

Android Mobile Application for Astronomy

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Outline

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Introduction

Imagine you have thousands of cameras scanning the night sky every second. They spot explosions, blinking stars, and strange signals. But astronomers can't look at all of them—there are just too many! That's why Fink exists: to help scientists find the 'interesting stuff' fast

What is Fink?

Fink is a scientific platform that collects and filters astronomical alerts in real time. It stores the data in an online database and provides access through a REST API. For the past five years, it has supported a website that displays these alerts, helping astronomers detect rare events such as supernovae, black holes, and signals potentially related to gravitational waves.



Website Problem

Currently, Fink is only available as a web platform. However, it is not a responsive website, meaning it does not display correctly on smaller screens. This limitation restricts access—especially for students, researchers in the field, and citizen scientists who often rely on mobile devices.

The Solution

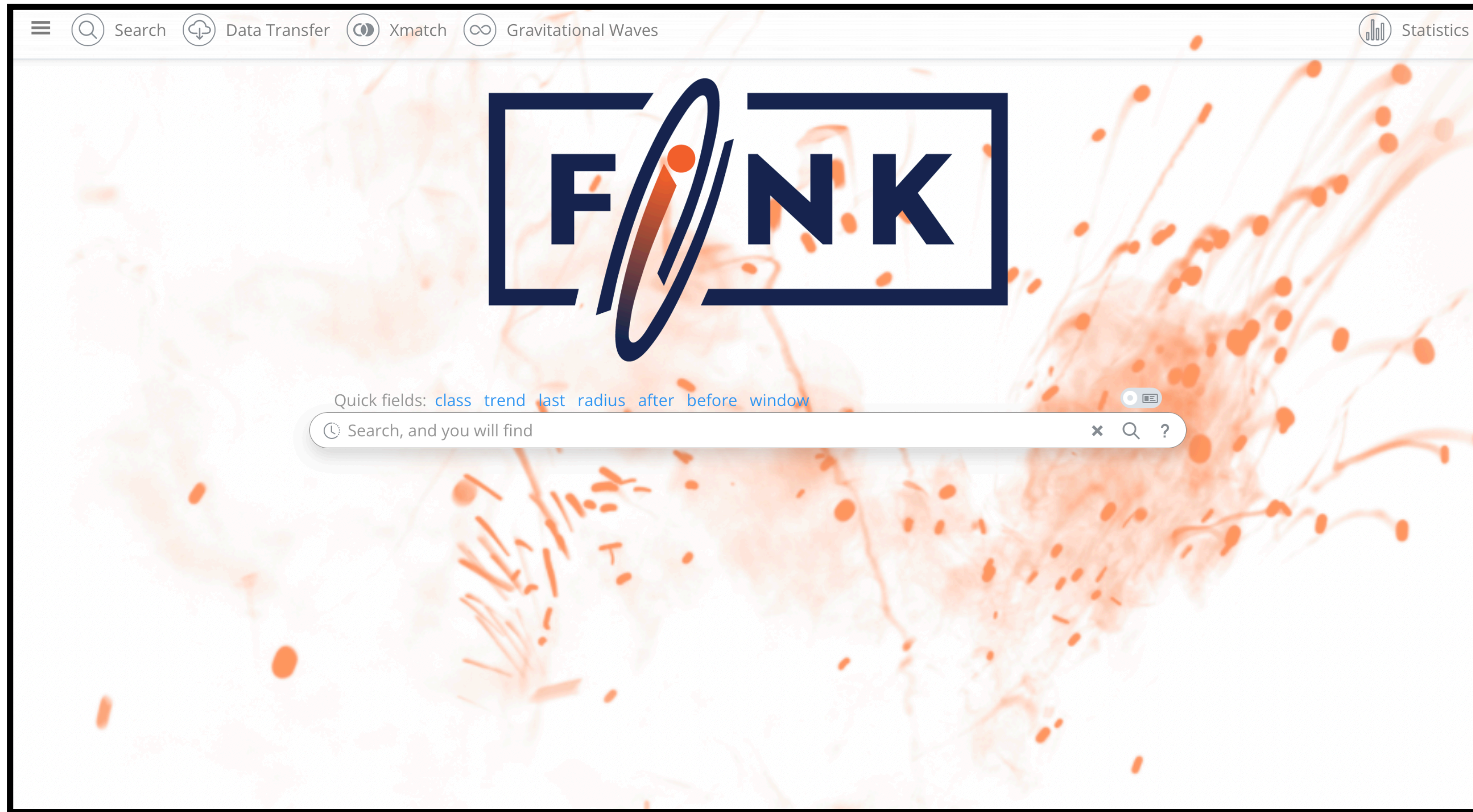
“I’m designing an Android mobile app for the website that makes Fink data accessible to everyone —from professional astronomers to curious learners.

