

#Course Project

Research Trends Management System in Computer Science

Core Data: Persist Data Easier than Ever

1750222 魏宇翔

June, 2021

Database System Concepts (CS10039502) at Tongji University

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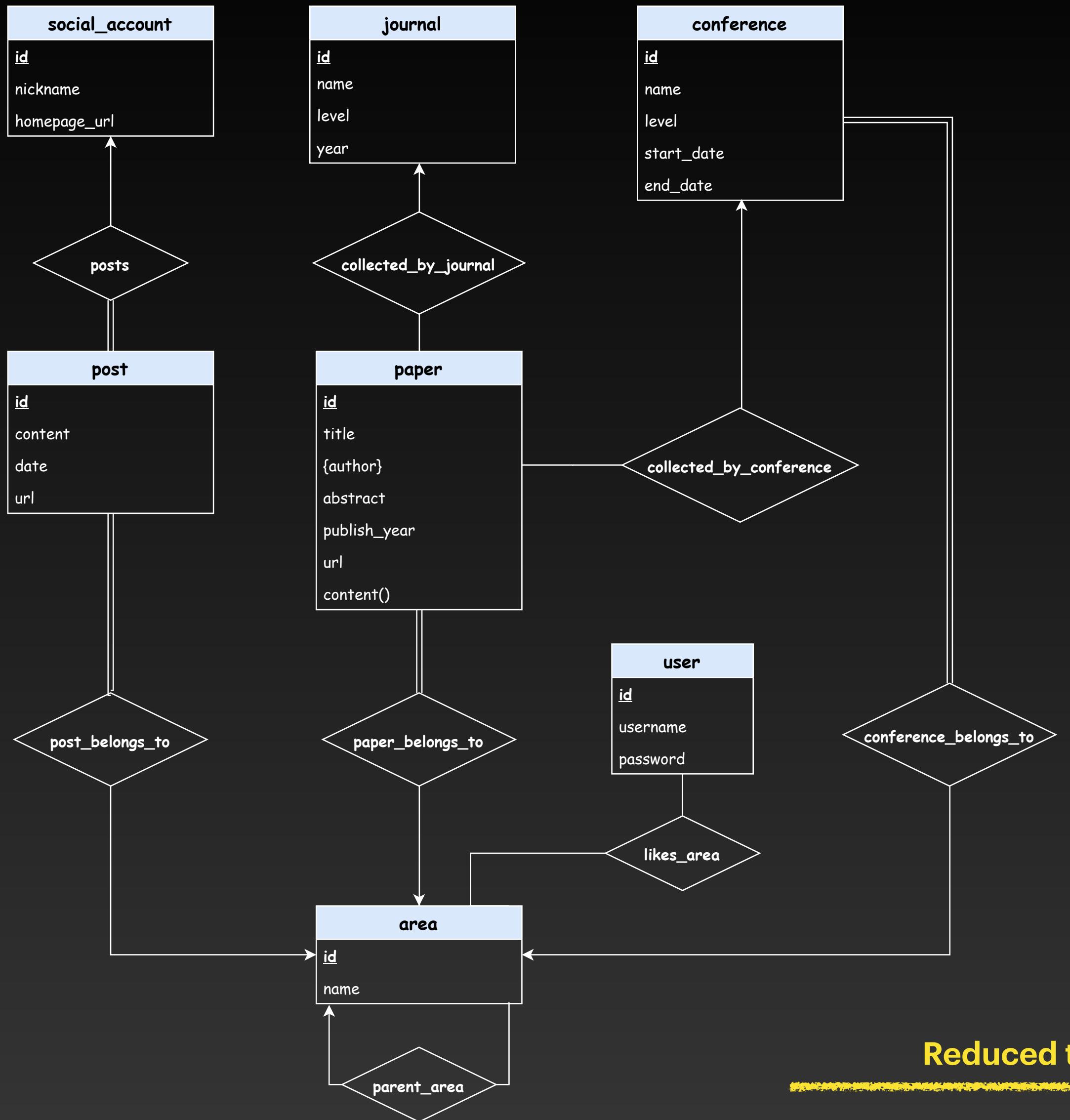
Research Trends Management System in Computer Science

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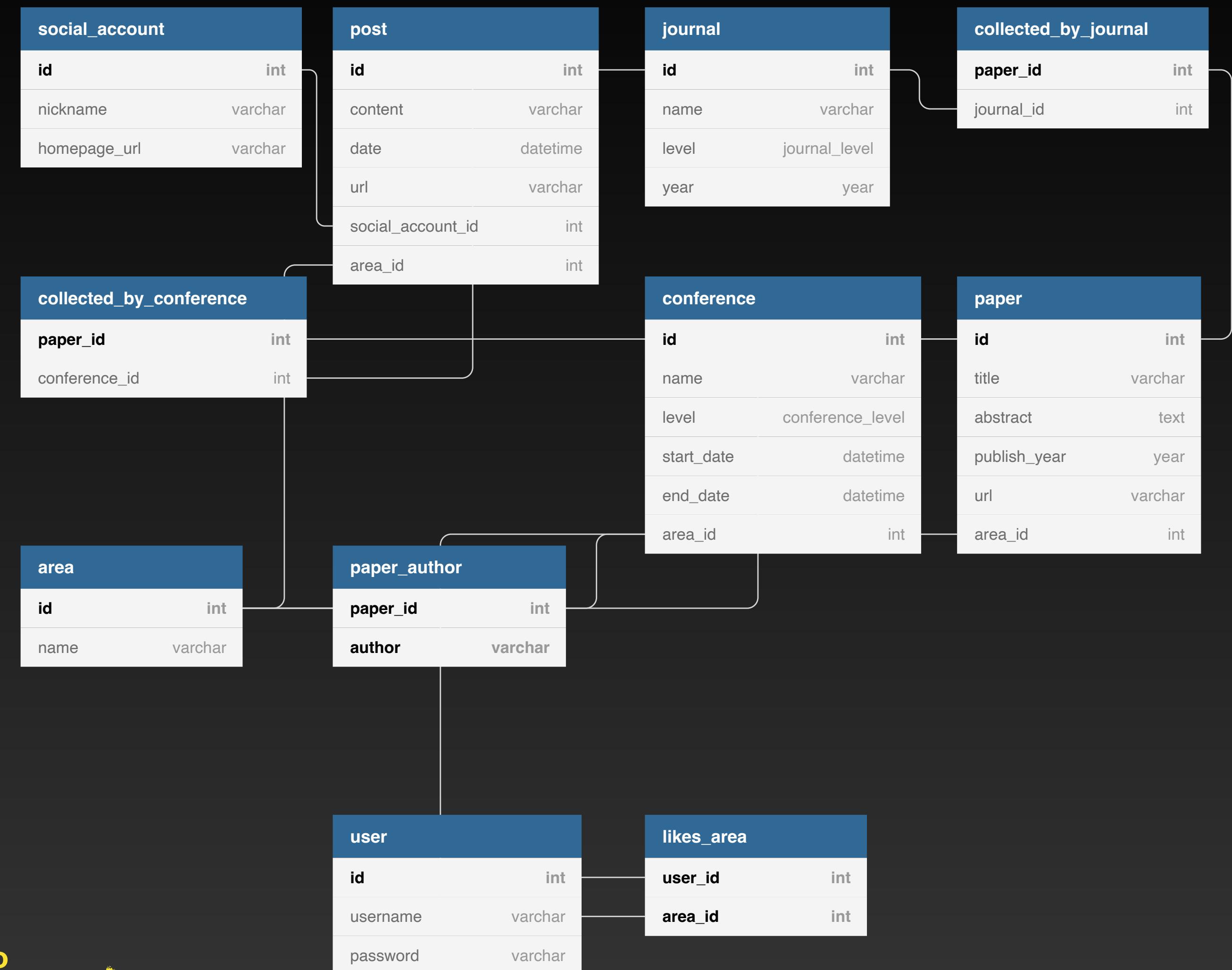
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Reduced to



E-R diagram

Logical Design

Derived schemas

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 foreign key area_id references area(id))`

`social_account(id, nickname, homepage_url)`

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 foreign key area_id references area(id))`

`journal(id, name, level, year)`

`conference(id, name, level, start_date, end_date, area_id
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`area(id, name)`

