Mobile Applications
CSCI 448
Lecture 37

Deep Links

Learning Outcomes For Today

- Explain why & how Deep Links are used with NavGraphs
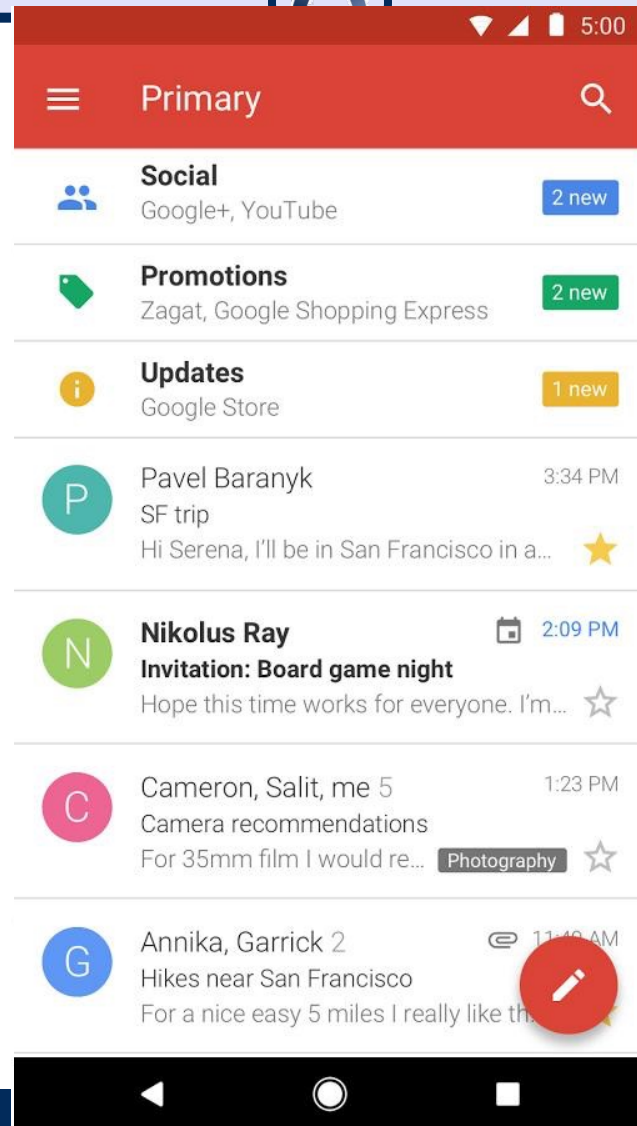
On Tap For Today

- Deep Link

- Practice

On Tap For Today

- Deep Link

- Practice

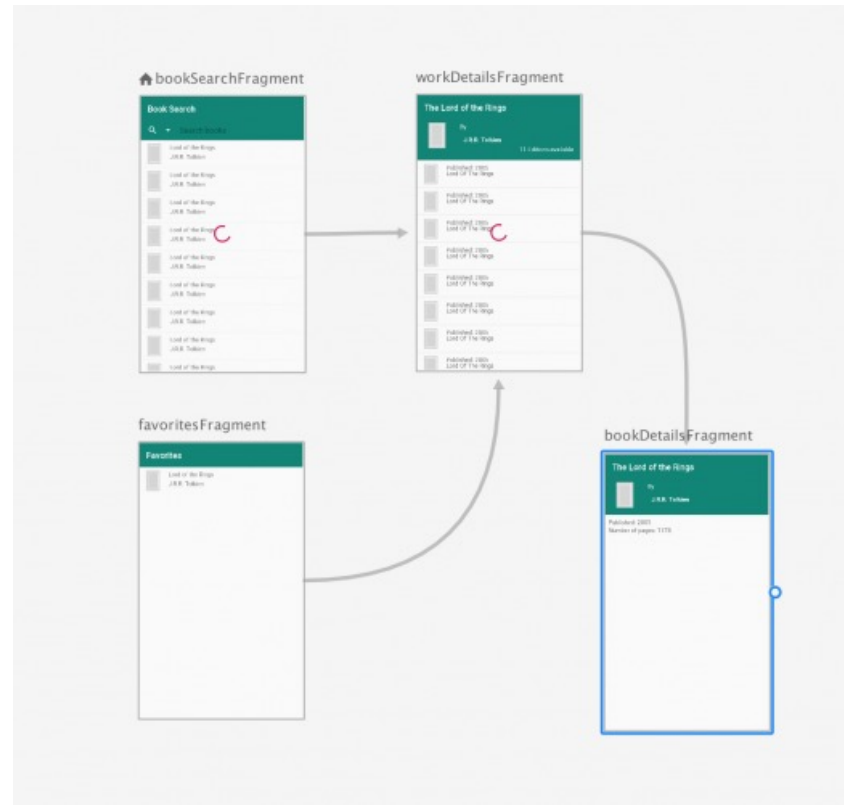# Where Do We Go In The App?

