

Performance Myths of React Native Apps

Checklist for a Great Talk



Some Quick reminders

01

Nod 'yes' when you agree with me

02

Have questions? Come find me after

03

more ENERGY ✂ in the room

Raise your Hand 🖐️

**How many of you believe that
React Native is slower than native
app development?**

Raise your Hand 🖐️

**How many of you want to say
"it depends" to the previous
question?**

HI, I'M ANKITA!



Ankita Kulkarni

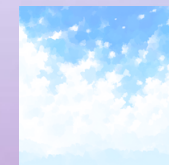
Educator | Senior Engineering Leader |
Developer | Youtuber



@kulkarniankita



@kulkarniankita9



@kulkarniankita



SLIDES & MORE...

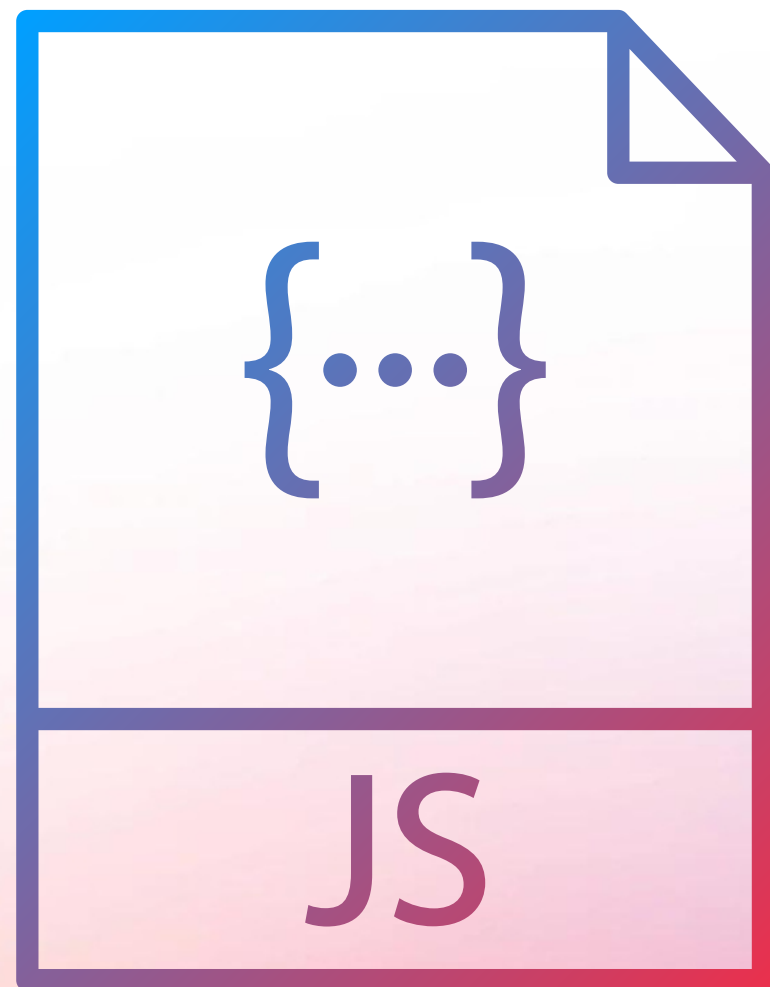


