



Android Wear 101

A glimpse into the future

TWITTER

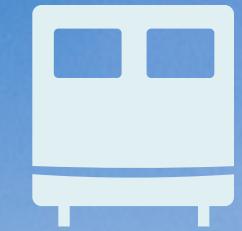
@cyrilmottier

WEBSITE

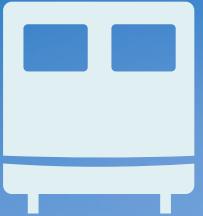
cyrilmottier.com



capitaine train



capitaine train



SEARCH CART TICKETS HELP CYRIL

Where can we take you?

Lyon → Lyon

Paris ←

Monday 22 September 2014 from 06:00

One-way

Cyril

Add a discount code **SEARCH**

Select a departure station

- Lyon
- Paris-Gare-de-Lyon
- Lyon Part-Dieu
- Lyon Perrache
- Lyon St-Exupéry TGV
- Lyon Jean Macé
- Lyon Vaise
- Lyon St-Paul

Your Lyon → Paris trip

Fares: Cheapest, Semi-flex, Flexible, Fastest routes only

Earlier

Monday 22 September 2nd class 1st class

05:16 → 10:22 Sh06 €32.00 €48.00

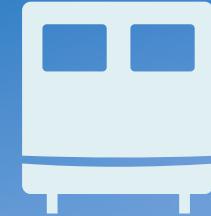
Trip

05:16 Lyon Part-Dieu SNCF 2nd
10:22 Paris-Gare-de-Bercy TER 17774

Passengers

Cyril €32.00 Billet Abonnement Fréquence: Détenir une Carte Fréquence (justificatif à présenter à bord du train). Billet échangeable sans frais

capitaine train



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Cheapest Semi-flex Flexible

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09:55

Ticket Lyon → Paris

One-way on Mon, Sep 22 €35.00

Monday, September 22

06:04 Lyon Part-Dieu

Carriage 8, seat 96
2nd Upstairs, twin side-by-side, window

SNCF TGV 6602

08:13 Paris Gare-de-Lyon

Your non-transferable E-Ticket RWMRTB is stored on the Carte Voyageur, which must be presented upon inspection.

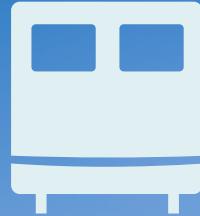
Cyril Mottier - Outward Present barcode during inspection.

Fare terms and conditions

Cyril Mottier €35.00

Carte Jeune Exchange and refund free of charge until the eve of departure, with a deduction of €3 on the day of departure.

capitaine train



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Lyon

Paris

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Help 4 pts CYRIL

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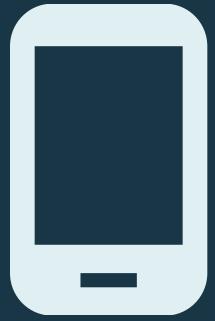
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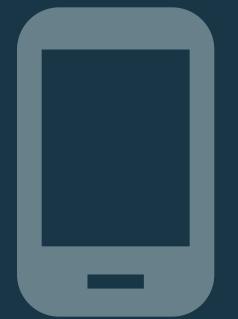
Paris-Lille Departs 10:46 TGV 7033 Carriage 6, seat 56

Introducing Android Wear paradigms

Real life



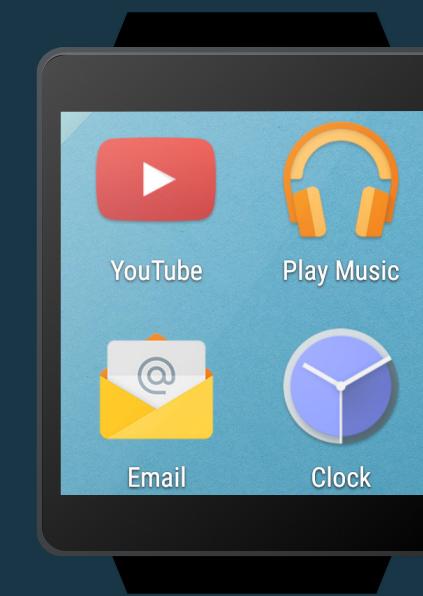
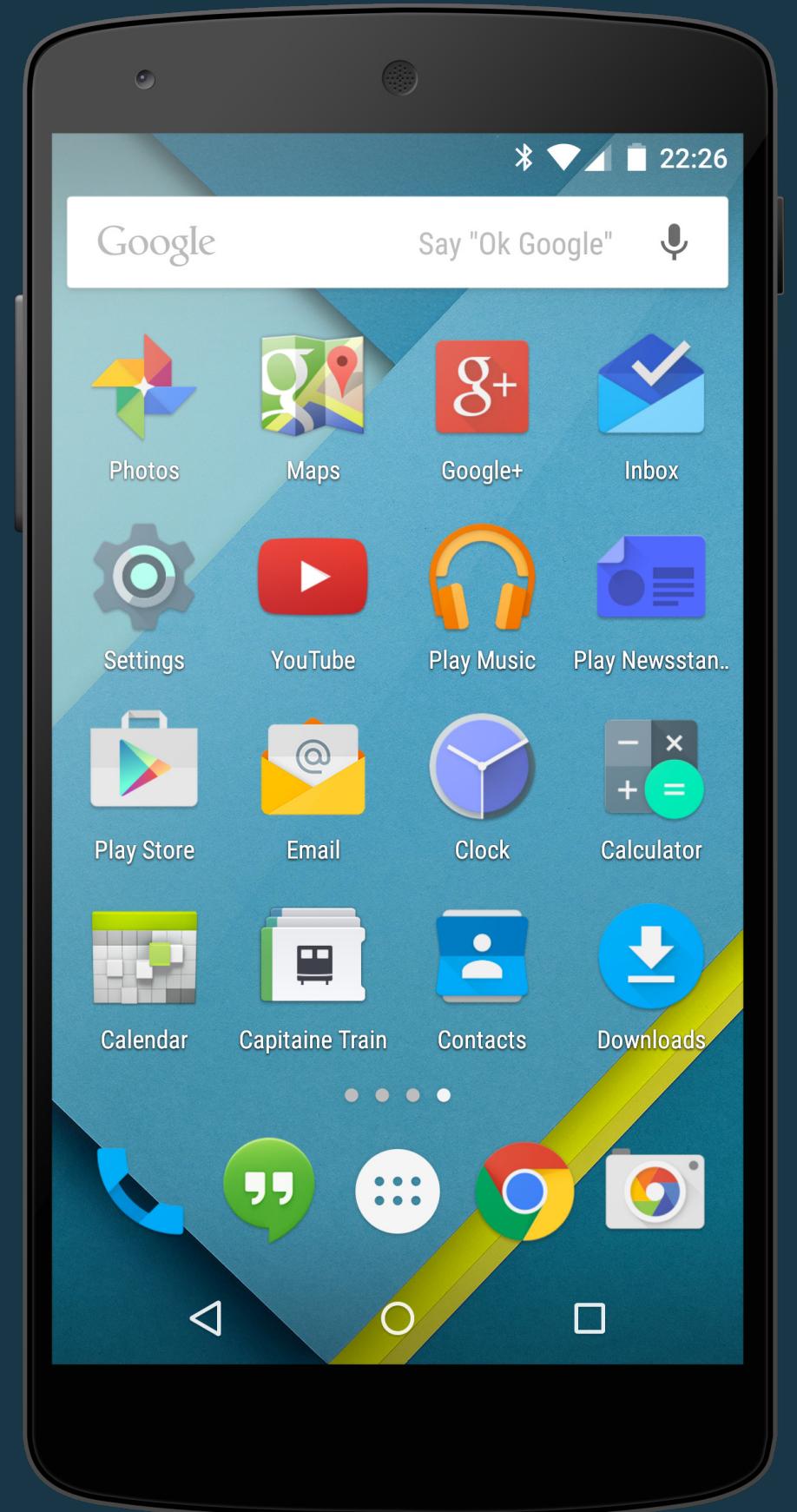
Get phone Use phone



Micro interactions

Reducing interactions to their minimum





handheld
paradigms



wearable
paradigms



Think different

...or at least differently ?