https://www.slashgear.com/gmail-go-is-the-lightweight-android-email-app-you-cant-have-15519786/

Need To Create Task

- And thus the Back Stack

- Done via a Deep Link to a NavGraph Destination

NavGraph

https://www.raywenderlich.com/6014-the-navigation-architecture-component-tutorial-getting-started

Specify Deep Link Route

- On NavHost composable that can be deep linked to

Specify Deep Link Route

```kotlin
NavHost(
    navController = navHostController,
    startDestination = "location"
) {
    composable(
        route = "location",
        arguments = listOf(
            navArgument( name = "lat" ) {
                type = NavType.StringType
                nullable = true
            }, navArgument( name = "long" ) {
                type = NavType.StringType
                nullable = true
            }
        ),
        deepLinks = listOf( navDeepLink { uriPattern = "$BASE_URI/{lat}/{long}" } )
    ) { navBackStackEntry ->
        // get arguments
    }
}
```
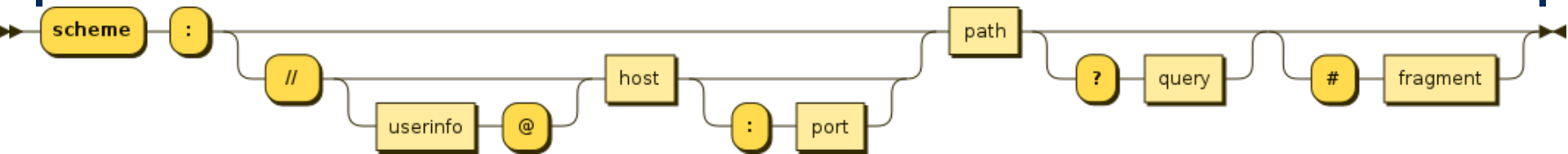
URI

- URI: Uniform Resource Identifier
  - Identifies a resource

- URL: Uniform Resource Locator
  - Identifies resource location

URI Format

- ## URI generic syntax

scheme : ["//" authority] path ["?" query] ["#" fragment]

- ## Examples

  - https://www.xkcd.com/2606

  - https://piazza.com/class/kxm9xjfhs4mrh?cid=314

  - https://localhost:80/csci448/index.html

  - https://cs-courses.mines.edu/csci448/homework/fp.html#br

  - mailto:jpaone@mines.edu

URI Specification For Our App

- Specify schema and path

```
deepLinks = listOf( navDeepLink { uriPattern = "$BASE_URI/{lat}/{long}" } )
```

- BASE_URI is of our choosing to route URI to our app, e.g.

```
private const val BASE_URI = "https://geolocatr.csci448.edu"
```

- Arguments specified at end of path

Expose URI

- Broadcast in manifest to filter URIs to our app activity

```
<manifest ...>
  ...
  <application ...>
    ...
    <activity ...>
      ...
      <intent-filter>
        <action android:name="android.intent.action.VIEW" />
        <category android:name="android.intent.category.BROWSABLE" />
        <data android:scheme="https" android:host="geolocatr.csci448.edu" />
      </intent-filter>
    </activity>
  </application>
</manifest>
```

Creating an Explicit Deep Link Intent

```kotlin
val deepLinkIntent = Intent(Intent.ACTION_VIEW,

    "$BASE_URI/${location.latitude}/${location.longitude}".toUri(),

    context,

    MainActivity::class.java

)

val deepLinkPendingIntent = TaskStackBuilder.create(context).run {

    addNextIntentWithParentStack(deepLinkIntent)

    getPendingIntent(0, PendingIntent.FLAG_UPDATE_CURRENT or
                        PendingIntent.FLAG_IMMUTABLE)

}
```

Pending Intent

- PendingIntent is…

- …what activity starts at future time

Back to the App!

```kotlin
val pendingIntent = ...

val notification = NotificationCompat.Builder(context, CHANNEL_ID)
        .setSmallIcon(R.drawable.icon) // REQUIRED!
        .setContentTitle("title to display")
        .setContextText("longer message to print")
        .setContentIntent(pendingIntent)  // intent to fire when user selects
        .setAutoCancel(true)  // remove notification when user selects
        .build()  // make the actual notification
notificationManager.notify(notifyID, notification)
```

On Tap For Today

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For Next Time

- Lab12B
  - Creating pending intent to user into app with provided arguments