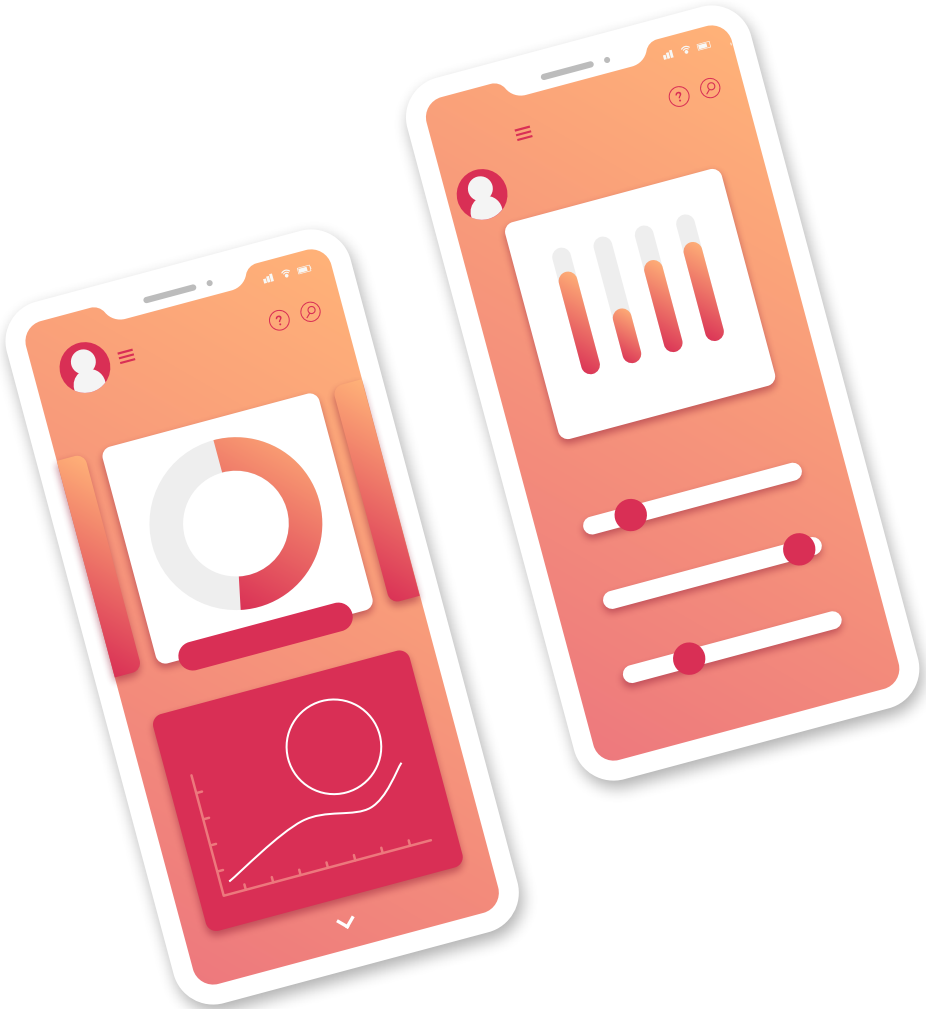

Mobile App Crashes in Production

Lessons Learned from a Tester's viewpoint

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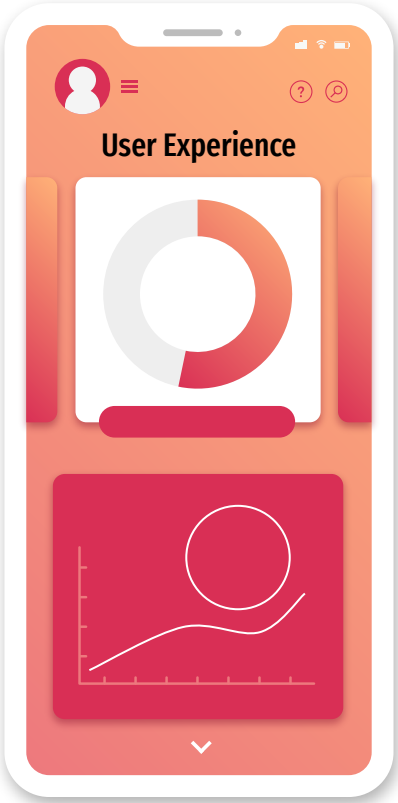