Android Wear UX main principles

3 main principles

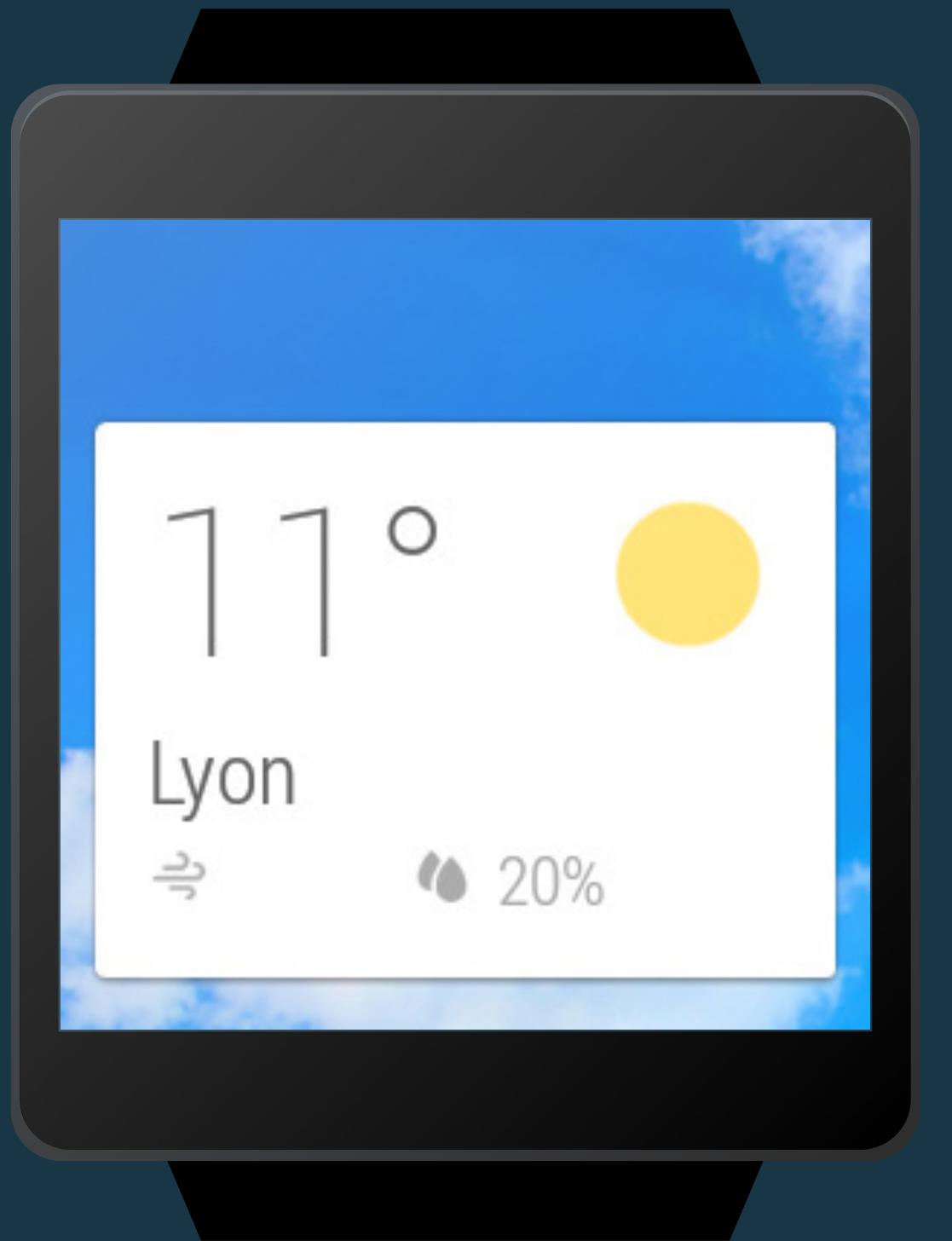
Contextual

3 main principles

Contextual | Glanceable

3 main principles

Contextual | Glanceable | Low interaction



Contextual

*The right info
at the right time*



Time



Sensors



Calendar



Activity



Identity



Location

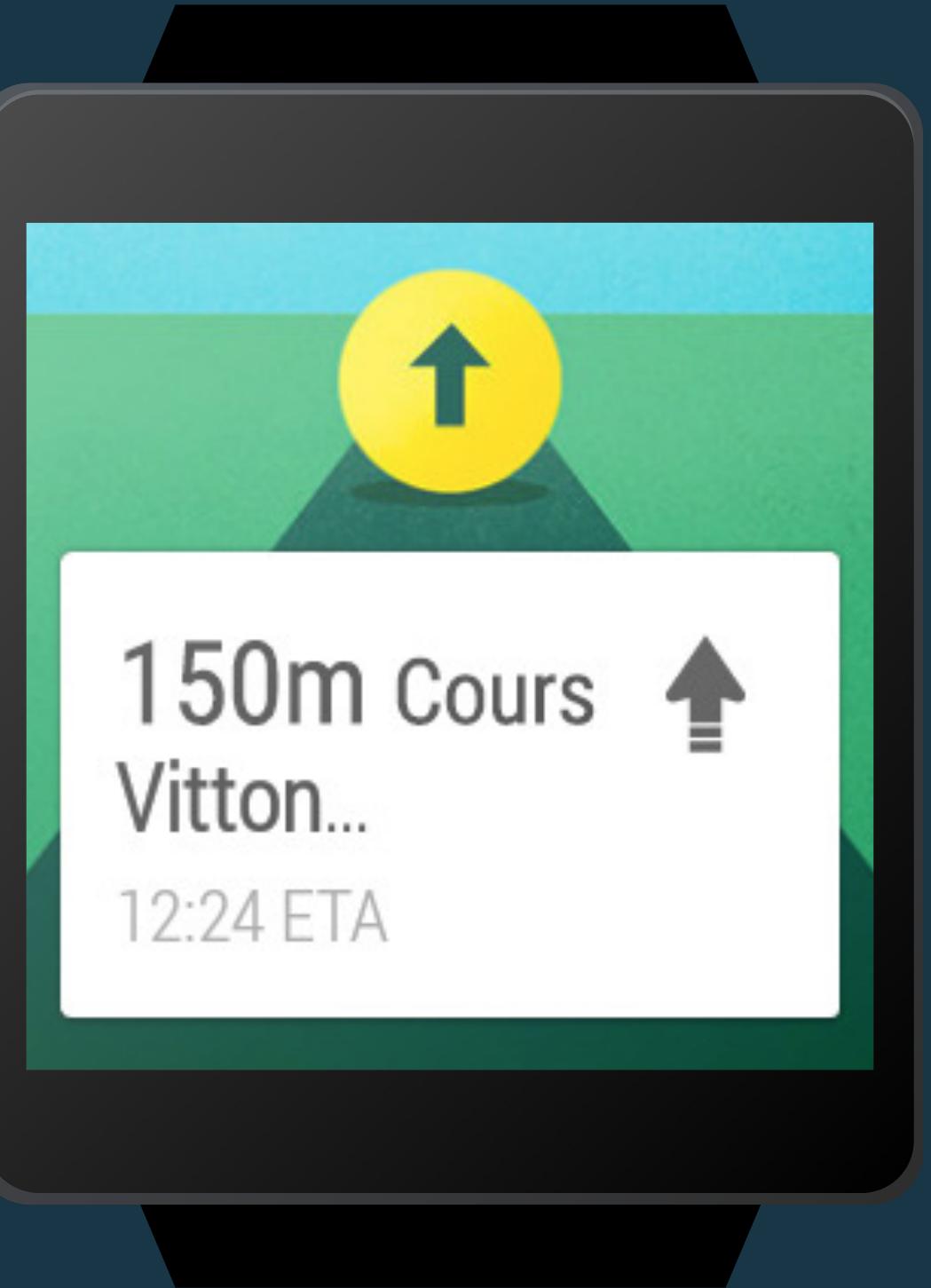


Devices

Context helpers

Glanceable

*The essential info
in a blink of an eye*



HANGOUT MESSAGE FROM



Cécile



SENT AT



7:04 am

Don't forget to smile
during your talk!