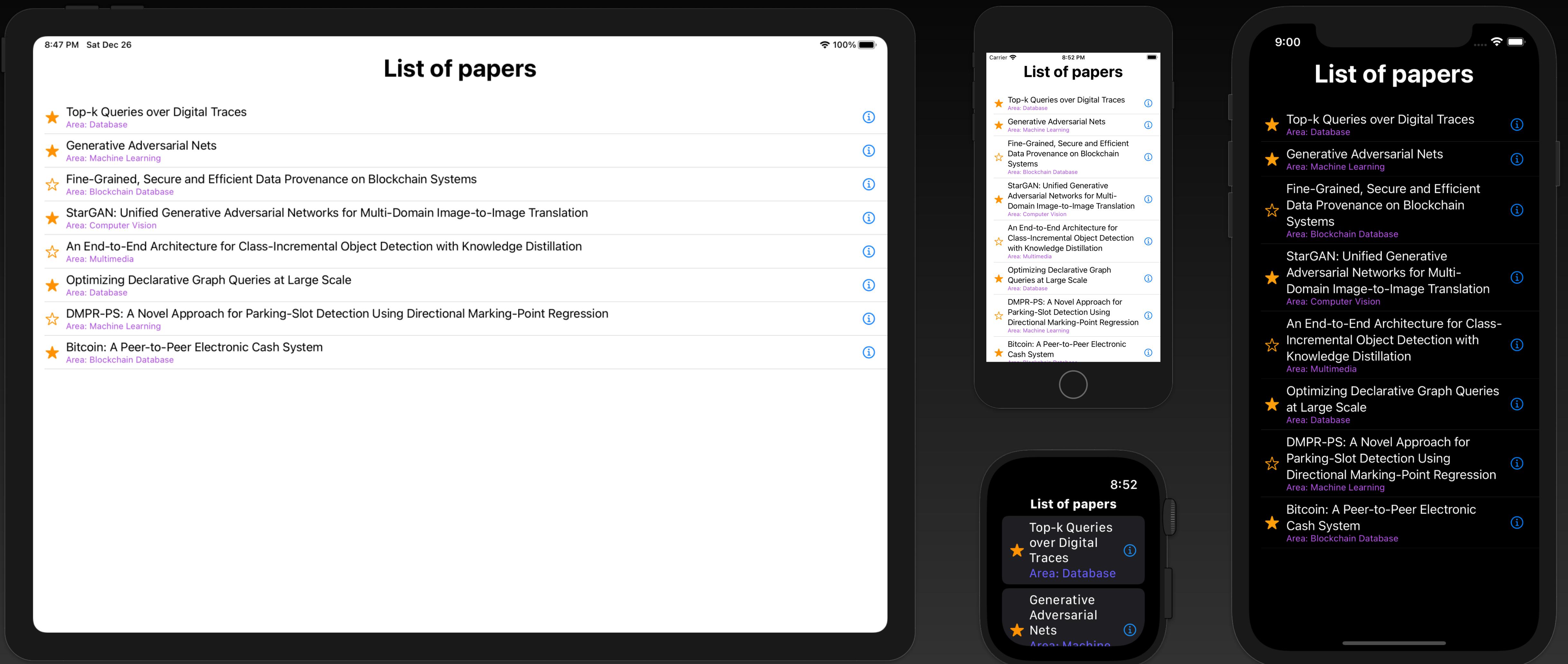
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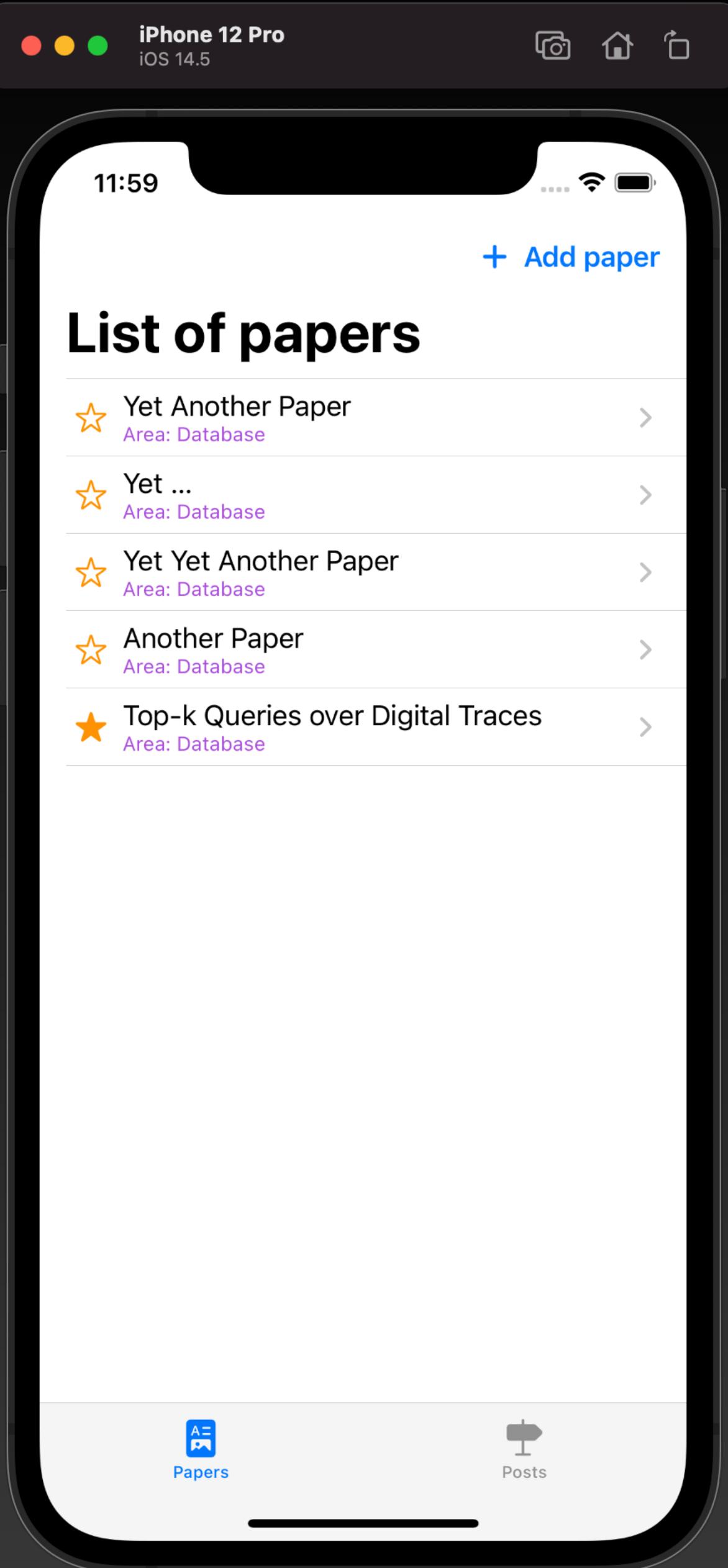
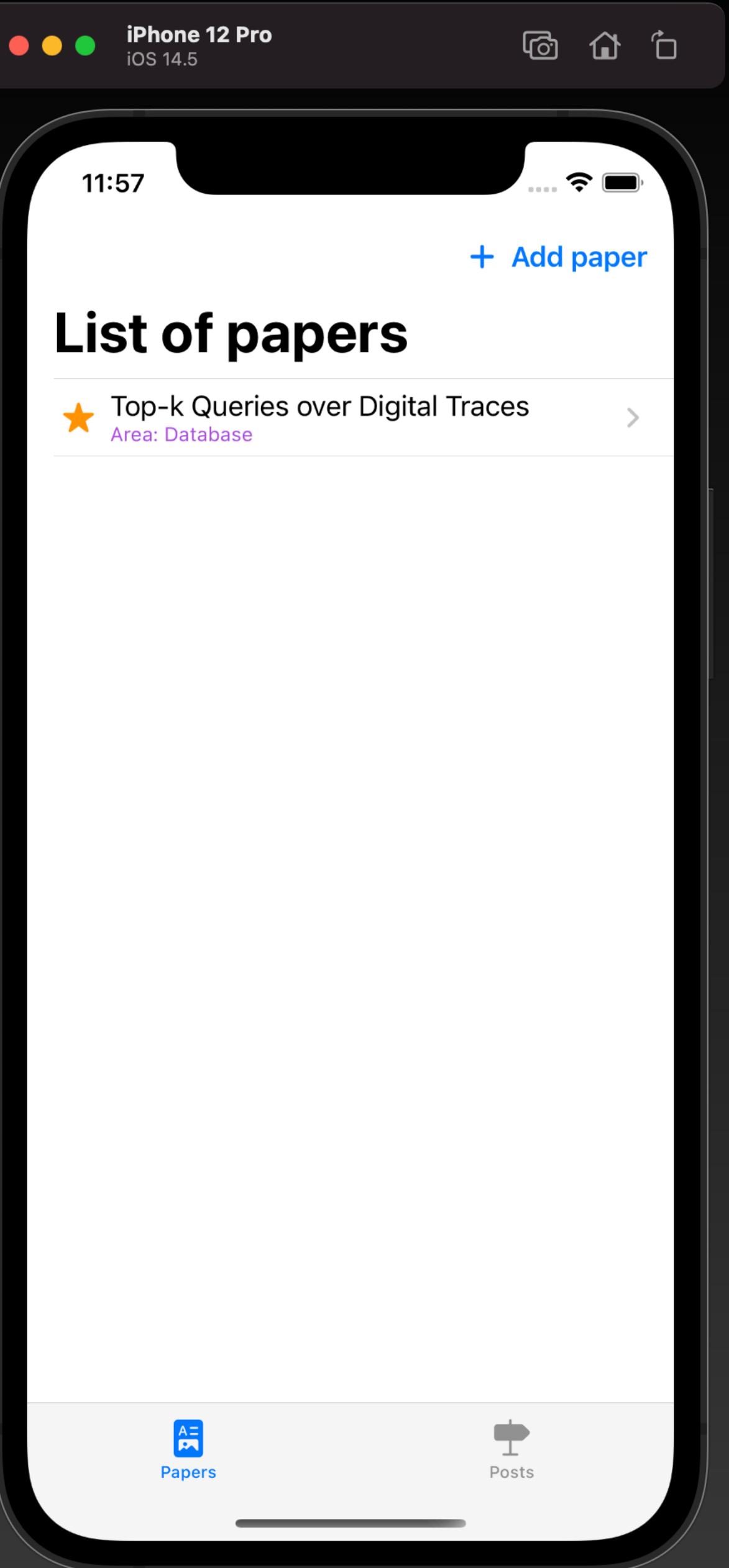
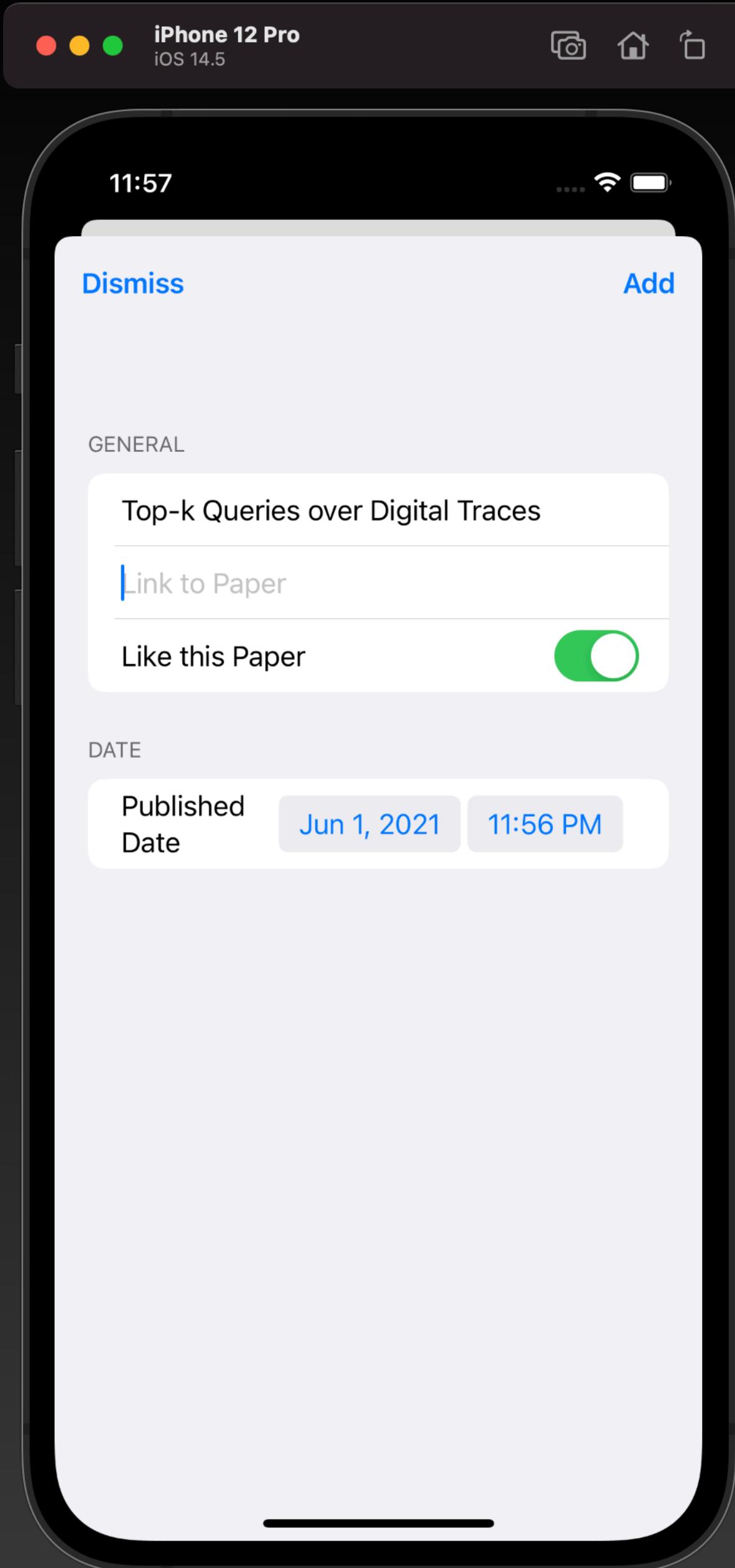
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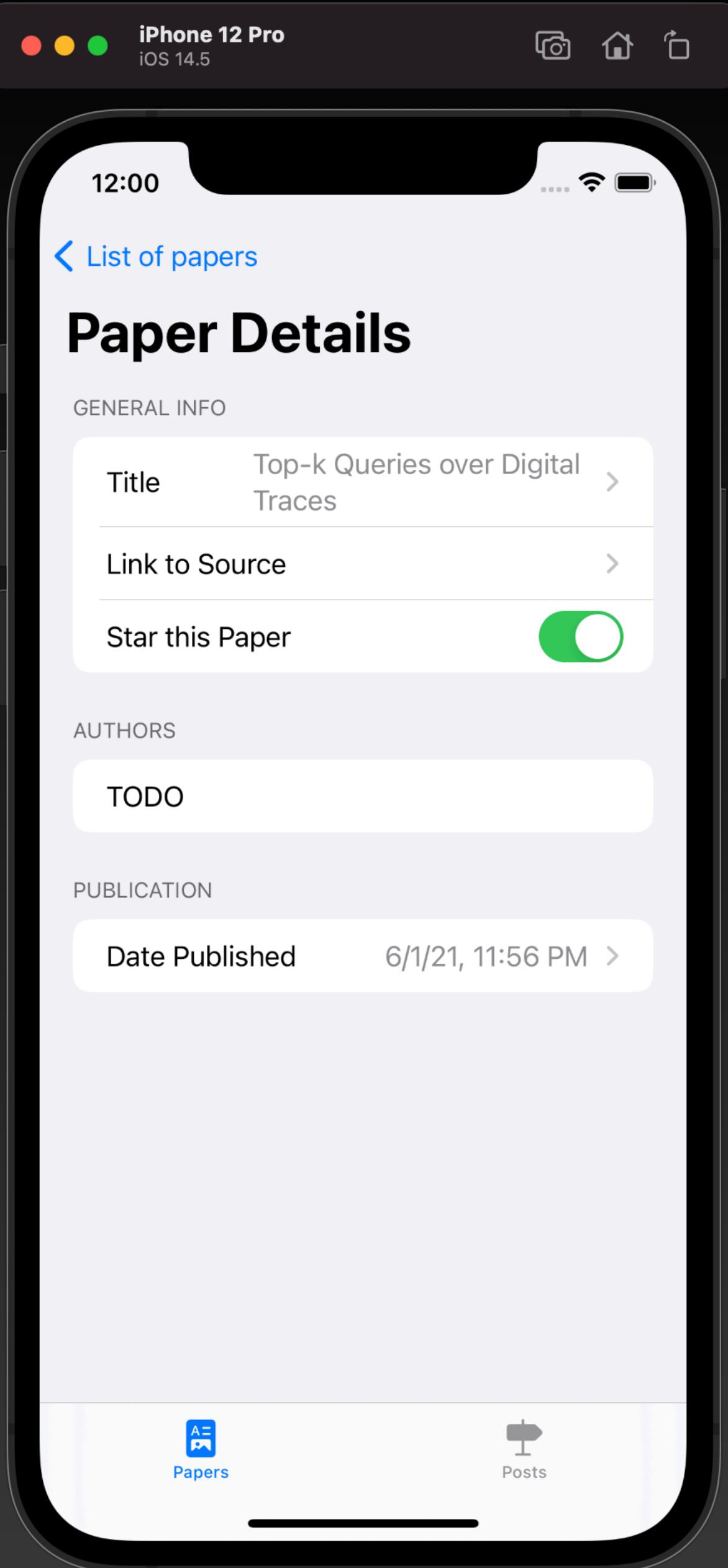
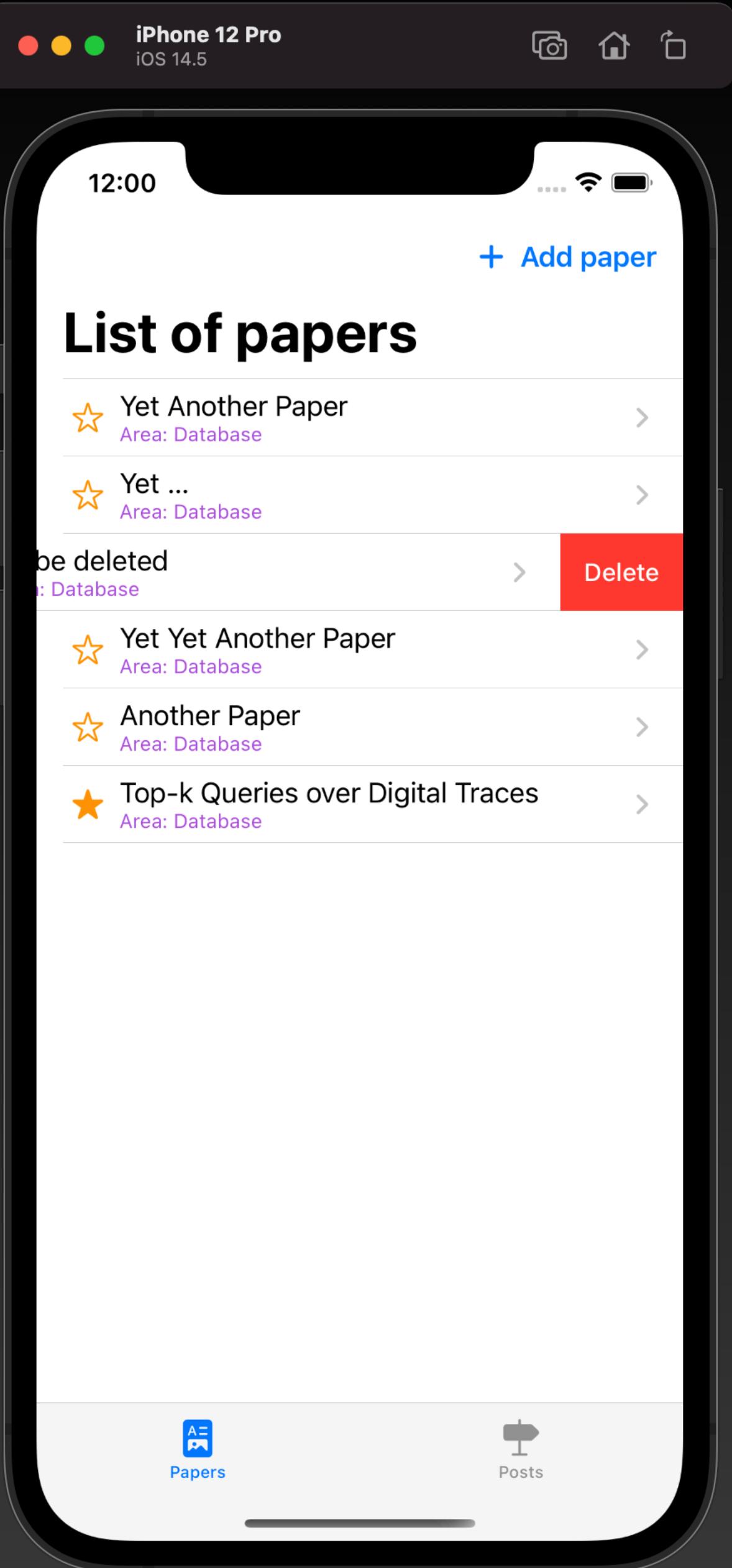