Slides and code snippets at:
bit.ly/chainreact23

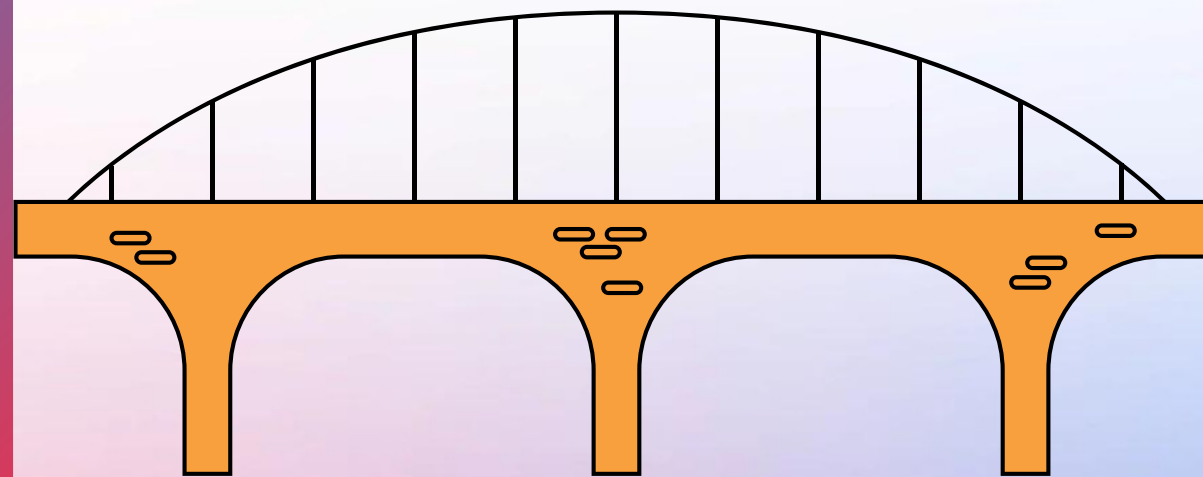
Weekly Newsletter

**Grab your weekly
Frontend or Leadership
Snacks**

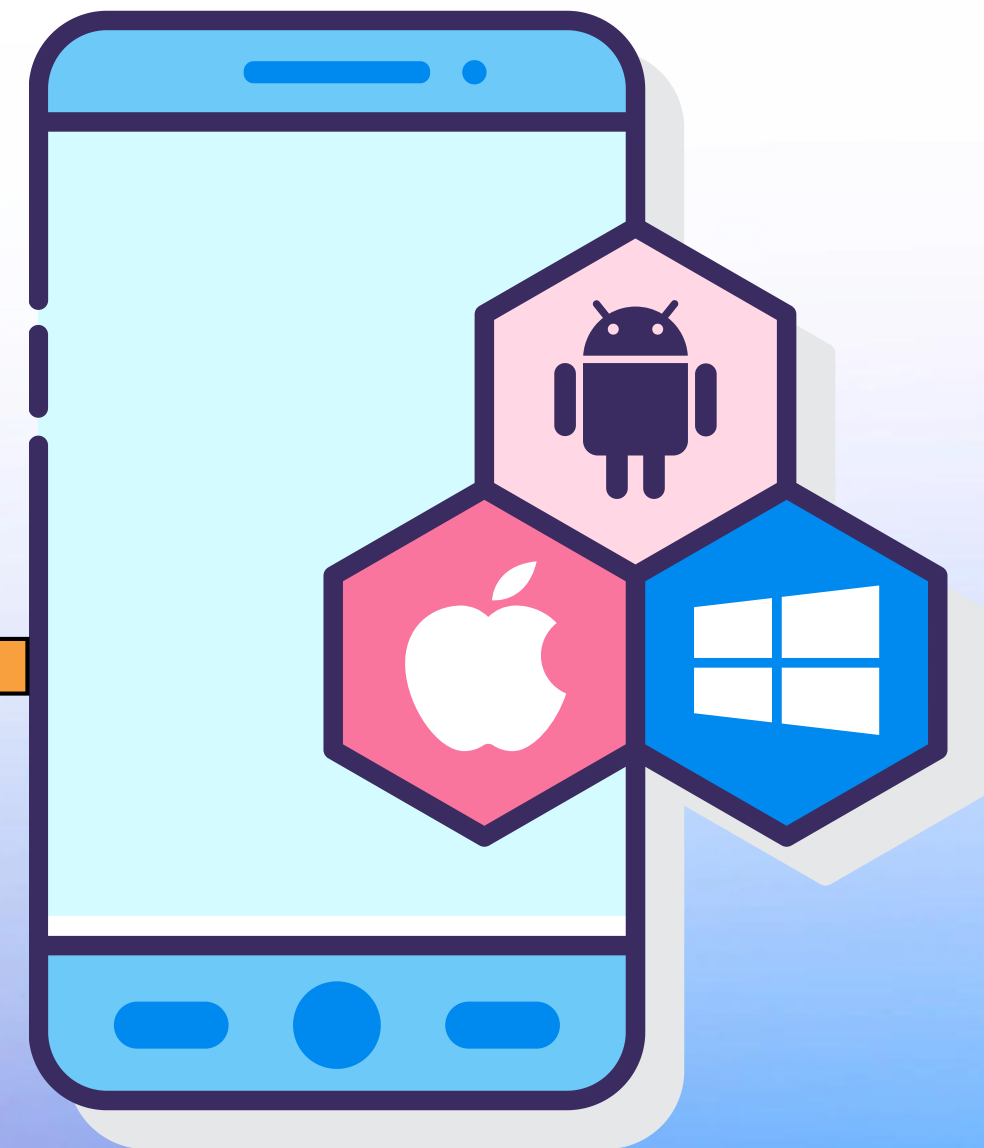
kulkarniankita.com/newsletter



JavaScript



Bridge

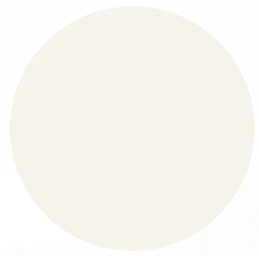


Mobile

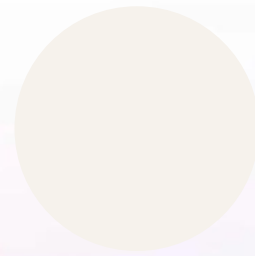
Quick story

Beers with friends

Objections



**JavaScript is not
enough**



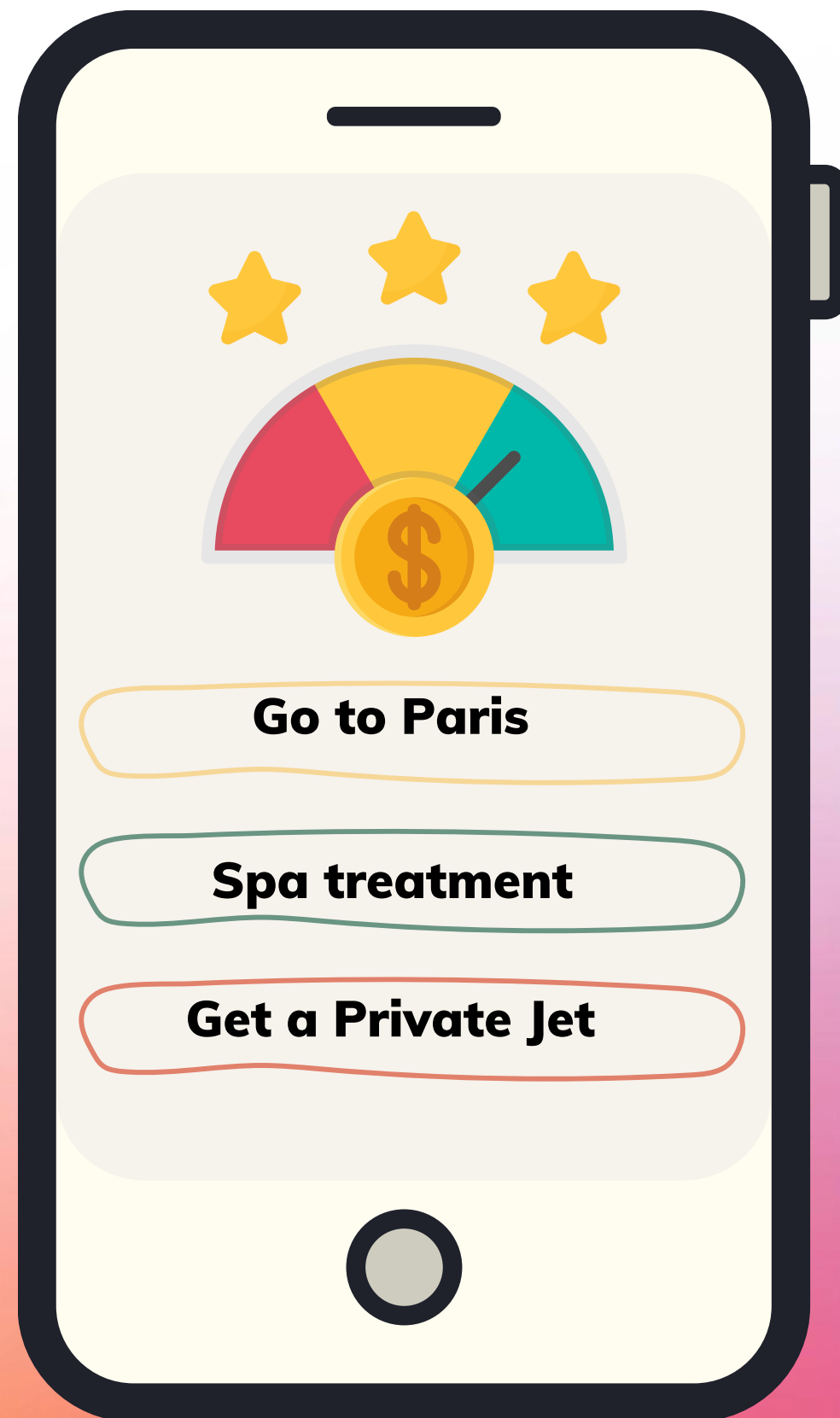
**You can't animate
correctly**



**Performance Issues
such as high cpu etc.**

Let's address these + more

Let's build an app together: Let's spend your Money