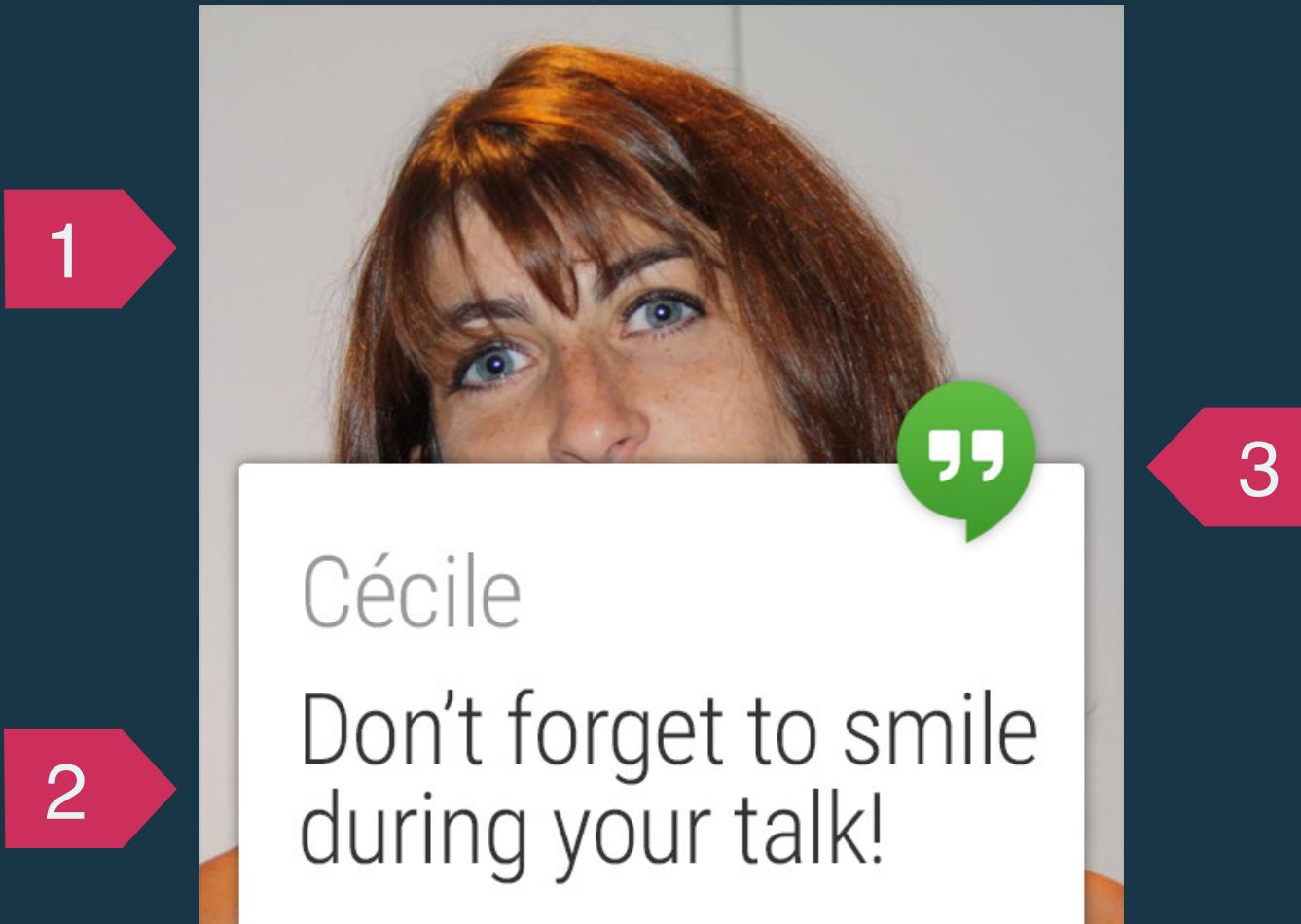
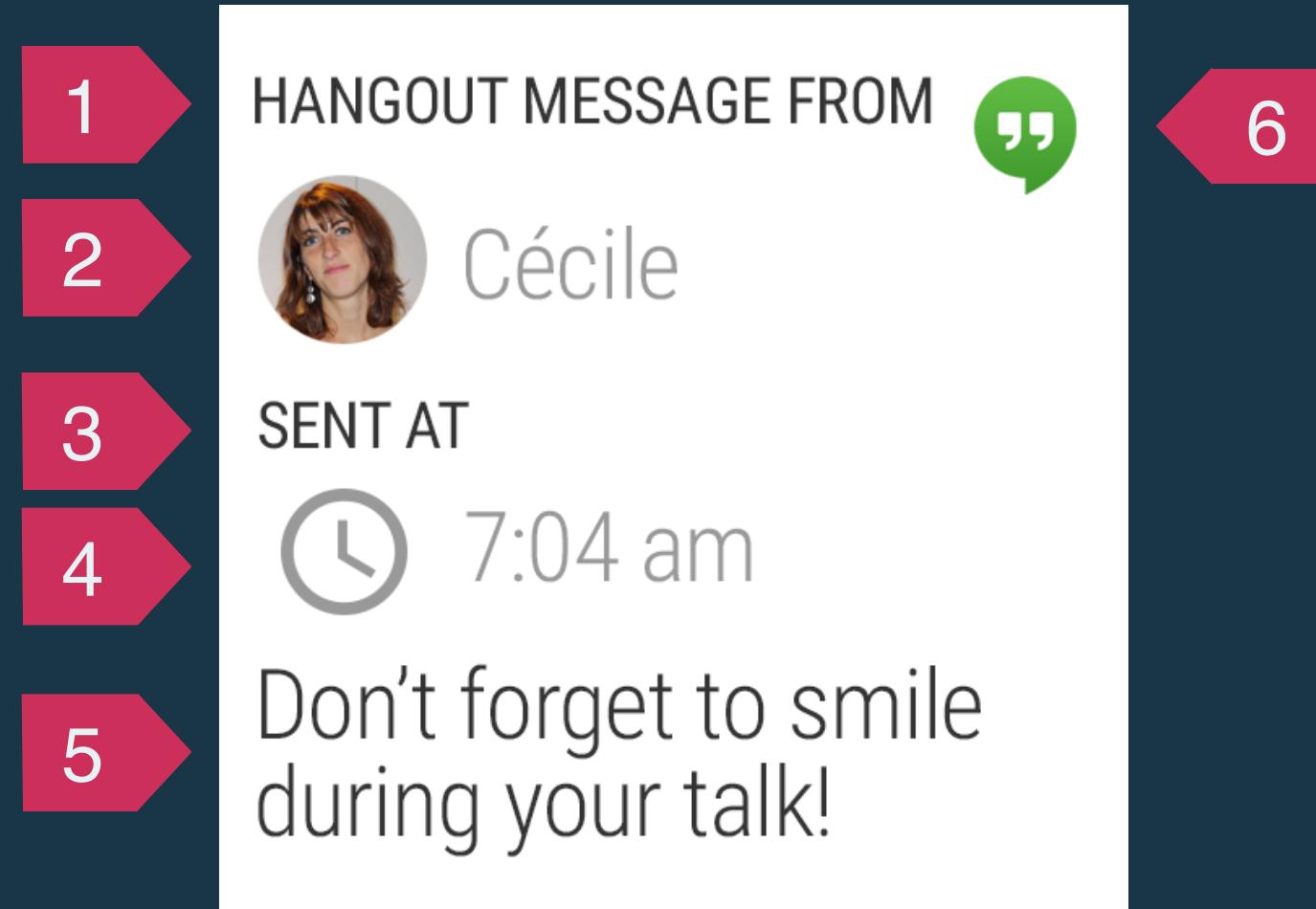


A close-up photograph of a woman with long brown hair and blue eyes, looking directly at the camera.

Cécile

Don't forget to smile
during your talk!





HANGOUT MESSAGE FROM



Cécile

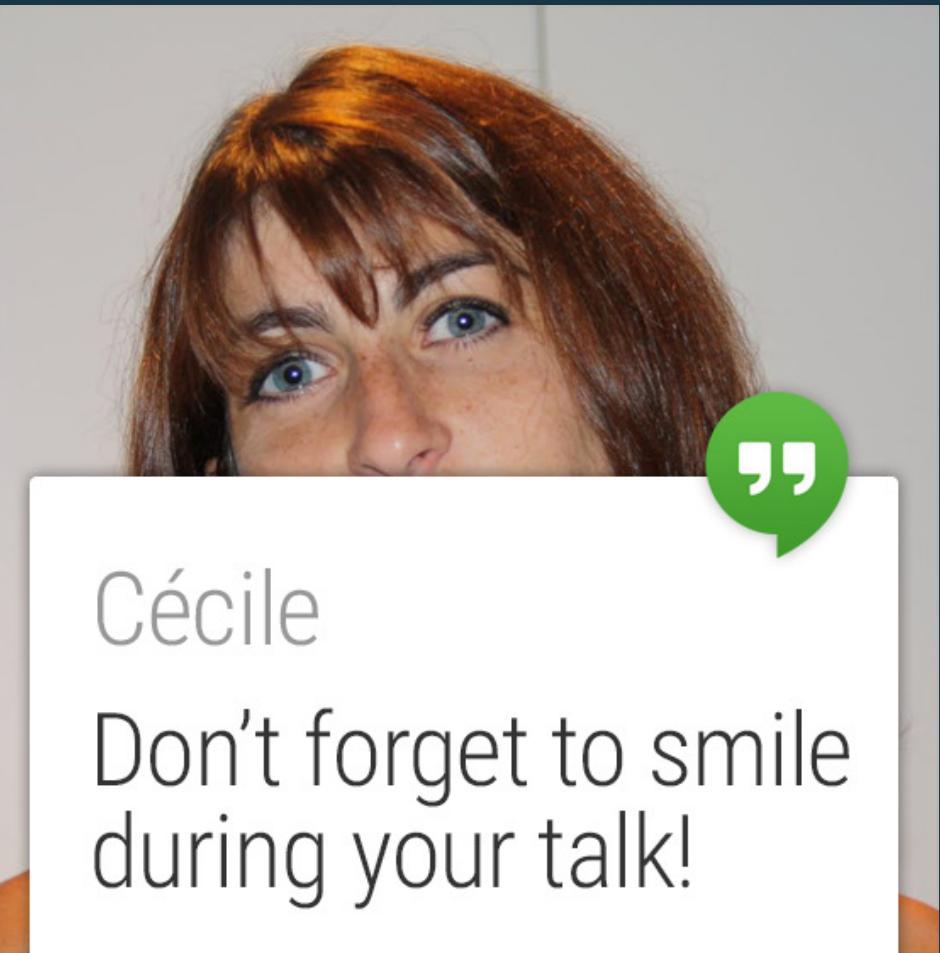


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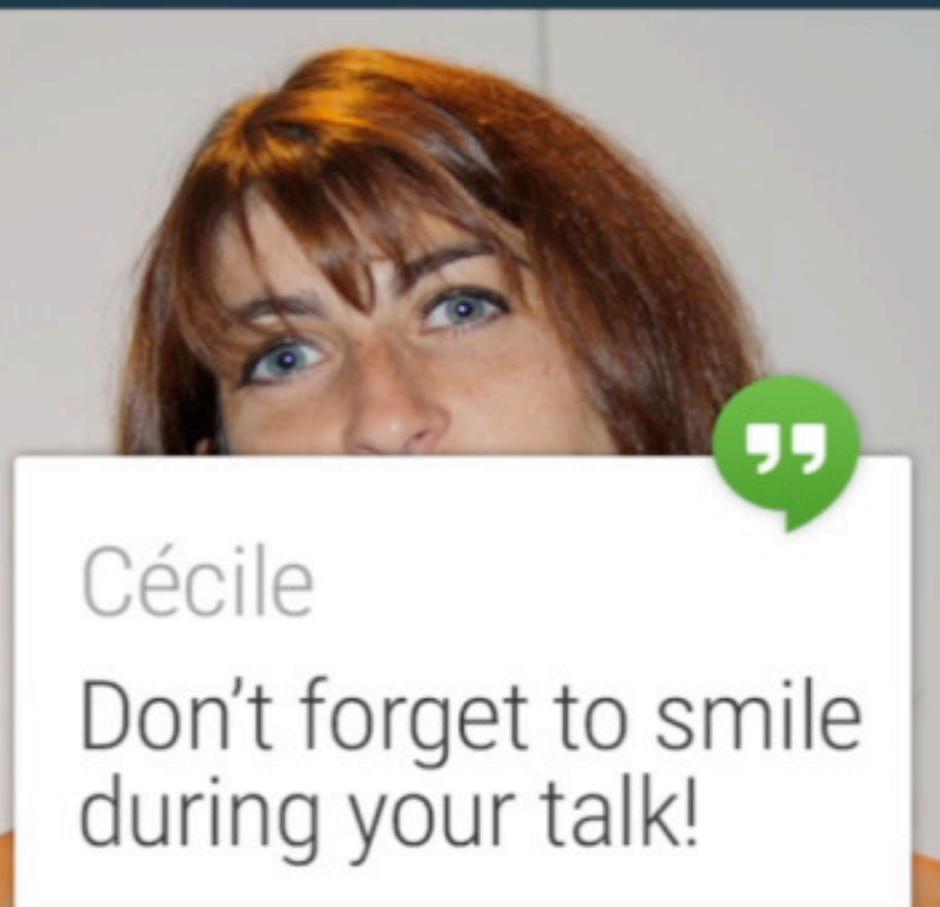