Languages and platforms

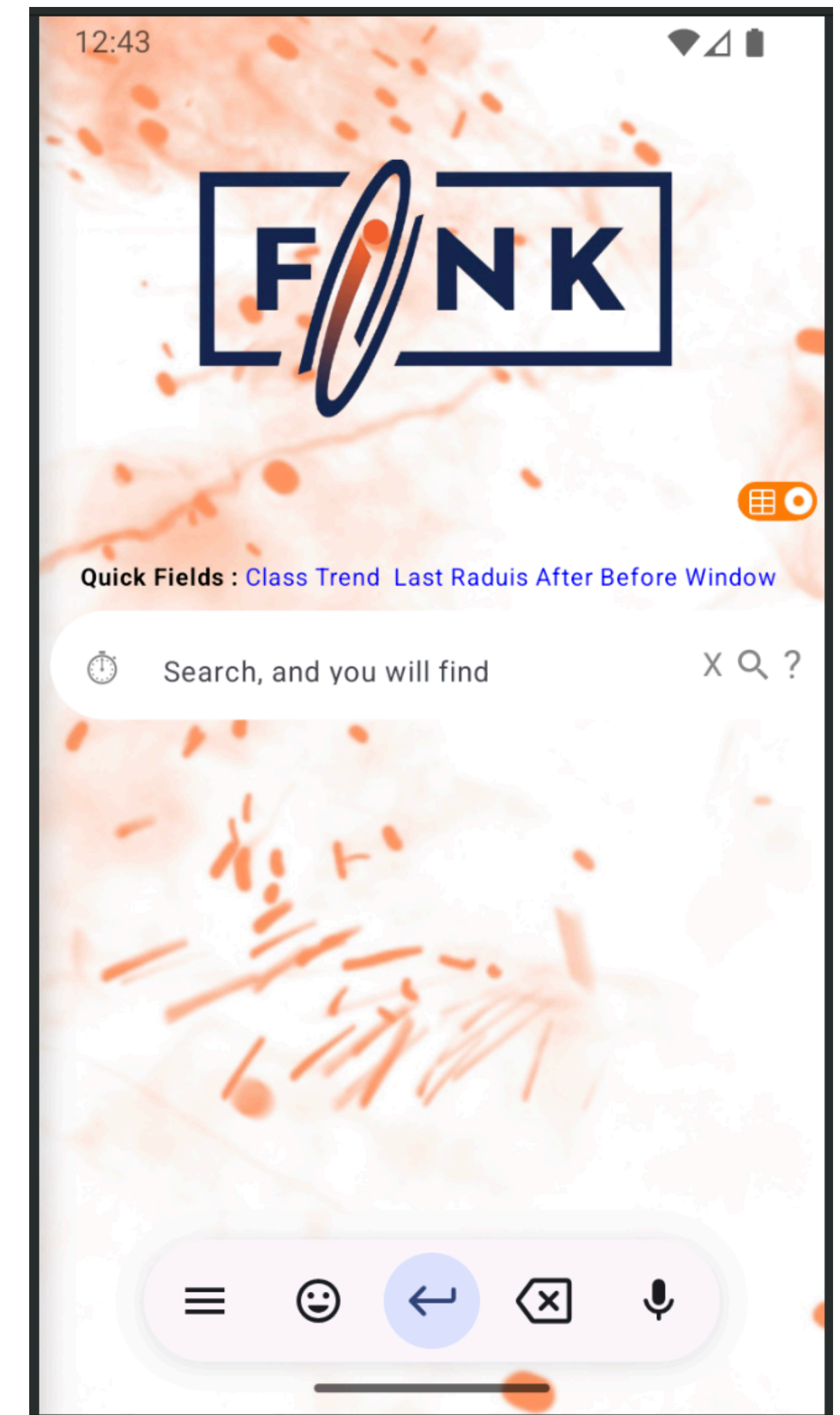
- Programming Language: Kotlin
- Development Environment: Android Studio
- Data Source/API: Fink REST API