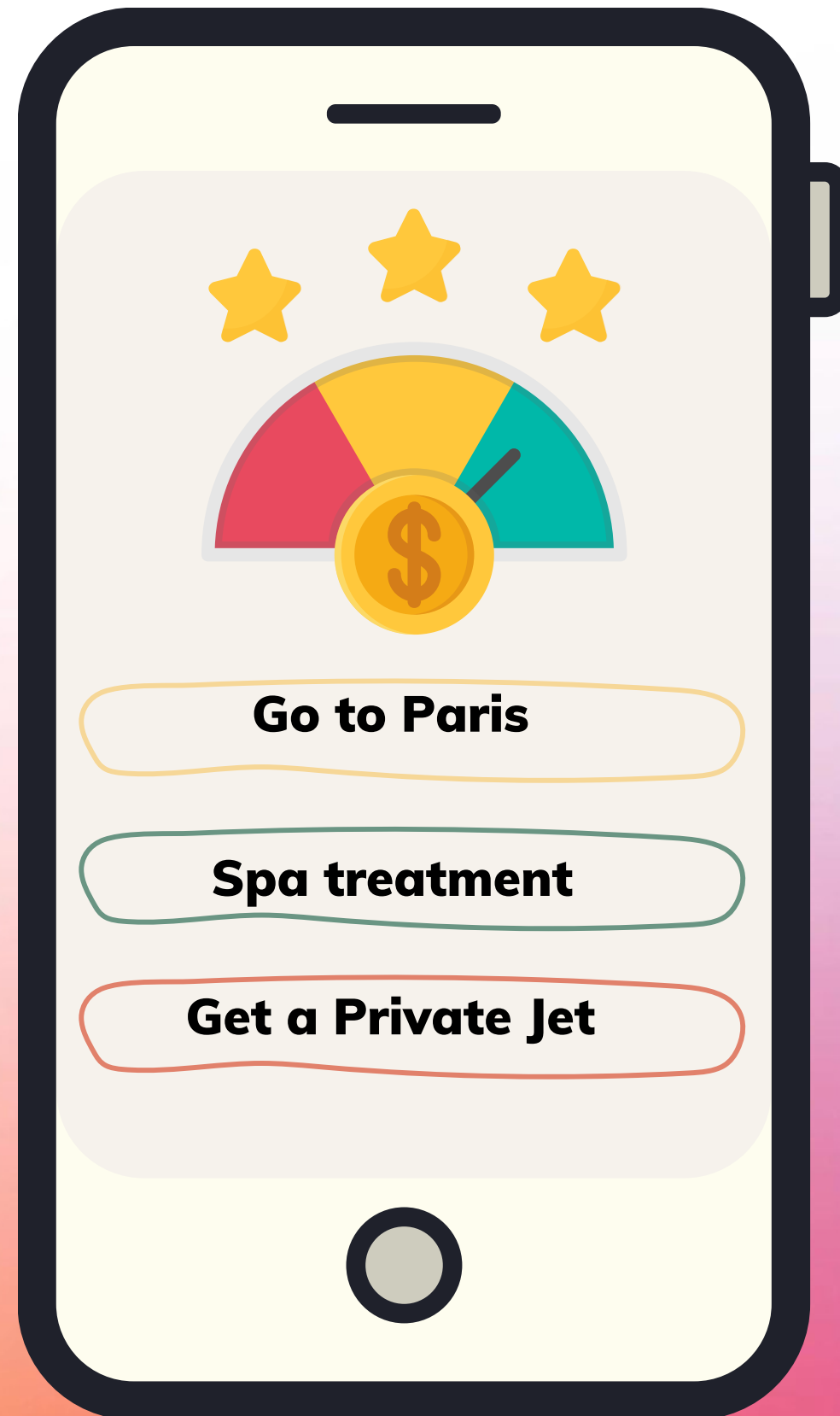
Our criteria

Functional

Is fast to load

Has cool Animations
should work low data

Criteria for Measuring Performance



Measure a specific behaviour

Keep the same set of test cases

Disable Dev Mode and test in Prod Mode

3 important criteria for Performance

01

CPU & Memory

Less CPU

02

Application Size

Download quickly and smaller app

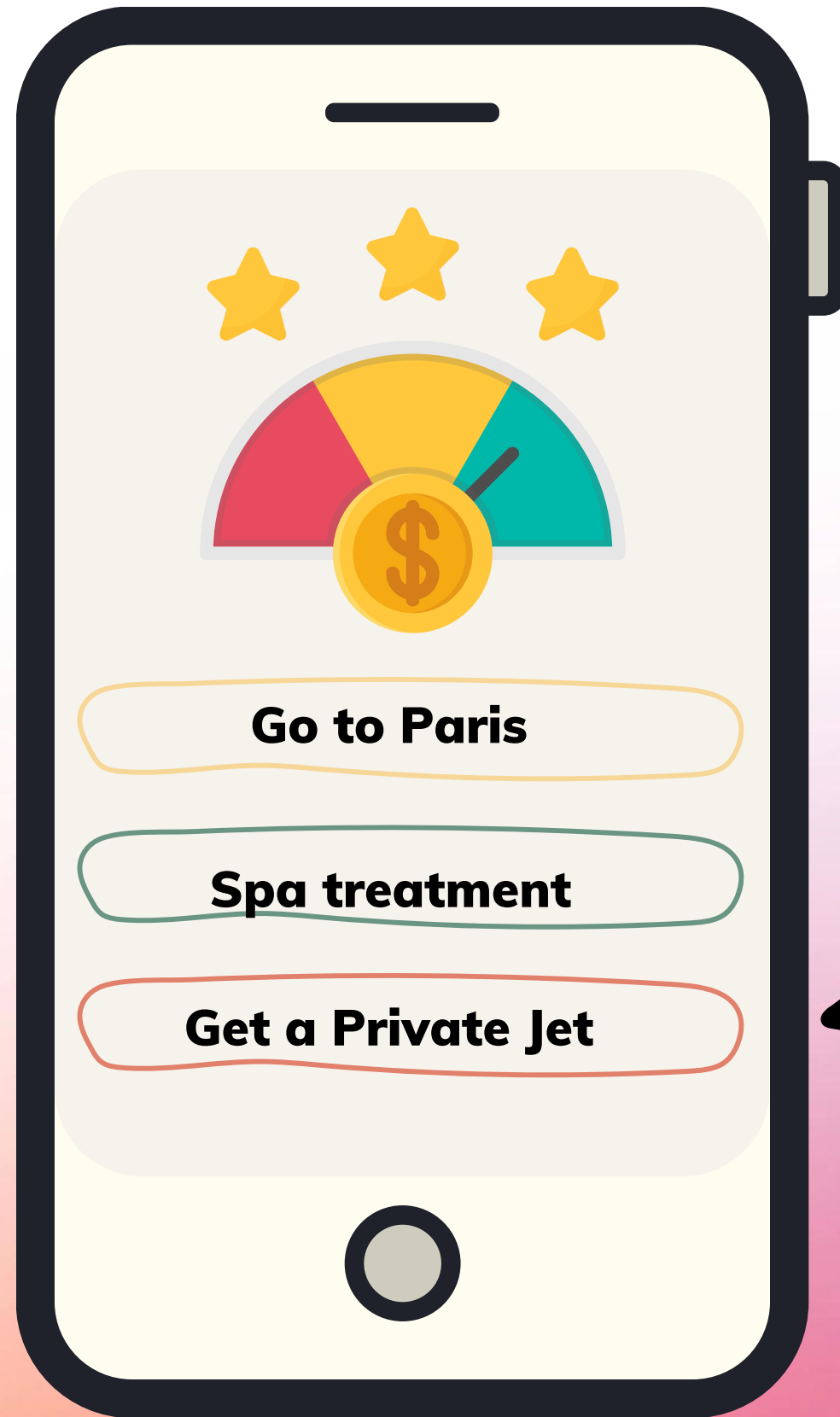
03

App Startup time and Frames Per Second

it has to run at 60fps else it's slow

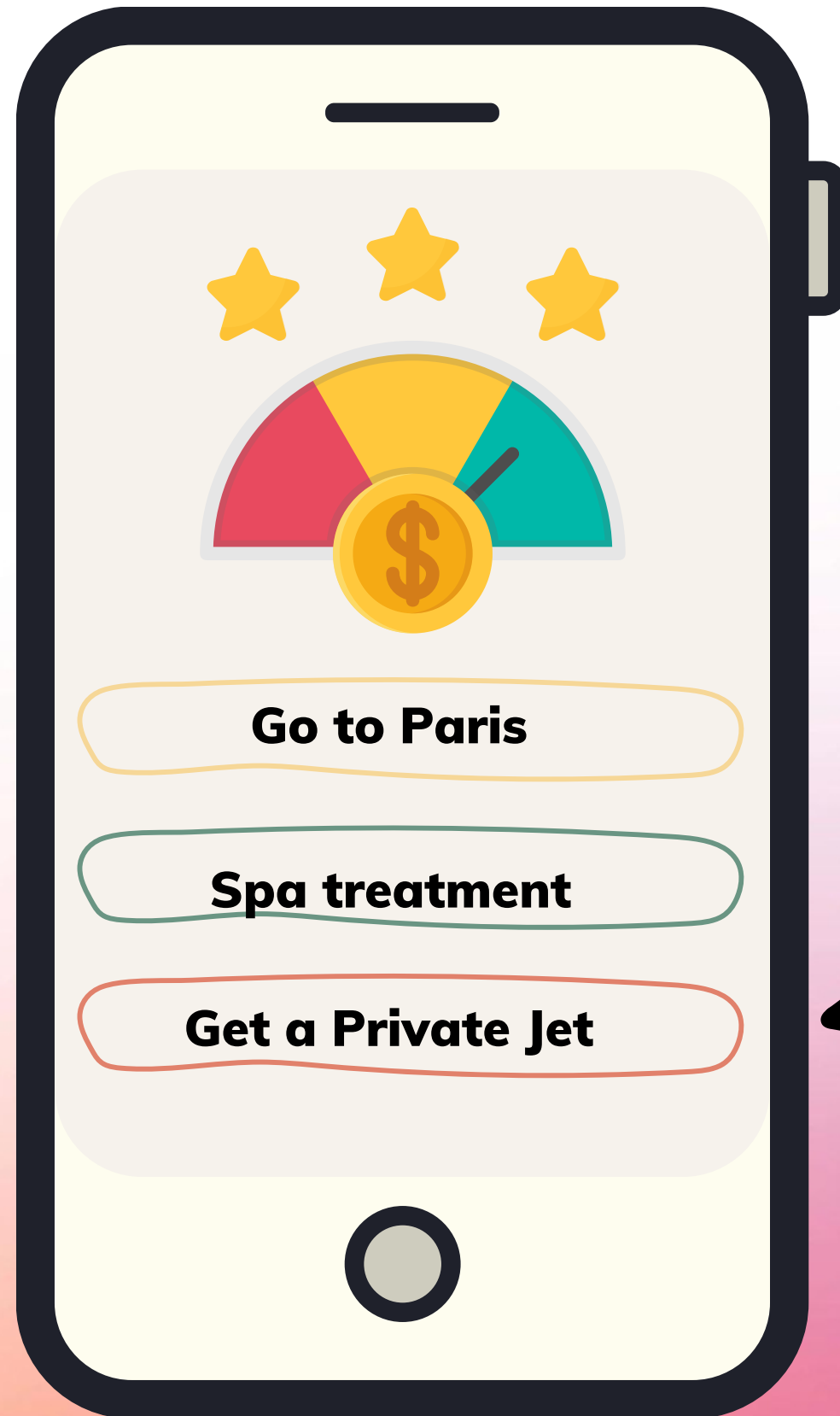
We can approach this using 2 ways



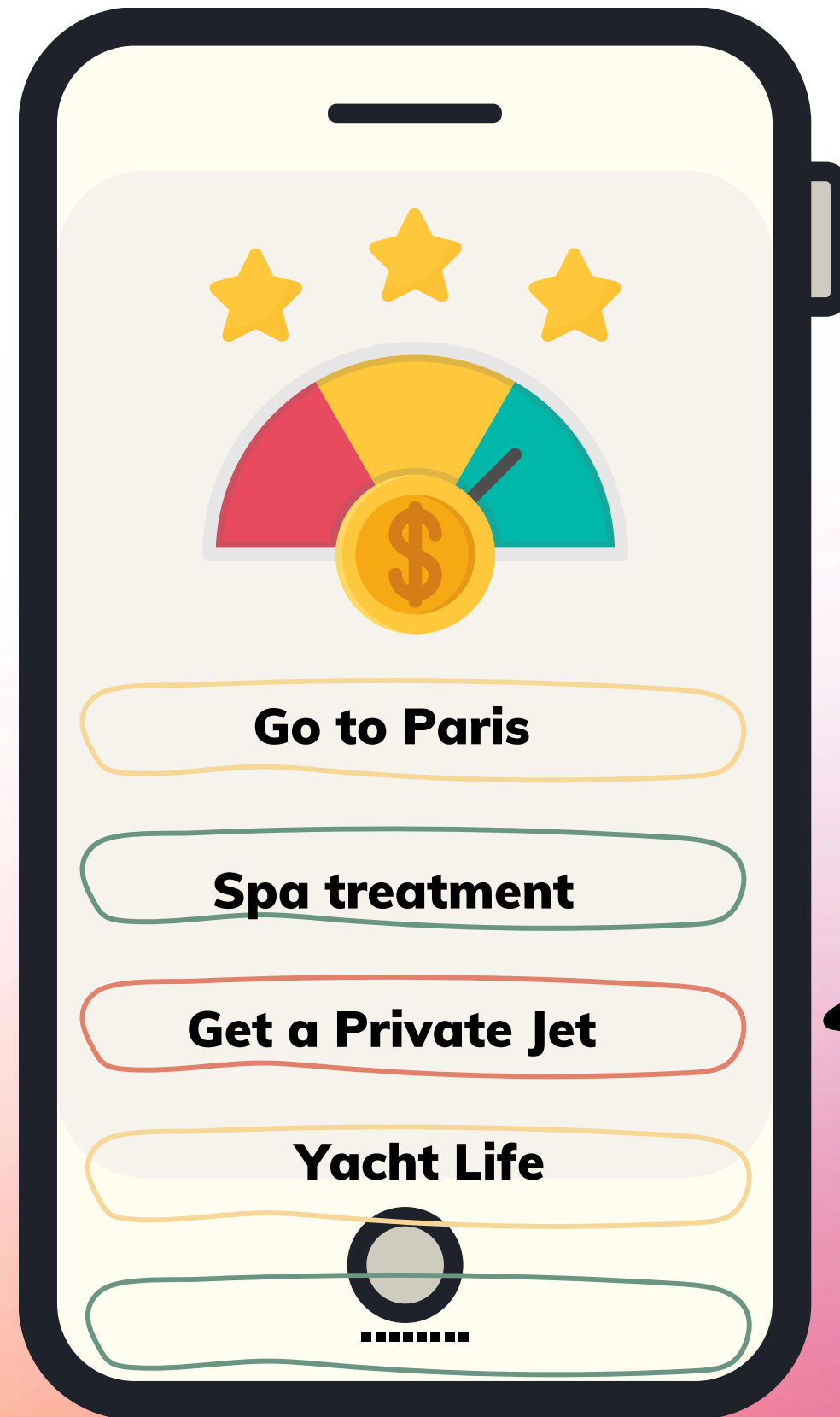


**Avoid using Scroll
View**