SENT AT



7:04 am

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Low interaction

Design for big gestures



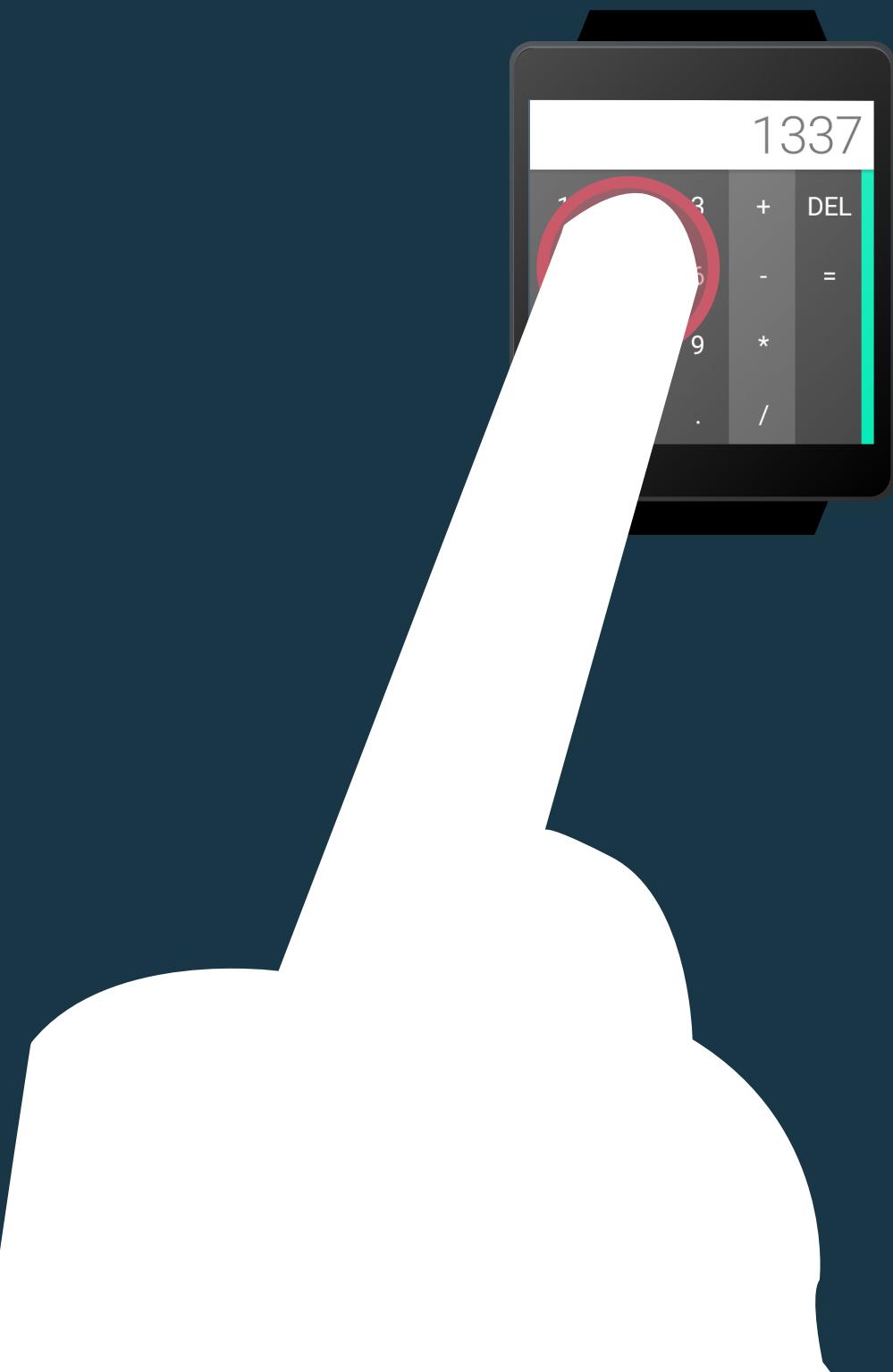
Low interaction

Design for big gestures



Favour non error-prone input

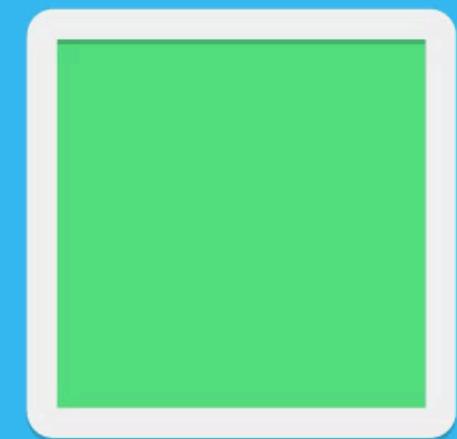
fullscreen tap/swipe
voice actions



Simplified Activity lifecycle

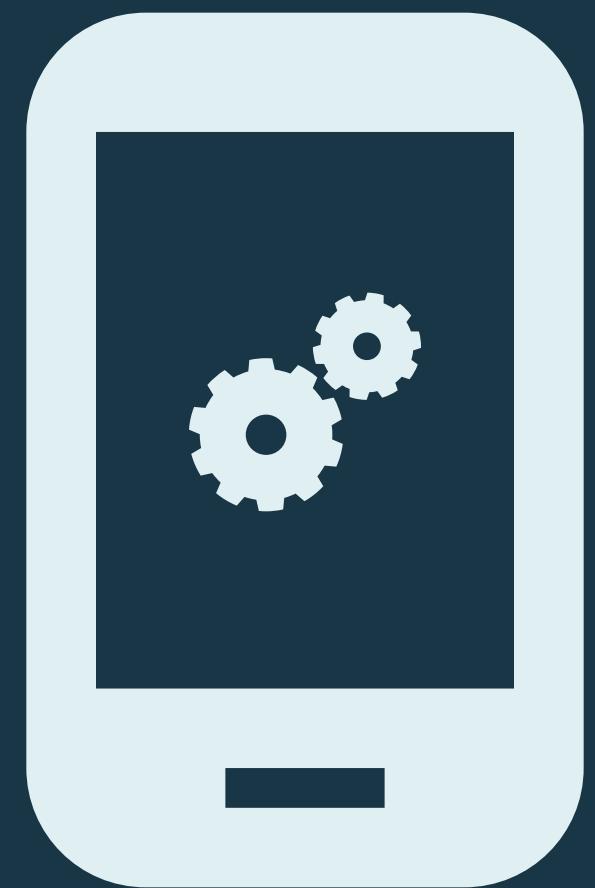
Device goes to sleep → Activity destroyed