Search Bar Page

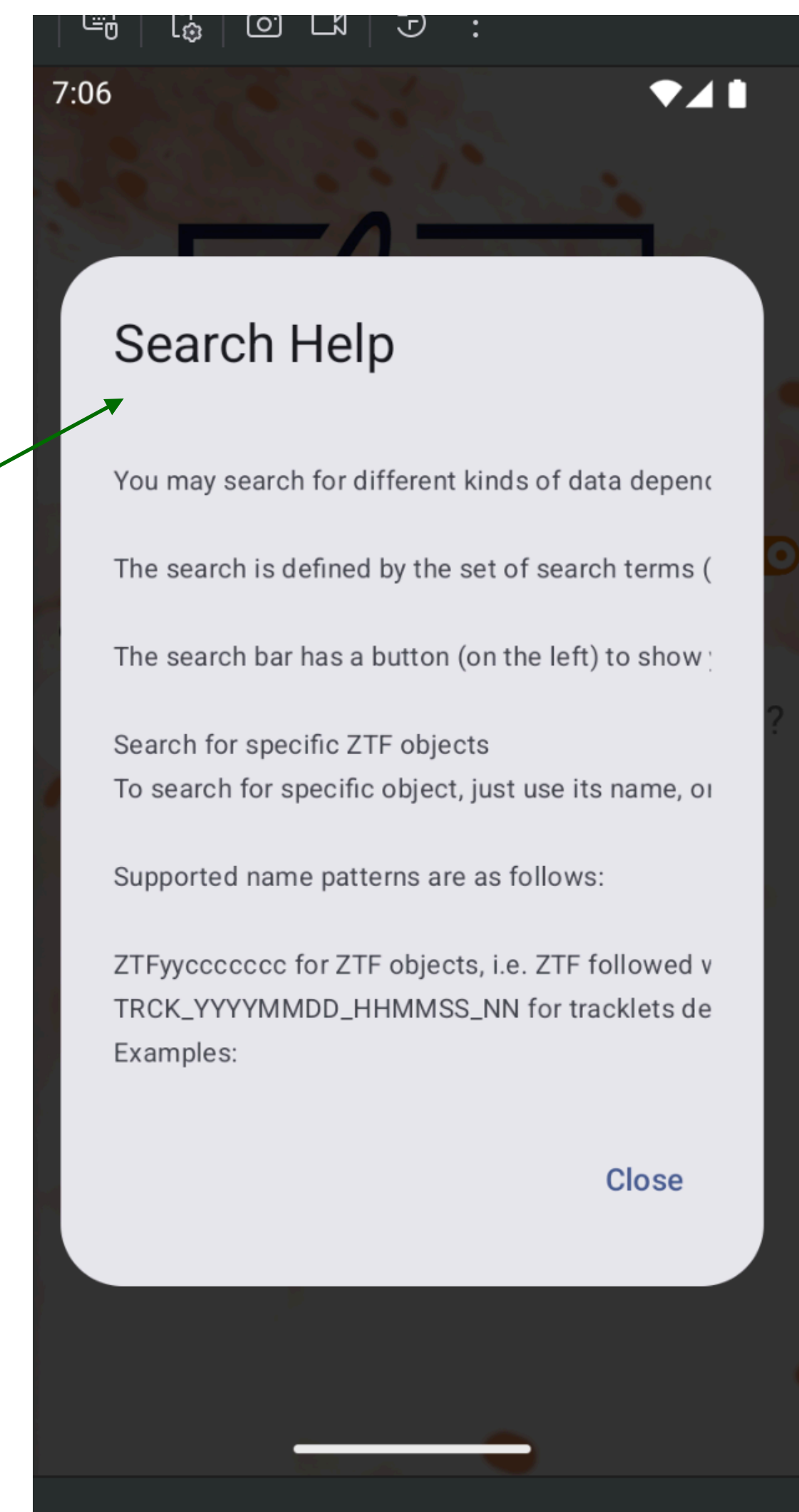
