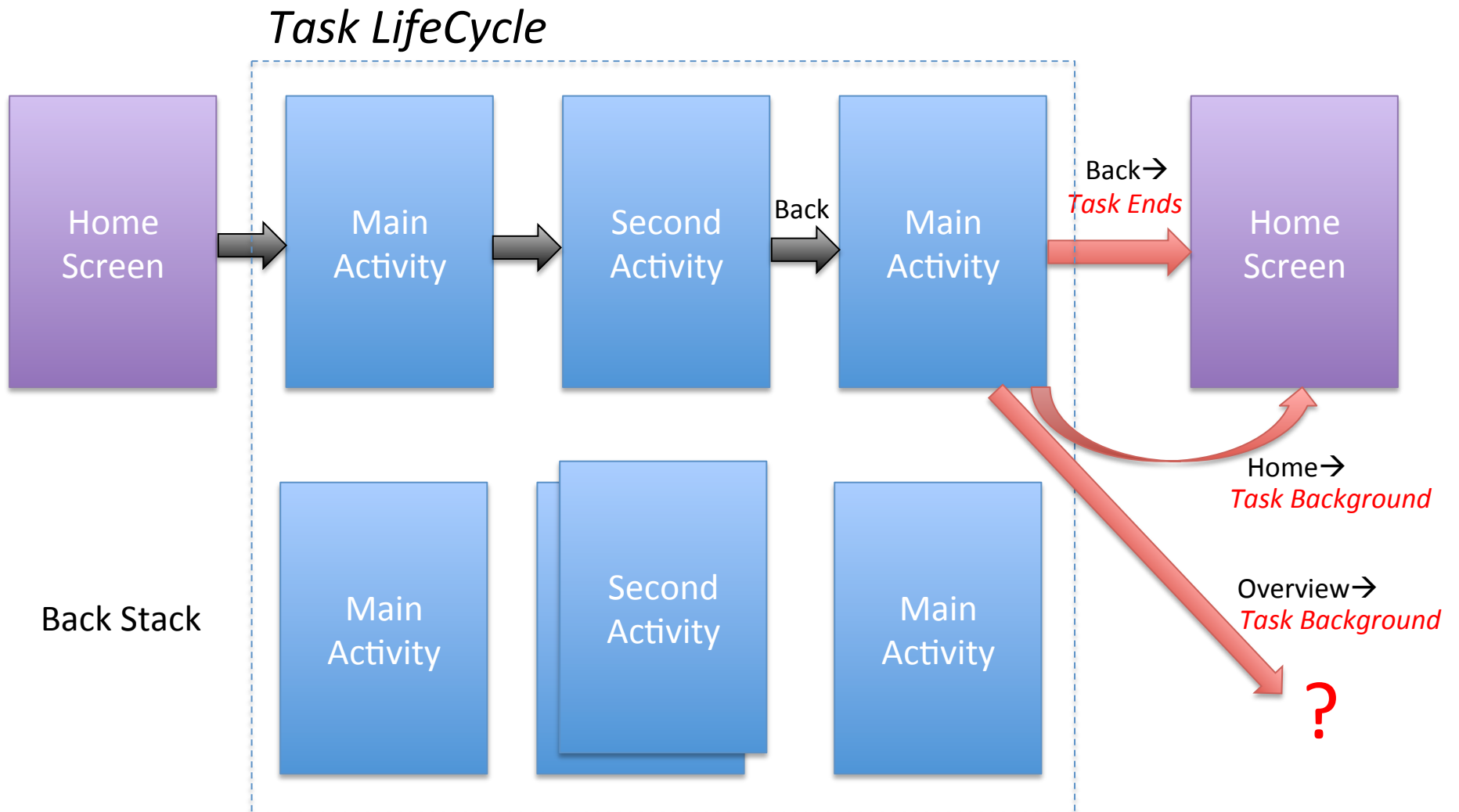


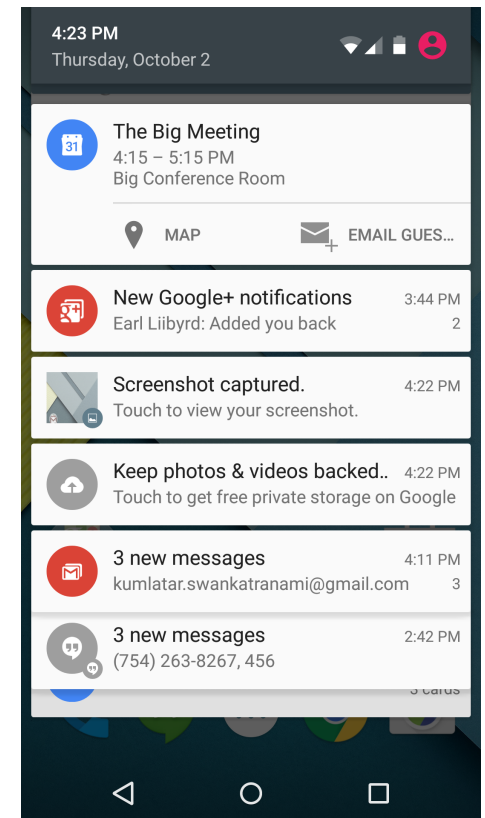
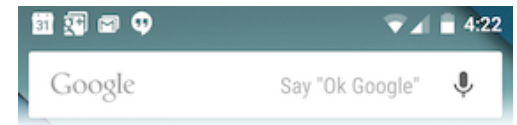
Broadcast Receivers
Content Providers

Task and Back Stack



Notifications

- Local notifications
 - App → Android
- Push notifications
 - Server → Android
 - Google Cloud Messaging
(now Firebase Cloud Messaging)



Basic Notificaion

- Create a notification builder
 - `<builder> = new NotificationCompat.Builder(this)
 .setSmallIcon(<icon resource id>
 .setContextTitle(<text>