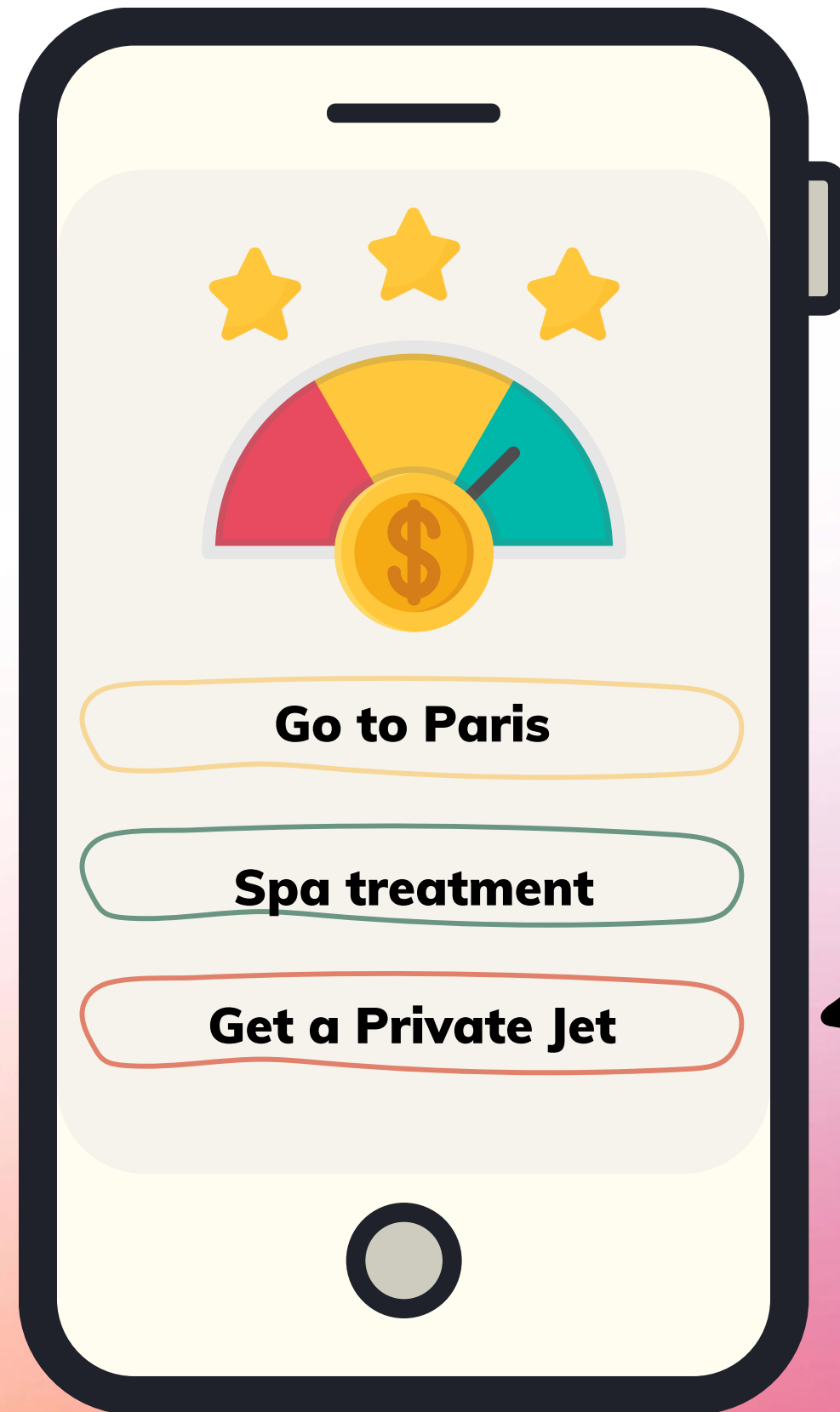


**Use FlatList or
Section List
instead of Scroll
View**



**We have a lot of
insights**





**As you scroll,
the items re-render**

Introducing Memoization

Wrap the component in memo(Component)

Don't try to fix what's not broken



Should you use useMemo & useCallback everywhere?

`useMemo(() => fn, [])`

`dependencies`



Calculation of Props is more costly than the entire component re-render



Complex Component

use
`console.time()`
or
Perf Monitor



Remove unnecessary console logs ✓



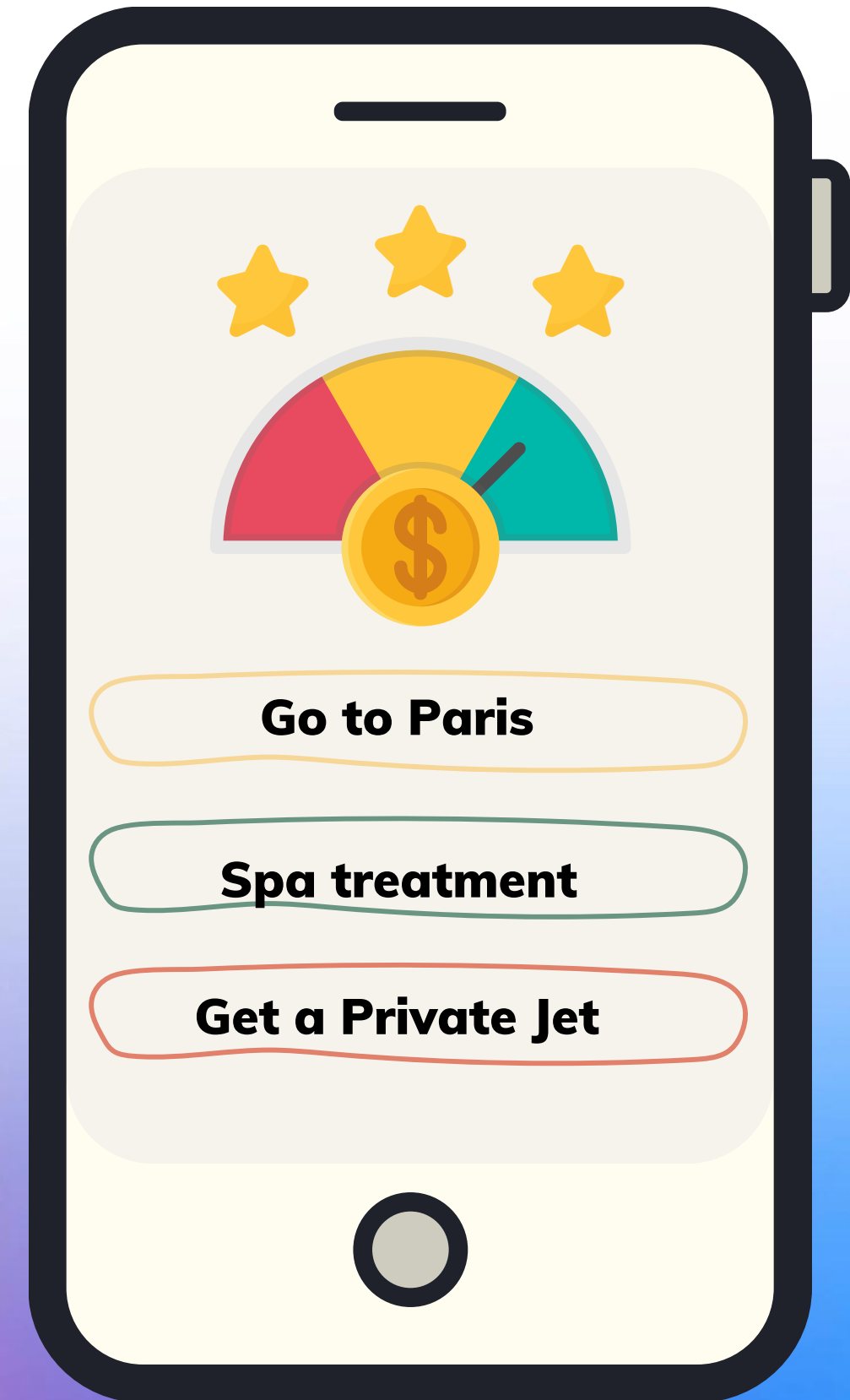
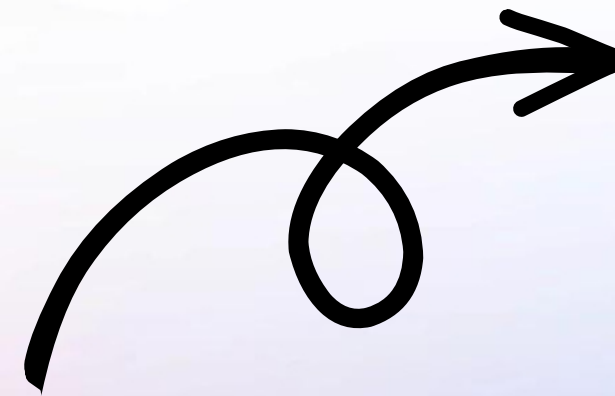
Remove unnecessary console logs ✓