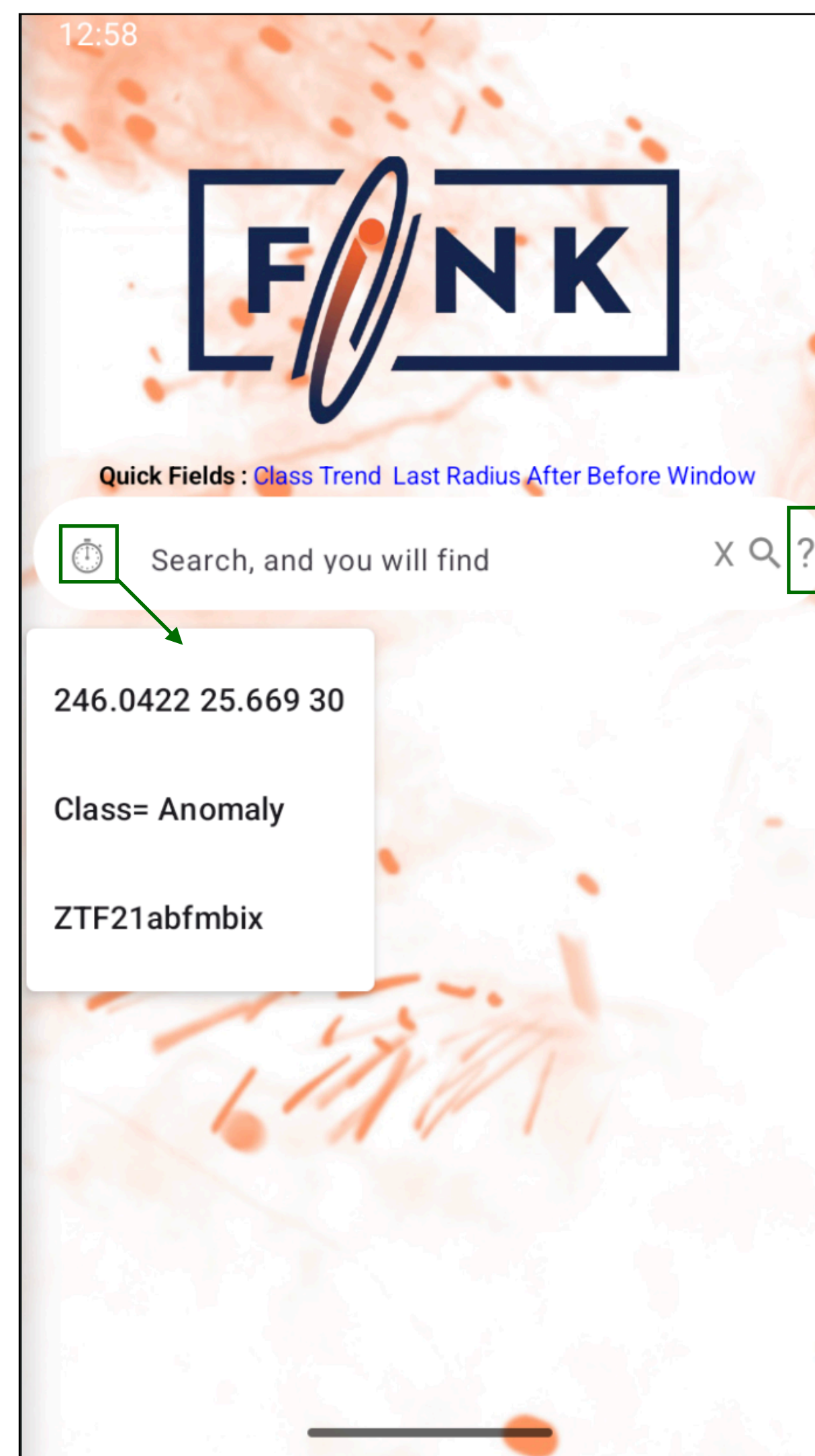