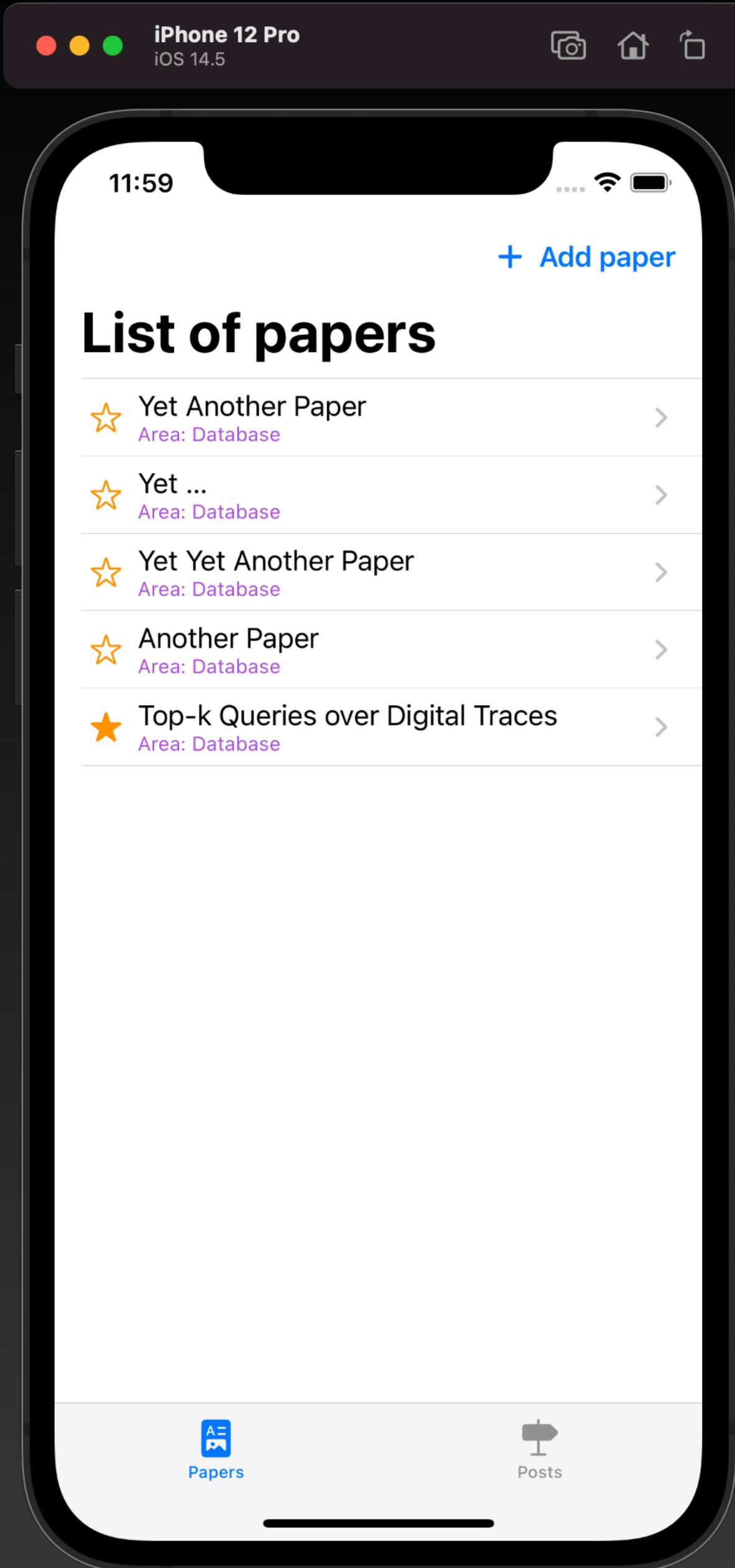
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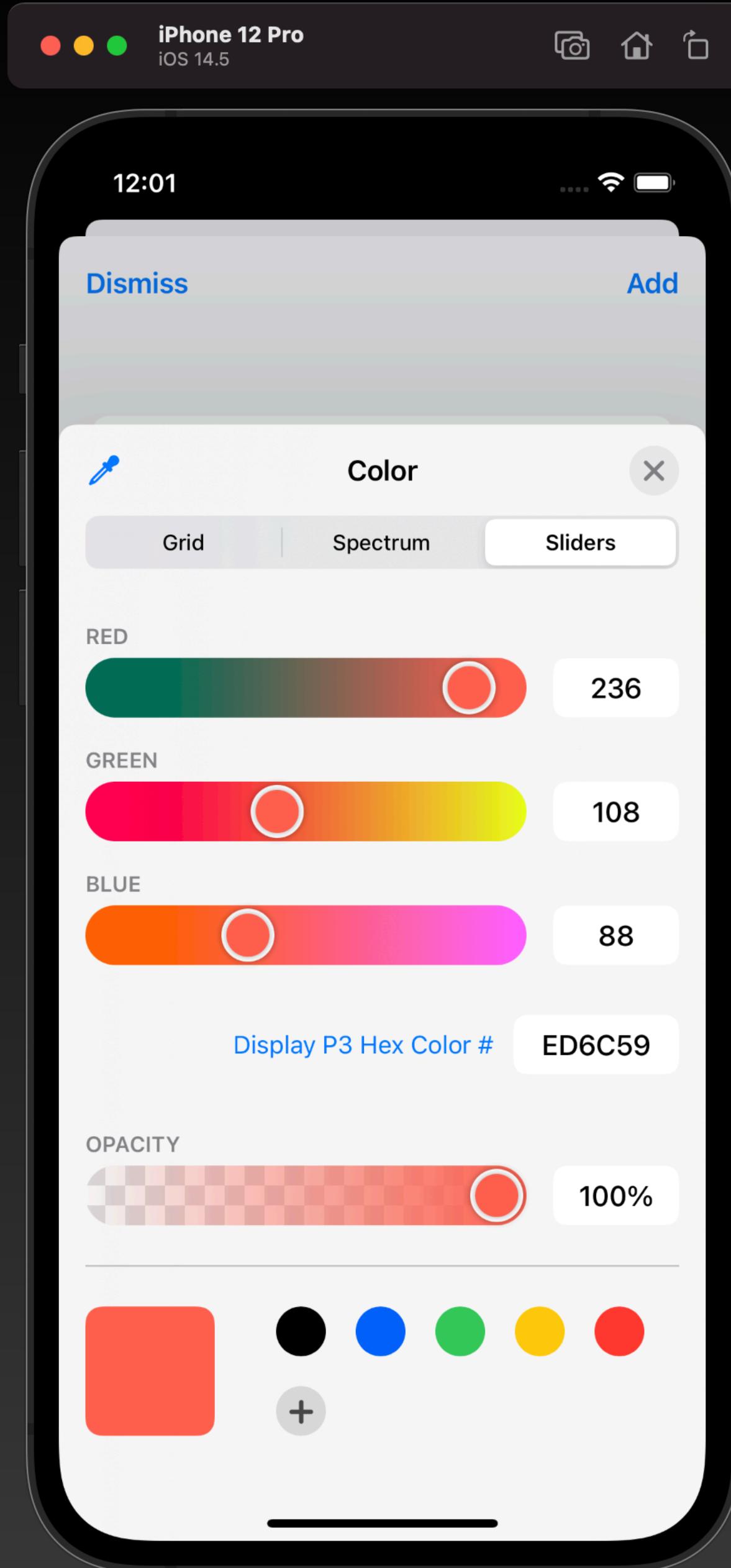
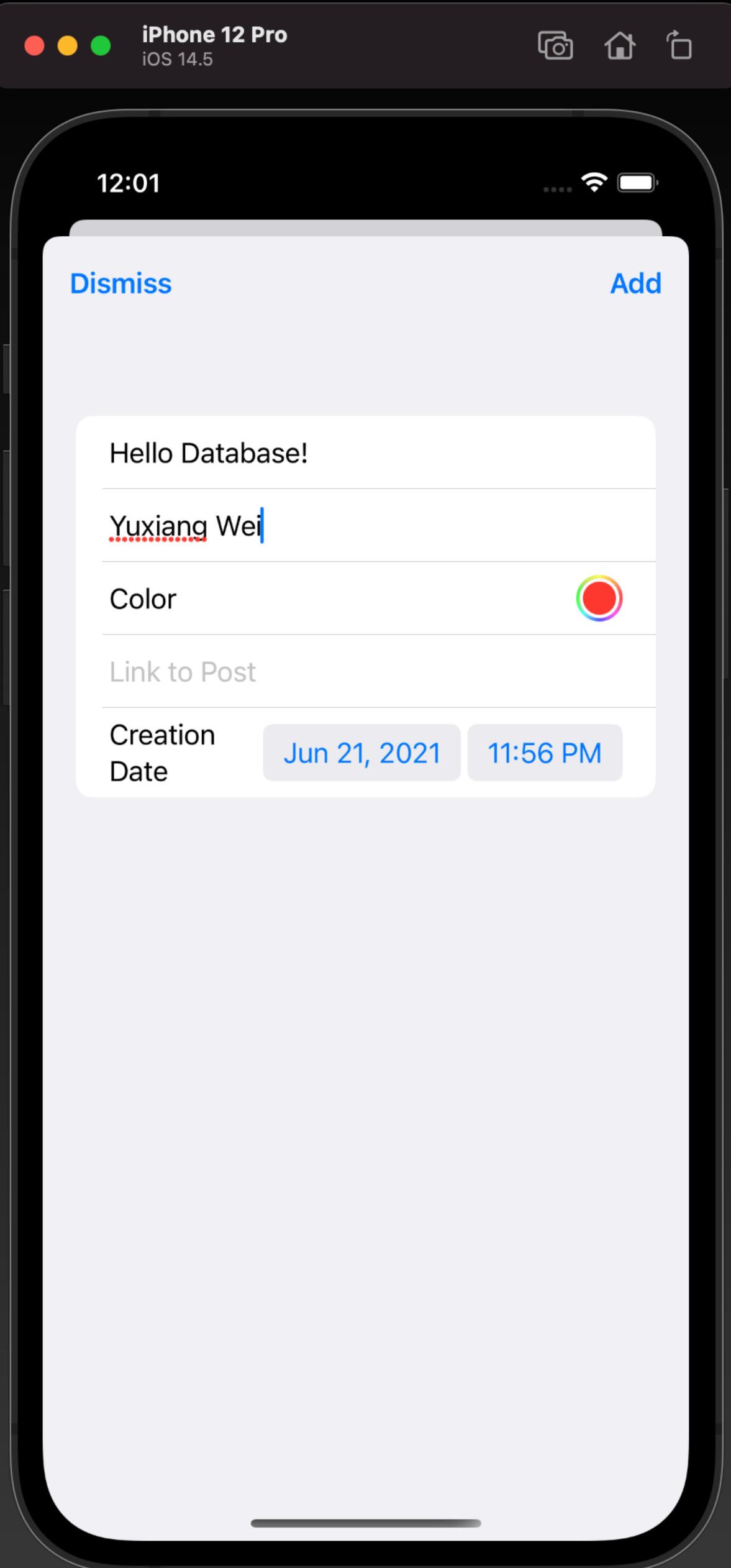
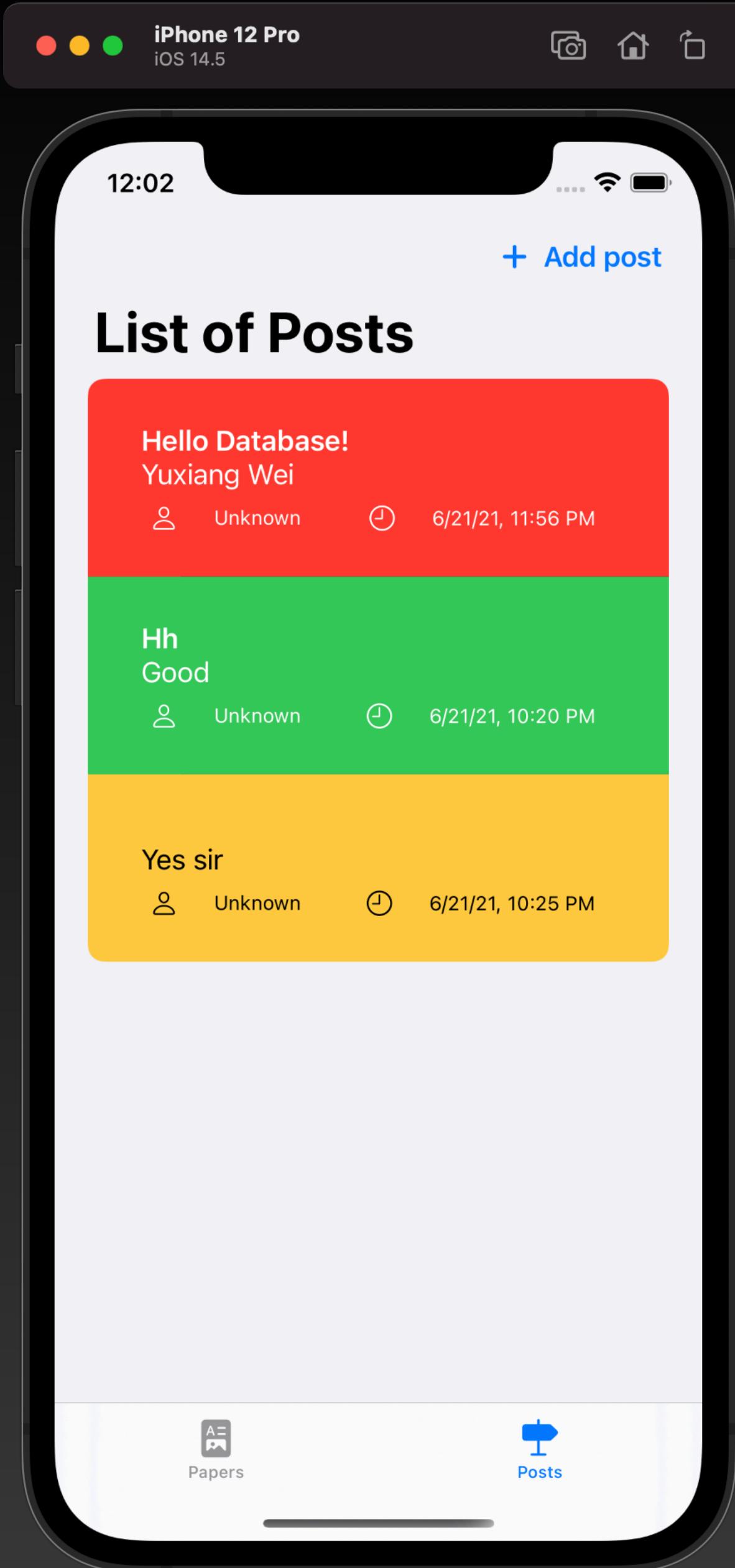
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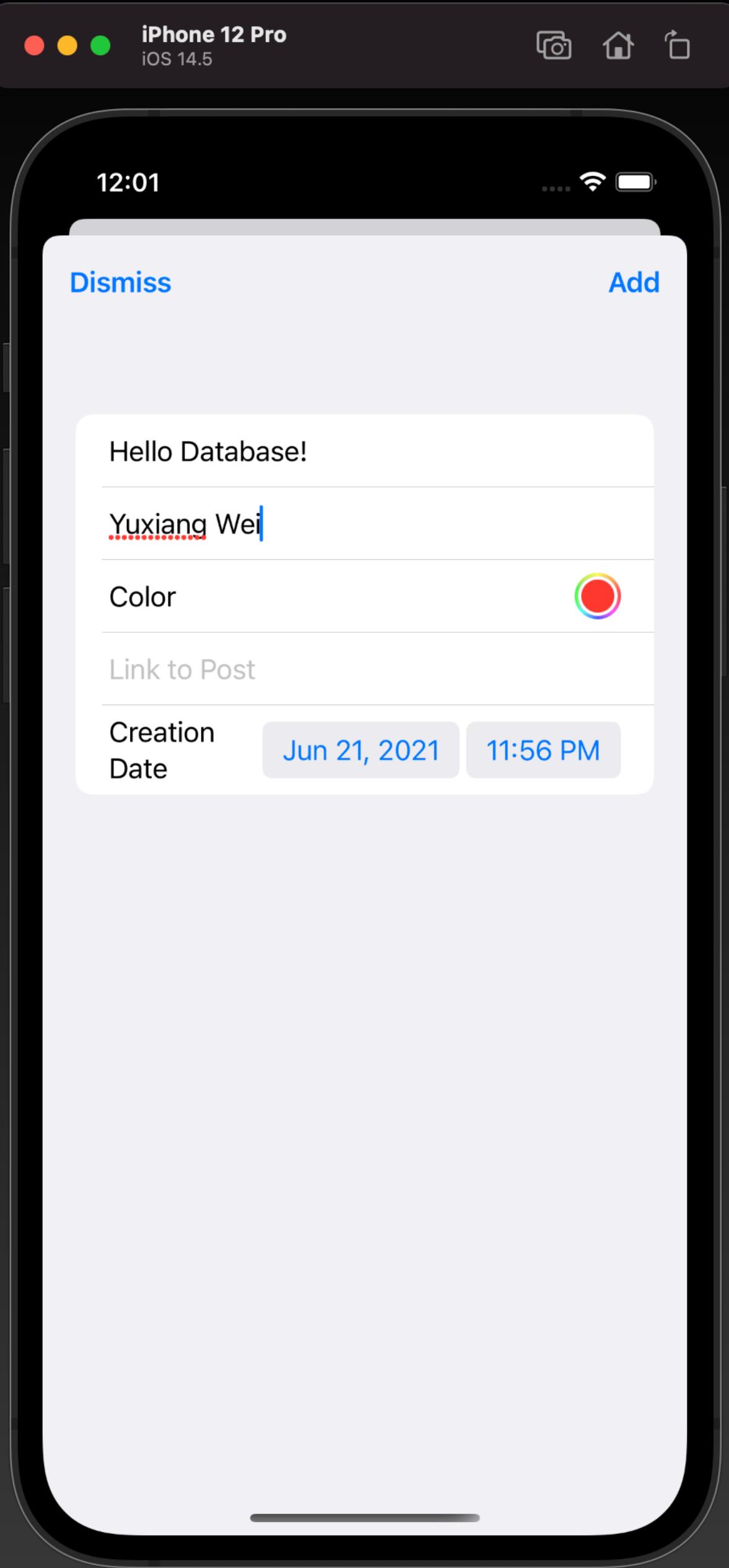
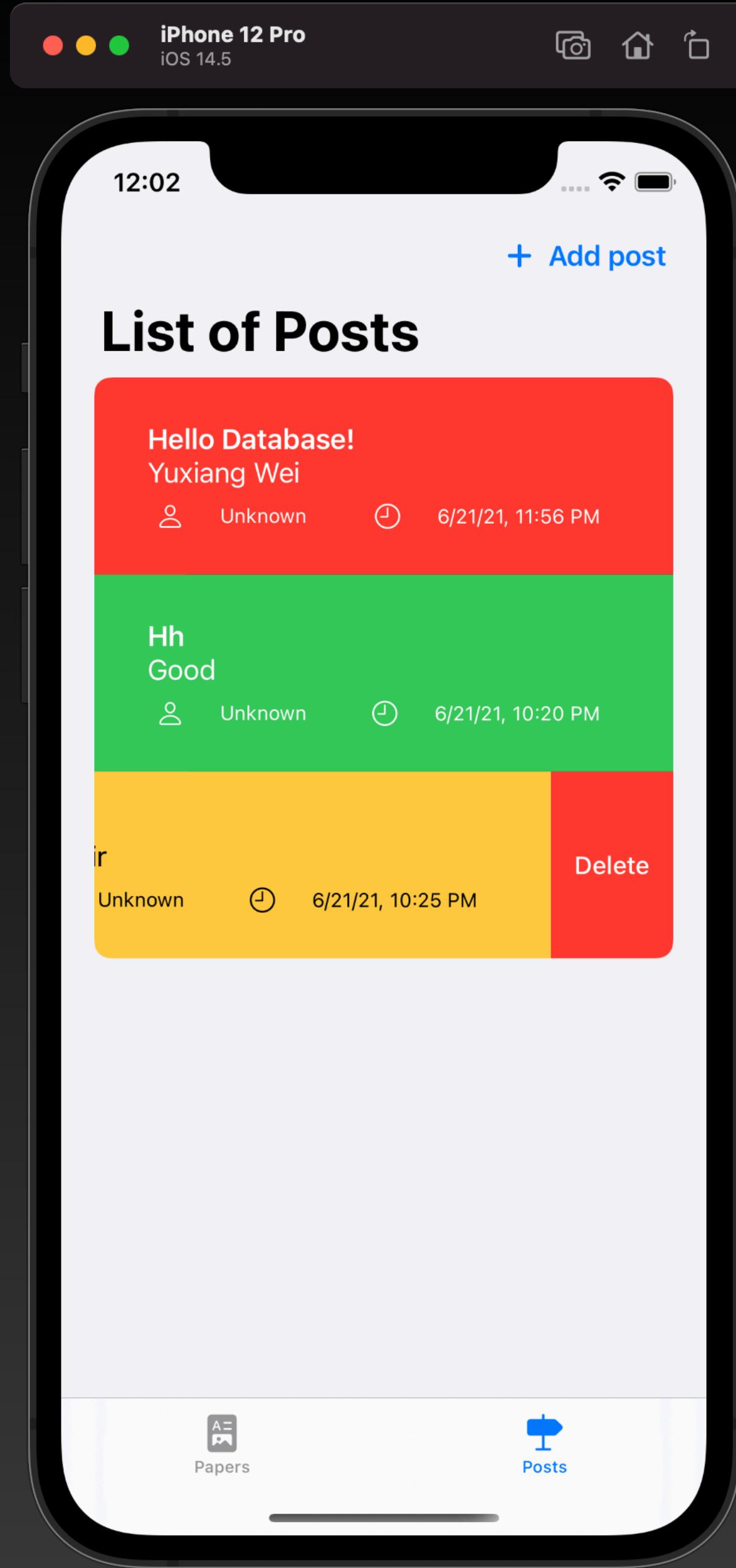


