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Lớp: 11\_ĐH\_TMĐT

Bài Tập Lý Thuyết Lab 7

Tạo new project

Tạo file 🡪 DownloadService.java trong thư mục “com.example.btlt7” 🡪 nhập nội dung code vào

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| package com.example.btlt7;  import android.app.Notification;  import android.app.NotificationChannel;  import android.app.NotificationManager;  import android.app.PendingIntent;  import android.app.Service;  import android.content.Intent;  import android.os.Build;  import android.os.IBinder;  import androidx.annotation.Nullable;  import androidx.core.app.NotificationCompat;  import java.io.BufferedInputStream;  import java.io.File;  import java.io.FileOutputStream;  import java.io.InputStream;  import java.io.OutputStream;  import java.net.HttpURLConnection;  import java.net.URL;  public class DownloadService extends Service {  private static final String CHANNEL\_ID = "download\_channel";  private boolean isPaused = false, isCancelled = false;  private int progress = 0;  private final String fileName = "file\_downloaded.bin";  @Override  public void onCreate() {  super.onCreate();  createNotificationChannel(); // tạo channel trước khi startForeground  }  @Override  public int onStartCommand(Intent intent, int flags, int startId) {  if (intent.getAction() != null) {  handleAction(intent.getAction());  return START\_STICKY;  }  String url = intent.getStringExtra("url");  if (url == null || url.isEmpty()) {  stopSelf();  return START\_NOT\_STICKY;  }  Notification startNotification = buildNotification("Chuẩn bị tải...", 0);  startForeground(1, startNotification);  new Thread(() -> downloadFile(url)).start();  return START\_STICKY;  }  private void downloadFile(String fileUrl) {  try {  URL url = new URL(fileUrl);  HttpURLConnection conn = (HttpURLConnection) url.openConnection();  conn.connect();  if (conn.getResponseCode() != HttpURLConnection.HTTP\_OK) {  updateNotification("Lỗi kết nối server!", progress);  stopSelf();  return;  }  int length = conn.getContentLength();  InputStream in = new BufferedInputStream(conn.getInputStream());  File outFile = new File(getFilesDir(), fileName);  OutputStream out = new FileOutputStream(outFile);  byte[] buffer = new byte[4096];  int count;  long total = 0;  int lastProgress = 0;  while ((count = in.read(buffer)) != -1) {  if (isCancelled) break;  if (isPaused) {  Thread.sleep(300);  continue;  }  total += count;  out.write(buffer, 0, count);  // Tính phần trăm tải  int newProgress = (int) (total \* 100 / length);  if (newProgress - lastProgress >= 1) {  lastProgress = newProgress;  progress = newProgress;  updateNotification("Đang tải... (" + progress + "%)", progress);  }  }  out.flush();  out.close();  in.close();  if (!isCancelled) updateNotification("✅ Tải hoàn tất! (100%)", 100);  stopSelf();  } catch (Exception e) {  e.printStackTrace();  updateNotification("❌ Lỗi khi tải!", progress);  stopSelf();  }  }  private Notification buildNotification(String text, int progress) {  Intent pauseIntent = new Intent(this, NotificationReceiver.class).setAction("PAUSE");  Intent resumeIntent = new Intent(this, NotificationReceiver.class).setAction("RESUME");  Intent cancelIntent = new Intent(this, NotificationReceiver.class).setAction("CANCEL");  PendingIntent pPause = PendingIntent.getBroadcast(this, 0, pauseIntent, PendingIntent.FLAG\_IMMUTABLE);  PendingIntent pResume = PendingIntent.getBroadcast(this, 1, resumeIntent, PendingIntent.FLAG\_IMMUTABLE);  PendingIntent pCancel = PendingIntent.getBroadcast(this, 2, cancelIntent, PendingIntent.FLAG\_IMMUTABLE);  return new NotificationCompat.Builder(this, CHANNEL\_ID)  .setContentTitle("Download Manager")  .setContentText(text)  .setSmallIcon(android.R.drawable.stat\_sys\_download)  .setProgress(100, progress, false) // ⚙️ thanh tiến trình  .addAction(android.R.drawable.ic\_media\_pause, "Pause", pPause)  .addAction(android.R.drawable.ic\_media\_play, "Resume", pResume)  .addAction(android.R.drawable.ic\_menu\_close\_clear\_cancel, "Cancel", pCancel)  .setOnlyAlertOnce(true) // không rung mỗi lần update  .setOngoing(!text.contains("hoàn tất") && !text.contains("Lỗi") && !text.contains("hủy"))  .build();  }  private void updateNotification(String text, int progress) {  NotificationManager nm = (NotificationManager) getSystemService(NOTIFICATION\_SERVICE);  if (nm != null) nm.notify(1, buildNotification(text, progress));  }  private void createNotificationChannel() {  if (Build.VERSION.SDK\_INT >= Build.VERSION\_CODES.O) {  NotificationChannel channel = new NotificationChannel(  CHANNEL\_ID,  "Download Channel",  NotificationManager.IMPORTANCE\_LOW  );  channel.setDescription("Hiển thị tiến trình tải file");  NotificationManager manager = getSystemService(NotificationManager.class);  if (manager != null) manager.createNotificationChannel(channel);  }  }  private void handleAction(String action) {  switch (action) {  case "PAUSE":  isPaused = true;  updateNotification("⏸️ Tạm dừng...", progress);  break;  case "RESUME":  isPaused = false;  updateNotification("▶️ Tiếp tục tải...", progress);  break;  case "CANCEL":  isCancelled = true;  updateNotification("🛑 Đã hủy tải!", progress);  stopSelf();  break;  }  }  @Nullable  @Override  public IBinder onBind(Intent intent) {  return null;  }  } |