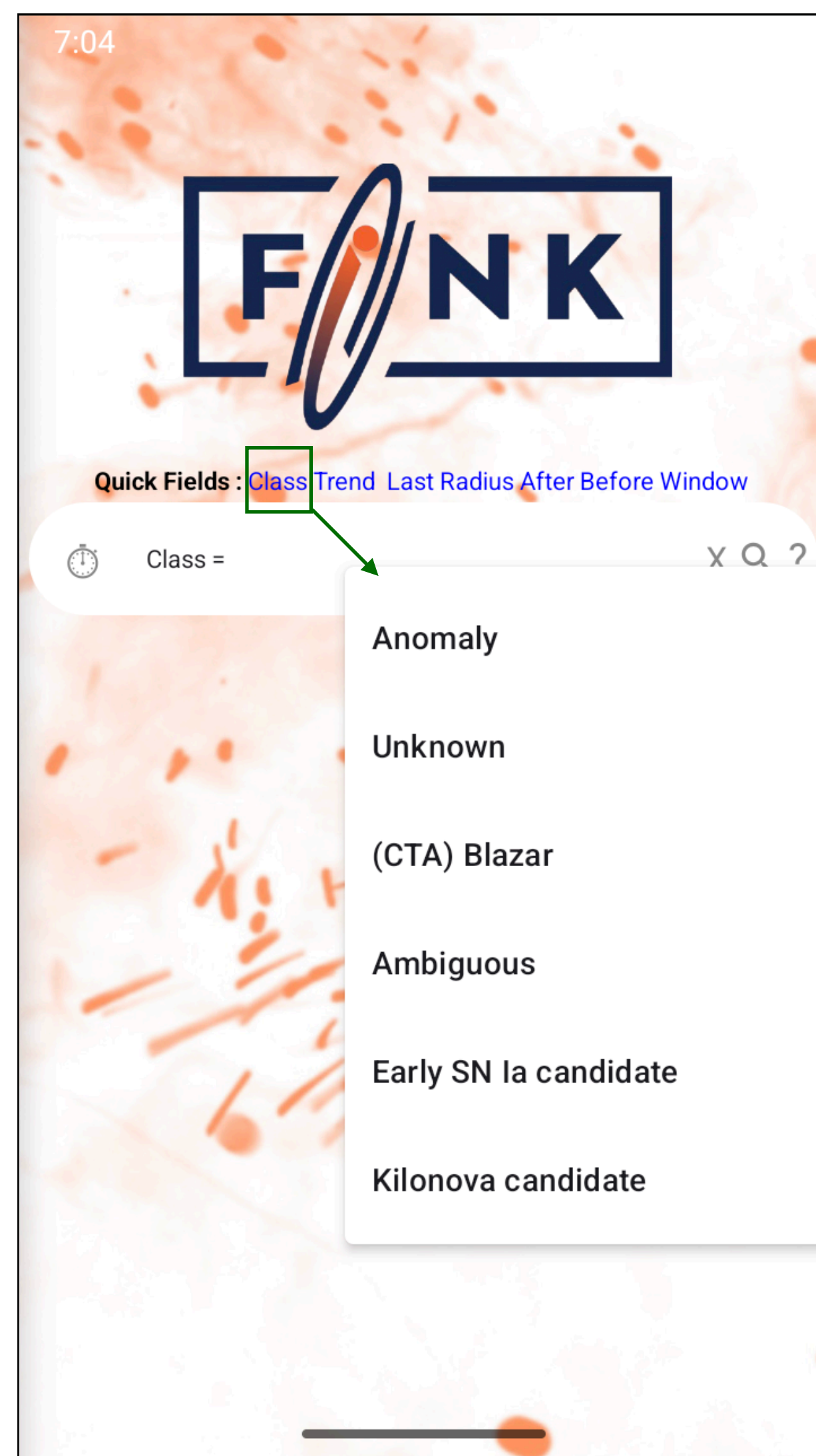
Website



