Build an adaptive app with dynamic navigation

1. Introduction

One of the great advantages of developing your app in the Android platform is the vast opportunity to reach users in different kinds of form factors, such as wearables, foldables, tablets, desktop, and even TV. When using an app, your users may want to use the same app on large screen devices to take advantage of the increased real estate. Increasingly, Android users use their apps on multiple devices of varying screen sizes, and expect a high-quality user experience across all devices.

So far, you learned to make apps primarily for mobile devices. In this codelab, you'll learn how to transform your apps to make them adaptive to other screen sizes. You'll use adaptive navigation layout patterns that are beautiful and usable for both mobile and large screen devices, such as foldables, tablets, and desktop.

Prerequisites

- Familiarity with Kotlin programming, including classes, functions, and conditionals
- Familiarity using `ViewModel` classes
- Familiarity creating `Composable` functions
- Experience building layouts with Jetpack Compose
- Experience running apps on a device or emulator

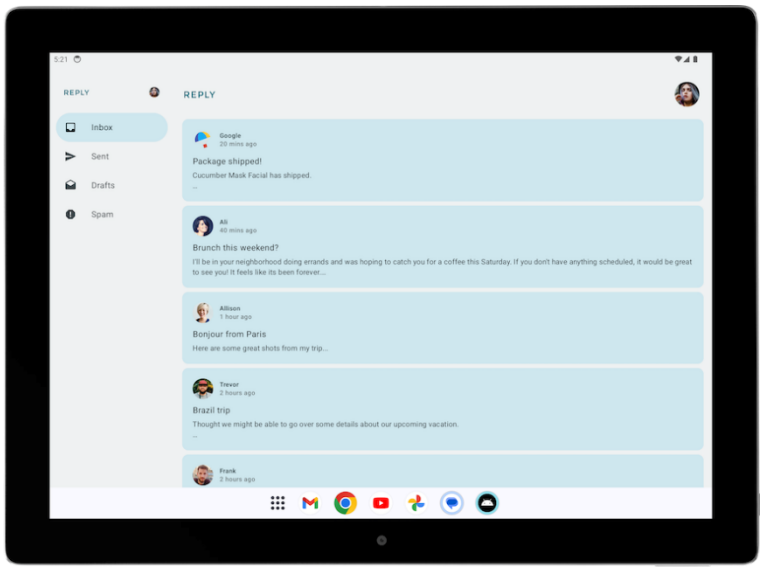
What you'll learn

- How to create navigation between screens without Navigation Graph for simple apps
- How to create an adaptive navigation layout using Jetpack Compose
- How to create a custom back handler

What you'll build

- You will implement dynamic navigation in the existing Reply app to make its layout adapt to all screen sizes

The finished product will look like the image below:



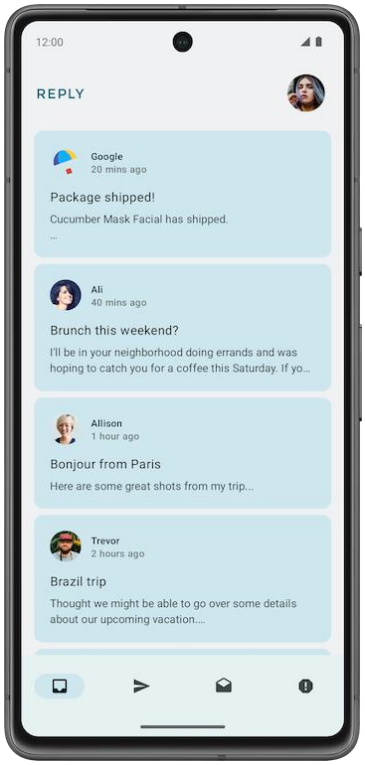
What you'll need

- A computer with internet access, a web browser, and Android Studio
- Access to GitHub

2. App overview

Reply app introduction

Reply app is a multiscreen app which resembles an email client.



It contains 4 different categories which are displayed by different tabs, namely: inbox, sent, draft, and spam.

Download the starter code

In Android Studio, open the `basic-android-kotlin-compose-training-reply-app` folder.

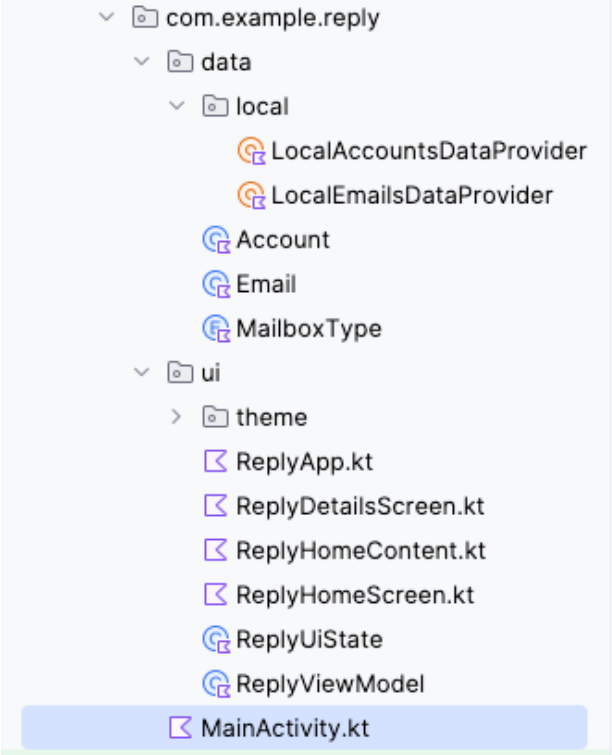
Starter code URL:

https://github.com/google-developer-training/basic-android-kotlin-compose-training-reply-app

Branch name with starter code: starter

3. Starter code walkthrough

Important directories in Reply app



The data and UI layer of the Reply app project is separated into different directories. `ReplyViewModel`, `ReplyUiState`, and other composables are located in the `ui` directory. The `data` and `enum` classes that define the data layer and the data provider classes are located in the `data` directory.

Data initialization in Reply app

The Reply app is initialized with data through the `initializeUIState()` method in the `ReplyViewModel`, which is executed in the `init` function.

ReplyViewModel.kt

```
...
    init {
        initializeUIState()
    }


    private fun initializeUIState() {
        var mailboxes: Map<MailboxType, List<Email>> =
            LocalEmailsDataProvider.allEmails.groupBy {
it.mailbox }
        _uiState.value = ReplyUiState(
            mailboxes = mailboxes,
            currentSelectedEmail =
mailboxes[MailboxType.Inbox]?.get(0)
                ?: LocalEmailsDataProvider.defaultEmail
        )
    }
...
```

The screen level composable

As with other apps, the Reply app uses the `ReplyApp` composable as the main composable where the `viewModel` and `uiState` are declared.
Various `viewModel()` functions are also passed as lambda arguments for the `ReplyHomeScreen` composable.