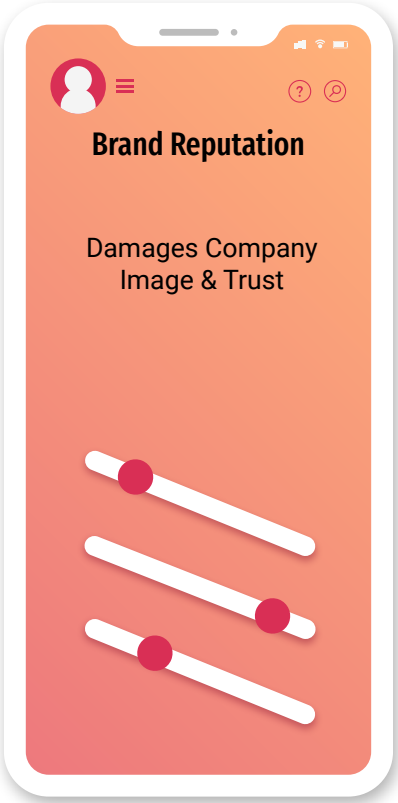
Why this matters?



Crashes lead to frustration and potential app abandonment



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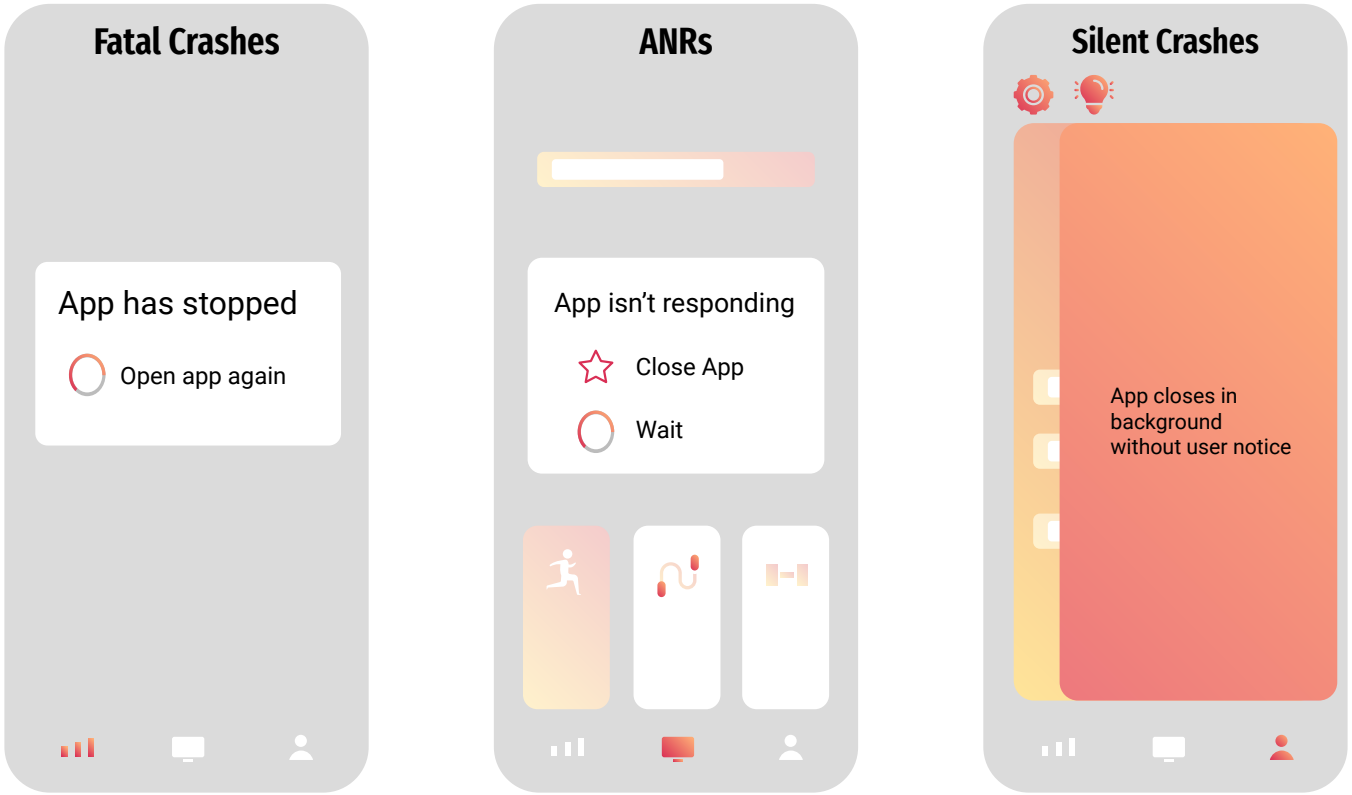
Types of Mobile App Crashes



