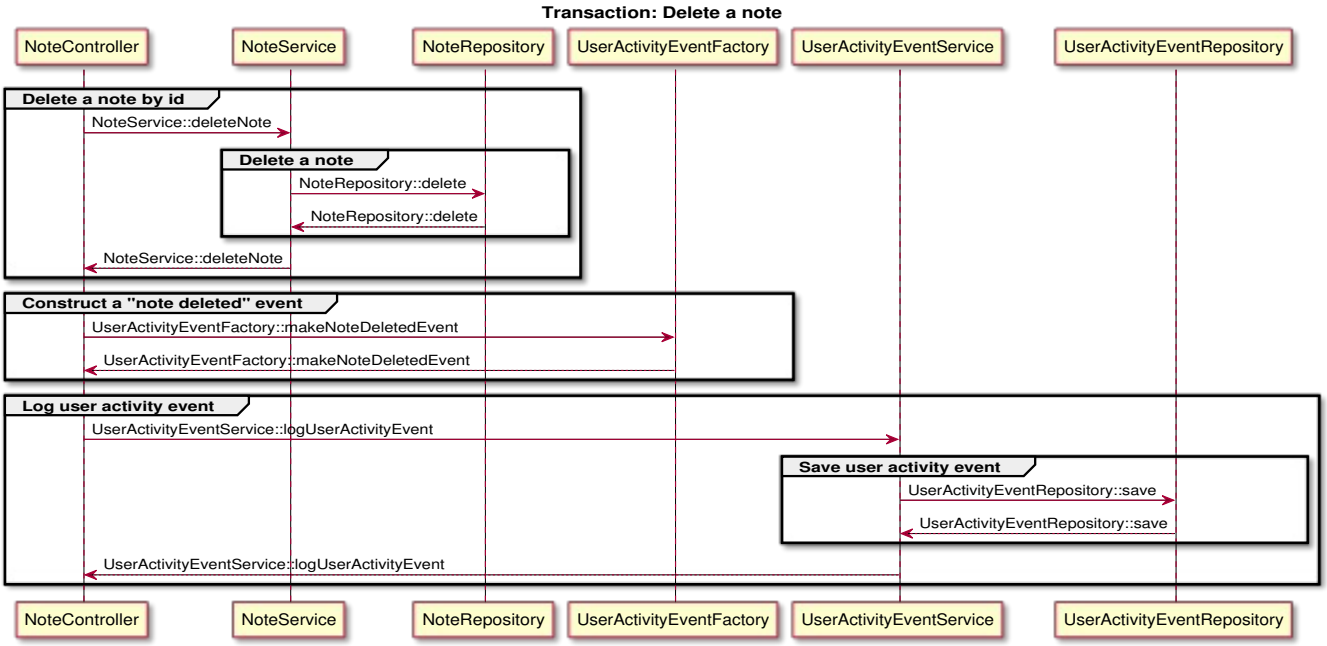
3.1. Create note transaction



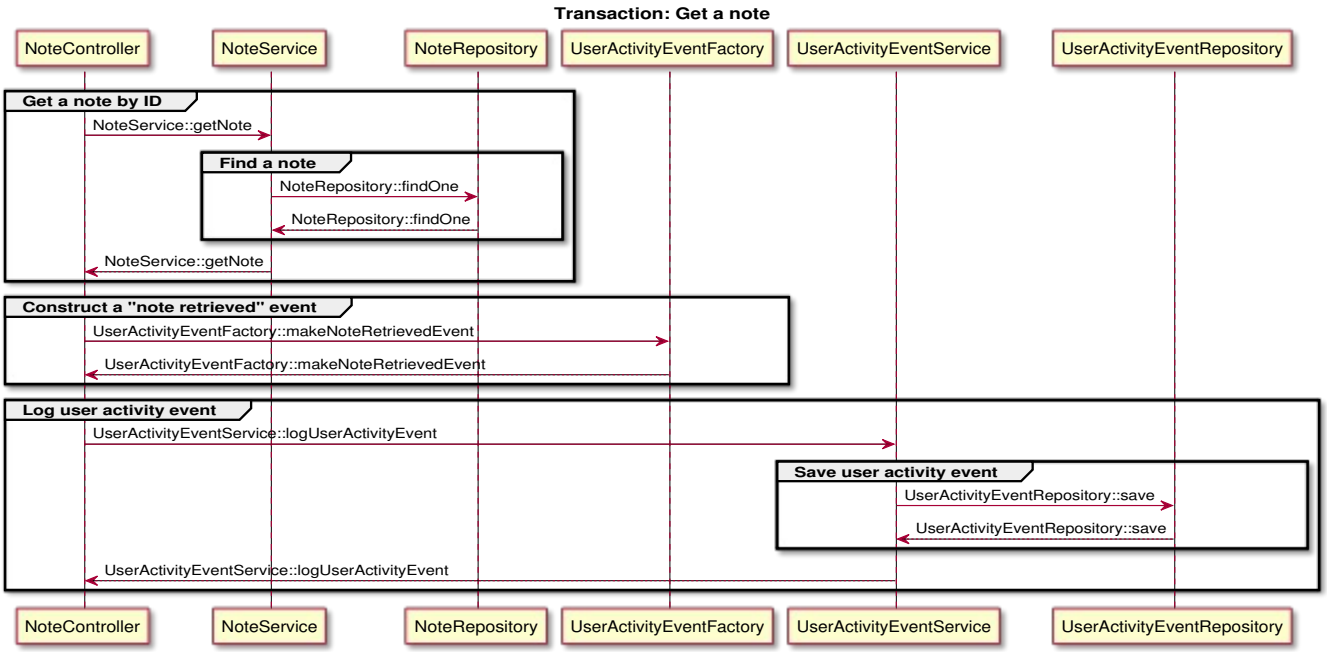
3.2. Update note transaction



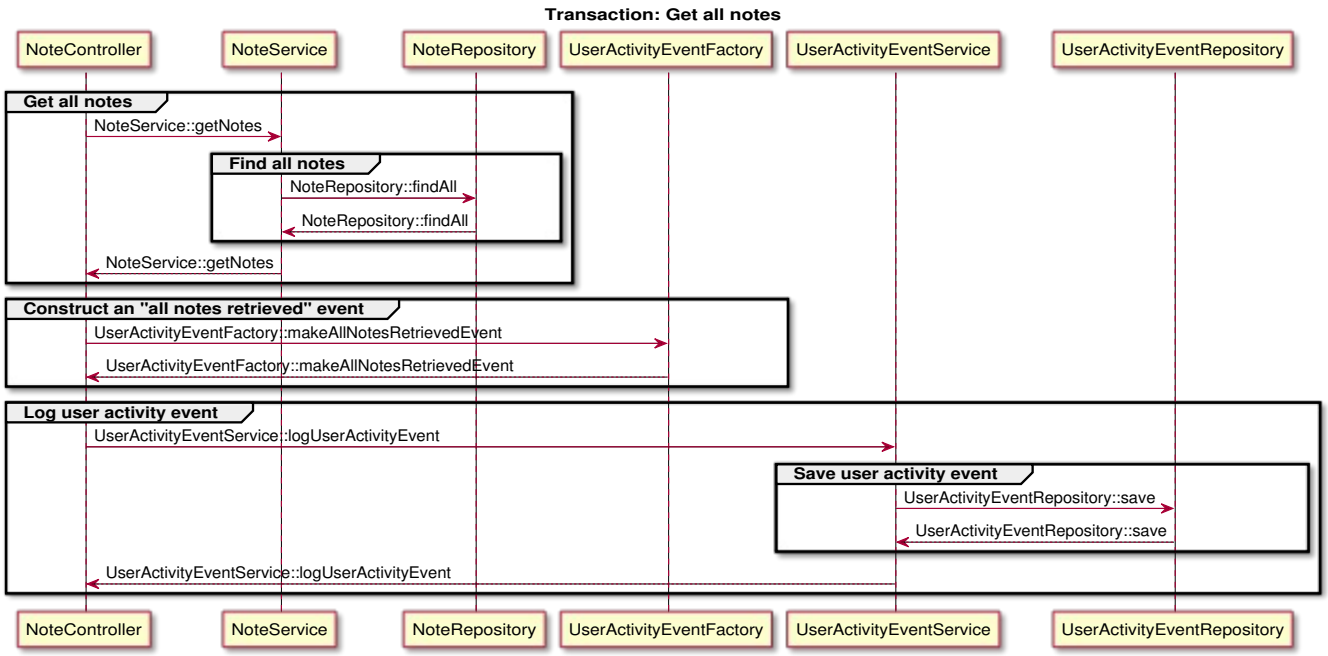
3.3. Delete note transaction



3.4. Get one note transaction