ReplyApp.kt

```
...
@Composable
fun ReplyApp(modifier: Modifier = Modifier) {
    val viewModel: ReplyViewModel = viewModel()
    val replyUiState =
viewModel.uiState.collectAsState().value

    ReplyHomeScreen(
        replyUiState = replyUiState,
        onTabPressed = { mailboxType: MailboxType ->
            viewModel.updateCurrentMailbox(mailboxType =
mailboxType)
            viewModel.resetHomeScreenStates()
        },
```

```
        onEmailCardPressed = { email: Email ->
            viewModel.updateDetailsScreenStates(
                email = email
            )
        },
        onDetailScreenBackPressed = {
            viewModel.resetHomeScreenStates()
        },
        modifier = modifier
    )
}
```

Other composables

- **ReplyHomeScreen.kt**: contains the screen composables for home screen, including navigation elements.
- **ReplyHomeContent.kt**: contains composables that define more detailed composables of the home screen.
- **ReplyDetailsScreen.kt**: contains screen composables and smaller composables for the details screen.

Feel free to go through each file in detail to gain more understanding of the composables before proceeding with the next section of the codelab.

4. Change screens without a navigation graph

In the previous pathway, you learned to use a `NavHostController` class to navigate from one screen to another. With Compose, you can also change screens with simple conditional statements by making use of runtime mutable states. This is especially useful in small applications like the Reply app, where you only want to switch between two screens.

Change screens with state changes

In Compose, screens are recomposed when a state change occurs. You can change screens using simple conditionals to respond to changes in states.

You'll use conditionals to show the content of the home screen when the user is at the home screen, and the details screen when the user is not at the home screen.

Modify the Reply app to allow screen changes on state change by completing the following steps:

1. Open the starter code in Android Studio.

2. In the `ReplyHomeScreen` composable in `ReplyHomeScreen.kt`, wrap the `ReplyAppContent` composable with an `if` statement for when the `isShowingHomepage` property of `replyUiState` object is `true`.

ReplyHomeScreen.kt

```
@Composable
fun ReplyHomeScreen(
    replyUiState: ReplyUiState,
    onTabPressed: (MailboxType) -> Unit,
    onEmailCardPressed: (Int) -> Unit,
    onDetailScreenBackPressed: () -> Unit,
    modifier: Modifier = Modifier
) {

...
    if (replyUiState.isShowingHomepage) {
        ReplyAppContent(
            replyUiState = replyUiState,
            onTabPressed = onTabPressed,
            onEmailCardPressed = onEmailCardPressed,
            navigationItemContentList =
navigationItemContentList,
            modifier = modifier

        )
    }
}
```

You must now account for the scenario when the user is not at the home screen by showing the details screen.

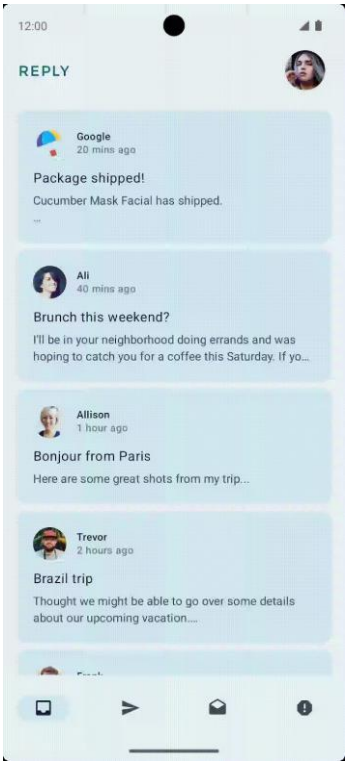
3. Add an `else` branch with the `ReplyDetailsScreen` composable in its body.
   Add `replyUIState`, `onDetailScreenBackPressed` and `modifier` as arguments for the `ReplyDetailsScreen` composable.

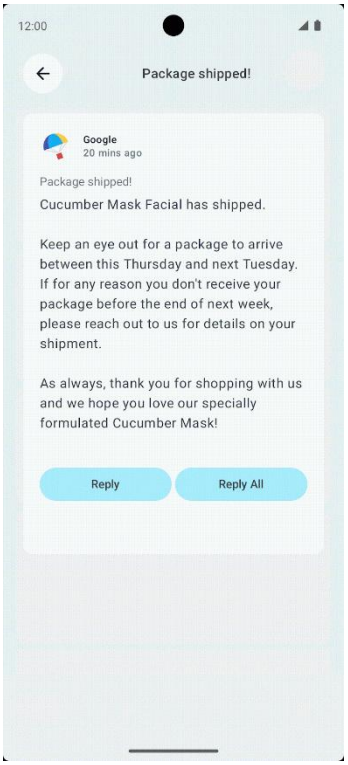
ReplyHomeScreen.kt

```
@Composable
fun ReplyHomeScreen(
    replyUiState: ReplyUiState,
    onTabPressed: (MailboxType) -> Unit,
    onEmailCardPressed: (Int) -> Unit,
    onDetailScreenBackPressed: () -> Unit,
    modifier: Modifier = Modifier
) {

...

    if (replyUiState.isShowingHomepage) {
```

```
        ReplyAppContent(
            replyUiState = replyUiState,
            onTabPressed = onTabPressed,
            onEmailCardPressed = onEmailCardPressed,
            navigationItemContentList =
navigationItemContentList,
            modifier = modifier

        )
    } else {
        ReplyDetailsScreen(
            replyUiState = replyUiState,
            onBackPressed = onDetailScreenBackPressed,
            modifier = modifier
        )
    }
}
```

The `replyUiState` object is a state object. As such, when there is a change in the `isShowingHomepage` property of the `replyUiState` object, the `ReplyHomeScreen` composable is recomposed and the `if/else` statement is reevaluated at runtime. This approach supports navigation between different screens without the use of a `NavHostController` class.





Create custom back handler

One advantage of using the `NavHost` composable to switch between screens is that the directions of previous screens are saved in the backstack. These saved screens allow the system back button to easily navigate to the previous screen when invoked. Since the Reply app doesn't use a `NavHost`, you have to add the code to handle the back button manually. You will do this next.

Complete the following steps to create a custom back handler in the Reply app:

1. On the first line of the `ReplyDetailsScreen` composable, add a `BackHandler` composable.
2. Call the `onBackPressed()` function in the body of the `BackHandler` composable.