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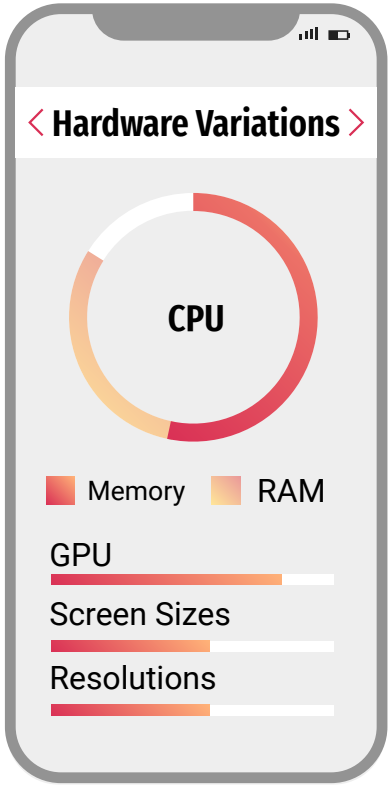
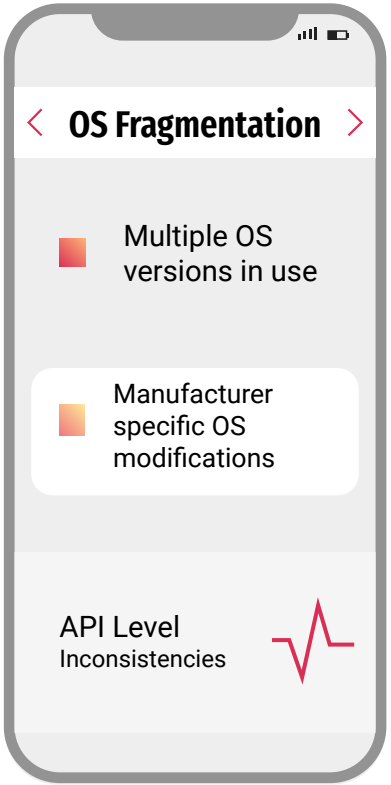
Common Causes: Device Diversity





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Common Causes: Code Related Problems

Exception Handling

Out of bound Exceptions

Arithmetic Exceptions

Null Pointer Exceptions

Bad Access Problem

Guarded Resource Protection

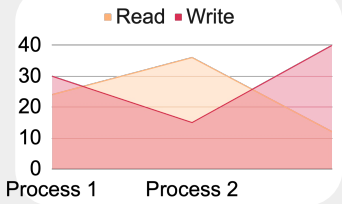
Resource Consumption

Memory Leaks

Android Studio Profiler

Xcode Debug Navigator

Memory



Gradual loss of available memory

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Common Causes: Network Issues