Tạo thêm file NotificationReceiver 🡪 nhập nội dung code vào

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| package com.example.btlt7;  import android.content.\*;  import android.os.Build;  import android.widget.Toast;  public class NotificationReceiver extends BroadcastReceiver {  @Override  public void onReceive(Context context, Intent intent) {  String action = intent.getAction();  Toast.makeText(context, "Đã chọn: " + action, Toast.LENGTH\_SHORT).show();  Intent serviceIntent = new Intent(context, DownloadService.class);  serviceIntent.setAction(action);  if (Build.VERSION.SDK\_INT >= Build.VERSION\_CODES.O) {  context.startForegroundService(serviceIntent);  } else {  context.startService(serviceIntent);  }  }  } |

Kế tiếp ở MainActivity 🡪 thay đổi nội dung code ban đầu tương thích với nội dung hai file còn lại

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| package com.example.btlt7;  import androidx.appcompat.app.AppCompatActivity;  import android.content.Intent;  import android.content.pm.PackageManager;  import android.os.Build;  import android.os.Bundle;  import android.widget.Button;  import android.widget.EditText;  public class MainActivity extends AppCompatActivity {  private EditText etUrl;  private Button btnDownload;  @Override  protected void onCreate(Bundle savedInstanceState) {  super.onCreate(savedInstanceState);  setContentView(R.layout.activity\_main);  etUrl = findViewById(R.id.etUrl);  btnDownload = findViewById(R.id.btnDownload);  // Android 13+ cần xin quyền thông báo  if (Build.VERSION.SDK\_INT >= Build.VERSION\_CODES.TIRAMISU) {  if (checkSelfPermission(android.Manifest.permission.POST\_NOTIFICATIONS)  != PackageManager.PERMISSION\_GRANTED) {  requestPermissions(new String[]{android.Manifest.permission.POST\_NOTIFICATIONS}, 1);  }  }  btnDownload.setOnClickListener(v -> {  String url = etUrl.getText().toString().trim();  if (!url.isEmpty()) {  Intent i = new Intent(this, DownloadService.class);  i.putExtra("url", url);  // Kiểm tra phiên bản để gọi đúng hàm  if (Build.VERSION.SDK\_INT >= Build.VERSION\_CODES.O) {  startForegroundService(i);  } else {  startService(i);  }  }  });  }  } |