ReplyDetailsScreen.kt

```
...
import androidx.activity.compose.BackHandler
...
@Composable
fun ReplyDetailsScreen(
    replyUiState: ReplyUiState,
    onBackPressed: () -> Unit,
    modifier: Modifier = Modifier
) {
    BackHandler {
        onBackPressed()
    }
...
```

5. Run app on large screen devices

Check your app with the resizable emulator

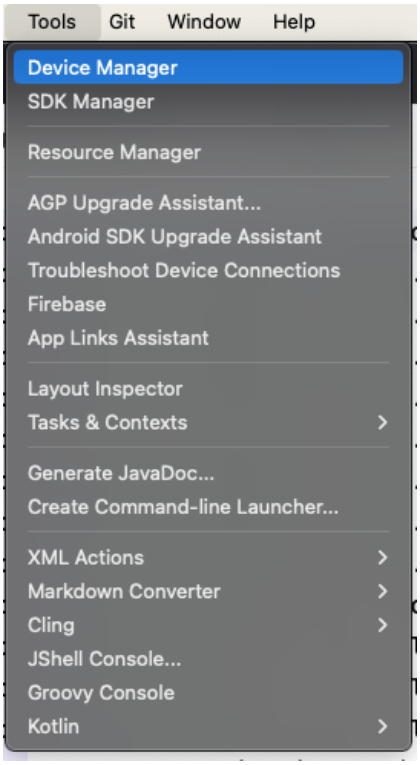
To make usable apps, developers need to understand their users' experience in various form factors. Therefore, you must test apps on various form factors from the beginning of the development process.

You can use many emulators of different screen sizes to achieve this goal. However, doing so can be cumbersome, especially when you are building for multiple screen sizes at once. You might also need to test how an app that is running responds to screen size changes , such as orientation changes, window size changes in a desktop, and fold state changes in foldable.

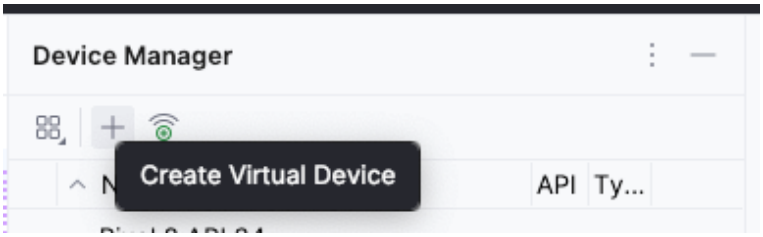
Android Studio helps you to test these scenarios with the introduction of the **resizable emulator**.

Complete the following steps to set up the resizable emulator:

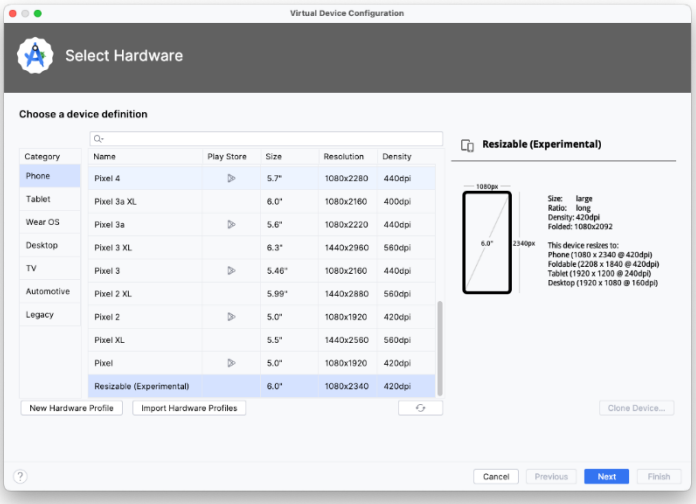
1. In Android Studio, select Tools > Device Manager.



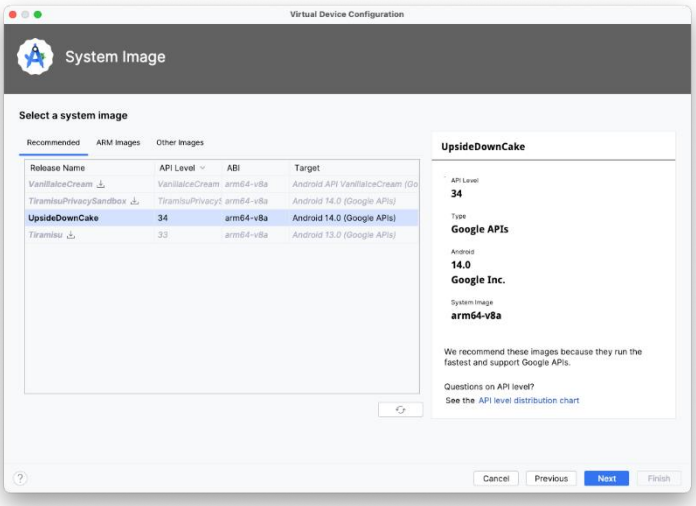
2. In **Device Manager**, click + icon to create a virtual device.



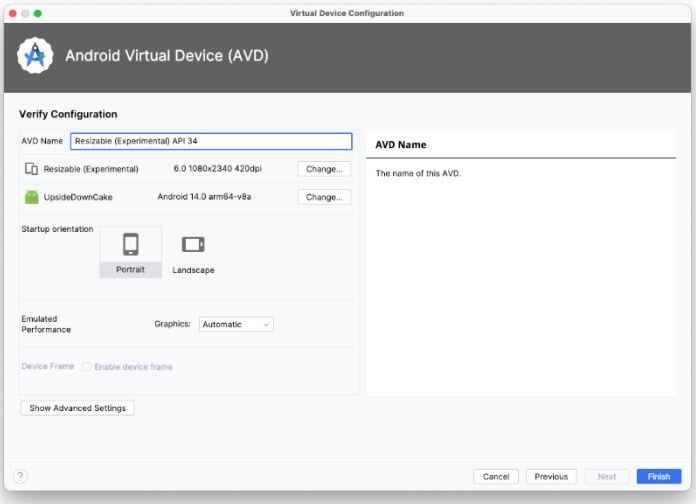
3. Select the **Phone** category and the **Resizable (Experimental)** device.
4. Click **Next**.



5. Select **API Level 34** or higher.
6. Click **Next**.



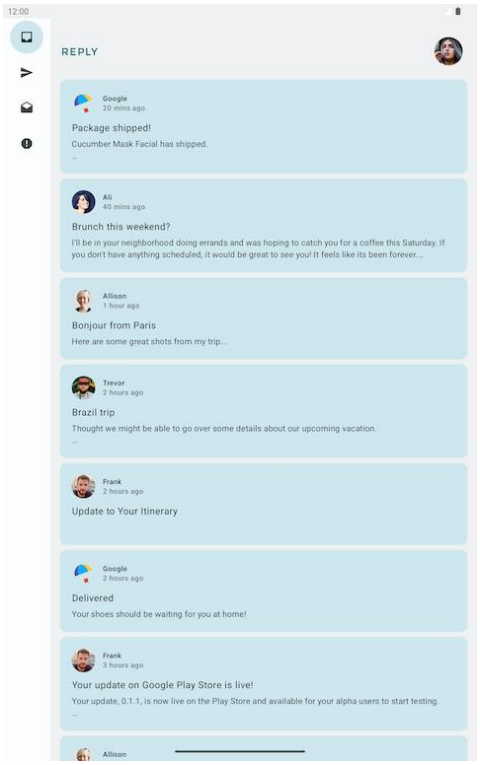
7. Name your new Android Virtual Device.
8. Click **Finish**.