Think your app as a row of
cards in a grid



Understanding the Android Wear ecosystem

1 device - 1 OS

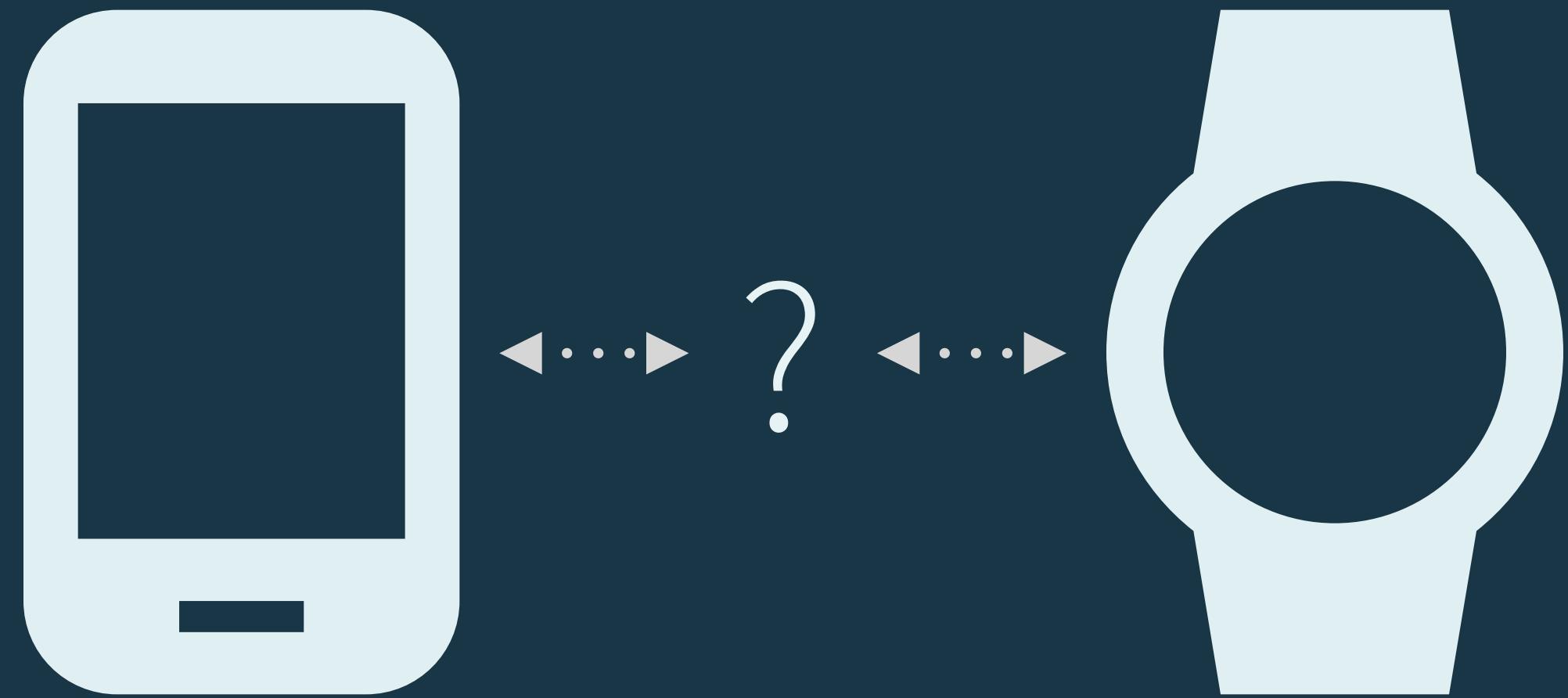


1 device - 1 OS

No shared code
No shared resources

1 device - 1 OS

Different code base
Different applications



Google Play Services



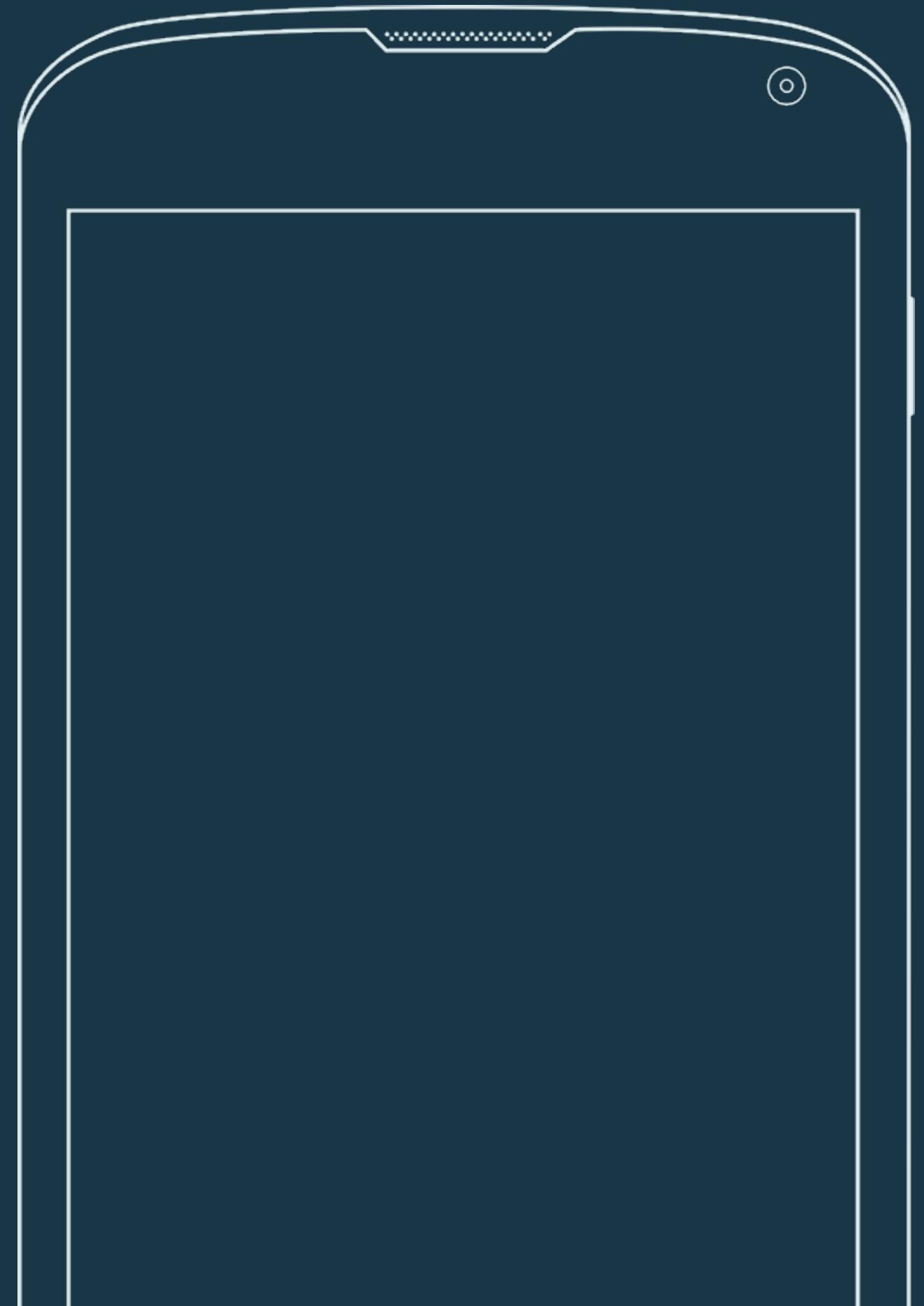


No Play Store
on Android Wear



Imbricated APKs
for distribution

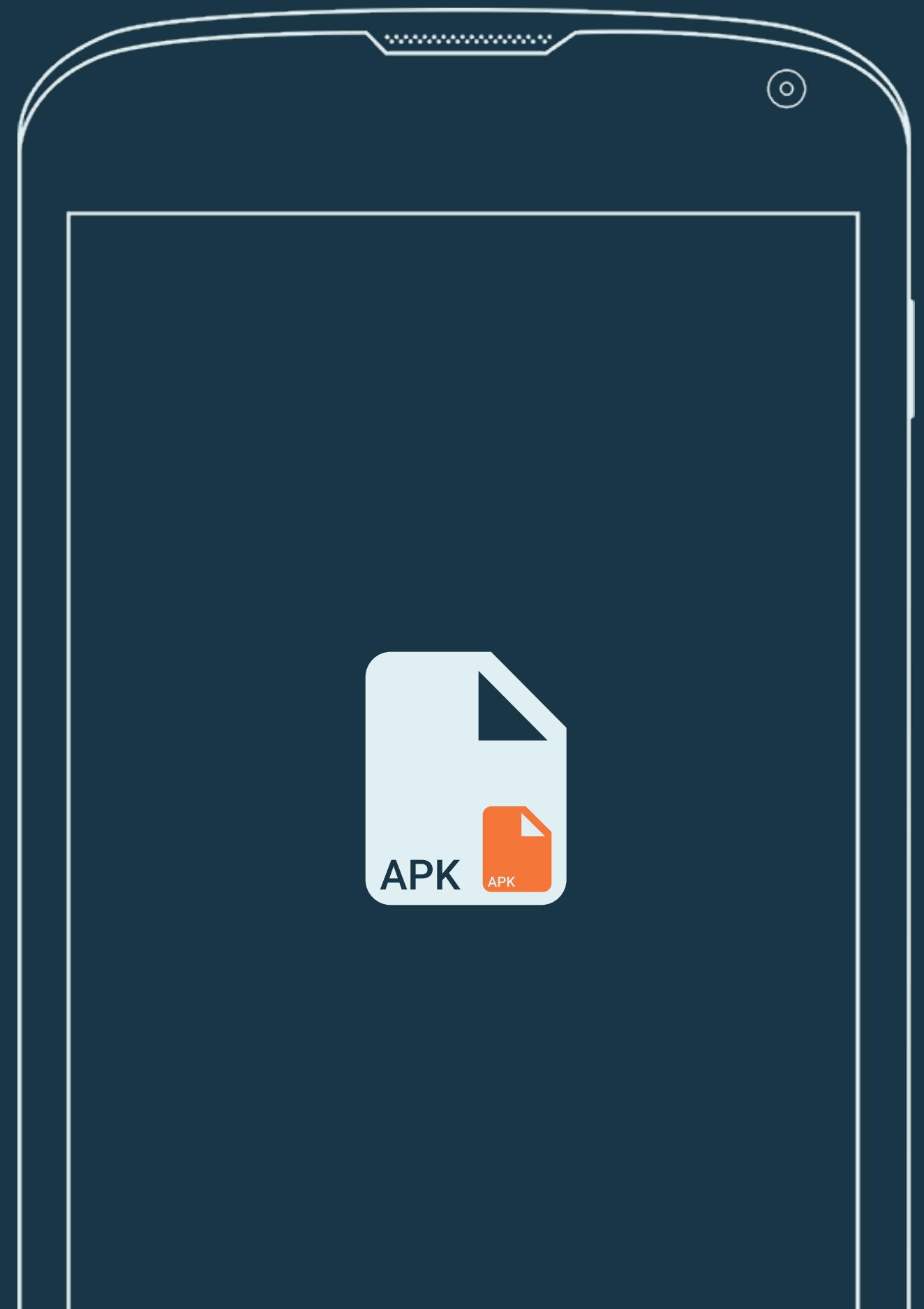
An APK in an APK...