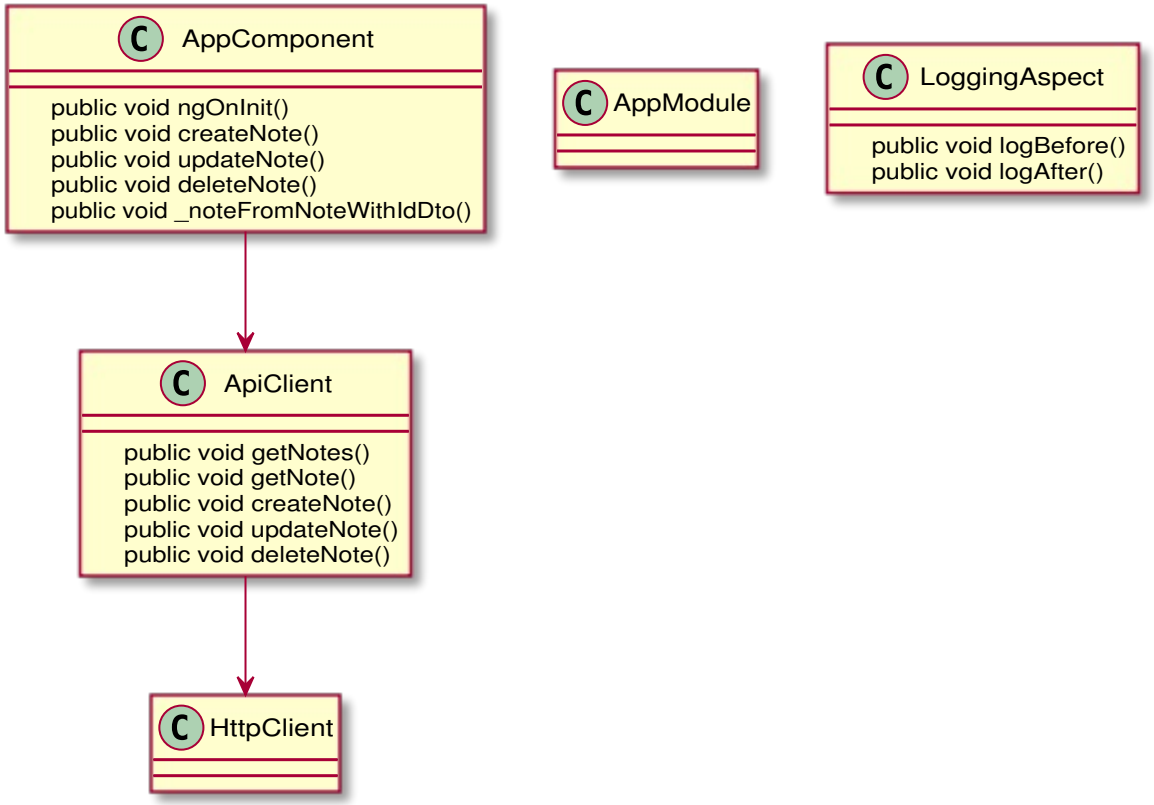
3.5. Get all notes transaction



4. Front end classes

This sections describes how Notepad application is organized in terms of front end classes.

4.1. Class diagram



Is it not a nice diagram?

4.2. Classes

4.2.1. Class ApiClient

Notepad service API client.

getNotes

```
getNotes(): Promise<NoteWithIdDto[]>
```
JAVASCRIPT

Retrieve a list of all notes.

Returns: a collection of notes

---

getNote

```
getNote(
  noteId: number
): Promise<NoteWithIdDto>
```
JAVASCRIPT

Get one note by ID.