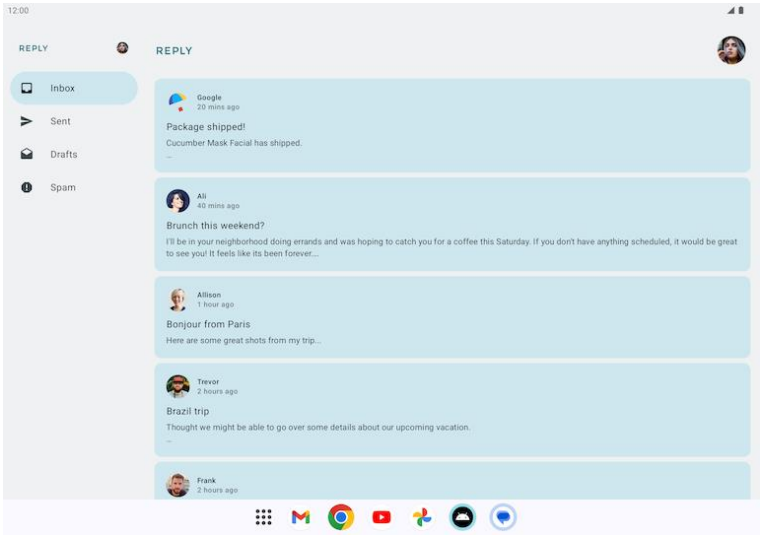
Run app on a large screen emulator

Now that you have the resizable emulator setup, let's see how the app looks on a large screen.

1. Run the app on the resizable emulator.
2. Select **Tablet** for the display mode.



3. Inspect the app in the Tablet mode in landscape mode.



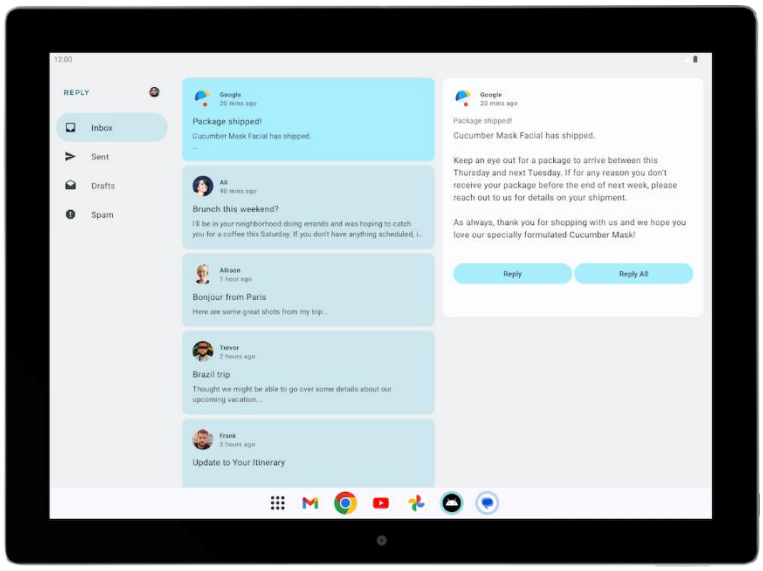
Notice that the tablet screen display is horizontally elongated. While this orientation functionally works, it might not be the best use of the large screen real estate. Let's address that next.

Design for large screens

Your first thought might be when looking at this app on a tablet is that it is poorly designed and unappealing. You are exactly right: this layout is not designed for large screen use.

When designing for large screens, such as tablets and foldables, you have to consider user ergonomics and the proximity of the user's fingers to the screen. With mobile devices, user's fingers can easily reach most of the screen; the location of interactive elements, such as buttons and navigation elements, are not as critical. However, for large screens, having critical interactive elements in the middle of the screen can make them hard to reach.

As you see in the Reply app, design for large screens is not just stretching or enlarging UI elements to fit the screen. It is an opportunity to use the increased real estate to create a different experience for your users. For example, you can add another layout on the same screen to prevent the need to navigate to another screen or make multitasking possible.



This design can increase user productivity and fosters greater engagement. But before you deploy this design, you must first learn how to create different layouts for different screen sizes.

Note: Portrait mode is the primary orientation for phones, but landscape mode is the primary orientation for tablets. When designing for adaptivity, the relevant screen size is affected by the current window size and the device orientation, not just the device size.

6. Make your layout adapt to different screen sizes

What are breakpoints?

You may wonder how you can show different layouts for the same app. The short answer is by using conditionals on different states, the way you did in the beginning of this codelab.

To create an adaptive app, you need the layout to change based on screen size. The measurement point where a layout changes is known as a breakpoint. Material Design created an opinionated breakpoint range (https://m3.material.io/foundations/adaptive-design/large-screens/overview) that covers most Android screens.

Breakpoint range (dp)	Portrait	Landscape	Window size class	Columns	Minimum margins*
0-599	Handset	Phone**	Compact	4	8
600-839	Foldable Small tablet	Foldable Small tablet	Medium	12	12
840+	Large tablet	Large tablet	Expanded	12	32

*Margins and gutters are flexible and don't need to be equal in size.
**Phones in landscape are considered an exception in order to still fit within this category.