Ở layout 🡪 vào phần activity\_main.xml

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| <?xml version="1.0" encoding="utf-8"?>  <LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  android:orientation="vertical"  android:padding="20dp"  android:gravity="center"  android:layout\_width="match\_parent"  android:layout\_height="match\_parent">  <EditText  android:id="@+id/etUrl"  android:hint="Nhập link tải file..."  android:layout\_width="match\_parent"  android:layout\_height="wrap\_content"/>  <Button  android:id="@+id/btnDownload"  android:text="Download"  android:layout\_marginTop="16dp"  android:layout\_width="wrap\_content"  android:layout\_height="wrap\_content"/>  </LinearLayout> |

Tạo thêm file mới notification\_layout.xml trong “res🡪layout”

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| <LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  android:orientation="vertical"  android:padding="8dp"  android:layout\_width="match\_parent"  android:layout\_height="wrap\_content">  <TextView  android:id="@+id/tvTitle"  android:text="Đang tải file..."  android:textStyle="bold"  android:layout\_width="match\_parent"  android:layout\_height="wrap\_content"/>  <ProgressBar  android:id="@+id/progressBar"  style="?android:attr/progressBarStyleHorizontal"  android:max="100"  android:layout\_width="match\_parent"  android:layout\_height="wrap\_content"/>  <LinearLayout  android:orientation="horizontal"  android:gravity="center"  android:layout\_width="match\_parent"  android:layout\_height="wrap\_content">  <Button  android:id="@+id/btnPause"  android:text="Pause"  android:layout\_width="wrap\_content"  android:layout\_height="wrap\_content"  android:layout\_margin="4dp"/>  <Button  android:id="@+id/btnResume"  android:text="Resume"  android:layout\_width="wrap\_content"  android:layout\_height="wrap\_content"  android:layout\_margin="4dp"/>  <Button  android:id="@+id/btnCancel"  android:text="Cancel"  android:layout\_width="wrap\_content"  android:layout\_height="wrap\_content"  android:layout\_margin="4dp"/>  </LinearLayout>  </LinearLayout> |

Ở mục “manifests 🡪 AndroidManifest.xml” chỉnh sửa nọi dung phù hợp với điều các file với nhau.

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| <?xml version="1.0" encoding="utf-8"?>  <manifest xmlns:android="http://schemas.android.com/apk/res/android">  <!-- QUYỀN CẦN THIẾT -->  <uses-permission android:name="android.permission.INTERNET" />  <uses-permission android:name="android.permission.POST\_NOTIFICATIONS" />  <uses-permission android:name="android.permission.FOREGROUND\_SERVICE" />  <uses-permission android:name="android.permission.FOREGROUND\_SERVICE\_DATA\_SYNC" />  <application  android:allowBackup="true"  android:icon="@mipmap/ic\_launcher"  android:roundIcon="@mipmap/ic\_launcher\_round"  android:label="@string/app\_name"  android:supportsRtl="true"  android:theme="@style/Theme.BTLT7">  <activity android:name=".MainActivity" android:exported="true">  <intent-filter>  <action android:name="android.intent.action.MAIN" />  <category android:name="android.intent.category.LAUNCHER" />  </intent-filter>  </activity>  <service  android:name=".DownloadService"  android:exported="false"  android:foregroundServiceType="dataSync"  android:permission="android.permission.FOREGROUND\_SERVICE\_DATA\_SYNC"  android:description="@string/fgs\_description" />  <receiver  android:name=".NotificationReceiver"  android:exported="false" />  </application>  </manifest> |

Build 🡪 clean project 🡪 run 🡪 ra kết quả