Name	Type	Description
`noteId`	`number`	an ID of note to retrieve

Returns: a retrieved note

---

createNote

```
createNote(
  noteDto: NoteDto
): Promise<NoteWithIdDto>
```
JAVASCRIPT

Create a note.

Name	Type	Description
`noteDto`	`NoteDto`	an object containing all

		an object containing all mandatory note attributes

Returns: a created note

---

updateNote

```
JAVASCRIPT
updateNote(
  noteId: number,
  noteDto: NoteDto
): Promise<NoteWithIdDto>
```

Update an existing note.

Name	Type	Description
`noteId`	`number`	an ID of note to update
`noteDto`	`NoteDto`	an object containing updated note attributes

Returns: an updated note

---

deleteNote

```
JAVASCRIPT
deleteNote(
  noteId: number
): Promise<void>
```

Delete an existing note.

Name	Type	Description
`noteId`	`number`	an ID of note to delete

Returns: Promise<void>

4.2.2. Class AppComponent

A component that represents the one and only application page.

ngOnInit

```javascript
ngOnInit(): Promise<void>
```

Initialize - retrieve a collection of all notes.

Returns: Promise<void>

---

createNote

```javascript
createNote(): Promise<void>
```

Create a note based on user input.

Returns: Promise<void>

---

updateNote

```javascript
updateNote(
  noteId: number
): Promise<void>
```

Update a note based on user input.

Name	Type	Description
`noteId`	`number`	an ID of note to update

Returns: Promise<void>

---

deleteNote

```javascript
deleteNote(
  noteId: number
): Promise<void>
```

Delete a note based on user input.

Name	Type	Description

`noteId`	`number`	an ID of note to delete.

Returns: Promise<void>

_noteFromNoteWithIdDto

```
JAVASCRIPT
_noteFromNoteWithIdDto(
  noteWithIdDto: NoteWithIdDto
): Note
```

Construct a note from note DTO.

Name	Type	Description
`noteWithIdDto`	`NoteWithIdDto`	a note data transfer object

Returns: a constructed note

4.2.3. Class AppModule

Represents the main application module.

AppModule does not have any methods.