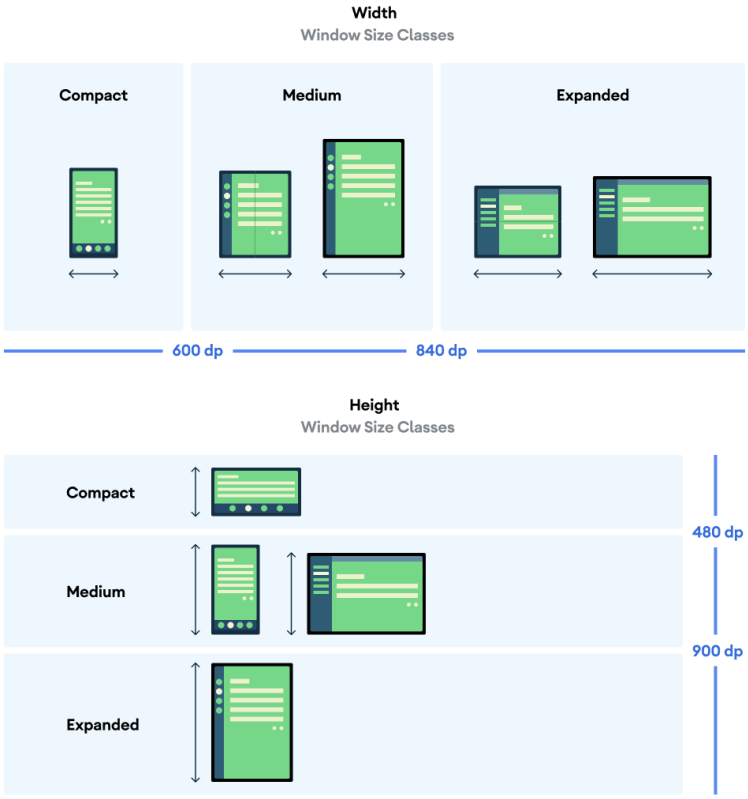
This breakpoint range table shows, for example, that if your app is currently running on a device with a screen size less than 600 dp, you should show the mobile layout.

Note: The breakpoints concept in adaptive layouts is different from the breakpoints term in debugging (https://developer.android.com/studio/debug#breakPoints).

Use Window Size Classes

The `WindowSizeClass` API introduced for Compose makes the implementation of Material Design breakpoints simpler.

Window Size Classes introduces three categories of sizes: Compact, Medium, and Expanded, for both width and height.



Complete the following steps to implement the `WindowSizeClass` API in the Reply app:

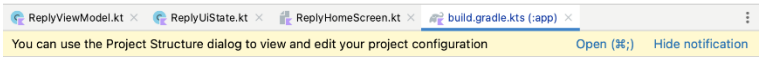
1. Add the `material3-window-size-class` dependency to the module `build.gradle.kts` file.

build.gradle.kts

```
...
dependencies {
...
    implementation("androidx.compose.material3:material3-
```

```
window-size-class")
...
```

2. Click **Sync Now** to sync gradle after adding the dependency.



With the `build.gradle.kts` file up to date, you now can create a variable that stores the size of the app's window at any given time.

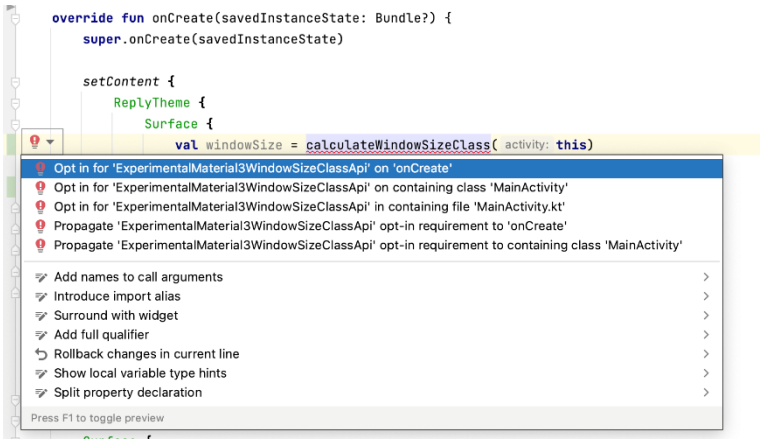
3. In the `onCreate()` function in the `MainActivity.kt` file, assign the `calculateWindowSizeClass()` method with `this` context passed in the parameter to a variable named `windowSize`.
4. Import the appropriate `calculateWindowSizeClass` package.

MainActivity.kt

```
...
import
androidx.compose.material3.windowsizeclass.calculateWindowSize
Class

...

override fun onCreate(savedInstanceState: Bundle?) {
    super.onCreate(savedInstanceState)

    setContent {
        ReplyTheme {
            val layoutDirection = LocalLayoutDirection.current
            Surface (
               // ...
            ) {
                val windowSize =
calculateWindowSizeClass(this)
                ReplyApp()
...
```

5. Notice the red underlining of the `calculateWindowSizeClass` syntax, which shows the red light bulb. Click the red light bulb to the left of the `windowSize` variable and select **Opt in for 'ExperimentalMaterial3WindowSizeClassApi' on 'onCreate'** to create an annotation on top of the `onCreate()` method.

Note: This error message appears because currently the `material3-window-size-class` API is still in an alpha version that requires this annotation.



You can use the `WindowWidthSizeClass` variable in the `MainActivity.kt` to determine which layout to display in various composables. Let's prepare the `ReplyApp` composable to receive this value.

6. In the `ReplyApp.kt` file, modify the `ReplyApp` composable to accept the `WindowWidthSizeClass` as the parameter and import the appropriate package.

ReplyApp.kt

```
...
import
androidx.compose.material3.windowsizeclass.WindowWidthSizeClas
s
...

@Composable
fun ReplyApp(
    windowSize: WindowWidthSizeClass,
    modifier: Modifier = Modifier
) {
...
```

7. Pass the `windowSize` variable to the `ReplyApp` component in the `MainActivity.kt` file's `onCreate()` method.

MainActivity.kt

```
...
        setContent {
            ReplyTheme {
                Surface {
                    val windowSize =
calculateWindowSizeClass(this)
                    ReplyApp(
                        windowSize = windowSize.widthSizeClass
```

```
                    )
...
```

You also need to update the app's preview, too, for the `windowSize` parameter.

8. Pass the `WindowWidthSizeClass.Compact` as the `windowSize` parameter to the `ReplyApp` composable for the preview component and import the appropriate package.

MainActivity.kt

```
...
import
androidx.compose.material3.windowsizeclass.WindowWidthSizeClas
s
...

@Preview(showBackground = true)
@Composable
fun ReplyAppCompactPreview() {
    ReplyTheme {
        Surface {
            ReplyApp(
                windowSize = WindowWidthSizeClass.Compact,
            )
        }
    }
}
```

9. To change the app layouts based on the size of the screen, add a `when` statement in the `ReplyApp` composable based on the `WindowWidthSizeClass` value.

ReplyApp.kt

```
...

@Composable
fun ReplyApp(
    windowSize: WindowWidthSizeClass,
    modifier: Modifier = Modifier
) {
    val viewModel: ReplyViewModel = viewModel()
    val replyUiState =
viewModel.uiState.collectAsState().value

    when (windowSize) {
        WindowWidthSizeClass.Compact -> {
        }
```

```
        WindowWidthSizeClass.Medium -> {
        }
        WindowWidthSizeClass.Expanded -> {
        }
        else -> {
        }
    }
...
```

At this point, you established a foundation to use `WindowSizeClass` values to change the layouts in your app. The next step is to determine how you want your app to look on different screen sizes.

