3) Write the necessary steps to publish a Flutter app on Google Play Store.

Step 1: Prepare Your App for Release

Before publishing, make sure your app is ready for production.

1.1 Remove Debug Code

- Open lib/main.dart
- Ensure you run your app in release mode:

flutter run -release

1.2 Update App Name & Icon

• Update app name in android/app/src/main/AndroidManifest.xml

<application

```
android:label="Your App Name"
```

...>

• Use **flutter_launcher_icons** to set your app icon (as we discussed earlier).

1.3 Set Version and Build Number

Edit in pubspec.yaml:

version: 1.0.0+1

- 1.0.0 = version name
- +1 = build number (increase before each upload)

Step 2: Generate a Keystore for Signing

This is required to verify your app on Google Play.

Run this command in your terminal:

keytool -genkey -v -keystore my-release-key.jks -keyalg RSA -keysize 2048 -validity 10000 -alias my-key-alias

Note:

If keytool is not found, add Java to your PATH (comes with Android Studio).

This creates my-release-key.jks.

Move it to:

oject-root>/android/app/my-release-key.jks

Step 3: Configure Signing in Gradle

Edit this file:

android/app/build.gradle

Add this inside android → signingConfigs:

```
signingConfigs {
```

release {

```
storeFile file("my-release-key.jks")
storePassword "your-store-password"
keyAlias "my-key-alias"
keyPassword "your-key-password"
}

Then in the same file, add:
buildTypes {
    release {
        signingConfig signingConfigs.release
        minifyEnabled true
        shrinkResources true
        proguardFiles getDefaultProguardFile('proguard-android-optimize.txt'), 'proguard-rules.pro'
}
```

Step 4: Build the Release APK or App Bundle

App Bundles (.aab) are now required for Play Store uploads.

Run:

flutter build appbundle --release

Output file:

build/app/outputs/bundle/release/app-release.aab

Step 5: Create a Google Play Developer Account

- 1. Go to: https://play.google.com/console
- 2. Sign up with a Google account.
- 3. Pay a one-time \$25 registration fee.
- 4. Accept the developer agreement.

Step 6: Create a New App in Play Console

- 1. In your Play Console → "Create app".
- 2. Choose:
 - App name
 - Default language

- o App type: App
- o Free or Paid
- 3. Accept declarations.

Step 7: App Details

Fill out:

- App description
- Screenshots (at least 2–4)
- Feature graphic (1024×500)
- App icon (512×512)
- Category (e.g. Lifestyle, Tools, etc.)
- Privacy Policy URL

Step 8: Upload Your .AAB File

Go to:

Release → Production → Create new release

- Choose "Upload"
- Upload your .aab file generated earlier
- Fill in the release notes

Step 9: Set Content Rating, Target Audience, and Pricing

- **Content Rating** → Complete the questionnaire
- **Target Audience** → Age group selection
- Pricing & Distribution → Choose Free or Paid
- Select countries for distribution

Step 10: Review & Publish

- Check that all sections are completed (they'll show green checkmarks
- Click "Publish" (or "Submit for Review")
- Wait for Google's review it usually takes a few hours to a couple of days