Mobile Networks

Improper handling of slow & fast networks

Timeout Handling

Data Parsing Errors

Unexpected server responses

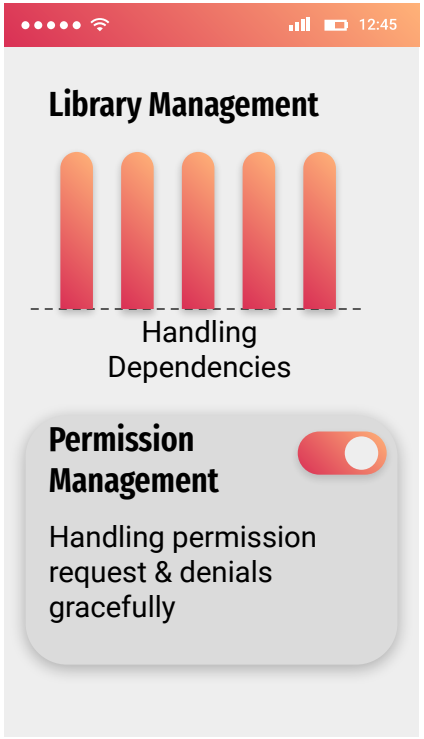
Contract mismatches

Backward Compatibility

Supporting multiple app versions in production

Service Outages

Common Causes: Resource Management

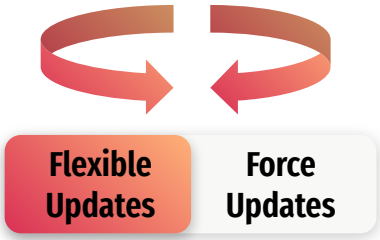


Battery Drainage

Inefficient background processes leading to rapid battery depletion

Memory Overuse

Apps consuming more memory than available



Prevention Strategies

Practices

- Code reviews
- Static Analysis
- Exception Handling
- Simulate User Environment
- Simulate User Behavior
- Caching - Offline Function
- Optimize for different Hardware
- Testing on low memory devices
- Monitor Network calls

Comprehensive Testing

- Wider device coverage
- Network simulation
- Interrupt Testing
- Upgrade Testing
- Different OS versions
- Permission Handling
- Data Caching
- Sensors
- Integrations