Play Store



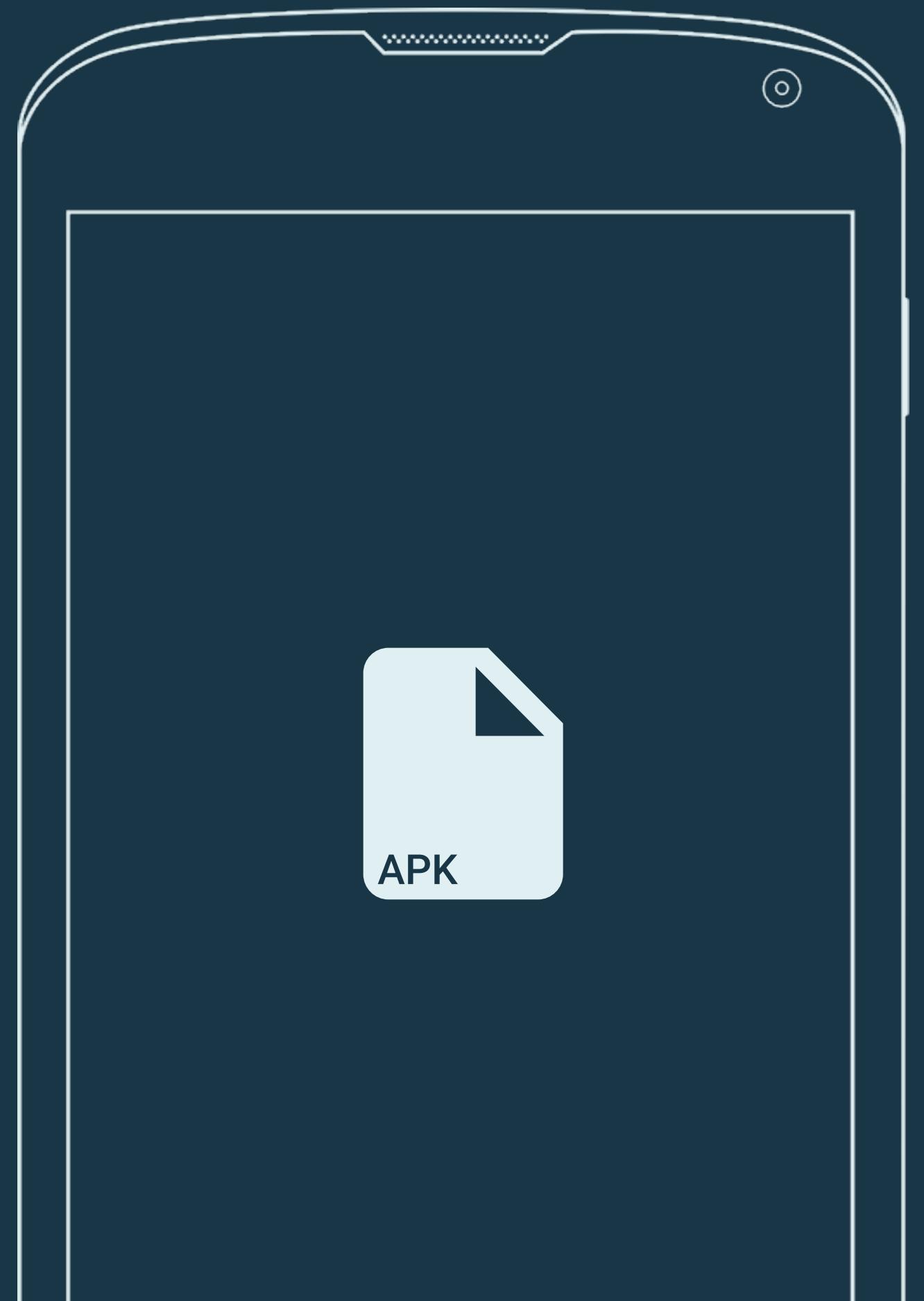
Wearable



Play Store



Wearable



Play Store



Wearable

Developing for Android Wear devices

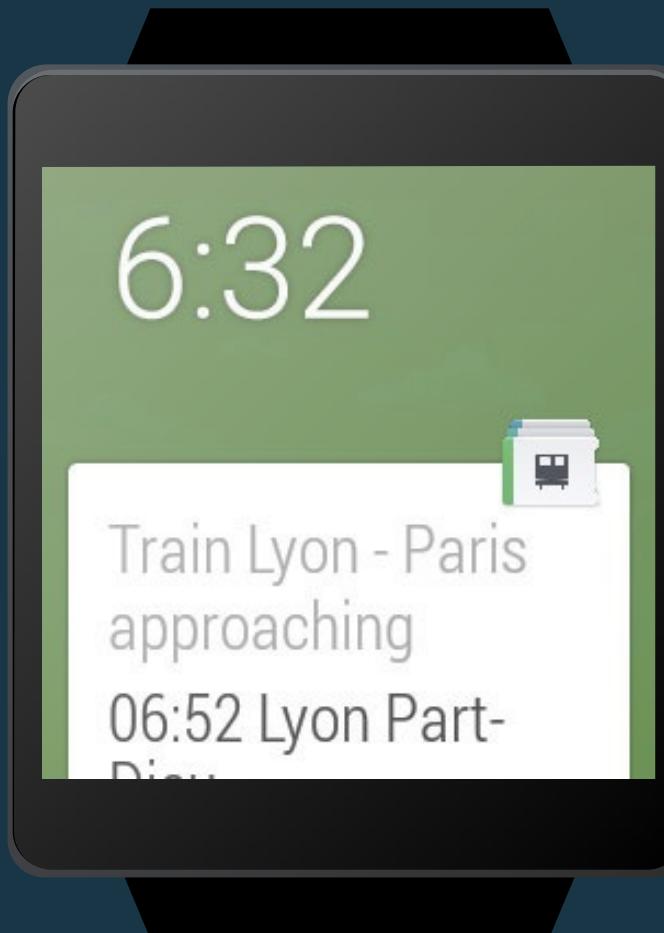
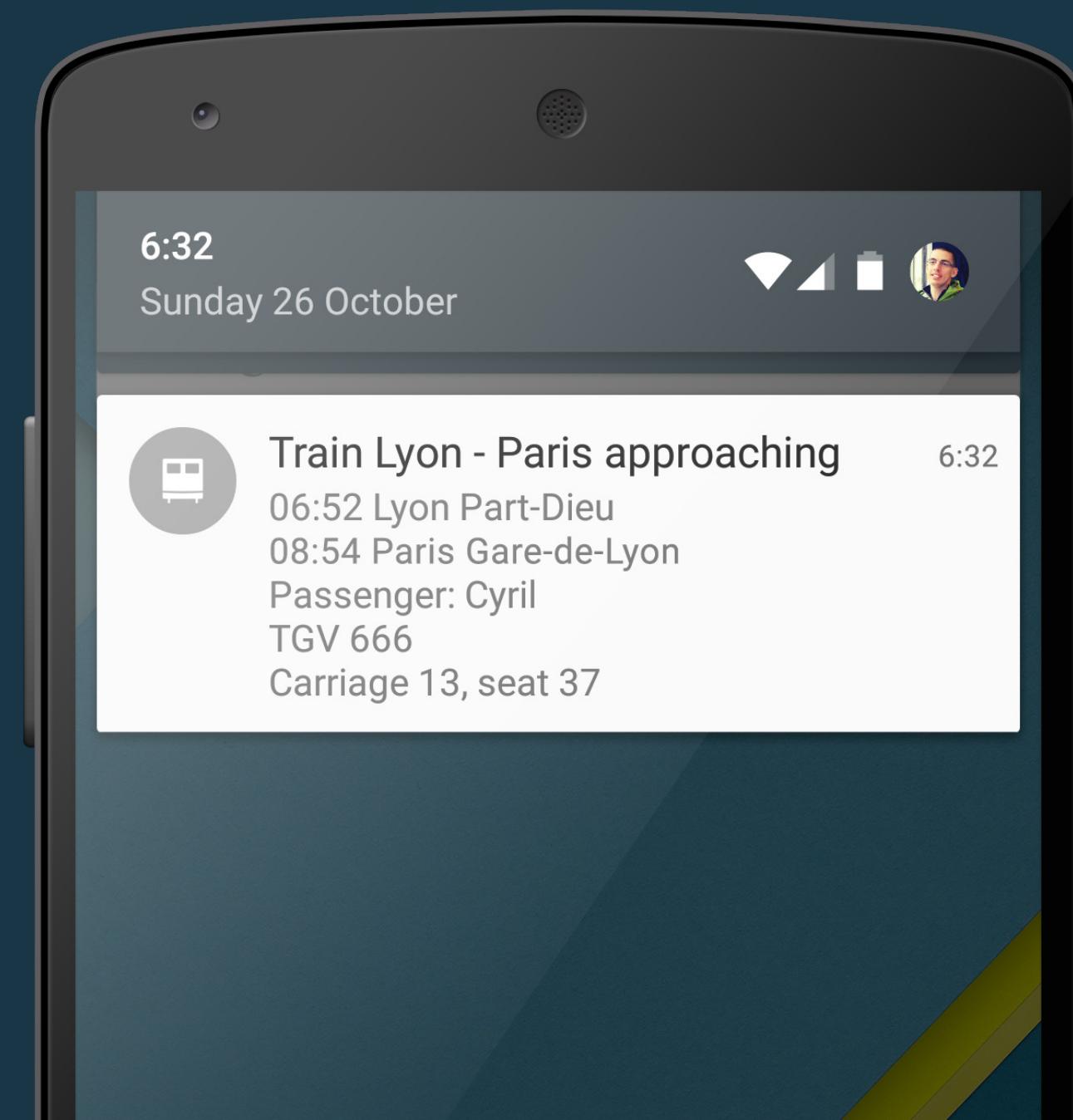
2 possibilities