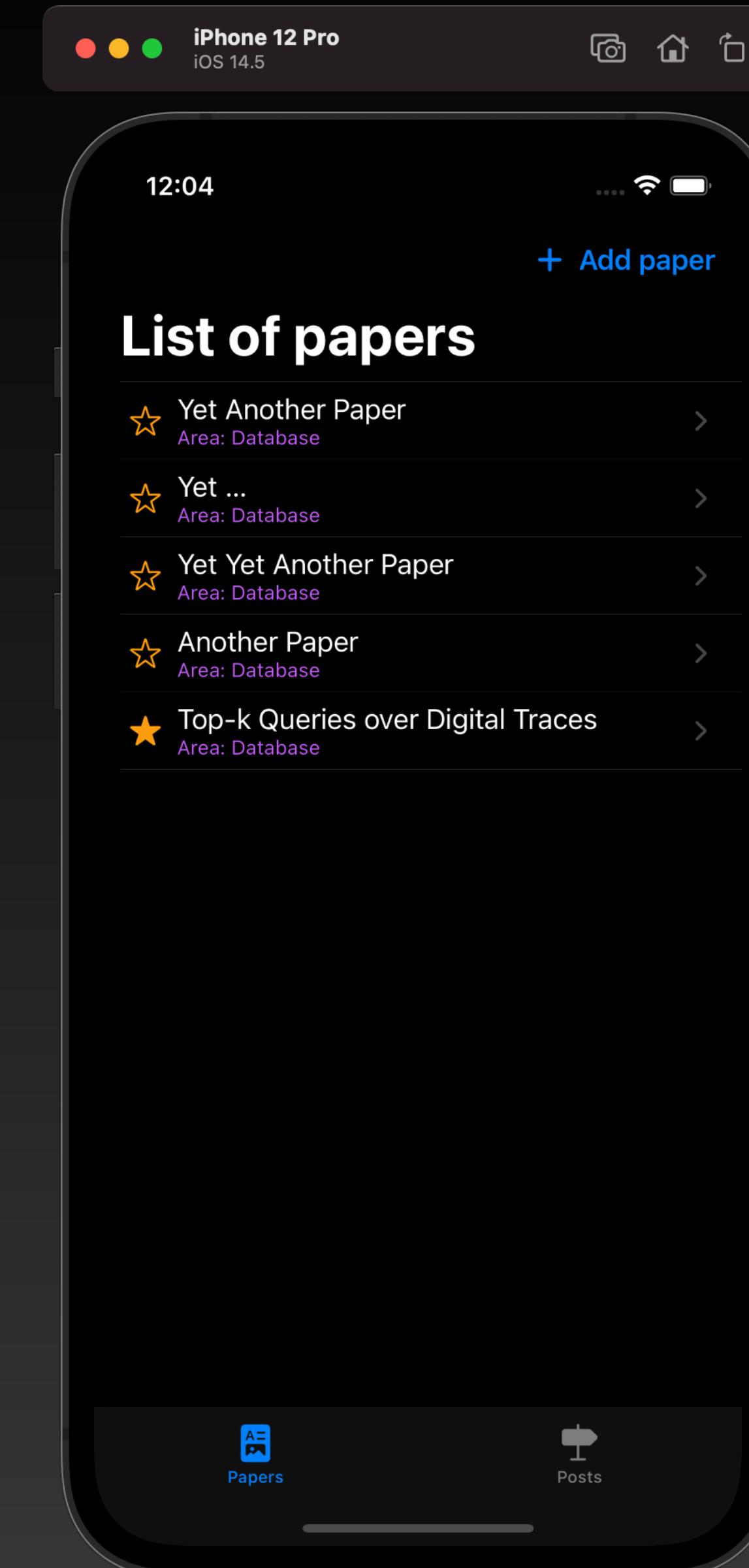
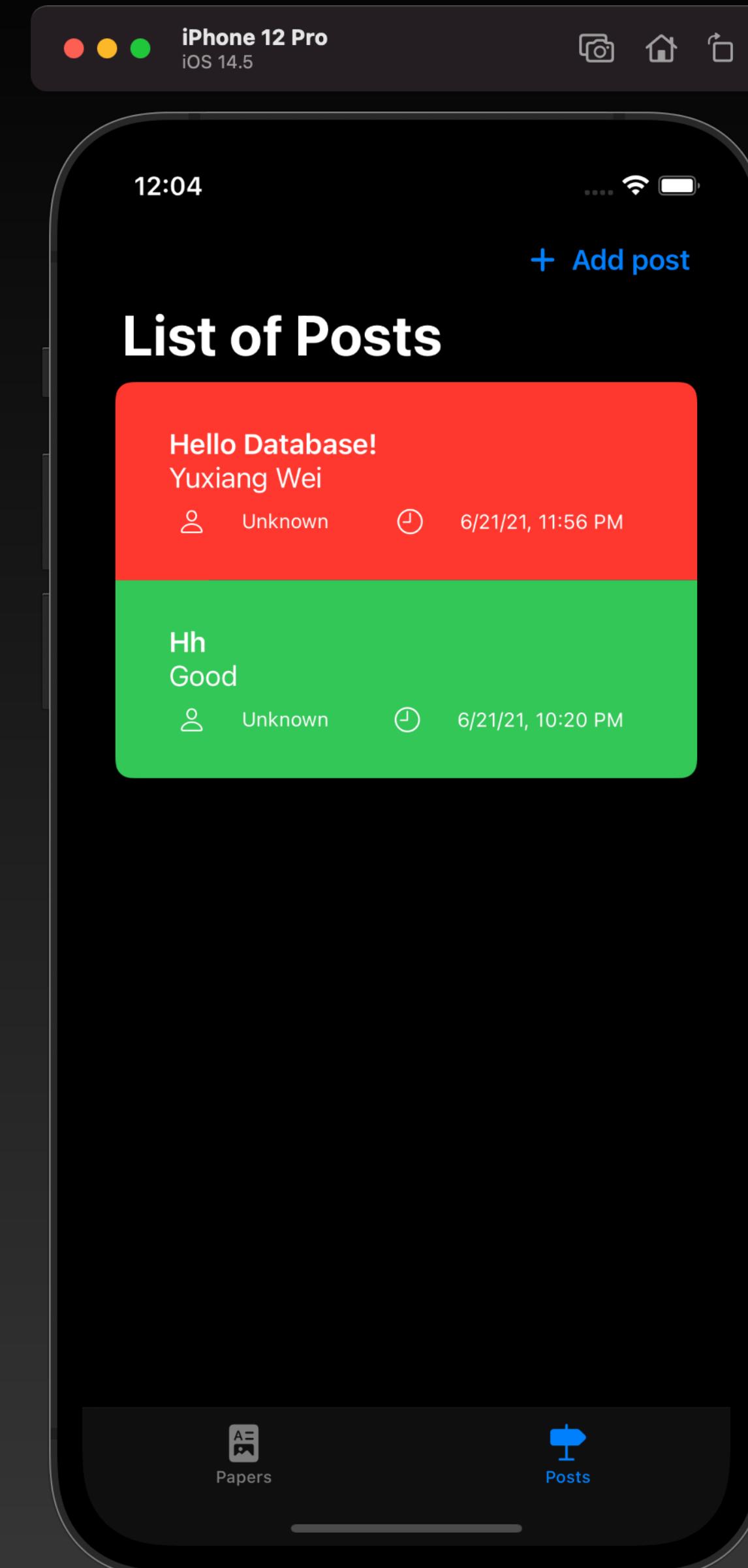
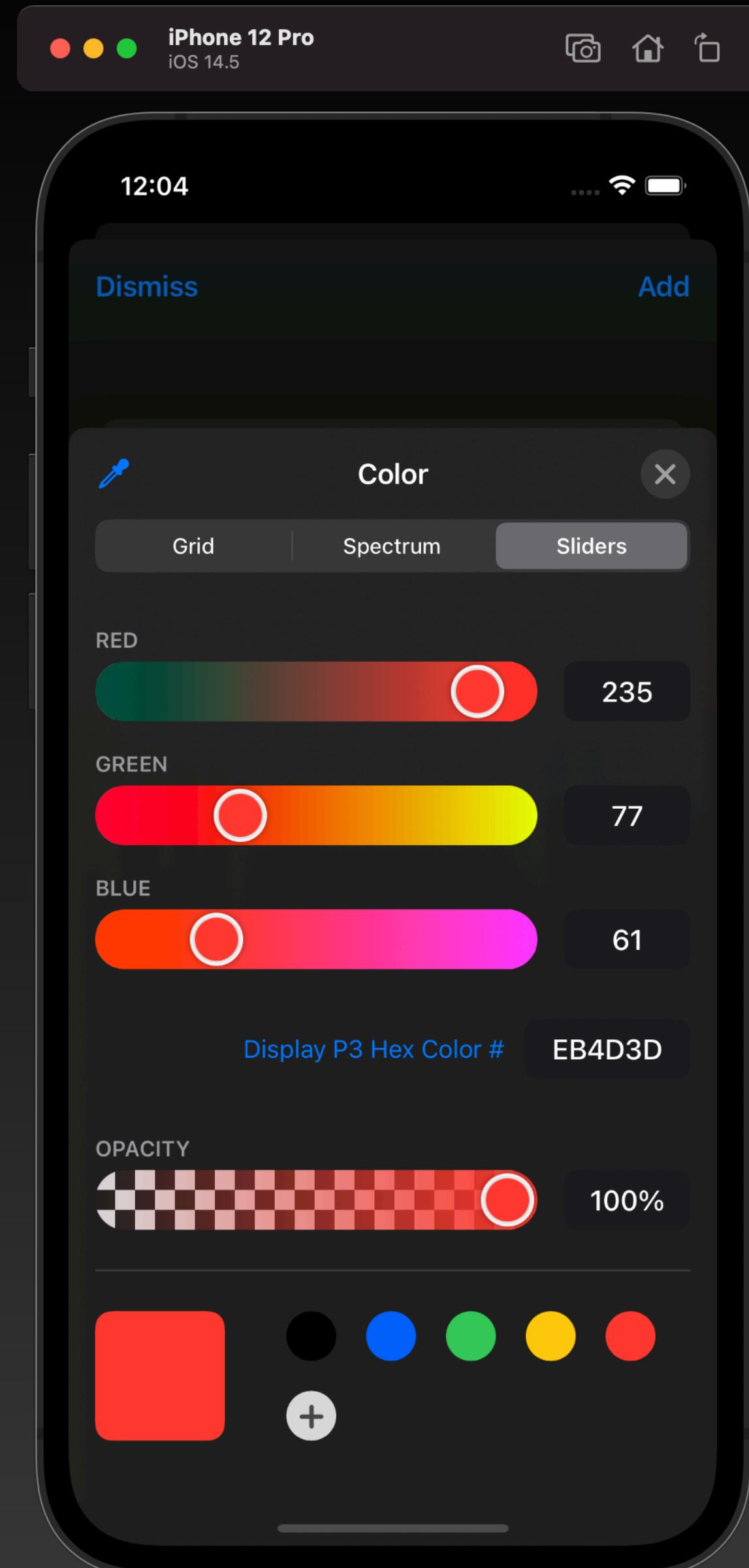
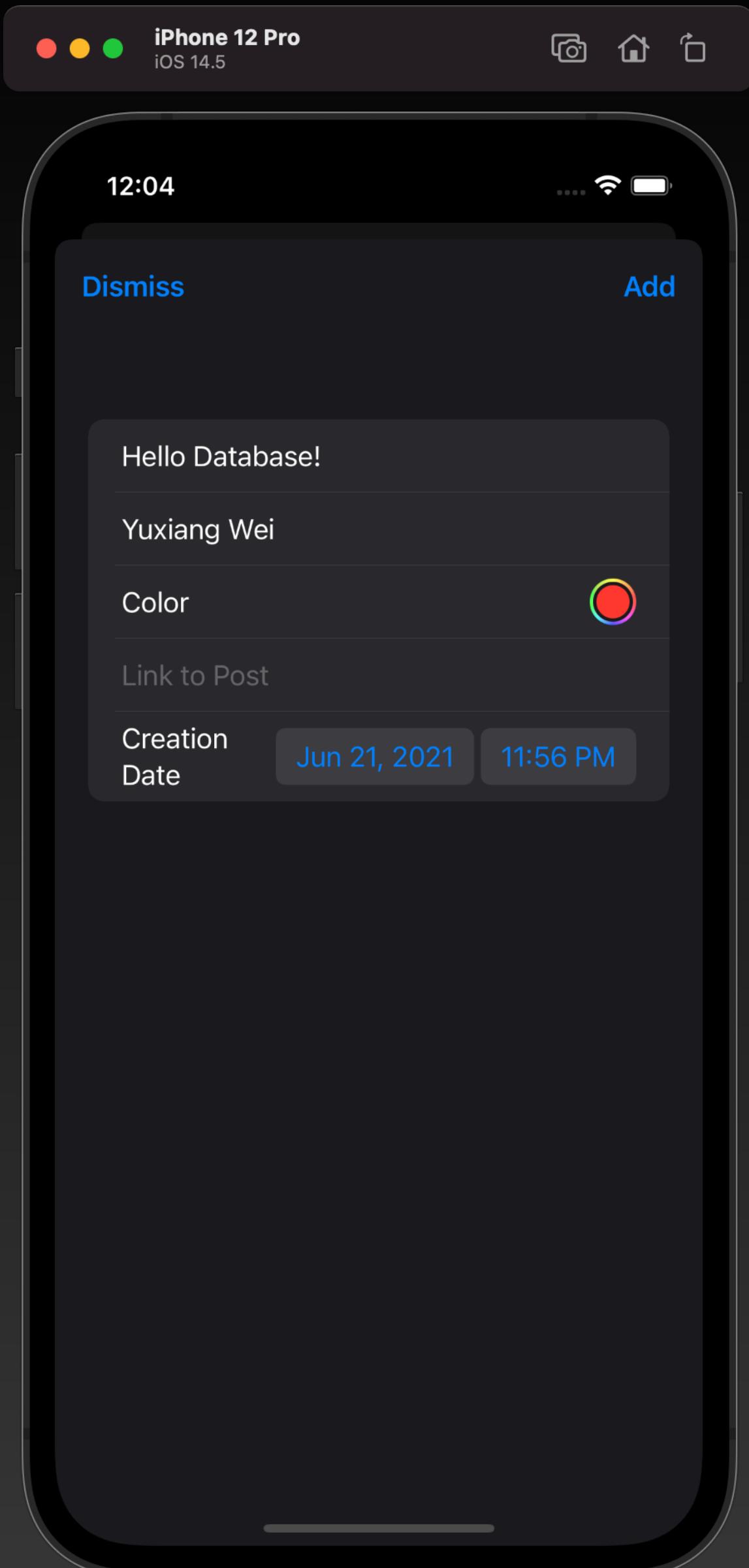
System Functionalities