CPU & Memory
Performance Monitoring

1 Location A

2 Location B

Location Based Tests

Prevention Strategies

Images

Memory Efficient Images & Sizes

Animations

- Prevent infinite loops
- Avoid main thread blocking
- Lower frame rates

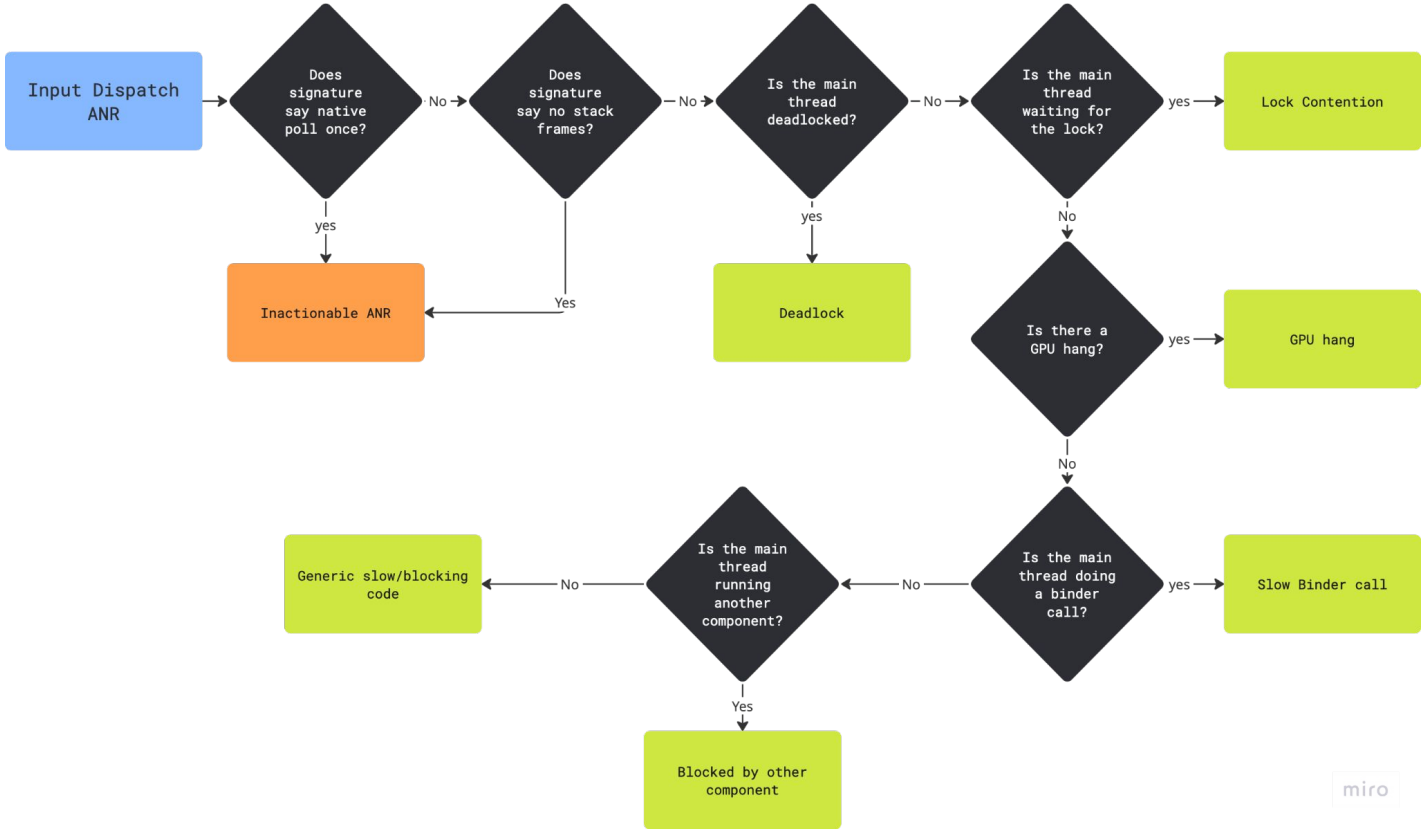
Crash Reporting Tools

- Firebase Crashlytics
- AppCenter
- Sentry
- Play Console

Key Metrics

- Crash free users
- ANR Rate
- Version Adoption
- Impacted users
- Device Distribution
- OS Distribution
- Non Fatal Error Rate

