Lab Sheet: Write Contacts in Android

Objective

Build an Android app that:

- Requests runtime permission for `WRITE_CONTACTS`.

- Allows the user to enter a name and phone number.

- Saves the new contact into the device's Contacts database.

Step 1: Project Setup

- Create a new Android Studio project named WriteContactsDemo.

- Choose Empty Activity template.

- Language: Java.

- Minimum SDK: API 23 (Android 6.0).

Checkpoint: Project builds successfully with a blank activity.

Step 2: Add Permission

- Open AndroidManifest.xml.

- Add:

```
<uses-permission android:name="android.permission.WRITE_CONTACTS"/>
```

Checkpoint: Manifest includes the permission.

Step 3: Create Layout

- In activity_main.xml, add:

  - EditText for name.

  - EditText for phone number.

  - Button to save the contact.

Checkpoint: UI form appears with two fields and a button.

Step 4: Handle Button Click
- In MainActivity.java, use findViewById to reference the fields and button.

- Set an OnClickListener on the button to trigger saving.

Checkpoint: Clicking the button shows a Toast (temporary test).

Step 5: Request Runtime Permission
- Use ContextCompat.checkSelfPermission and ActivityCompat.requestPermissions.

- Request code: 200.

- Handle result in onRequestPermissionsResult.

Checkpoint: App asks for write permission when button is clicked.

Step 6: Insert a Contact
- Use ContentProviderOperation with applyBatch.

- Insert:

  - RawContact

  - Display Name

  - Phone Number

- Use values from the EditText fields.

Checkpoint: Contact appears in emulator's Contacts app.

Step 7: Test on Emulator
- Run the app.

- Enter a name and phone number.

- Click Save Contact.

- Verify:

  - Permission prompt appears.

  - Contact is saved.

  - Contact shows up in the emulator's Contacts app.

Step 8: Extensions (Optional)

- Add validation (non-empty fields).

- Allow multiple phone types (mobile, home, work).

- Add more fields (email, address).

Deliverables

- Working app that saves contacts.

- Screenshot of Contacts app showing the new entry.

- Short reflection: "What did you learn about runtime permissions and ContentProviderOperation?"

This lab sheet complements the read contacts lab — together, trainees will understand both sides of contact management.