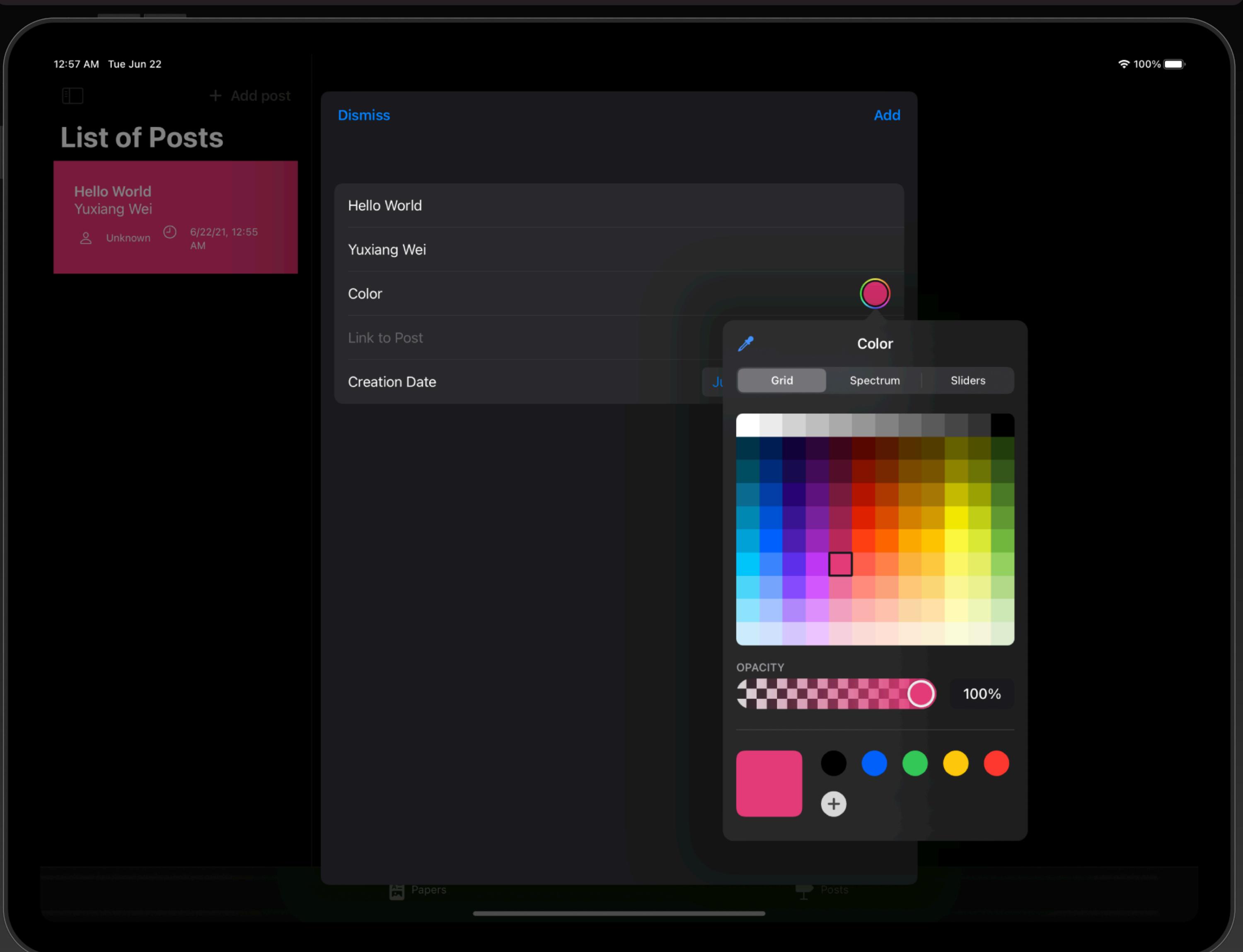
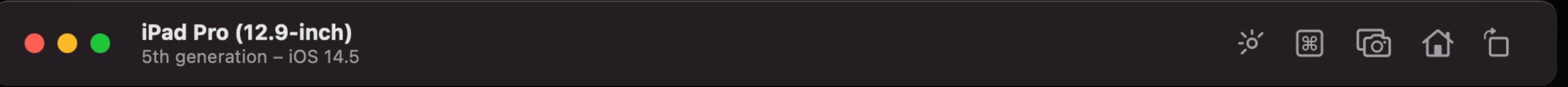
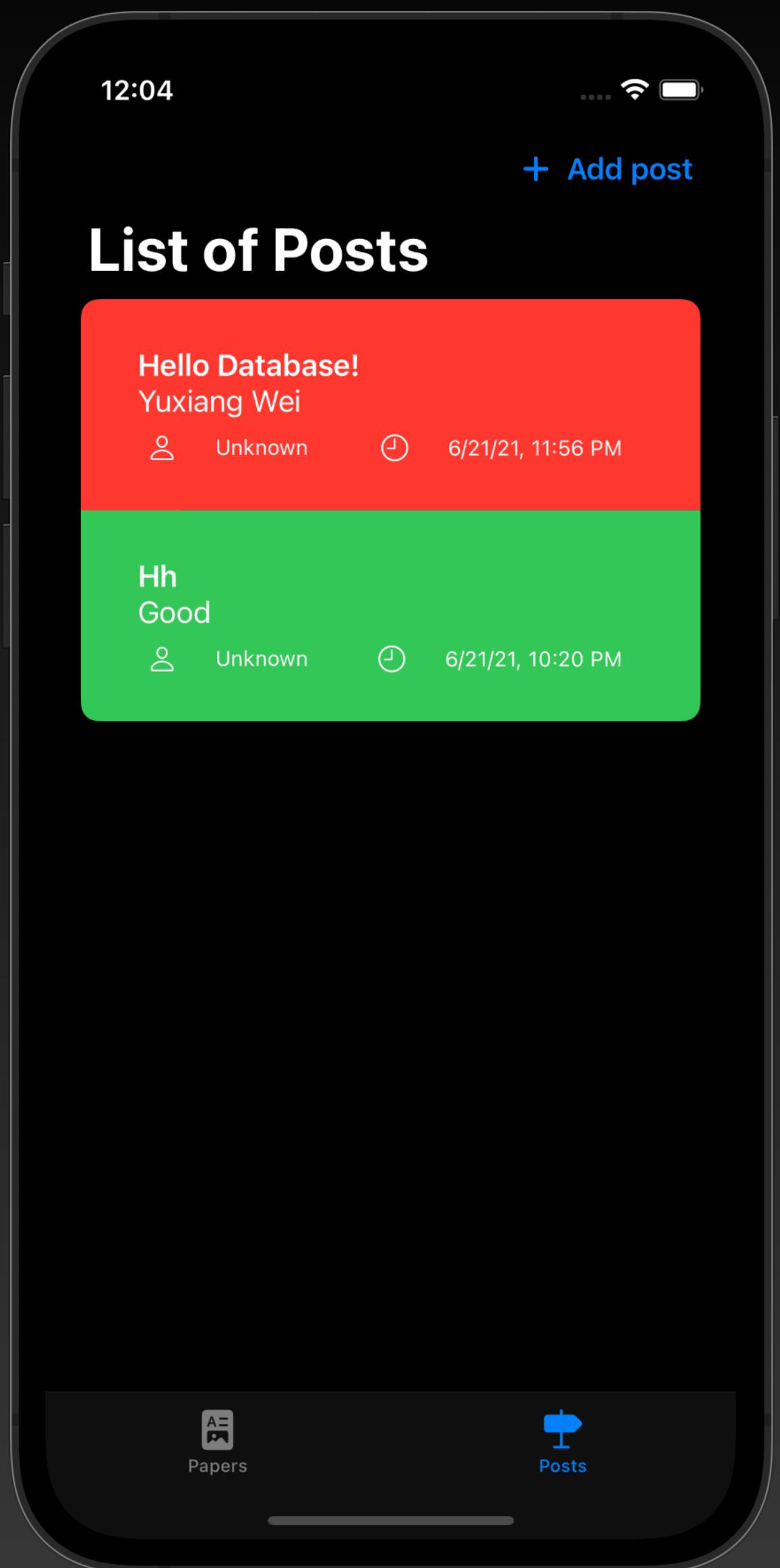
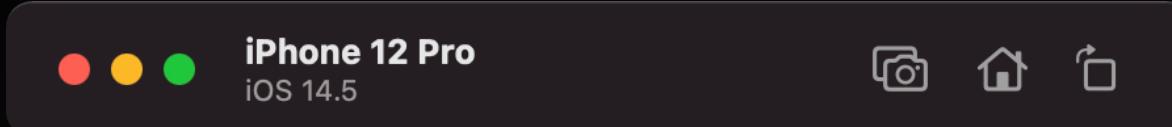