USE BABEL-PLUGIN-TRANSFORM-REMOVE-CONSOLE



```
1 {  
2   "env": {  
3     "production": {  
4       "plugins": ["transform-remove-console"]  
5     }  
6   }  
7 }
```


Let's implement Animation and Chart



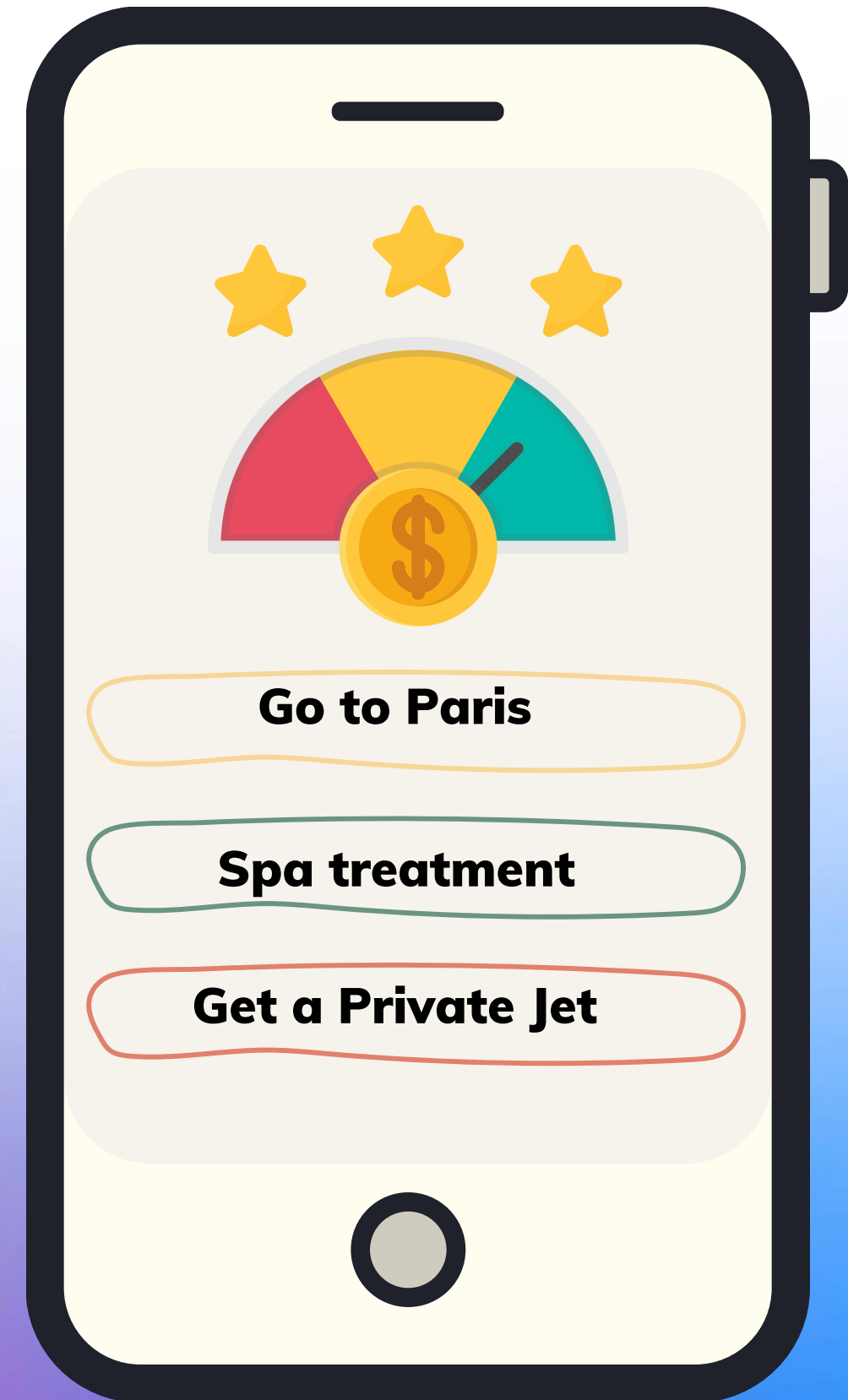
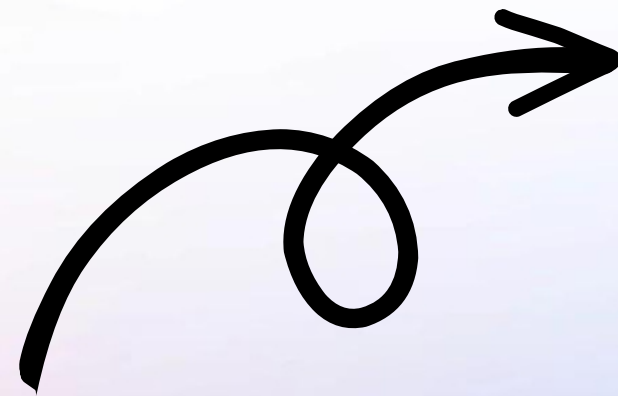
MYTH BUSTER

**React Native cannot handle
complex Animations**

60 frames per second (fps)



Let's use Reanimated or Lottie



Think twice before picking a library

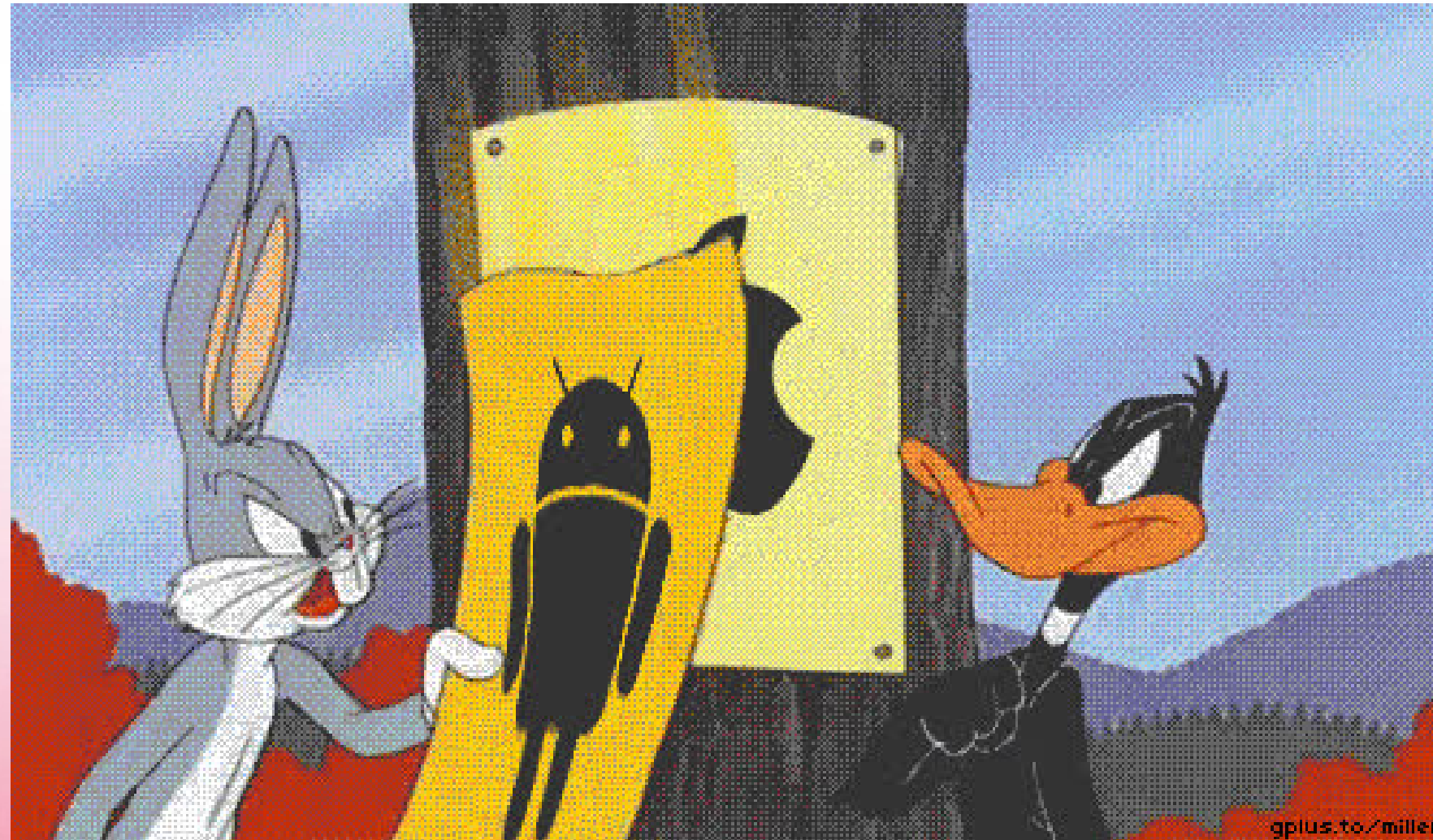


Turn off Animations on low data mode or low memory

MYTH BUSTER

Testing app performance on an iPhone is enough...

