**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:

**<project-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
   * App type: **App**
   * 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**