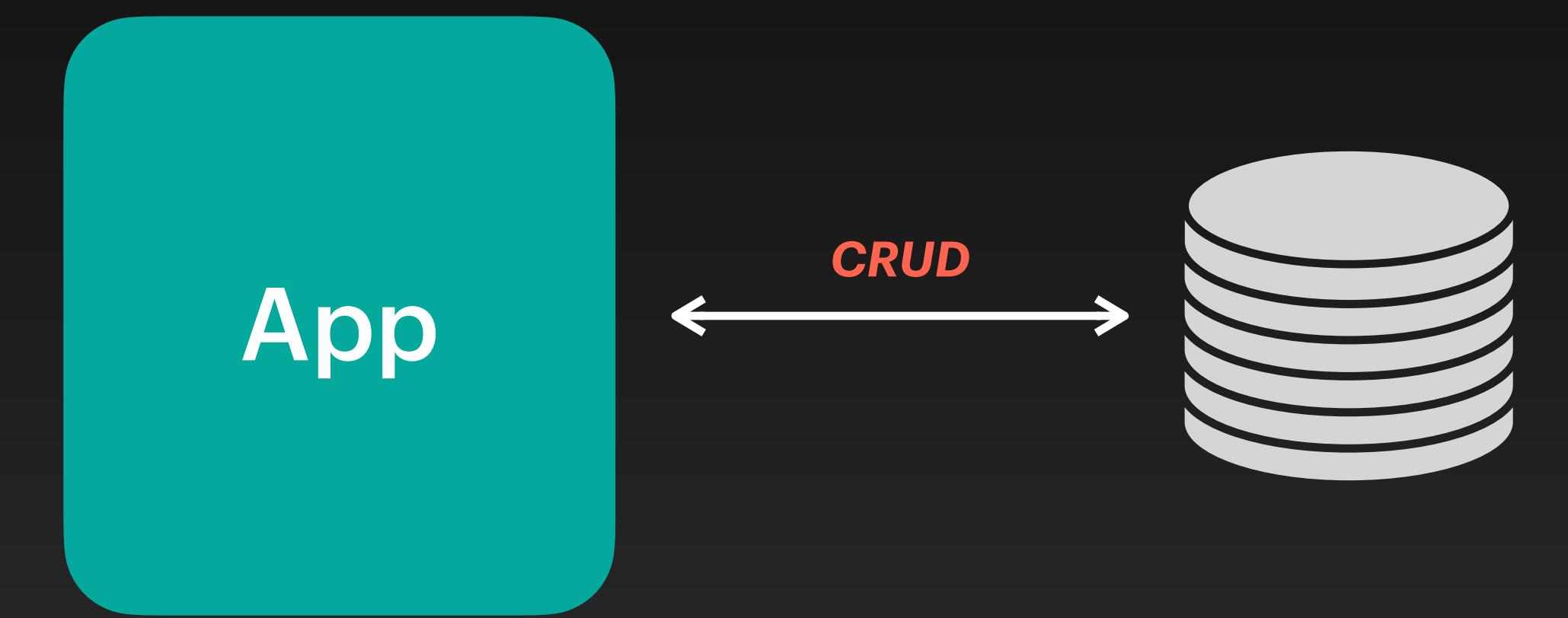


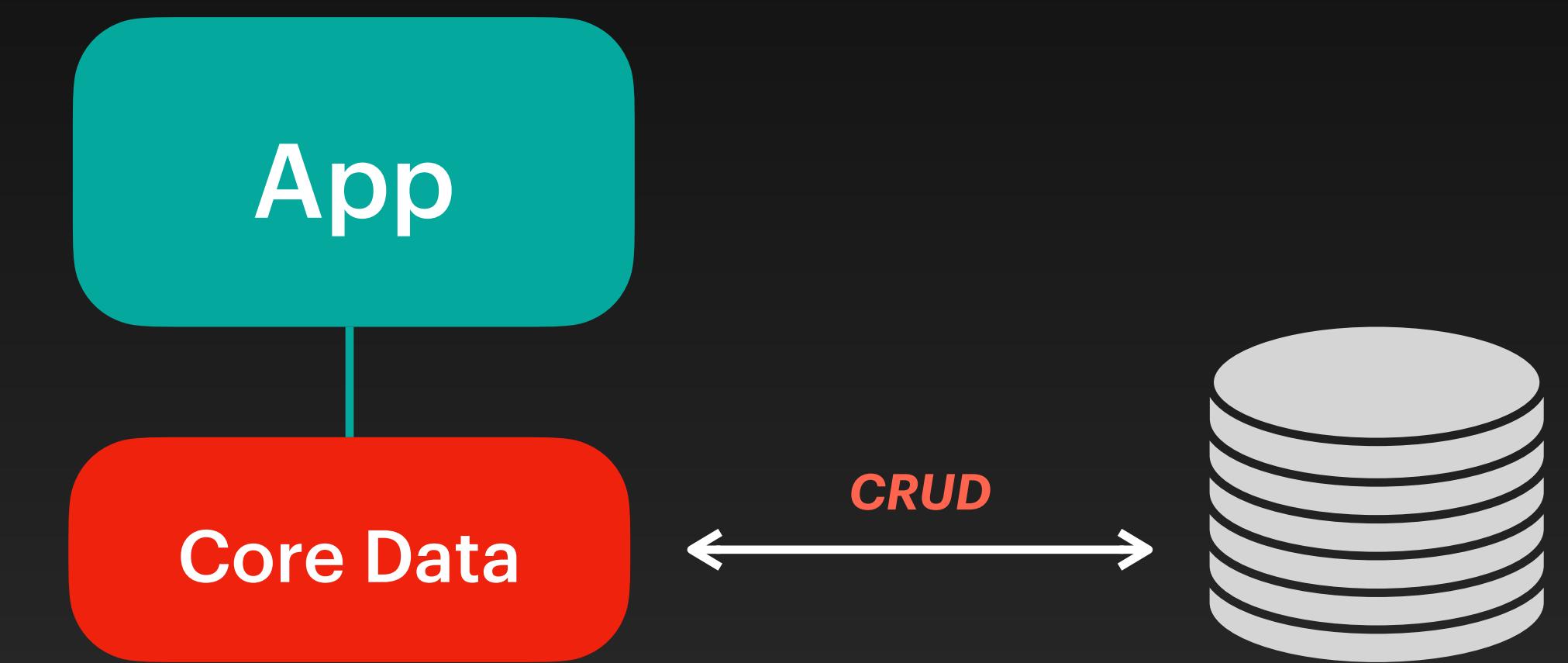






Core Data





App

Abstraction



Trends > iPhone 12 Pro Running Trends on iPhone 12 Pro

PaperListView.swift RTPS.xcdatamodel TrendsApp.swift PostView.swift PaperItem.swift Trends