7. Implement adaptive navigation layout

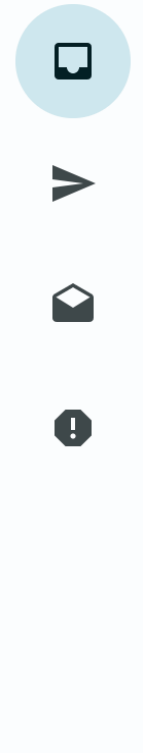
Implement adaptive UI navigation

Currently, the bottom navigation is used for all screen sizes.

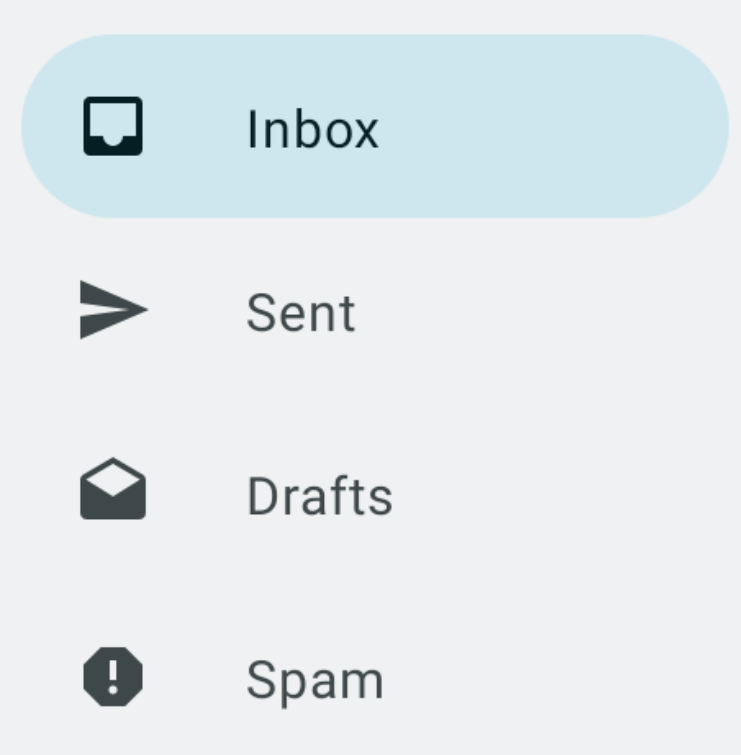
As previously discussed, this navigation element is not ideal because users can find it difficult to reach these essential navigation elements on larger screens. Fortunately, there are recommended patterns for different navigation elements for various window size classes in navigation for responsive UIs. For the Reply app, you can implement the following elements:

Window size class	Few items
compact width	bottom navigation bar
medium width	navigation rail
expanded width	persistent navigation drawer (leading edge)

Navigation rail is another navigation component by material design which allows compact navigation options for primary destinations to be accessible from the side of the app.



Similarly, a persistent/permanent navigation drawer is created by material design as another option to provide ergonomic access for larger screens.



Implement a navigation drawer

To create a navigation drawer for expanded screens, you can use the `navigationType` parameter. Complete the following steps to do so:

1. To represent different types of navigation elements, create a new file `WindowStateUtils.kt` in a new package `utils`, which is under the `ui` directory.
2. Add an `Enum` class to represent different types of navigation elements.

WindowStateUtils.kt

```
package com.example.reply.ui.utils

enum class ReplyNavigationType {
    BOTTOM_NAVIGATION, NAVIGATION_RAIL,
PERMANENT_NAVIGATION_DRAWER
}
```

To successfully implement the navigation drawer, you need to determine the navigation type based on the app's window size.

3. In the `ReplyApp` composable, create a `navigationType` variable and assign it the appropriate `ReplyNavigationType` value, according to the screen size in the `when` statement.

ReplyApp.kt

```
...
import com.example.reply.ui.utils.ReplyNavigationType
...
    val navigationType: ReplyNavigationType
    when (windowSize) {
        WindowWidthSizeClass.Compact -> {
            navigationType =
ReplyNavigationType.BOTTOM_NAVIGATION
        }
        WindowWidthSizeClass.Medium -> {
            navigationType =
ReplyNavigationType.NAVIGATION_RAIL
        }
        WindowWidthSizeClass.Expanded -> {
            navigationType =
ReplyNavigationType.PERMANENT_NAVIGATION_DRAWER
        }
        else -> {
            navigationType =
ReplyNavigationType.BOTTOM_NAVIGATION
        }
```

```
    }
...
```

You can use the `navigationType` value in the `ReplyHomeScreen` composable. You can prepare for that by making it a parameter for the composable.

4. In the `ReplyHomeScreen` composable, add `navigationType` as a parameter.

ReplyHomeScreen.kt

```
...
@Composable
fun ReplyHomeScreen(
    navigationType: ReplyNavigationType,
    replyUiState: ReplyUiState,
    onTabPressed: (MailboxType) -> Unit,
    onEmailCardPressed: (Email) -> Unit,
    onDetailScreenBackPressed: () -> Unit,
    modifier: Modifier = Modifier
)

...
```

5. Pass the `navigationType` into the `ReplyHomeScreen` composable.

ReplyApp.kt

```
...
    ReplyHomeScreen(
        navigationType = navigationType,
        replyUiState = replyUiState,
        onTabPressed = { mailboxType: MailboxType ->
            viewModel.updateCurrentMailbox(mailboxType =
mailboxType)
            viewModel.resetHomeScreenStates()
        },
        onEmailCardPressed = { email: Email ->
            viewModel.updateDetailsScreenStates(
                email = email
            )
        },
        onDetailScreenBackPressed = {
            viewModel.resetHomeScreenStates()
        },
        modifier = modifier
    )
...
```

Next, you can create a branch to show the app content with a navigation drawer when the user opens the app on an expanded screen and displays the homescreen.

6. In the `ReplyHomeScreen` composable body, add an `if` statement for `navigationType == ReplyNavigationType.PERMANENT_NAVIGATION_DRAWER && replyUiState.isShowingHomepage` condition.

ReplyHomeScreen.kt

```
import androidx.compose.material3.PermanentNavigationDrawer
...
@Composable
fun ReplyHomeScreen(
    navigationType: ReplyNavigationType,
    replyUiState: ReplyUiState,
    onTabPressed: (MailboxType) -> Unit,
    onEmailCardPressed: (Email) -> Unit,
    onDetailScreenBackPressed: () -> Unit,
    modifier: Modifier = Modifier
) {
...
    if (navigationType ==
ReplyNavigationType.PERMANENT_NAVIGATION_DRAWER
        && replyUiState.isShowingHomepage
    ) {
    }

    if (replyUiState.isShowingHomepage) {
        ReplyAppContent(
            replyUiState = replyUiState,
...
```

7. To create the permanent drawer, create the `PermanentNavigationDrawer` composable in the if statement's body and add `NavigationDrawerContent` composable as the input for the `drawerContent` parameter.
8. Add the `ReplyAppContent` composable as the final lambda argument of the `PermanentNavigationDrawer`.