Diagnose and Fix ANR's



miro

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Tools

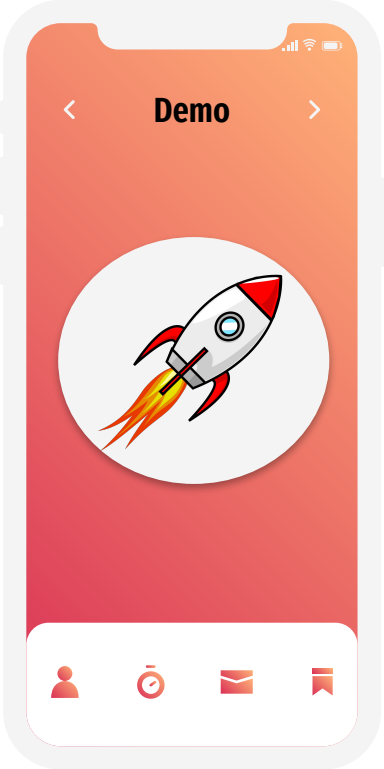
SENTRY

Firebase Crashlytics

Instabug

FLURRY

SMARTBEAR
BugSnag



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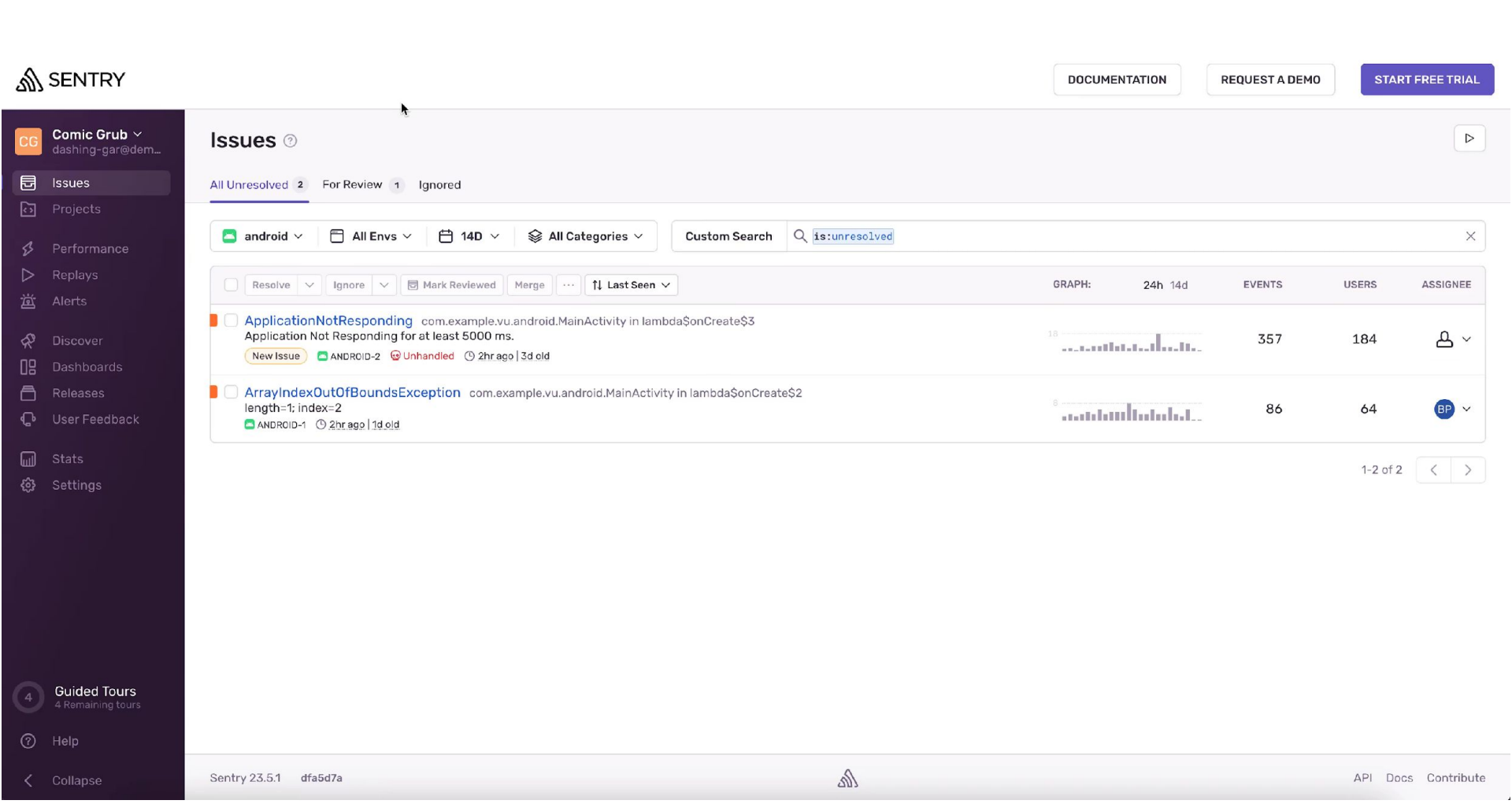
SENTRY
DOCUMENTATION
REQUEST A DEMO
START FREE TRIAL
CG
Comic Grub
dashing-gar@dem...
Issues
Projects
Performance
Replays
Alerts
Discover
Dashboards
Releases
User Feedback
Stats
Settings
4
Guided Tours
4 Remaining tours
Help
Collapse
Issues
All Unresolved 2
For Review 1
Ignored
android
All Envs
14D
All Categories
Custom Search
is:unresolved
Resolve
Ignore
Mark Reviewed
Merge
Last Seen
GRAPH:
24h 14d
EVENTS
USERS
ASSIGNEE
ApplicationNotResponding com.example.vu.android.MainActivity in lambda$onCreate$3
Application Not Responding for at least 5000 ms.
New Issue
ANDROID-2
Unhandled
2hr ago | 3d old
357
184
ArrayIndexOutOfBoundsException com.example.vu.android.MainActivity in lambda$onCreate$2
length=1; index=2
ANDROID-1
2hr ago | 1d old
86
64
BP
1-2 of 2
Sentry 23.5.1
dfa5d7a
API
Docs
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Questions?

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