droidcon academy

Navigating with Deep Links in Android Jetpack Compose

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Deep Link Fundamentals in Android

Sample App Overview

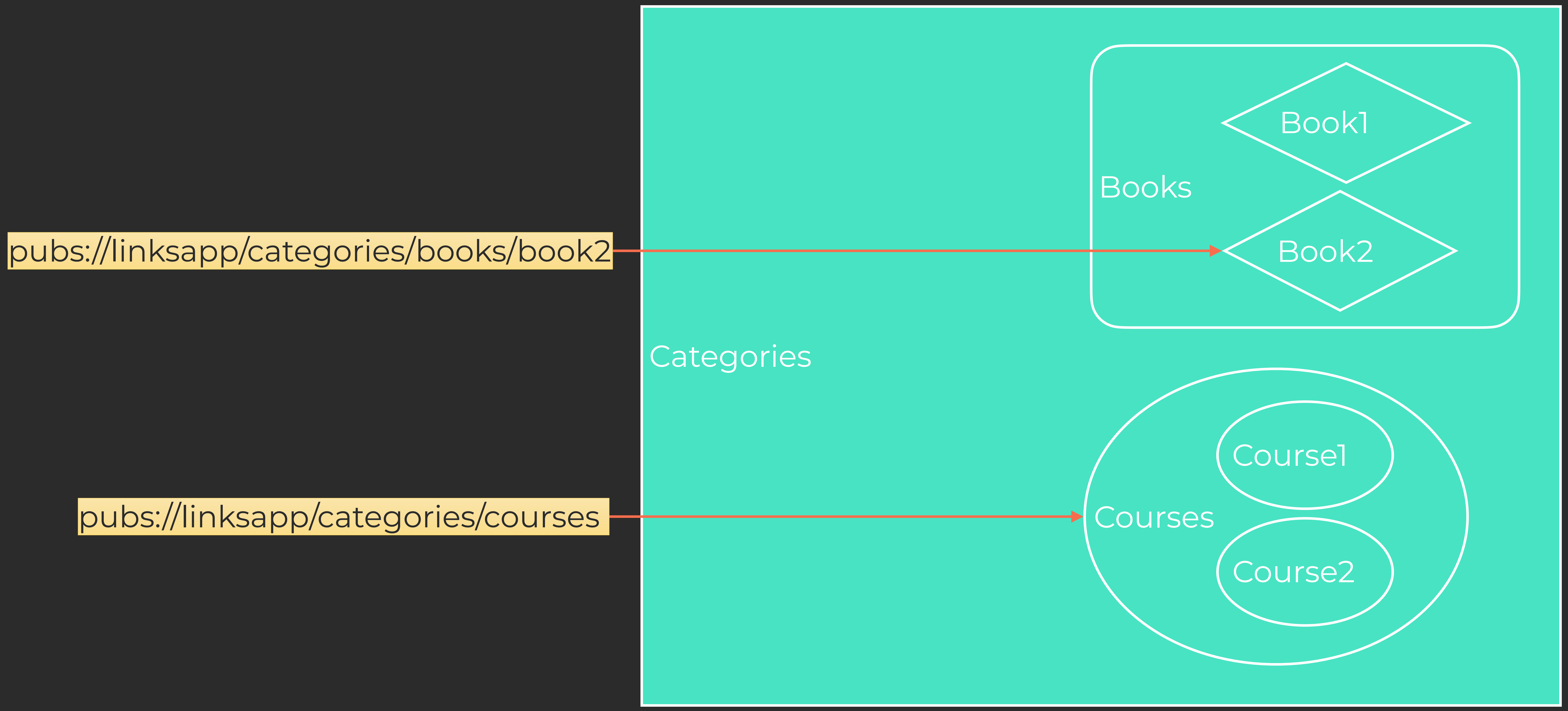
- Resume App
- Simple Navigation
- Screens:
  - Welcome
  - Categories
    - Courses
    - Books
  - Details Screen

Codelab Overview

- What Is a Deep Link?
- Deep Link vs. Web Link vs. App Link
- Design Navigation-Friendly URLs
- Add Deep Links Support to AndroidManifest.xml
- Add Deep Links To Compose Navigation Graph
- Invoke Deep Links
- Upgrade Deep Links to App Links
- Verify App Links Using Debug Build
- Verify App Links Using Release Build