4.2.4. Class LoggingAspect

logBefore

```
JAVASCRIPT
logBefore(
  metadata: Metadata
): void
```

Name	Type	Description
`metadata`	`Metadata`	

Returns: void

---

logAfter

```javascript
logAfter(
  metadata: Metadata
): Promise<void>
```

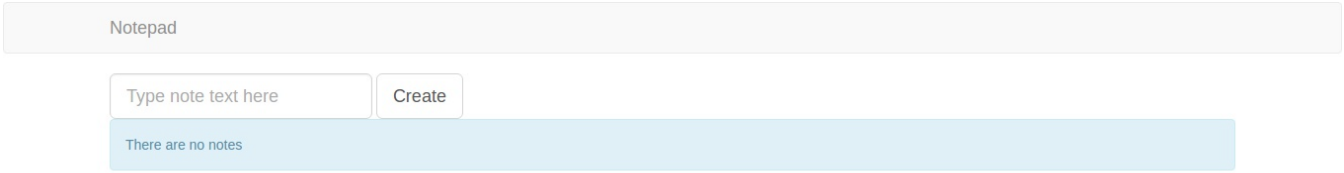
Name	Type	Description
metadata	Metadata	

Returns: Promise<void>

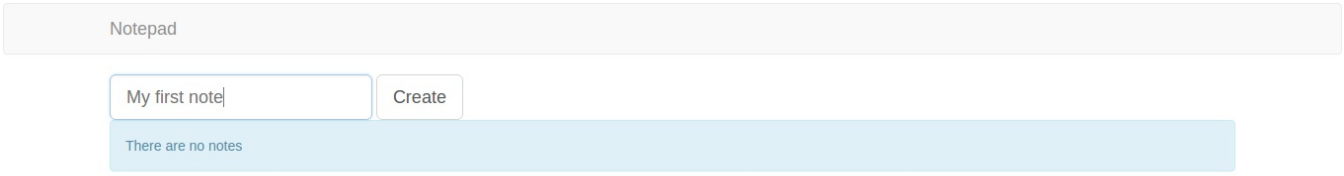
---

5. Workflow: Creating a note

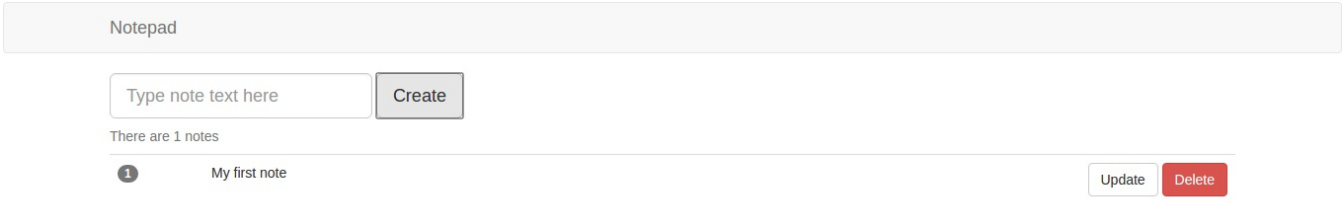
Making notes is crucial. Let's get started with an empty Notepad application, where there are no notes at all. See how empty it is. It is up to us to create the very first note.



To do so, we first type note text into a text box:



After it, we click the "Create" button. And once we do that, a new note should appear on the list of notes:

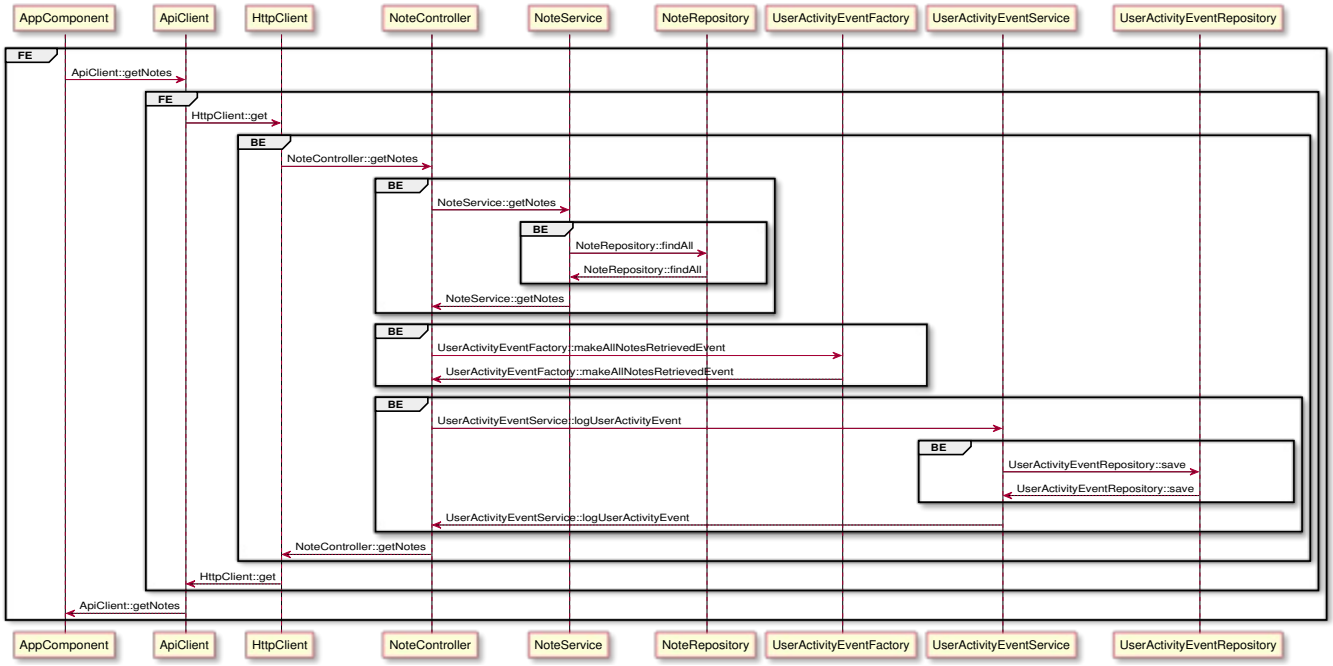

Notepad
Type note text here
Create
There are 1 notes
1
My first note
Update
Delete

Done.