Entity

Name Area
 Abstract Entity
Parent Entity No Parent Entity

Class

Name Area
Module Global namespace
Codegen Class Definition

Constraints

No Content

Spotlight

Display Name Expression

User Info

Key Value

Versioning

Hash Modifier Version Hash Modifier
Renaming ID Renaming Identifier

ENTITIES

Attributes

Attribute Type

S name String

+ -

Relationships

Relationship Destination Inverse

M conferences Conference area

M paper Paper area

+ -

Fetched Properties

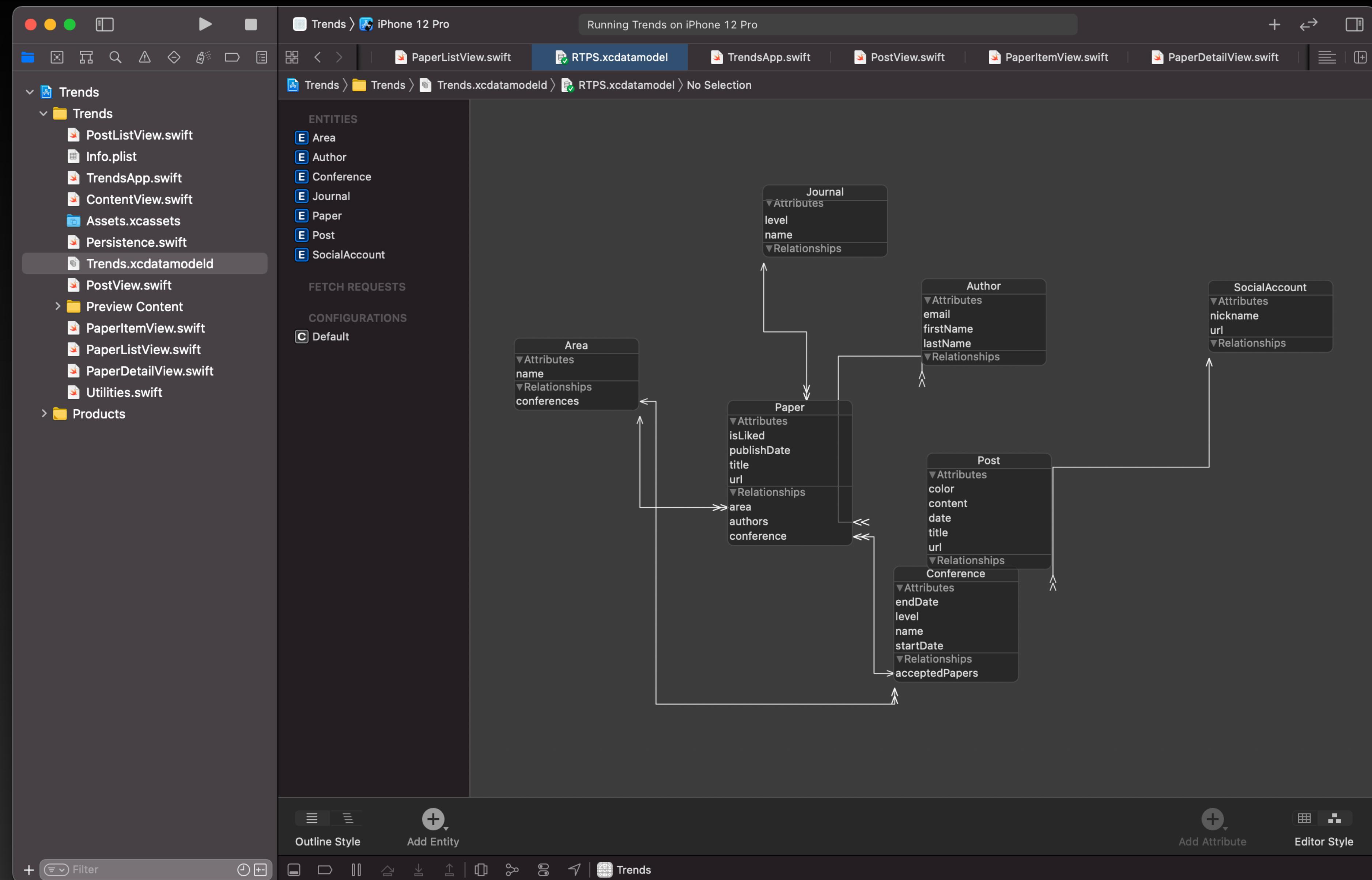
Fetched Property Predicate

+ -

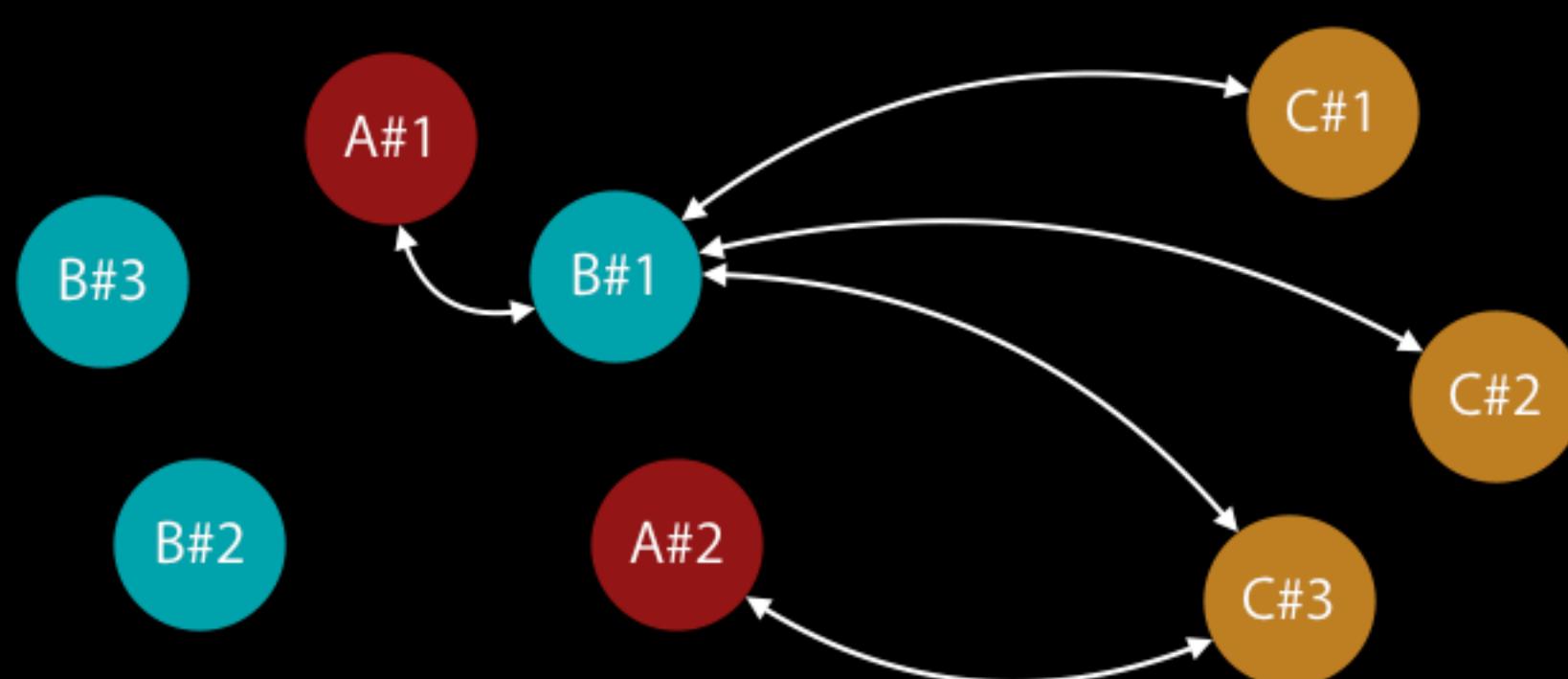
Outline Style Add Entity

Add Attribute Editor Style

Filter Trends



Graph \neq ORM



\neq

A

| ID | Prop 1 | Prop 2 | Prop 3 |
|----|--------|--------|--------|
| #1 | # | # | # |
| #2 | # | # | # |
| #3 | # | # | # |
| #4 | # | # | # |

B

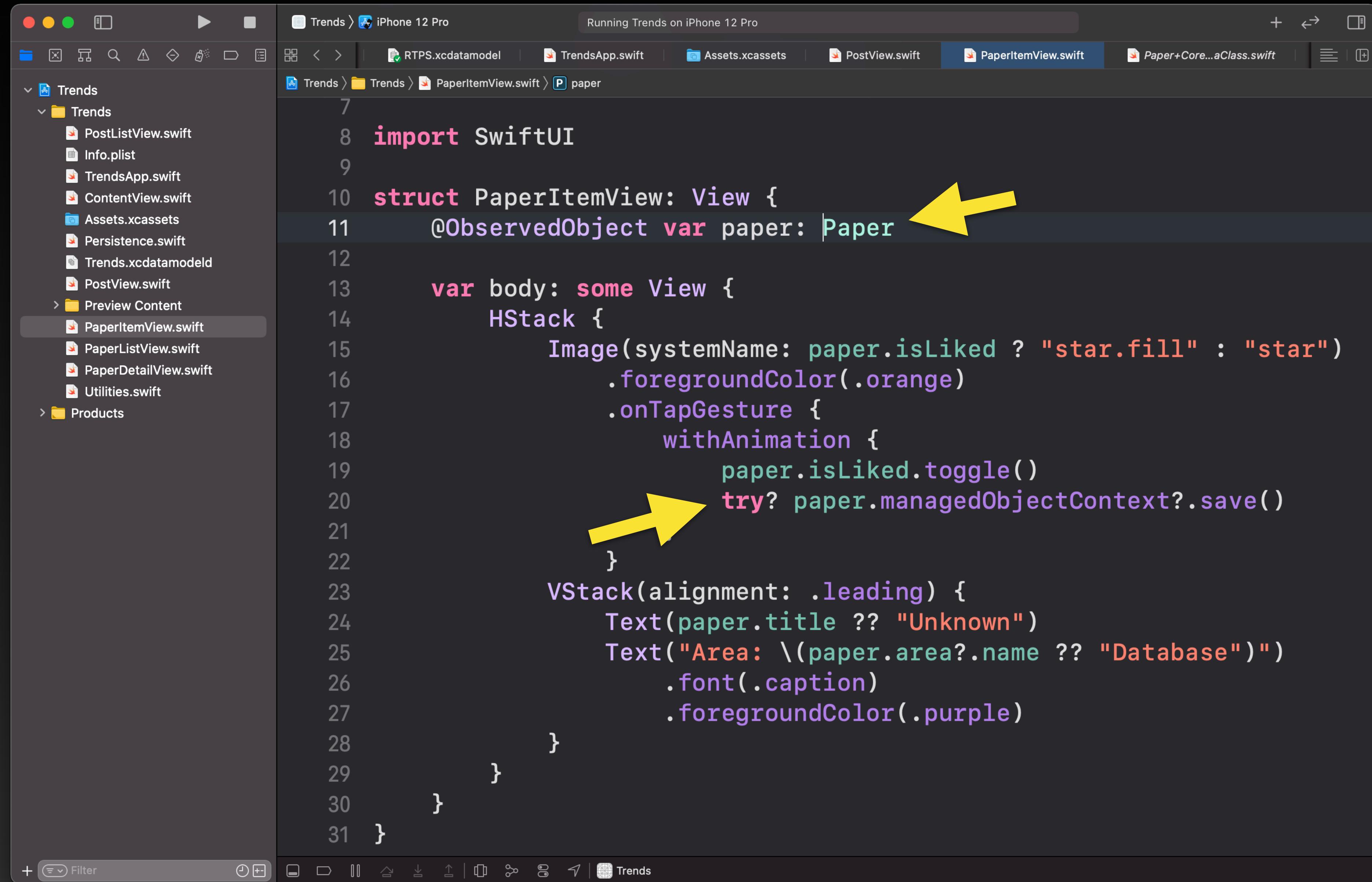
| ID | Prop 1 | Prop 2 | Prop 3 |
|----|--------|--------|--------|
| #1 | # | # | # |
| #2 | # | # | # |
| #3 | # | # | # |
| #4 | # | # | # |

C

| ID | Prop 1 | Prop 2 | Prop 3 |
|----|--------|--------|--------|
| #1 | # | # | # |
| #2 | # | # | # |
| #3 | # | # | # |
| #4 | # | # | # |