Notifications | Custom app

If your app already uses notifications,
you have **nothing** to do

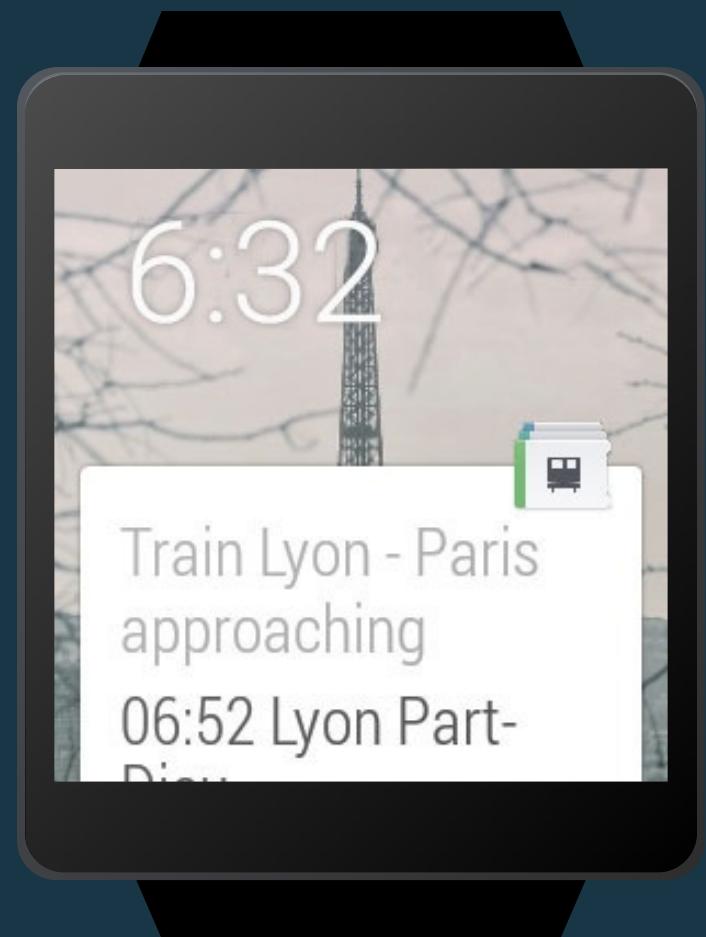
If your app already uses notifications,
you have almost nothing to do

```
final Intent detailsIntent = DetailsActivity.  
        newIntent(this, travelId);  
final PendingIntent detailPendingIntent = PendingIntent.  
        getActivity(this, 0, detailsIntent, 0);  
  
final NotificationCompat.Builder builder = new NotificationCompat.Builder(this).  
        setSmallIcon(R.drawable.ic_status_capitaine).  
        setContentTitle(travelTitle).  
        setContentIntent(detailPendingIntent);  
  
final Notification notif = new NotificationCompat.BigTextStyle(builder).  
        bigText(travelDescription).  
        build();  
  
NotificationManagerCompat.from(this).notify(NOTIFICATION_ID, notif);
```

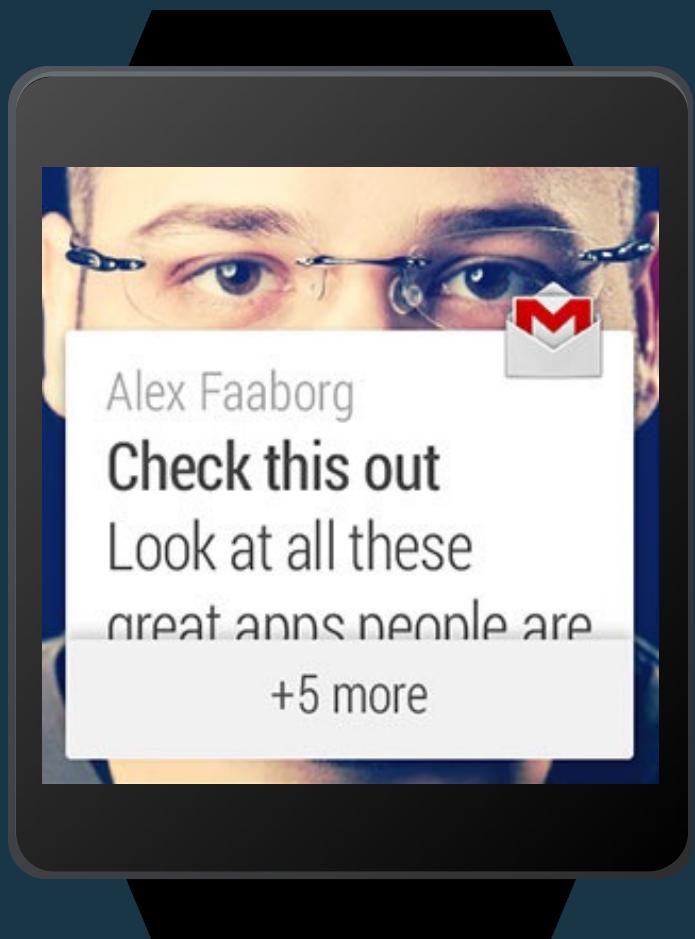


Wearable specific notifications
wearableExtender to the rescue

```
final Bitmap background =  
    BitmapFactory.decodeResource(  
        getResources(), R.drawable.paris);  
  
builder.extend(new NotificationCompat.  
    WearableExtender().setBackground(background));
```

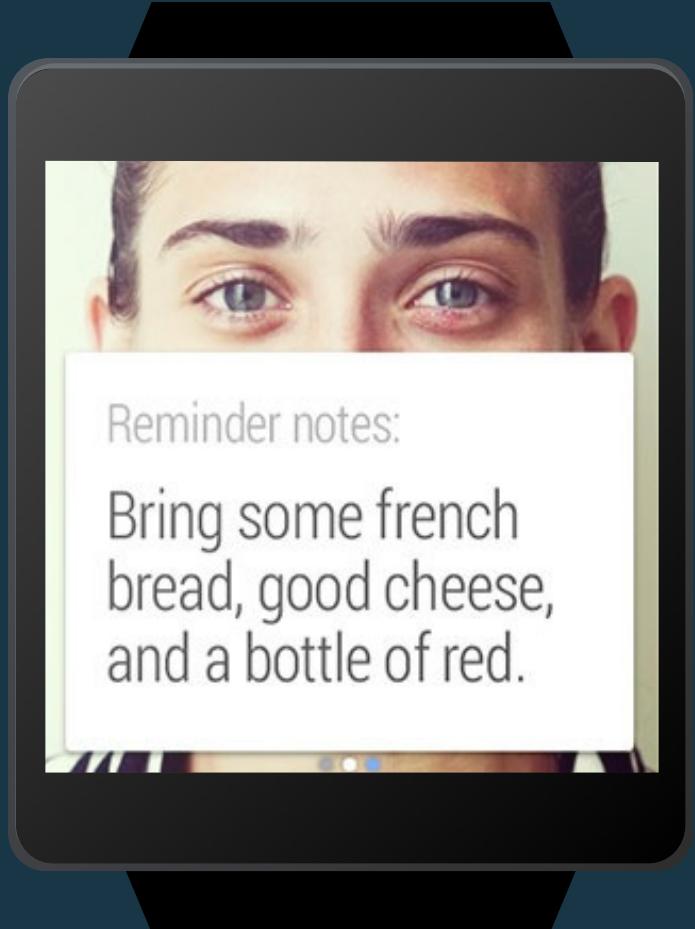


Stacks



`setGroup()`
`setSortKey()`
`setGroupSummary()`

Pages



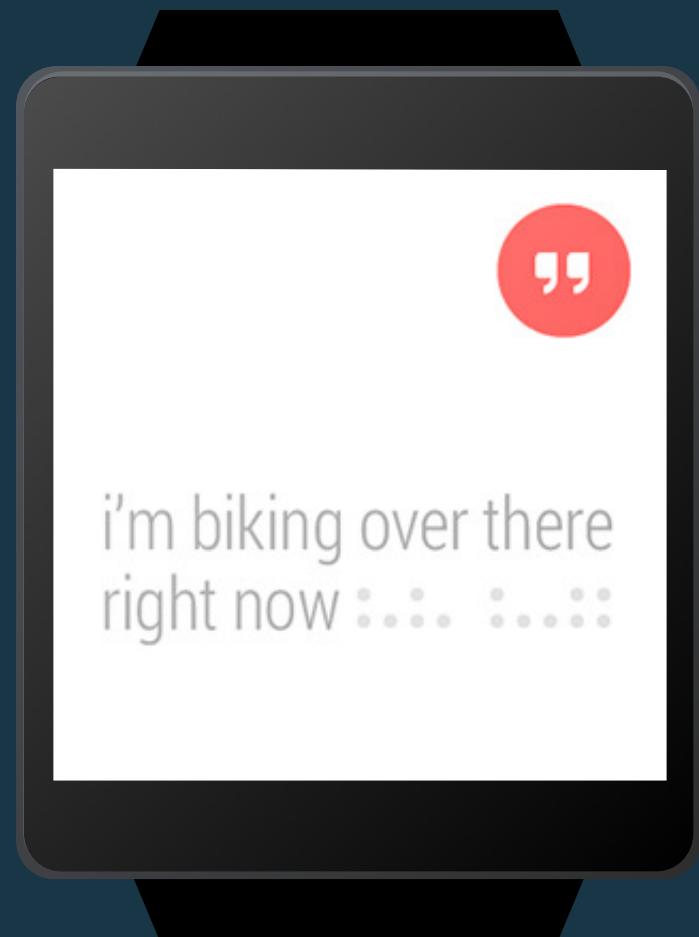
`addPage(Notification)`

Pages

addPage(Notification)