Mobile Application



Search Bar Page



Search Bar Page

Website -Fist View Result

Quick fields: class trend last radius after before window

ZTF21abfmbix

✕ 🔍 ?

ObjectId search with exact name ZTF21abfmbix - 14 objects found

Sky Map ?

Add more fields to the table

Unique objects

Unique SSO

Unique tracklets

objectId	RA (deg)	Dec (deg)	Last alert	Classification	Number of measurements	Time variation (day)
<div>filter data...</div>						
ZTF21abfmbix	193.82174	2.8973184	2021-07-01 05:59:37.000	SN candidate	17	20.058009
ZTF21abfmbix	193.82174	2.8973164	2021-07-01 04:29:46.003	Unknown	16	19.995614
ZTF21abfmbix	193.82174	2.8973067	2021-06-29 04:41:50.001	SN candidate	15	18.003993
ZTF21abfmbix	193.82172	2.8972958	2021-06-27 06:09:52.998	SN candidate	14	16.065139
ZTF21abfmbix	193.82174	2.897306	2021-06-27 04:30:31.000	SN candidate	13	15.996134
ZTF21abfmbix	193.82175	2.8973106	2021-06-25 05:07:25.000	SN candidate	12	14.021759
ZTF21abfmbix	193.82175	2.8973166	2021-06-21 07:00:08.004	SN candidate	11	10.100035
ZTF21abfmbix	193.82174	2.8972996	2021-06-21 04:29:57.002	SN candidate	9	9.9957408
ZTF21abfmbix	193.82175	2.8973202	2021-06-17 05:12:50.996	SN candidate	8	6.0255324
ZTF21abfmbix	193.82173	2.8973224	2021-06-15 06:00:12.001	SN candidate	7	4.0584144
ZTF21abfmbix	193.82174	2.8973159	2021-06-13 05:59:57.002	SN candidate	5	2.0582408
ZTF21abfmbix	193.82173	2.8973205	2021-06-13 04:38:38.996	SN candidate	4	2.0017824
ZTF21abfmbix	193.82175	2.8973052	2021-06-11 06:05:57.998	SN candidate	3	0.062419
ZTF21abfmbix	193.82172	2.8973043	2021-06-11 05:14:49.001	Unknown	2	0.0268982

Search Bar Page

Mobile Application - First View Result

Quick Fields : Class Trend Last Raduis After Before Window

ZTF21abfmbix

X Q ?