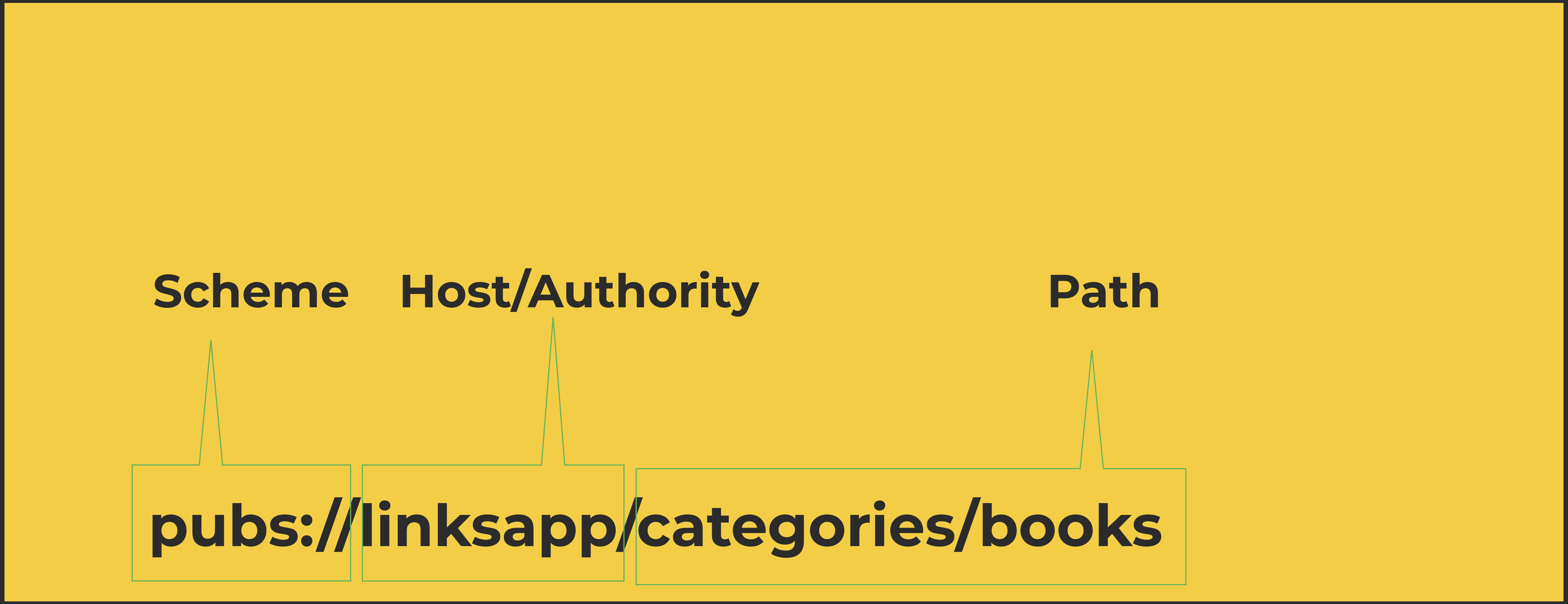
What Is a Deep Link?

- A URI (Link) That Takes Users to Specific Part of Your App


Book1
Books
pubs://linksapp/categories/books/book2
Book2
Categories
Course1
pubs://linksapp/categories/courses
Courses
Course2

What Is a Deep Link? (Structure)

- Deep Link Has the Following Structure:



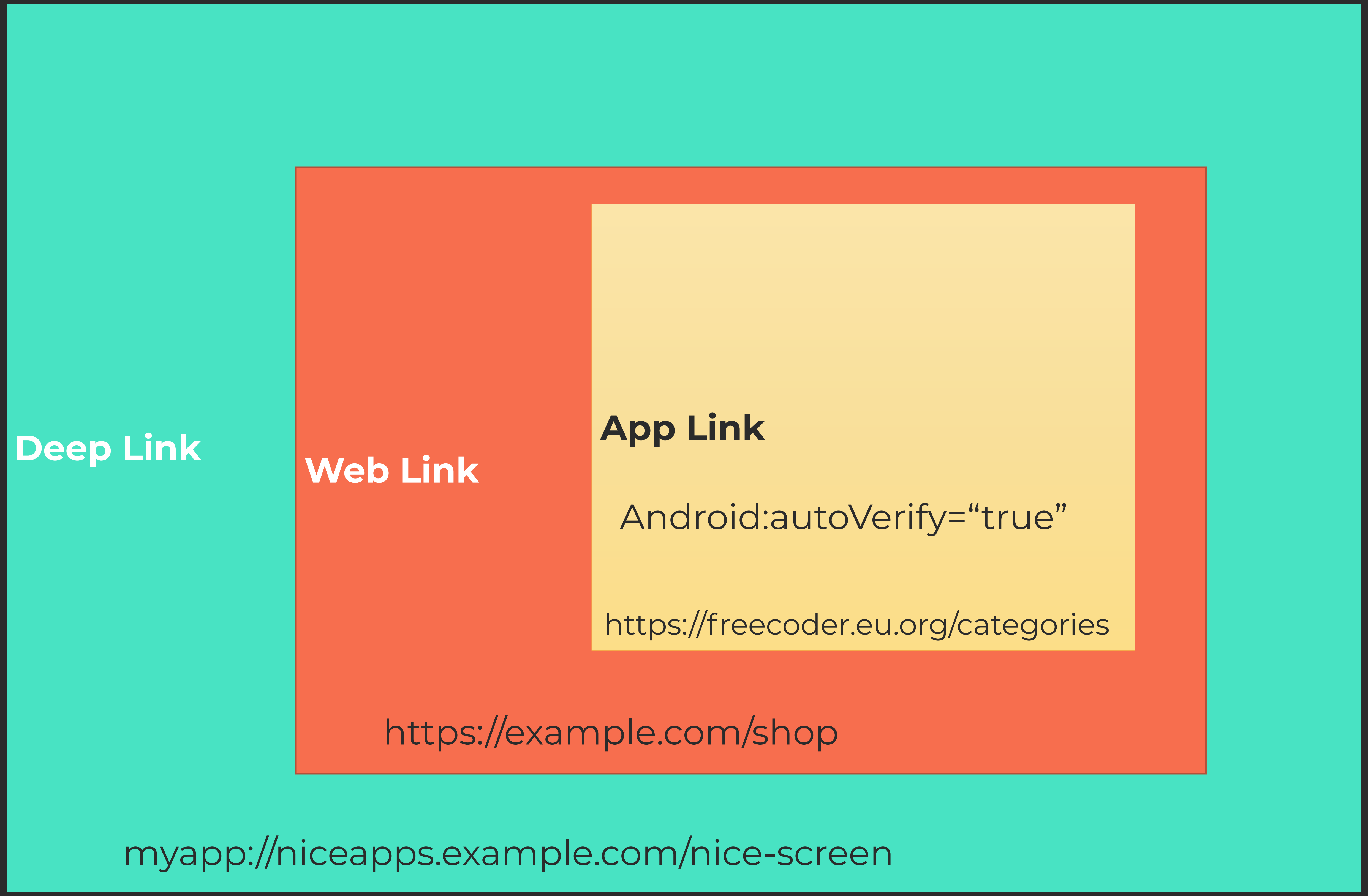
Scheme

Host/Authority

Path

pubs://linksapp/categories/books

Deep Link vs. Web Link vs. App Link



Deep Link

Web Link

App Link

Android:autoVerify="true"

https://freecoder.eu.org/categories

https://example.com/shop

myapp://niceapps.example.com/nice-screen

Design Navigation-Friendly URLs

- Incorporate business entities in the URL .e.g. categories, books, courses, etc.
- Prefer hierarchical URLs to separate URLs

/categories/:categoryName/:itemName

Instead of

/books/:bookName
/courses/:courseName

Add Deep Links Support to AndroidManifest.xml

```
<intent-filter>
    <action android:name="android.intent.action.VIEW" />
    <category android:name="android.intent.category.DEFAULT" />
    <category android:name="android.intent.category.BROWSABLE" />
    <data android:scheme="http" />
    <data android:scheme="https" />
    <data android:host="freecoder.eu.org"  />
    <data android:pathPrefix="/categories" />
</intent-filter>
```

Path Attributes

1. path: Specify complete path
2. pathPrefix: Partial initial path
3. pathSuffix: Partial ending path
4. pathPattern: A complete path with wildcards e.g. “categories/.*”
5. pathAdvancedPattern: A complex path using regex pattern

Add Deep Links To Compose Navigation Graph

```
NavHost(navController = appState.navController, startDestination = Screen.Category.route) {
    composable(route = Screen.ItemDetails.route,
        arguments = listOf(
            navArgument("categoryName"){type = NavType.StringType},
            navArgument("itemName"){type = NavType.StringType}
        ),
        deepLinks = listOf(
            navDeepLink { uriPattern = "$BASE_URL/categories/{categoryName}/{itemName}";  }
        )
        ){entry->
         //TODO: Compose UI for this route
   }


}
```

Implement Deep Links with Jetpack Compose

Invoke Deep Links

- By clicking a link from within a browser or WebView
- Via adb:
  - `adb shell am start -W -a android.intent.action.VIEW -d “https://freecoder.eu.org/categories/books”`

Code Challenge

- Design three deep links and three web links for the app
- Try opening them using the adb tool (Can also use an HTML file)

Upgrade Deep Links to App Links

1. Add “android:autoVerify” attribute to intent-filter
2. Create assetlinks.json file
3. Add app’s SHA-256 certificate fingerprint to assetlinks.json
4. Copy assetlinks.json to http://yourdomain.tld/.well-known directory
5. Launch intent and verify the app links

Verify App Links Using Debug Build

- Get SHA-256 fingerprint by running `gradle signingReport`
- `Update assetlinks.json`
- `Copy the file to web server:`
  - `Via scp`
  - `via rsync`
  - `Or GUI app e.g. FileZilla`
- `Launch intent and verify`

Verify App Links Using Release Build

- Prepare a release app bundle
- Upload to Play Console
- Get SHA-256 fingerprint from Deep Links dashboard
- Update assetlinks.json
- Launch intent and verify

Codelab Summary

- Difference between deep link, web link and app link
- Configure app links in AndroidManifest.xml
- Define deep links in Compose Navigation
- Invoke deep links
- Turn web links into app links
- Verify app links using debug and release builds