ReplyHomeScreen.kt

```
...
    if (navigationType ==
ReplyNavigationType.PERMANENT_NAVIGATION_DRAWER
        && replyUiState.isShowingHomepage
    ) {
        PermanentNavigationDrawer(
            drawerContent = {
```

```
                PermanentDrawerSheet(Modifier.width(dimensionR
esource(R.dimen.drawer_width))) {
                    NavigationDrawerContent(
                        selectedDestination =
replyUiState.currentMailbox,
                        onTabPressed = onTabPressed,
                        navigationItemContentList =
navigationItemContentList,
                        modifier = Modifier
                            .wrapContentWidth()
                            .fillMaxHeight()
                            .background(MaterialTheme.colorSch
eme.inverseOnSurface)
                            .padding(dimensionResource(R.dimen
.drawer_padding_content))
                    )
                }
            }
        ) {
            ReplyAppContent(
                replyUiState = replyUiState,
                onTabPressed = onTabPressed,
                onEmailCardPressed = onEmailCardPressed,
                navigationItemContentList =
navigationItemContentList,
                modifier = modifier
            )
        }
    }

...
```

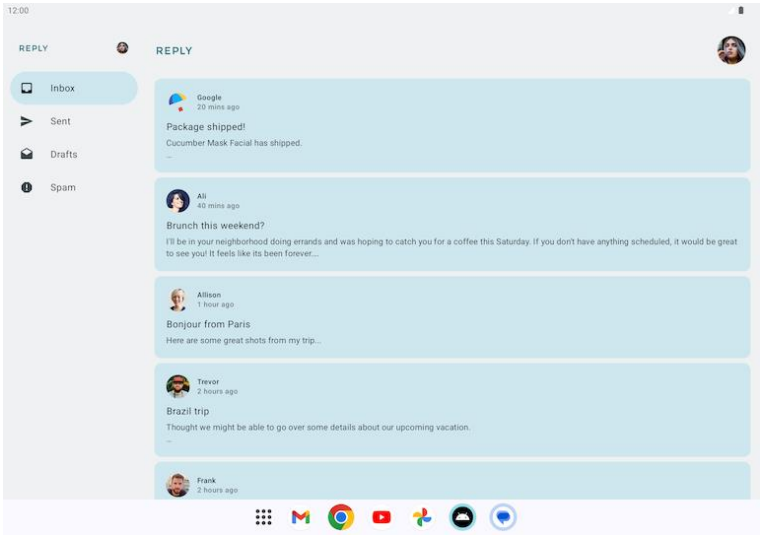
9. Add an `else` branch that uses the previous composable body to maintain the previous branching for non expanded screens.

ReplyHomeScreen.kt

```
...
if (navigationType ==
ReplyNavigationType.PERMANENT_NAVIGATION_DRAWER
        && replyUiState.isShowingHomepage
) {
        PermanentNavigationDrawer(
            drawerContent = {
                PermanentDrawerSheet(Modifier.width(dimensionR
esource(R.dimen.drawer_width))) {
                    NavigationDrawerContent(
                        selectedDestination =
replyUiState.currentMailbox,
```

```
                        onTabPressed = onTabPressed,
                        navigationItemContentList =
navigationItemContentList,
                        modifier = Modifier
                            .wrapContentWidth()
                            .fillMaxHeight()
                            .background(MaterialTheme.colorSch
eme.inverseOnSurface)
                            .padding(dimensionResource(R.dimen
.drawer_padding_content))
                    )
                }
            }
        ) {
            ReplyAppContent(
                replyUiState = replyUiState,
                onTabPressed = onTabPressed,
                onEmailCardPressed = onEmailCardPressed,
                navigationItemContentList =
navigationItemContentList,
                modifier = modifier
            )
        }
    } else {
        if (replyUiState.isShowingHomepage) {
            ReplyAppContent(
                replyUiState = replyUiState,
                onTabPressed = onTabPressed,
                onEmailCardPressed = onEmailCardPressed,
                navigationItemContentList =
navigationItemContentList,
                modifier = modifier
            )
        } else {
            ReplyDetailsScreen(
                replyUiState = replyUiState,
                onBackPressed = onDetailScreenBackPressed,
                modifier = modifier
            )
        }
    }
}
...
```

10. Run the app in **Tablet** mode. You should see the following screen:



Implement a navigation rail

Similar to the navigation drawer implementation, you need to use the `navigationType` parameter to switch between navigation elements.

First, let's add a navigation rail for medium screens.

1. Begin with preparation of the `ReplyAppContent` composable by adding `navigationType` as a parameter.

ReplyHomeScreen.kt

```
...
@Composable
private fun ReplyAppContent(
    navigationType: ReplyNavigationType,
    replyUiState: ReplyUiState,
    onTabPressed: ((MailboxType) -> Unit),
    onEmailCardPressed: (Email) -> Unit,
    navigationItemContentList: List<NavigationItemContent>,
    modifier: Modifier = Modifier
) {
...
```

2. Pass the `navigationType` value into both `ReplyAppContent` composables.

ReplyHomeScreen.kt

```
...
            ReplyAppContent(
                navigationType = navigationType,
                replyUiState = replyUiState,
```

```
                onTabPressed = onTabPressed,
                onEmailCardPressed = onEmailCardPressed,
                navigationItemContentList =
navigationItemContentList,
                modifier = modifier
            )
        }
    } else {
        if (replyUiState.isShowingHomepage) {
            ReplyAppContent(
                navigationType = navigationType,
                replyUiState = replyUiState,
                onTabPressed = onTabPressed,
                onEmailCardPressed = onEmailCardPressed,
                navigationItemContentList =
navigationItemContentList,
                modifier = modifier
            )
...
```

Next, let's add branching, which allows the app to display navigation rails for some scenarios.

3. In the `ReplyAppContent` composable body first line, wrap the `ReplyNavigationRail` composable around the `AnimatedVisibility` composable and set the `visible` parameter to be `true` if the `ReplyNavigationType` value is `NAVIGATION_RAIL`.