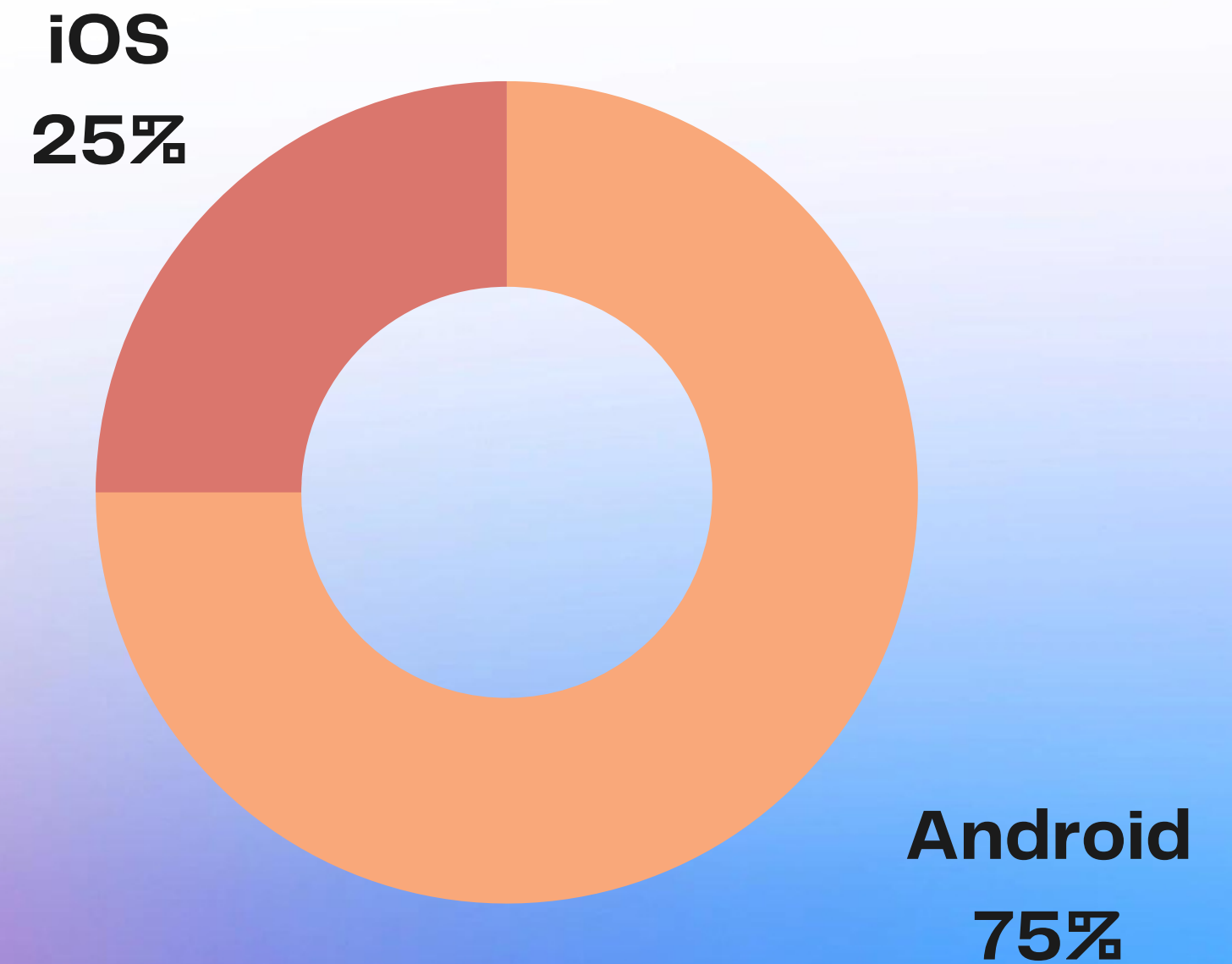
Android vs iOS in the RN world



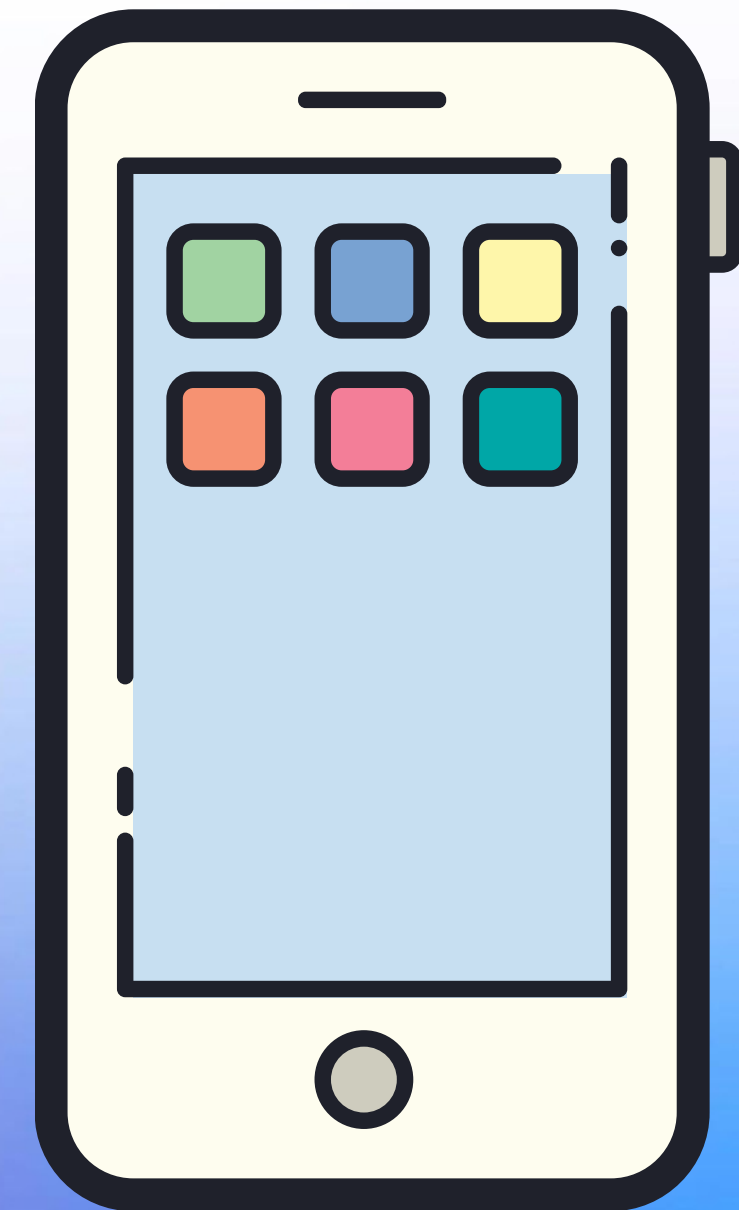
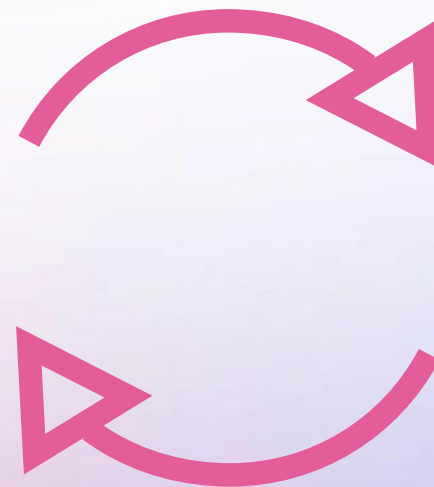
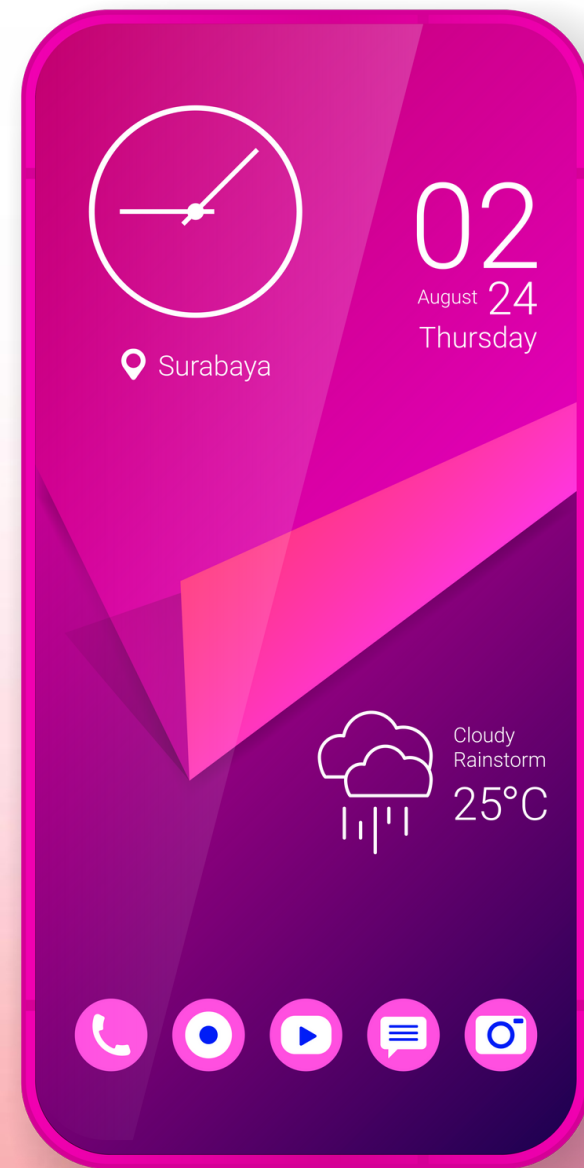
Important Metrics