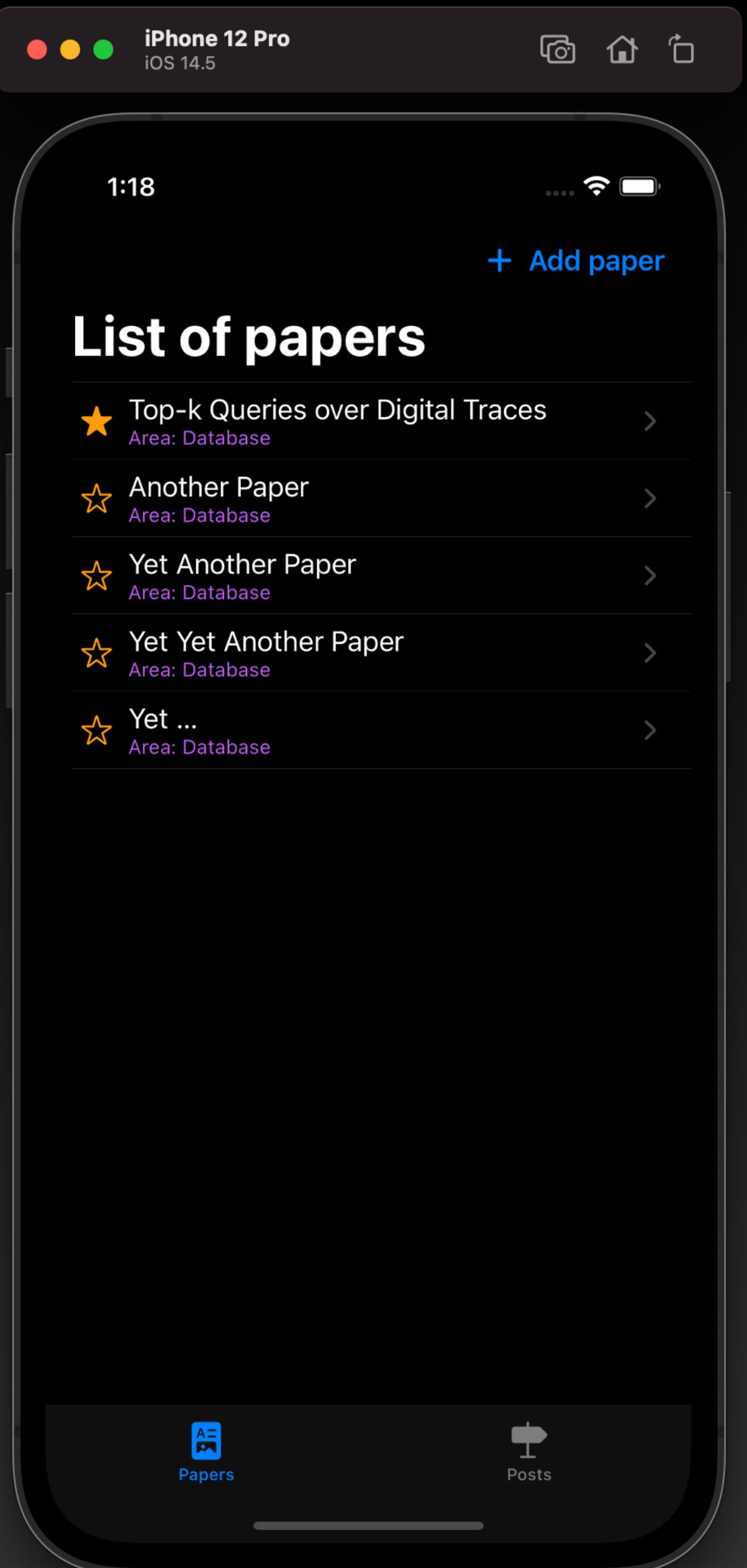
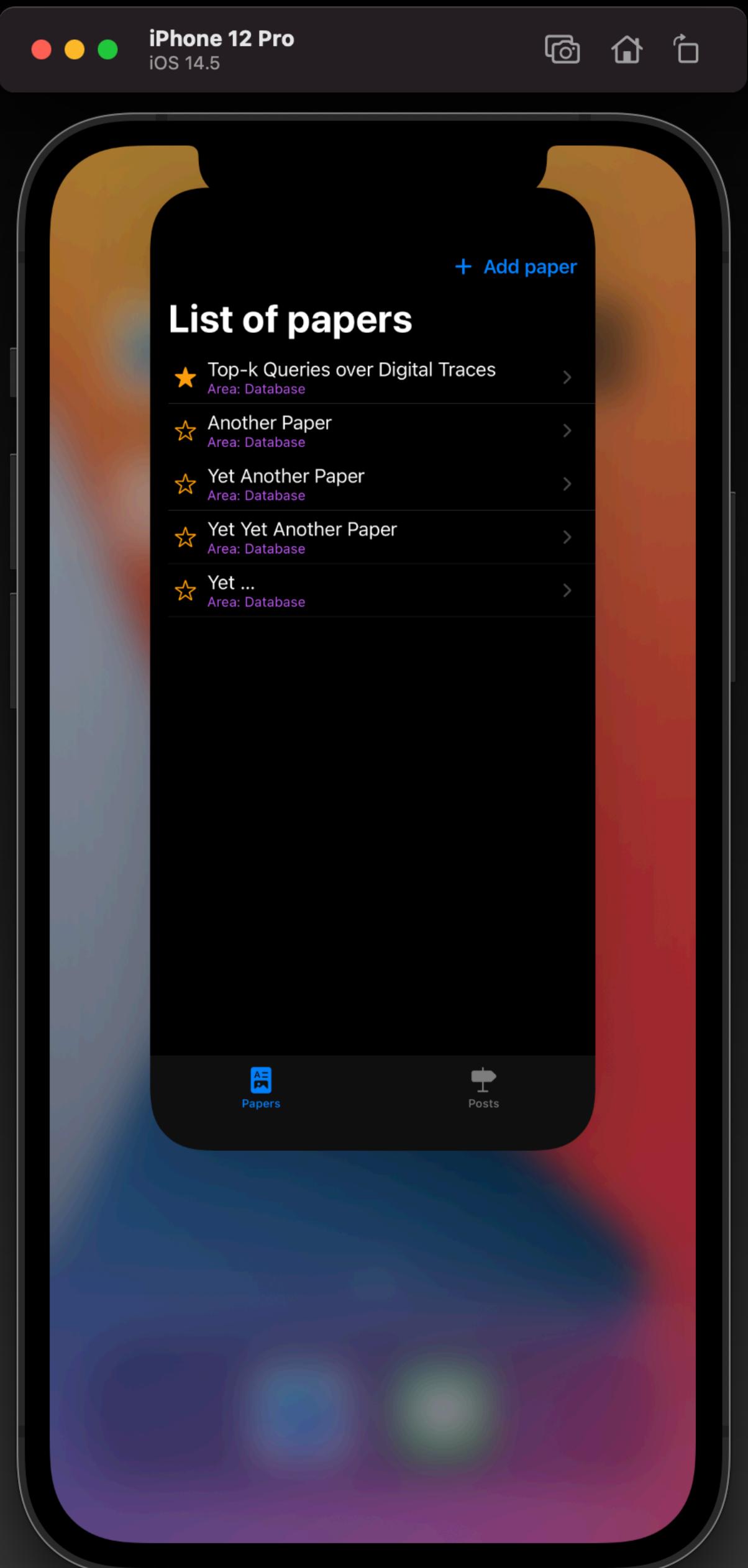
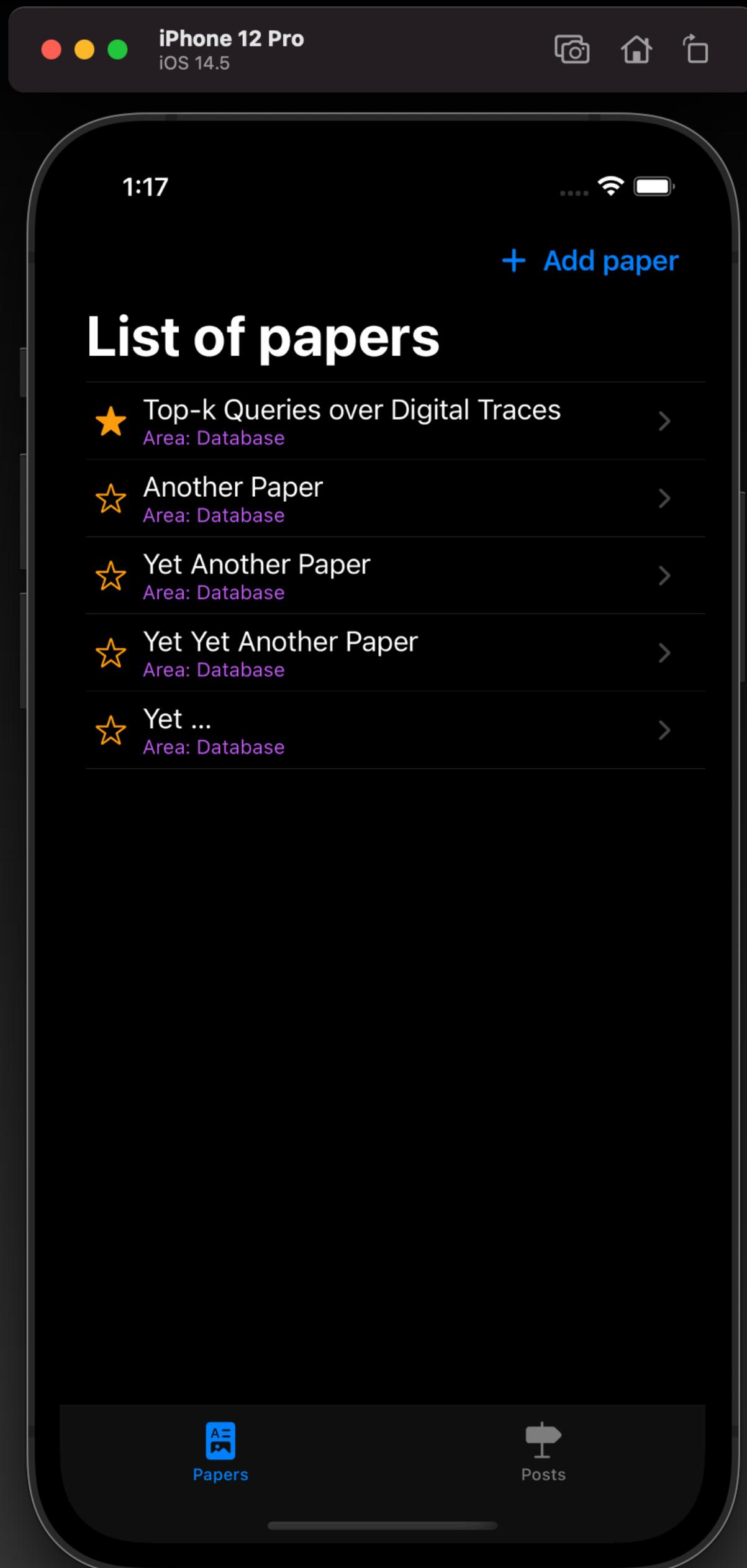
Core Data

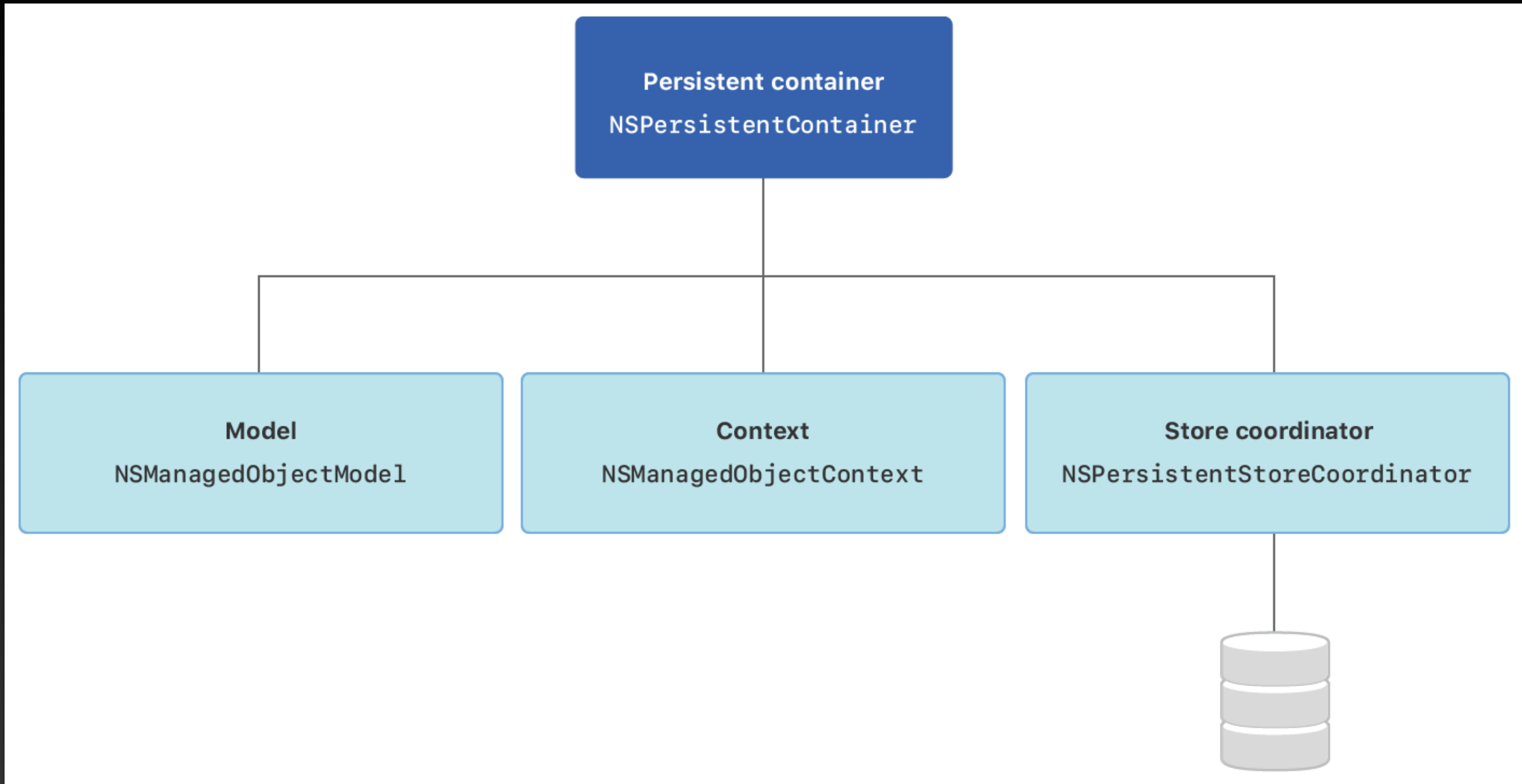
ORM



Running Trends on iPhone 12 Pro

```
7
8 import SwiftUI
9
10 struct PaperItemView: View {
11     @ObservedObject var paper: Paper
12
13     var body: some View {
14         HStack {
15             Image(systemName: paper.isLiked ? "star.fill" : "star")
16                 .foregroundColor(.orange)
17                 .onTapGesture {
18                     withAnimation {
19                         paper.isLiked.toggle()
20                         try? paper.managedObjectContext?.save()
21                     }
22                 }
23         VStack(alignment: .leading) {
24             Text(paper.title ?? "Unknown")
25             Text("Area: \(paper.area?.name ?? "Database")")
26                 .font(.caption)
27                 .foregroundColor(.purple)
28         }
29     }
30 }
31 }
```





Thanks!