 .setContextText(<text>);`
- Get notification Service
 - `<ntfy_man> = (NotificationManager)
 getSystemService(Context.NOTIFICATION_SERVICE);`
- Show notification
 - `<ntfy_man>.notify( <id>, <builder>.build() );`

Notification with Action

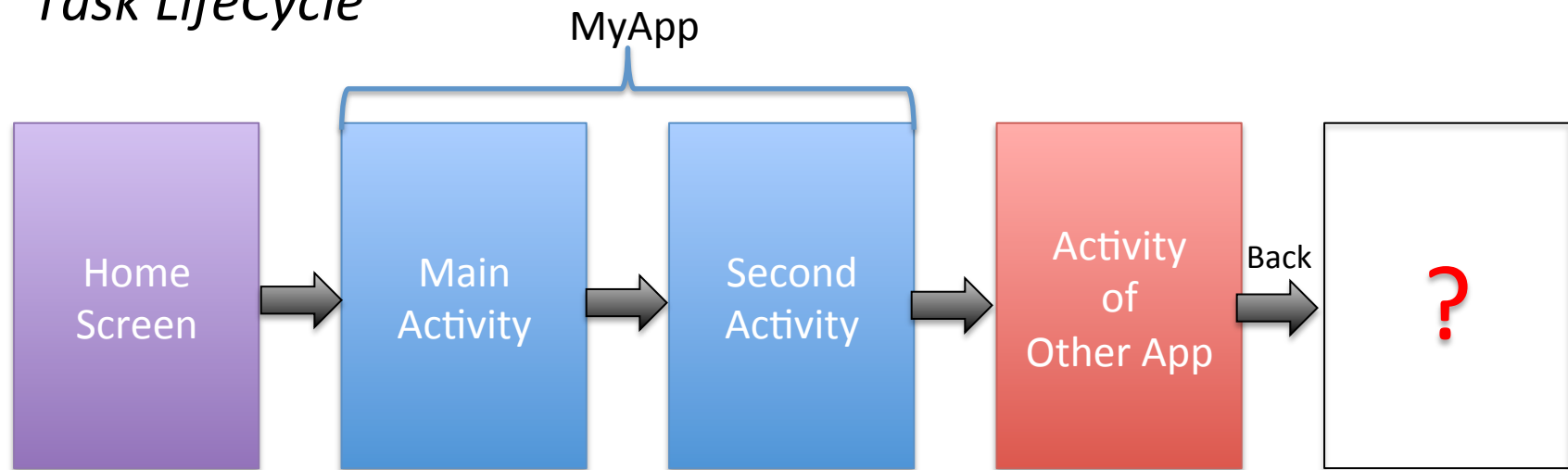
- Create an intent
 - `<int> = new Intent (this, <target activity>.class);`
- Wrap in a Pending Intent
 - `<pending int> = PendingIntent.getActivity(this, 0, <int>, 0 );`
- Set pending intent
 - `<builder>.setContentIntent(<pending int>)`