Object ID	RA	DEC
ZTF21abfmbix	193.8217409	2.8973184
ZTF21abfmbix	193.8217447	2.8973164
ZTF21abfmbix	193.8217429	2.8973067
ZTF21abfmbix	193.8217162	2.8972958

Quick Fields : Class Trend Last Raduis After Before Window

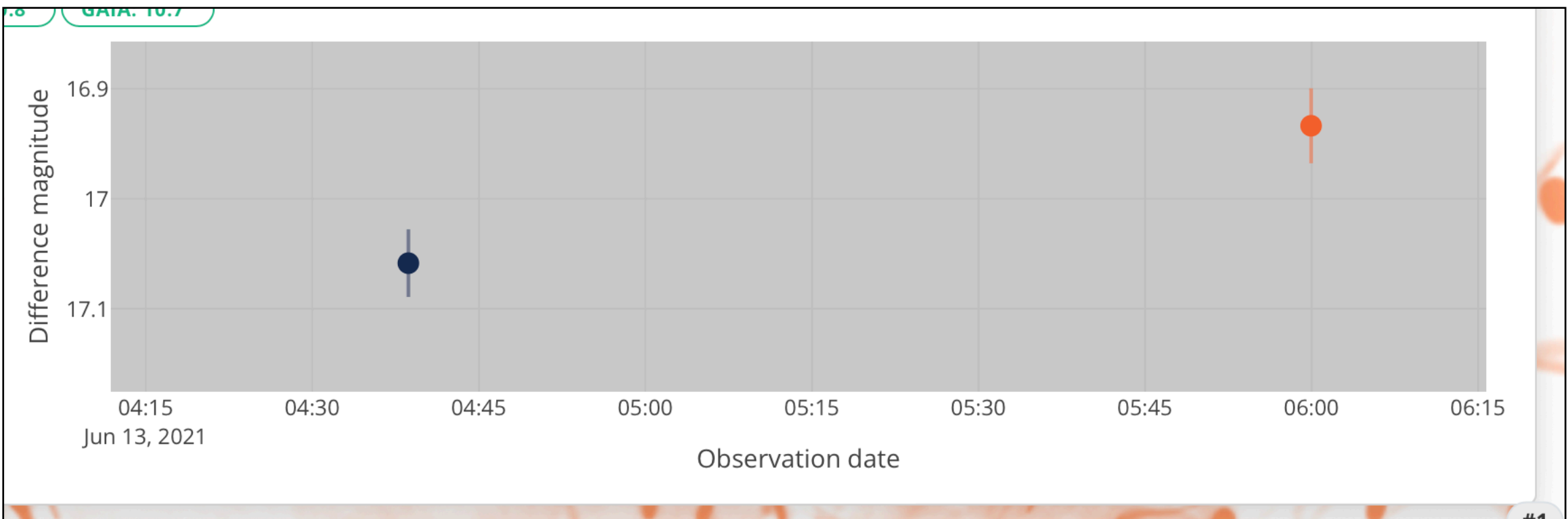
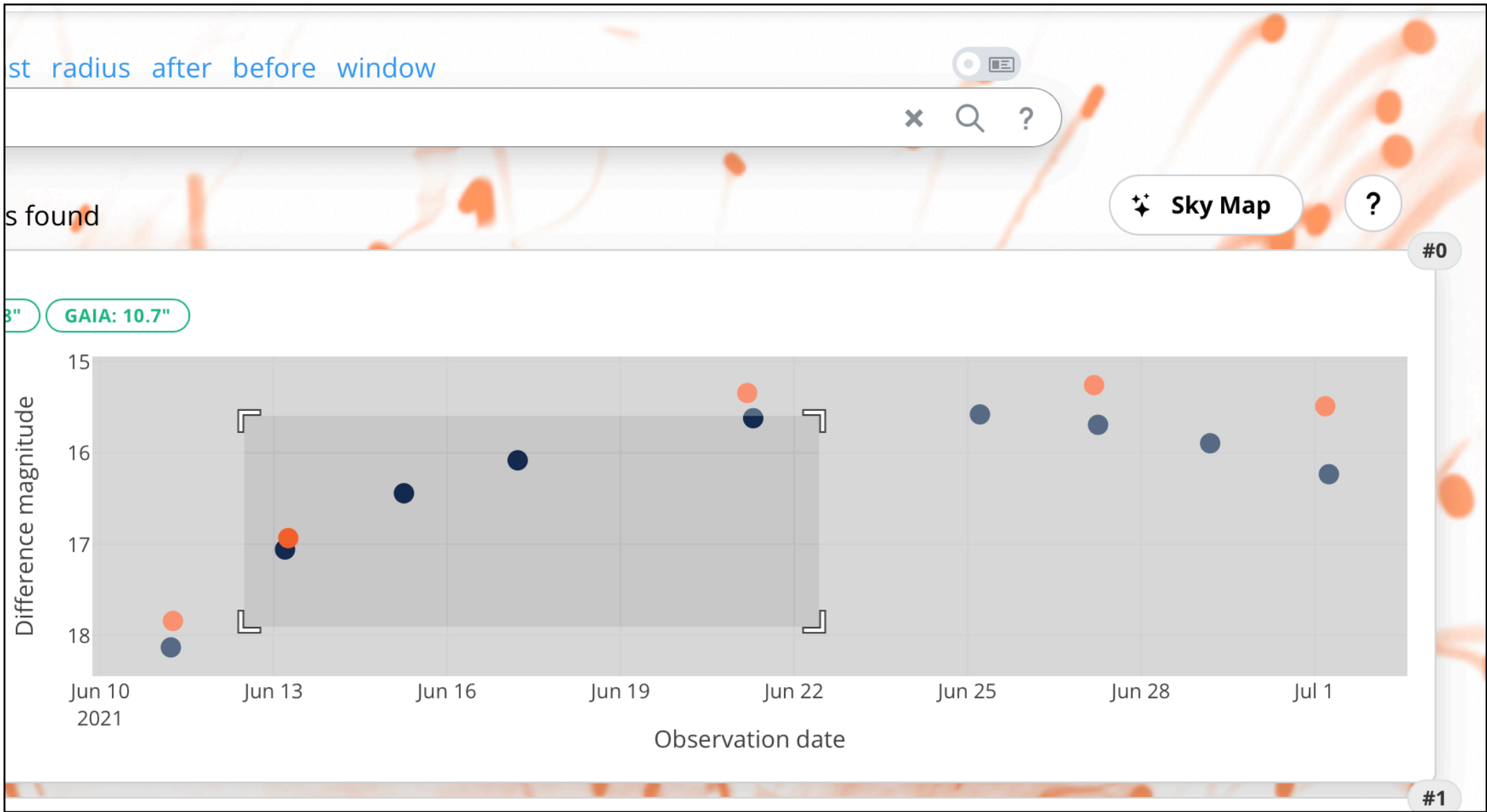
ZTF21abfmbix