ReplyHomeScreen.kt

```
...
@Composable
private fun ReplyAppContent(
    navigationType: ReplyNavigationType,
    replyUiState: ReplyUiState,
    onTabPressed: ((MailboxType) -> Unit),
    onEmailCardPressed: (Email) -> Unit,
    navigationItemContentList: List<NavigationItemContent>,
    modifier: Modifier = Modifier
) {
    Box(modifier = modifier) {
        AnimatedVisibility(visible = navigationType ==
ReplyNavigationType.NAVIGATION_RAIL) {
            ReplyNavigationRail(
                currentTab = replyUiState.currentMailbox,
                onTabPressed = onTabPressed,
navigationItemContentList = navigationItemContentList
            )
        }
```

```
        Column(
            modifier = Modifier
                .fillMaxSize()
                .background(
                    MaterialTheme.colorScheme.inverseOnSurface
                )
        ) {
            ReplyListOnlyContent(
                replyUiState = replyUiState,
                onEmailCardPressed = onEmailCardPressed,
                modifier = Modifier.weight(1f)
                    .padding(
                        horizontal =
dimensionResource(R.dimen.email_list_only_horizontal_padding)
                    )
            )
            ReplyBottomNavigationBar(
                currentTab = replyUiState.currentMailbox,
                onTabPressed = onTabPressed,
                navigationItemContentList =
navigationItemContentList,
                  modifier = Modifier
                      .fillMaxWidth()
            )
        }
    }
}
...
```

4. To align the composables correctly, wrap both the `AnimatedVisibility` composable and the `Column` composable found in the `ReplyAppContent` body in a `Row` composable.

ReplyHomeScreen.kt

```
...
@Composable
private fun ReplyAppContent(
    navigationType: ReplyNavigationType,
    replyUiState: ReplyUiState,
    onTabPressed: ((MailboxType) -> Unit),
    onEmailCardPressed: (Email) -> Unit,
    navigationItemContentList: List<NavigationItemContent>,
    modifier: Modifier = Modifier,
) {
    Row(modifier = modifier) {
        AnimatedVisibility(visible = navigationType ==
ReplyNavigationType.NAVIGATION_RAIL) {
            val navigationRailContentDescription =
```

```
stringResource(R.string.navigation_rail)
            ReplyNavigationRail(
                currentTab = replyUiState.currentMailbox,
                onTabPressed = onTabPressed,
                navigationItemContentList =
navigationItemContentList
            )
        }
        Column(
            modifier = Modifier
                .fillMaxSize()
                .background(MaterialTheme.colorScheme.inverseO
nSurface)
        ) {
            ReplyListOnlyContent(
                replyUiState = replyUiState,
                onEmailCardPressed = onEmailCardPressed,
                modifier = Modifier.weight(1f)
                    .padding(
                        horizontal =
dimensionResource(R.dimen.email_list_only_horizontal_padding)
                    )
            )
            ReplyBottomNavigationBar(
                currentTab = replyUiState.currentMailbox,
                onTabPressed = onTabPressed,
                navigationItemContentList =
navigationItemContentList,
                modifier = Modifier
                    .fillMaxWidth()
            )
        }
    }
}

...
```

Finally, let's make sure the bottom navigation displays in some scenarios.

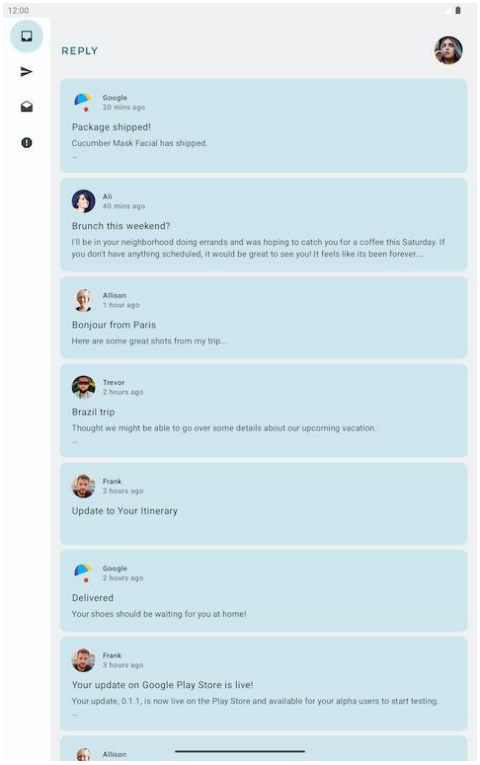
5. After the `ReplyListOnlyContent` composable, wrap the `ReplyBottomNavigationBar` composable with an `AnimatedVisibility` composable.
6. Set the `visible` parameter when the `ReplyNavigationType` value is `BOTTOM_NAVIGATION`.

ReplyHomeScreen.kt

```
...
ReplyListOnlyContent(
```

```
    replyUiState = replyUiState,
    onEmailCardPressed = onEmailCardPressed,
    modifier = Modifier.weight(1f)
        .padding(
            horizontal =
dimensionResource(R.dimen.email_list_only_horizontal_padding)
        )

)
AnimatedVisibility(visible = navigationType ==
ReplyNavigationType.BOTTOM_NAVIGATION) {
    val bottomNavigationContentDescription =
stringResource(R.string.navigation_bottom)
    ReplyBottomNavigationBar(
        currentTab = replyUiState.currentMailbox,
        onTabPressed = onTabPressed,
        navigationItemContentList = navigationItemContentList,
        modifier = Modifier
            .fillMaxWidth()
    )
}

...
```

7. Run the app in **Unfolded foldable** mode. You should to see the following screen:



8. Get the solution code

To download the code for the finished codelab, you can use these git commands:

```
git clone https://github.com/google-developer-training/basic-android-kotlin-compose-training-reply-app.git
cd basic-android-kotlin-compose-training-reply-app
git checkout nav-update
```

Alternatively, you can download the repository as a zip file, unzip it, and open it in Android Studio.

https://github.com/google-developer-training/basic-android-kotlin-compose-training-reply-app/archive/refs/heads/nav-update.zip

Note: The solution code is in the `nav-update` branch of the code repository.

If you want to see the solution code, view it on GitHub.

https://github.com/google-developer-training/basic-android-kotlin-compose-training-reply-app/tree/nav-update

9. Conclusion

Congratulations! You are one step closer to making the Reply app adaptive for all screen sizes by implementing an adaptive navigation layout. You enhanced the user experience using many Android form factors. In the next codelab, you'll further improve your skills working with adaptive apps by implementing adaptive content layout, testing, and previews.

Don't forget to share your work on social media with #AndroidBasics!

Learn more

Build adaptive layouts	https://developer.android.com/jetpack/compose/layouts/adaptive
Support different screen sizes	https://developer.android.com/develop/ui/compose/layouts/adaptive/support-different-screen-sizes
Design for large screens	https://m3.material.io/foundations/adaptive-design/large-screens/layout-anatomy
Jetnews for every screen	https://medium.com/androiddevelopers/jetnews-for-every-screen-4d8e7927752