Update Notification

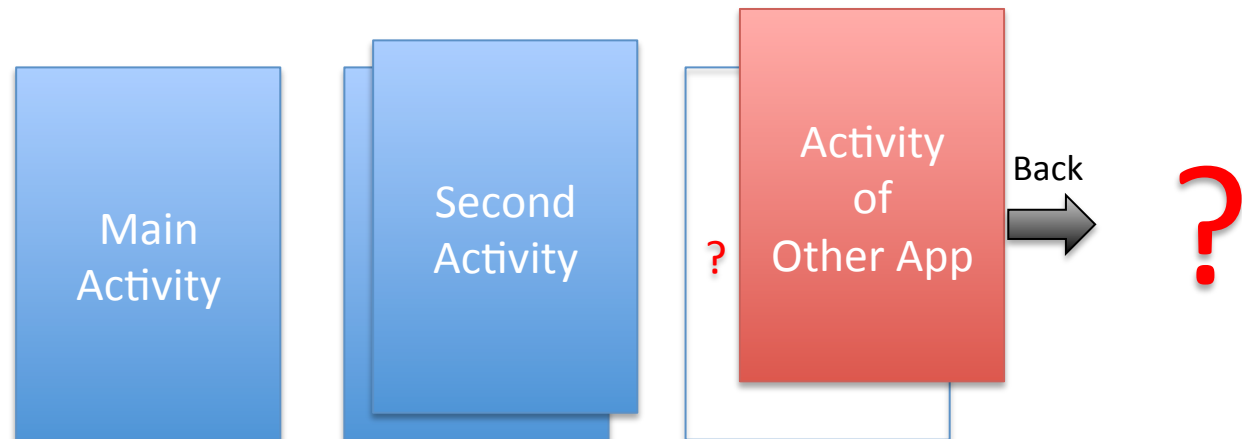
- To update existing notification
 - Just use the same notification ID
- To add another notification
 - Just use a new notification ID
- To remove when user clicks
 - `<builder>.setAutoCancel()`
- To remove notifications
 - `<ntfy manager>.cancel()`
 - `<ntfy manager>.cancelAll()`

Task and Back Stack

Task LifeCycle



Back Stack



Synthesizing Back Stack

- Specify parent relationship in Manifest
 - `<activity android:name=".ResultActivity"`
`android:parentActivityName=".MainActivity">`
`<meta-data`
`android:name="android.support.PARENT_ACTIVITY"`
`android:value=".MainActivity"/>`
`</activity>`
- Use TaskStackBuilder to synthesize back stack
 - `<stack builder>=TaskStackBuilder.create(this);`
`<stack builder>.addParentStack(<activity-class>);`
`<stack builder>.addNextIntent(<intent>);`
`<pending int>=<stack builder>.getPendingIntent(0,`
`PendingIntent.FLAG_UPDATE_CURRENT);`

ProgressBar in Notification

- Show progress bar in notification
 - `>= 4.0`, use `setProgress()`
 - before, make custom notification
- In a thread loop
 - `<builder>.setProgress( <max>, <val>, false );`
`<ntfy mgr>.notify( <id>, <builder>.build() );`
- When finished
 - `<builder>.setContentText( "complete" )`
`.setProgress( 0, 0, false ); //remove`
`<ntfy mgr>.notify( <id>, <builder>.build() );`