Source: Stat Counter

Android vs iOS

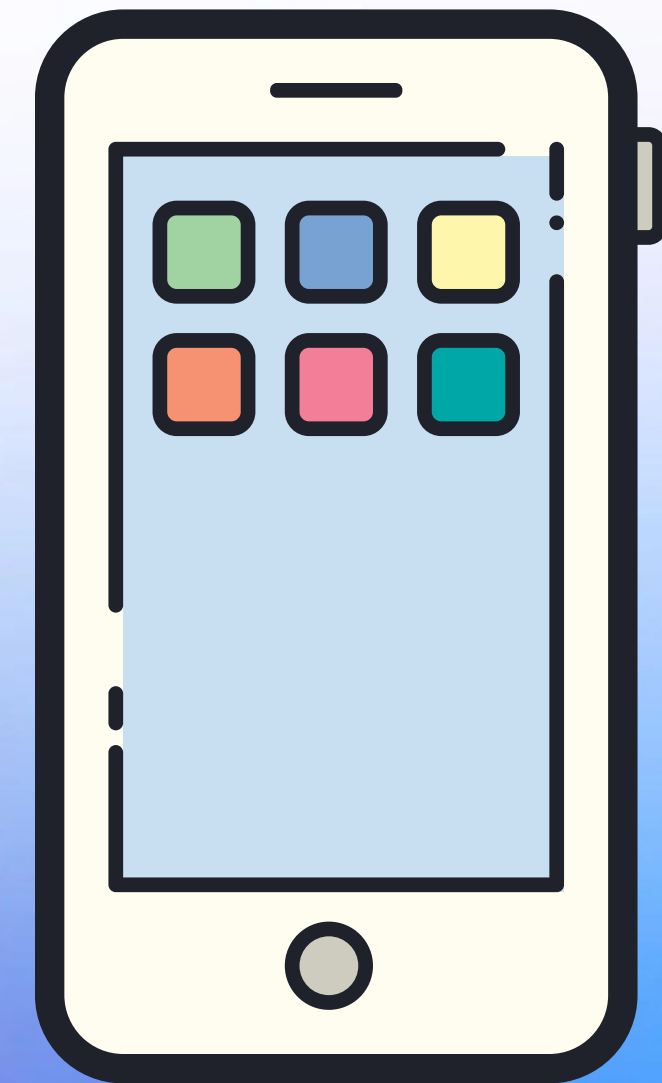


Not everyone has an high-end iPhone

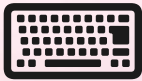


How to actually test Performance?