6. Front/Back end sequence diagrams

6.1. Loading notes

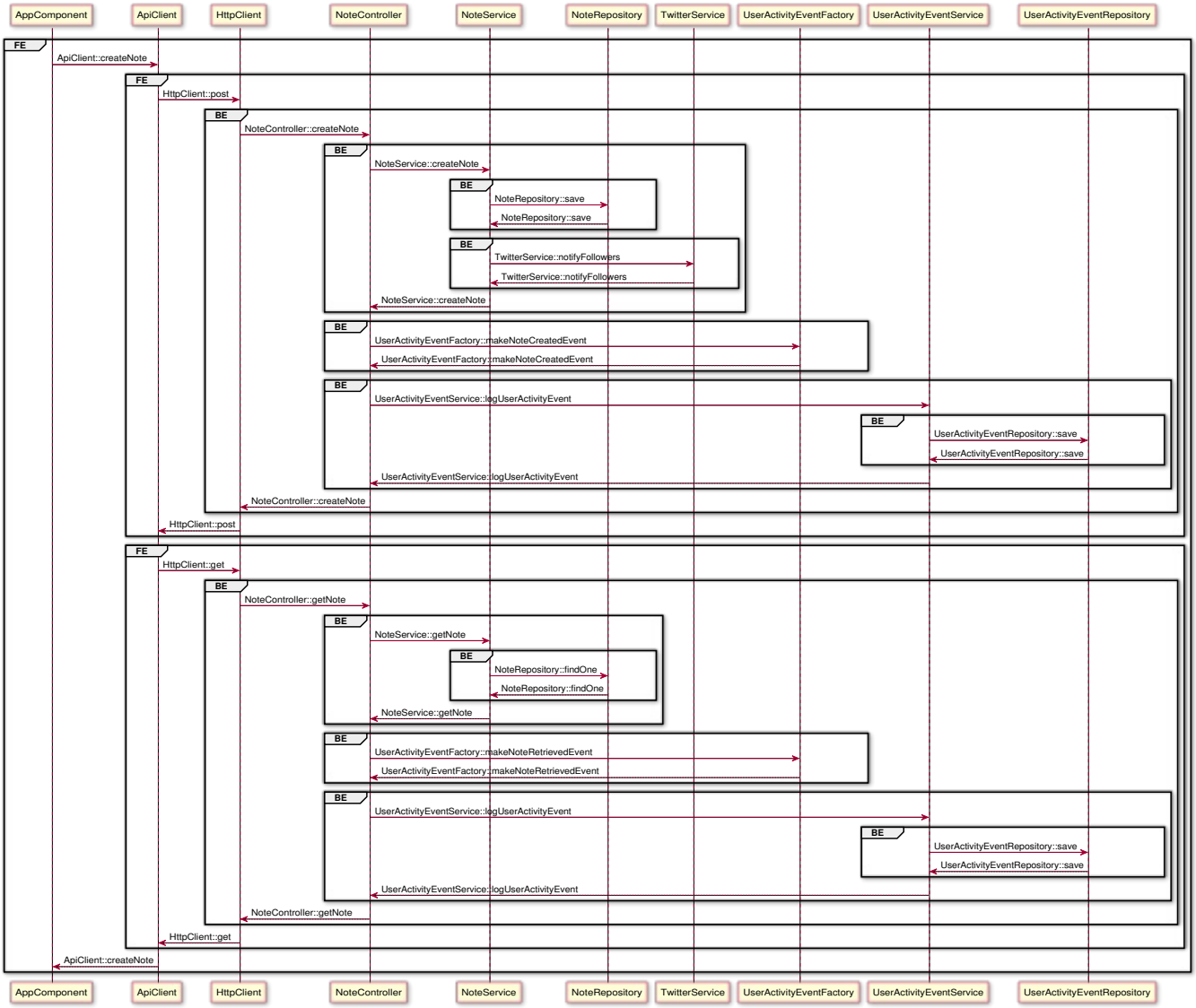
The following describes how "load notes" transaction works on both back- and front-end.



See how front end initiates the transaction and back end provides the data to front end.

6.2. Creating a note

The following describes how "create note" transaction works on both back- and front-end.



See how front end initiates the transaction and back end actually creates the note.

The End.

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