X Q ?

Last Alert	Classification	Measurements
2021-07-01 05:59:37.000	SN candidate	17
2021-07-01 04:29:46.003	Unknown	16
2021-06-29 04:41:50.001	SN candidate	15
2021-06-27 06:09:52.998	SN candidate	14

Search Bar Page

Website -Second View Result



Search Bar Page

Mobile Application - Second View Result

Quick Fields : Class Trend Last Raduis After Before Window

ZTF21abfmbix

X Q ?

ZTF21abfmbix

SN candidate

17 detection(s) in 20.1 days

First: 2021-06-11 04:36:04.997

Last: 2021-07-01 05:59:37.000

Equ: 12 55 17.22 +02 53 50.3

Gal: 305.2725 65.7516

RealBogus: 0.88

Light Curve

ZTF21abfmbix

Unknown

16 detection(s) in 20.0 days

First: 2021-06-11 04:36:04.997

Quick Fields : Class Trend Last Raduis After Before Window

ZTF21abfmbix

X Q ?

See Less

Quick Fields : Class Trend Last Raduis After Before Window

ZTF21abfmbix

X Q ?

See Less

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Conclusion

In conclusion, the current application successfully implements the main page of the application with its features , including object search and filtering. To further enhance its functionality and usability, the following steps are planned to :

- Develop the next page to show complete details for each object.
- Package the application for distribution.
- Test the app thoroughly on a real Android device.