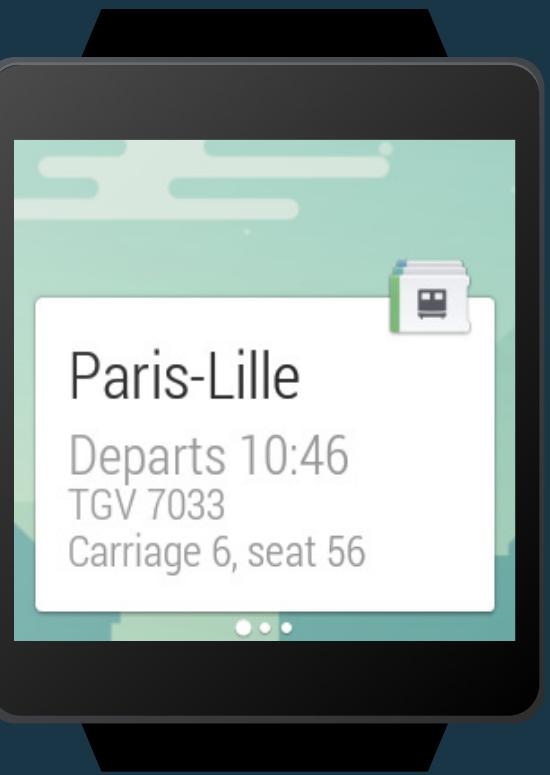
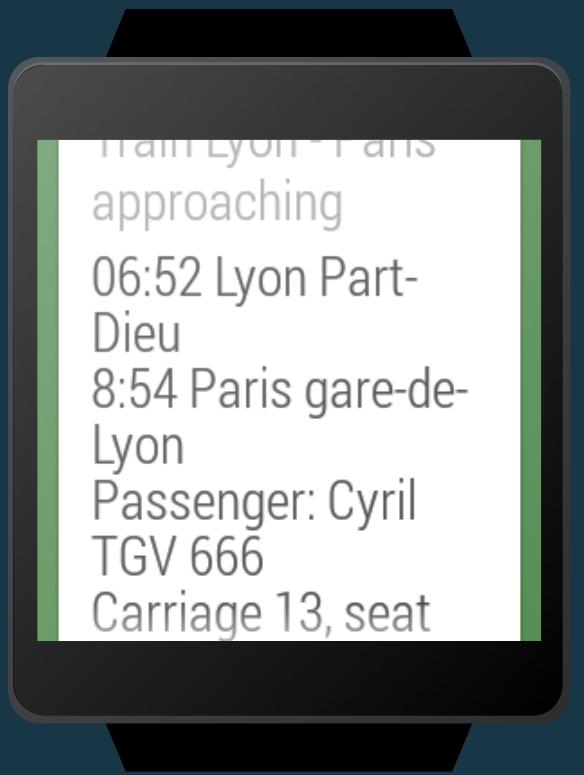
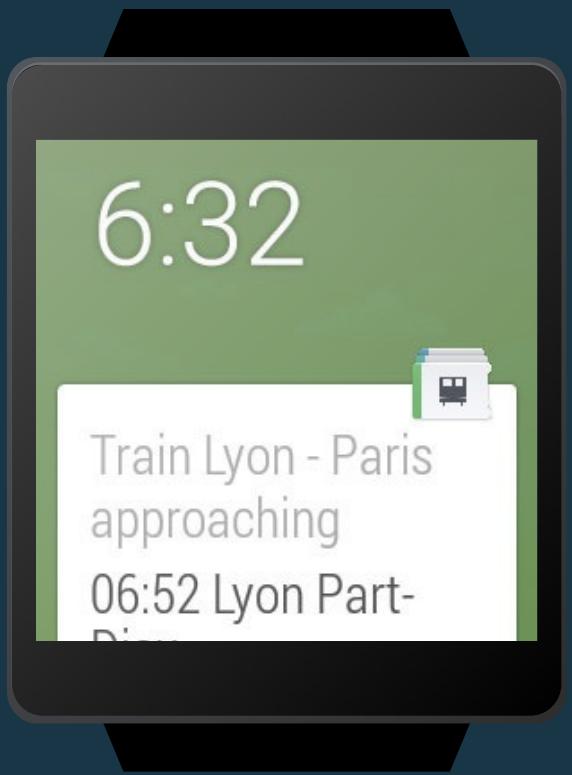
Voice input



RemoteInput

There are some case where
notifications are not enough

From To



Wearable apps are
fundamentally the same as
apps built for other devices

Unsupported APIs

android.webkit

android.print

android.app.backup

android.appwidget

android.hardware.usb

NodeApi

Learn about local & connected nodes

MessageApi

Send messages on a “fire & forget” basis

DataApi

Sync data between nodes on the network

CapabilityApi

Learn about
nodes capabilities

ChannelApi

Stream data between
connected nodes

Handheld - ReminderService.java

```
final Notification notification = new NotificationCompat.Builder(context).  
    // ...  
    setLocalOnly(true).  
    // ...  
    build();
```

Handheld - ReminderService.java

```
if (mGoogleApiClient == null) {
    mGoogleApiClient = new GoogleApiClient.Builder(this).
        addApi(Wearable.API).
        addOnConnectionFailedListener(mOnConnectionFailedListener).
        addConnectionCallbacks(mConnectionCallbacks).
        build();
}
mGoogleApiClient.connect();

private final GoogleApiClient.OnConnectionFailedListener mOnConnectionFailedListener
    = new GoogleApiClient.OnConnectionFailedListener() {
    @Override
    public void onConnectionFailed(ConnectionString connectionResult) { /* ... */ }
};

private final GoogleApiClient.ConnectionCallbacks mConnectionCallbacks =
    new GoogleApiClient.ConnectionCallbacks() {
    @Override
    public void onConnected(Bundle bundle) { /* TODO */ }

    @Override
    public void onConnectionSuspended(int i) { /* ... */ }
};
```

Handheld - ReminderService.java

```
@Override  
public void onConnected(Bundle bundle) {  
  
    final PutDataMapRequest request = PutDataMapRequest.  
        create("/show-reminder/travel");  
    final DataMap map = request.getDataMap();  
  
    map.putString("departureStation", departureStation);  
    map.putString("arrivalStation", arrivalStation);  
    map.putString("barcodeData", barcodeData);  
    // ...  
  
    Wearable.DataApi.putDataItem(mGoogleApiClient, request.asPutDataRequest()).  
        setResultCallback(new ResultCallback<DataApi.DataItemResult>() {  
            @Override  
            public void onResult(DataApi.DataItemResult dataItemResult) {  
                if (!dataItemResult.getStatus().isSuccess()) {  
                    // Deal with errors  
                }  
            }  
        });  
}
```

Wearable - ReminderReceiverService.java

```
public class ReminderReceiverService extends WearableListenerService {  
  
    @Override  
    public void onDataChanged(DataEventBuffer dataEvents) {  
        super.onDataChanged(dataEvents);  
        for (DataEvent dataEvent : dataEvents) {  
            final Uri uri = dataEvent.getDataItem().getUri();  
            final DataMap dataMap = DataMapItem.  
                fromDataItem(dataEvent.getDataItem()).getDataMap();  
            switch (dataEvent.getType()) {  
                case DataEvent.TYPE_CHANGED:  
                    onDataEventChanged(uri, dataMap);  
                    break;  
  
                case DataEvent.TYPE_DELETED:  
                    onDataEventDeleted(uri, dataMap);  
                    break;  
            }  
        }  
    }  
  
    protected void onDataEventChanged(Uri uri, DataMap dataMap) { /* TODO */ }  
    protected void onDataEventDeleted(Uri uri, DataMap dataMap) { /* TODO */ }  
}
```

Wearable - ReminderReceiverService.java

```
@Override  
protected void onDataEventChanged(Uri uri, DataMap dataMap) {  
    final List<String> segments = uri.getPathSegments();  
    if (segments != null && segments.size() > 1 && "show-reminder".equals(segments.get(0))) {  
        final String notificationId = segments.get(1);  
  
        final String departureStation = dataMap.getString("departureStation");  
        final String arrivalStation = dataMap.getString("arrivalStation");  
        final String barcodeData = dataMap.getString("barcodeData");  
        // ...  
  
        final Notification notification = new NotificationCompat.Builder(this).  
            setLocalOnly(true).  
            // ...  
            build();  
  
        mNotificationManager.notify(notificationId, NOTIFICATION_ID, notification);  
    }  
}
```

Wearable - *ReminderReceiverService.java*

```
@Override  
protected void onDataEventDeleted(Uri uri, DataMap dataMap) {  
    final List<String> segments = uri.getPathSegments();  
    if (segments != null && segments.size() > 1 && "show-reminder".equals(segments.get(0))) {  
        final String notificationId = segments.get(1);  
        mNotificationManager.cancel(notificationId, REMINDER_NOTIFICATION_ID);  
    }  
}
```

Packaging wearable apps

a simple Gradle dependency

```
android {  
    // ...  
}  
  
dependencies {  
    // ...  
    wearApp project(':wearable')  
}
```

Design from scratch

Do not create a small version of your handheld app. Start a completely new design process

Think “cards” first

Always think about the notification cards pattern first. The wear app pattern is a fallback

Keep simplicity in mind

Your wearables apps should be as rudimentary as interactions with these devices are

Thank you!

@cyrilmottier

cyrilmottier.com

Resources

Dressed for Iceland • *Cécile Bernard*
Moelwynion, Eryri, Cymru • *Marc Poppleton*

Fonts

Source Sans Pro
Menlo