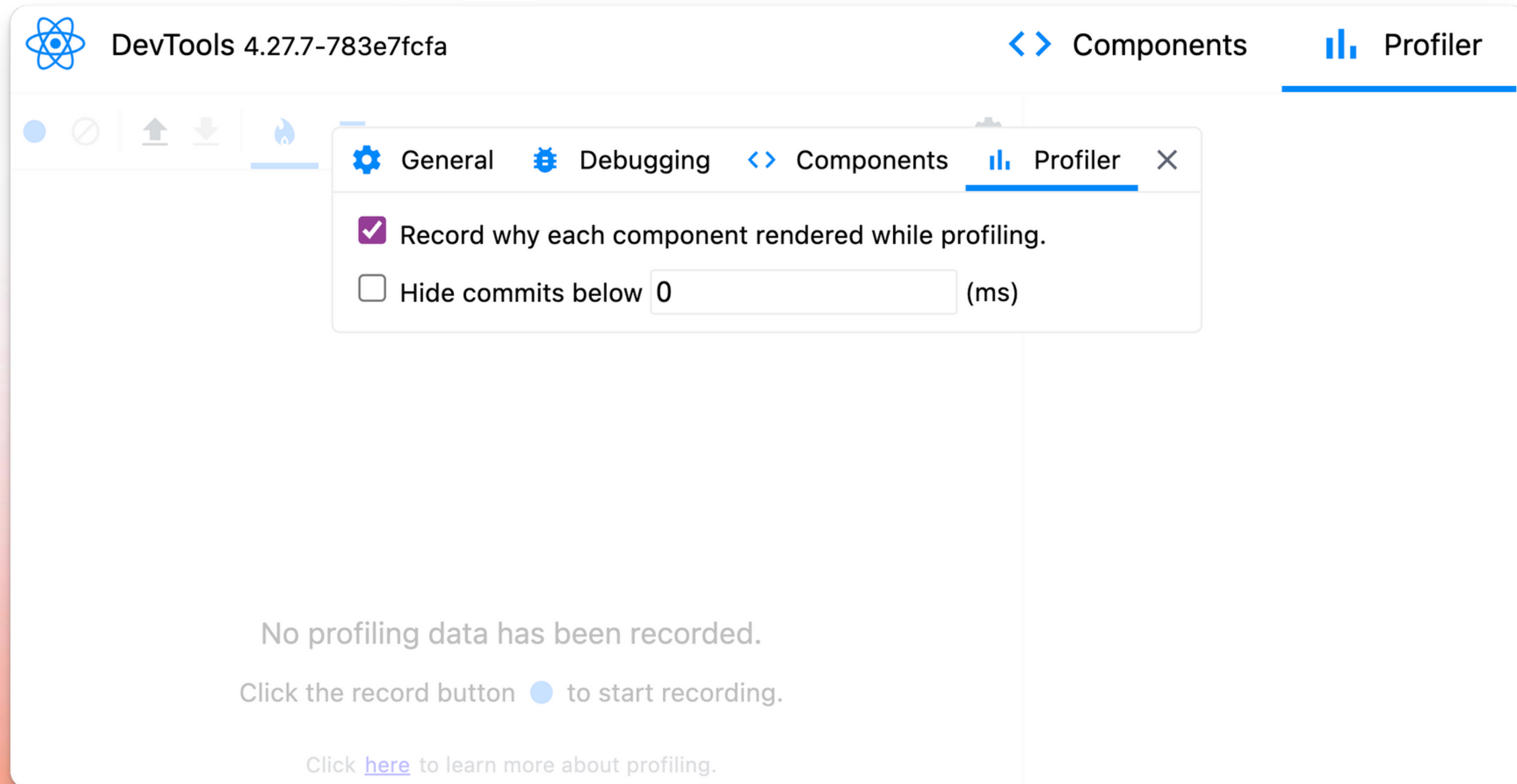
**Test on
Lower-end
Devices**



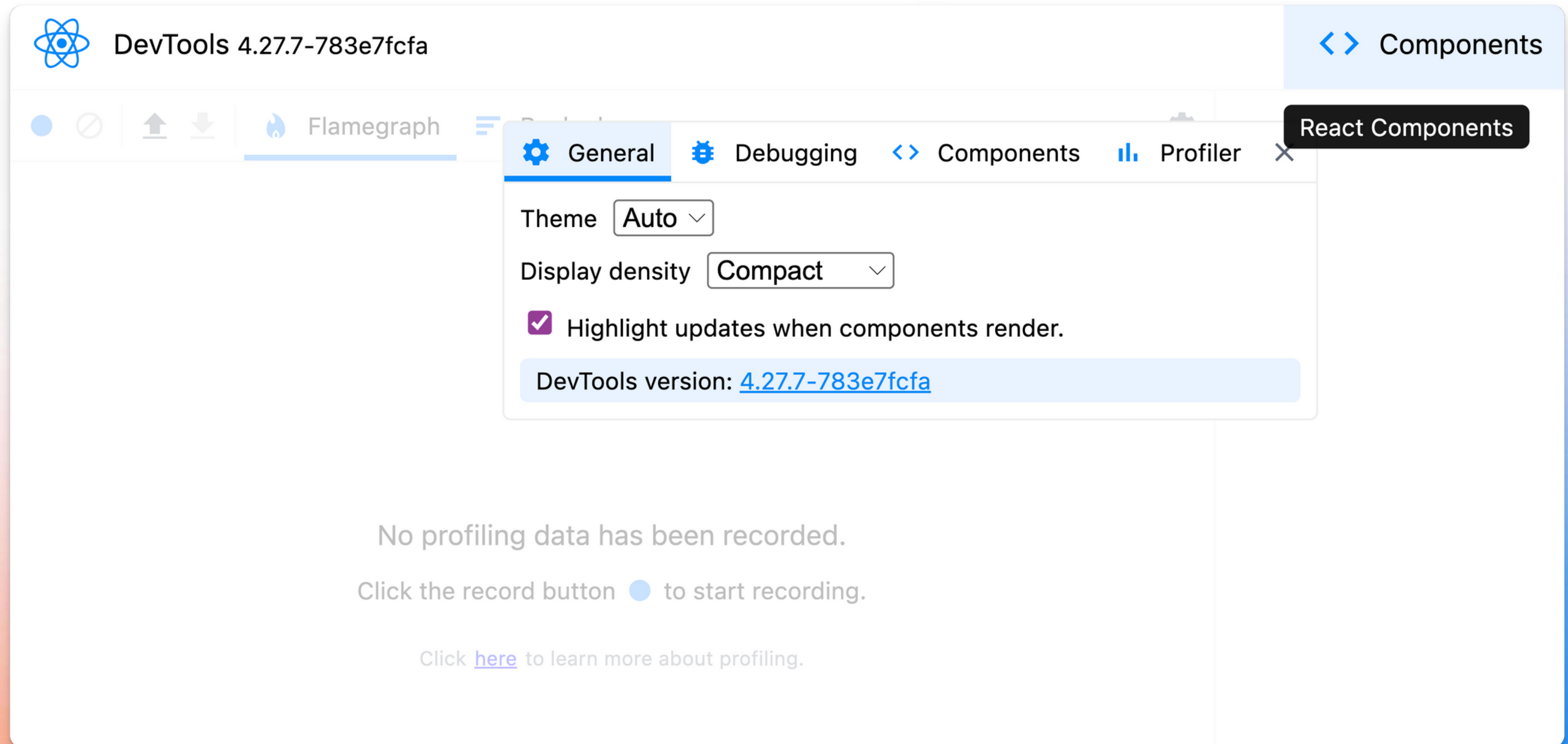
Tools: Flipper, Xcode & React Profiler

*THE APP TAKES TOO LONG TO OPEN
THE APP CLOSES
IF NAVIGATION TAKES TOO LONG
 FORM TYPING TAKES TOO LONG TO
CHANGE THE VALUE*

React Profiler



React Profiler



The image shows a screenshot of the React DevTools interface, specifically the Profiler component tab. The top bar displays the React logo and the version 'DevTools 4.27.7-783e7fcfa'. The main toolbar includes buttons for 'Flamegraph', 'General', 'Debugging', 'Components', and 'Profiler'. The 'Components' tab is active, showing a list of components with a 'React Components' tooltip. The 'Profiler' tab is also visible, showing a message: 'No profiling data has been recorded. Click the record button ● to start recording. Click [here](#) to learn more about profiling.'

DevTools 4.27.7-783e7fcfa

Components

React Components

General Debugging Components Profiler

Theme **Auto** ▾

Display density **Compact** ▾

☒ Highlight updates when components render.

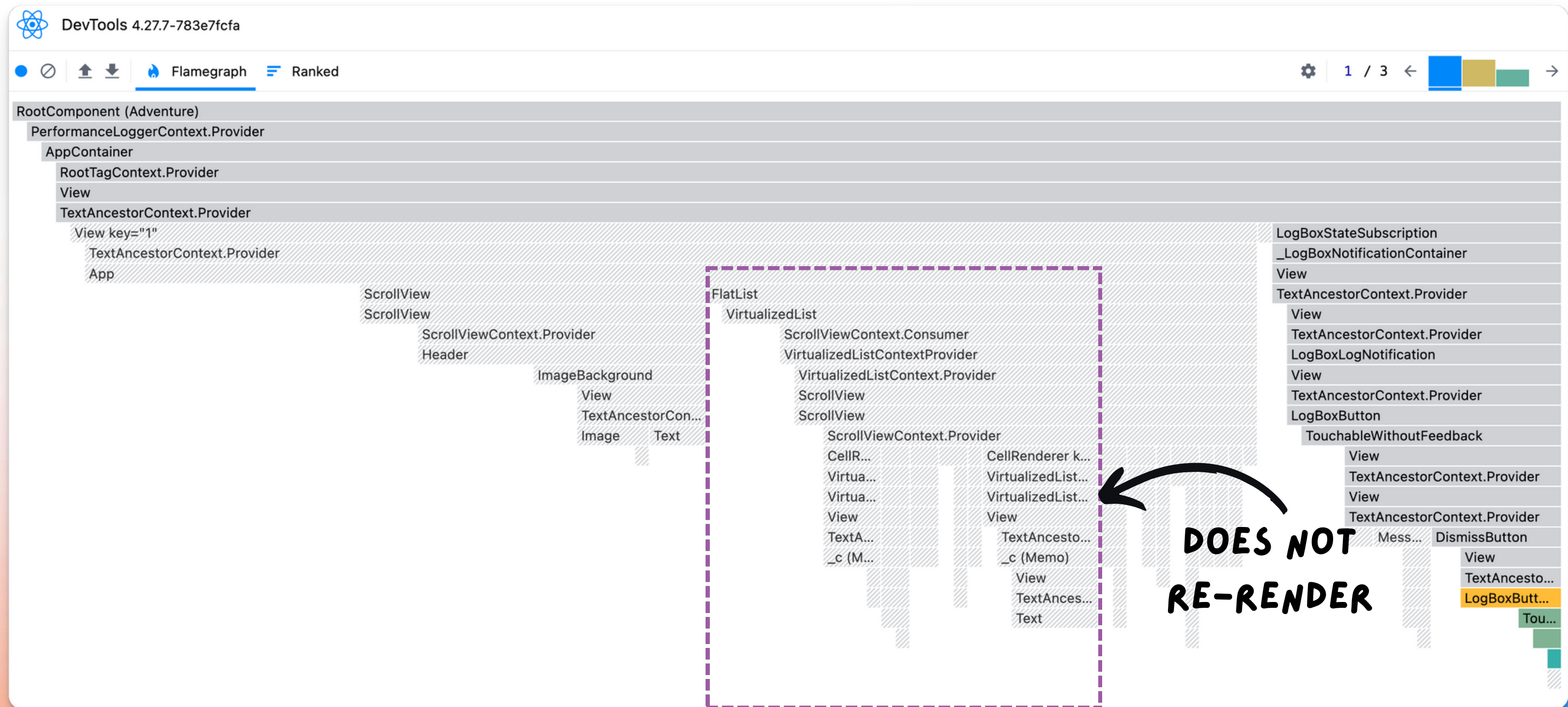
DevTools version: [4.27.7-783e7fcfa](#)

No profiling data has been recorded.

Click the record button ● to start recording.

Click [here](#) to learn more about profiling.

After memoizing Flat List items



Use Interaction Manager to schedule tasks

```
1 InteractionManager.runAfterInteractions(() => {  
2   // ...long-running synchronous task...  
3 });
```

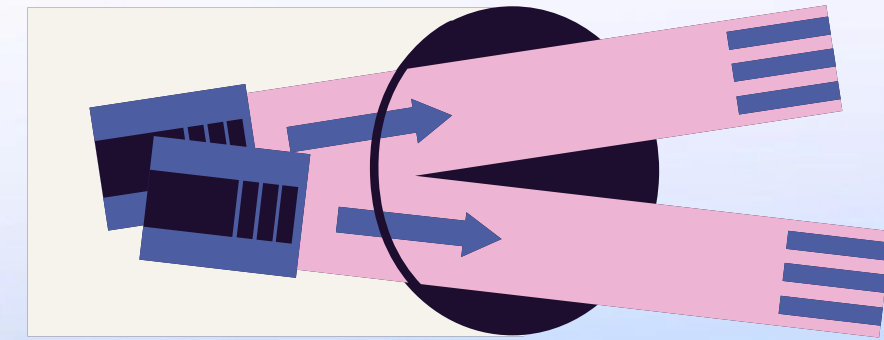

When should you go Native vs React Native?



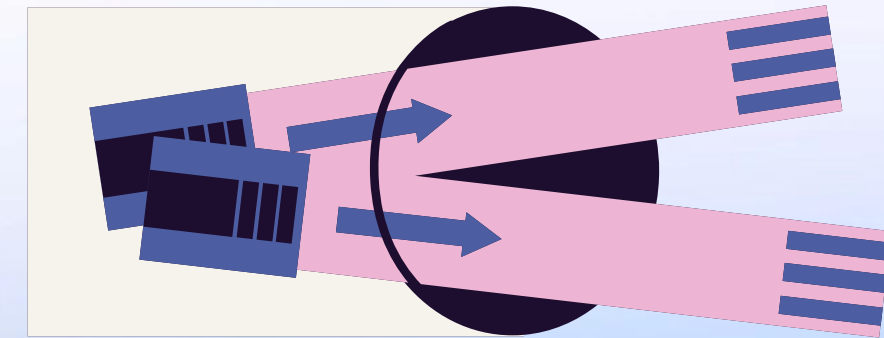
Send strip



Take picture



**Scan photo
again**



**Error, retake
photo**

Performance Tips



Test it on every device and network

A lot of us have high-speed internet but that doesn't represent our users

Things to focus on

01

Test on low-end devices

Try using older devices not just iphones

02

Test on slower networks and Throttle

03

Profile your app on Prod mode, not just dev mode

Dev mode doesn't represent real use case

Samsung shipped

243M

243 million unit sales in 2022

Source: Oberlo



STORY

**My friends are more convinced than
they were 😏 ...**

FREE MINI-COURSE

**Sign up for a FREE React Native
Course focused on all the ignored
parts of RN**



<https://bit.ly/rnbest>

FEATURE DEVELOPMENT

Make performance part of your practice in user stories and testing

NATIVE VS REACT NATIVE

Pick the best tool for your users

Thank you!

All my slides are at
bit.ly/chainreact23

