activity\_main.xml

<?xml version="1.0" encoding="utf-8"?>  
<androidx.swiperefreshlayout.widget.SwipeRefreshLayout  
 xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:id="@+id/swipeRefreshLayout"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:background="#F5F5F5"  
 tools:context=".MainActivity">  
  
 <ScrollView  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:fillViewport="true">  
  
 <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="vertical"  
 android:padding="16dp">  
  
 <!-- App Title -->  
 <TextView  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="@string/app\_name"  
 android:textAlignment="center"  
 android:textSize="24sp"  
 android:textStyle="bold"  
 android:layout\_marginBottom="24dp"/>  
  
 <!-- Soil Moisture Card -->  
 <androidx.cardview.widget.CardView  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginBottom="16dp"  
 app:cardCornerRadius="12dp"  
 app:cardElevation="2dp"  
 app:cardBackgroundColor="#FFFFFF">  
  
 <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="horizontal"  
 android:padding="16dp">  
  
 <ImageView  
 android:layout\_width="48dp"  
 android:layout\_height="48dp"  
 android:src="@drawable/ic\_water\_drop"  
 android:contentDescription="@string/soil\_moisture\_icon"  
 android:layout\_marginEnd="16dp"/>  
  
 <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="vertical">  
  
 <TextView  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="@string/soil\_moisture"  
 android:textSize="16sp"  
 android:textStyle="bold"/>  
  
 <TextView  
 android:id="@+id/soilMoistureValue"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="4dp"  
 android:text="76%"  
 android:textSize="24sp"  
 android:textColor="#009688"/>  
 </LinearLayout>  
 </LinearLayout>  
 </androidx.cardview.widget.CardView>  
  
 <!-- Temperature Card -->  
 <androidx.cardview.widget.CardView  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginBottom="16dp"  
 app:cardCornerRadius="12dp"  
 app:cardElevation="2dp"  
 app:cardBackgroundColor="#FFFFFF">  
  
 <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="horizontal"  
 android:padding="16dp">  
  
 <ImageView  
 android:layout\_width="48dp"  
 android:layout\_height="48dp"  
 android:src="@drawable/ic\_temp"  
 android:contentDescription="@string/temperature\_icon"  
 android:layout\_marginEnd="16dp"/>  
  
 <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="vertical">  
  
 <TextView  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="@string/temperature"  
 android:textSize="16sp"  
 android:textStyle="bold"/>  
  
 <TextView  
 android:id="@+id/temperatureValue"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="4dp"  
 android:text="28.1°C"  
 android:textSize="24sp"  
 android:textColor="#FF5722"/>  
 </LinearLayout>  
 </LinearLayout>  
 </androidx.cardview.widget.CardView>  
  
 <!-- Humidity Card -->  
 <androidx.cardview.widget.CardView  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginBottom="16dp"  
 app:cardCornerRadius="12dp"  
 app:cardElevation="2dp"  
 app:cardBackgroundColor="#FFFFFF">  
  
 <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="horizontal"  
 android:padding="16dp">  
  
 <ImageView  
 android:layout\_width="48dp"  
 android:layout\_height="48dp"  
 android:src="@drawable/ic\_humidity"  
 android:contentDescription="@string/humidity\_icon"  
 android:layout\_marginEnd="16dp"/>  
  
 <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="vertical">  
  
 <TextView  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="@string/humidity"  
 android:textSize="16sp"  
 android:textStyle="bold"/>  
  
 <TextView  
 android:id="@+id/humidityValue"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="4dp"  
 android:text="72%"  
 android:textSize="24sp"  
 android:textColor="#2196F3"/>  
 </LinearLayout>  
 </LinearLayout>  
 </androidx.cardview.widget.CardView>  
  
 <!-- AI Recommendation Card -->  
 <androidx.cardview.widget.CardView  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginBottom="16dp"  
 app:cardCornerRadius="12dp"  
 app:cardElevation="2dp"  
 app:cardBackgroundColor="#FFFFFF">  
  
 <Button  
 android:id="@+id/btnAIRecommendation"  
 android:layout\_width="match\_parent"  
 android:layout\_height="52dp"  
 android:text="@string/ai\_recommendation"  
 android:textSize="16sp"  
 android:textColor="#FFFFFF"  
 android:backgroundTint="#9C27B0"  
 android:textAllCaps="false"  
 android:drawableStart="@drawable/ic\_ai"  
 android:drawablePadding="8dp"  
 android:paddingLeft="16dp"  
 android:paddingRight="16dp"  
 android:contentDescription="@string/ai\_recommendation\_desc"/>  
 </androidx.cardview.widget.CardView>  
  
 <!-- Pump Control Card -->  
 <androidx.cardview.widget.CardView  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 app:cardCornerRadius="12dp"  
 app:cardElevation="2dp"  
 app:cardBackgroundColor="#FFFFFF">  
  
 <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="vertical"  
 android:padding="16dp">  
  
 <TextView  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="@string/pump\_status"  
 android:textSize="16sp"  
 android:textStyle="bold"/>  
  
 <TextView  
 android:id="@+id/pumpStatusValue"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="4dp"  
 android:text="OFF"  
 android:textSize="24sp"  
 android:textColor="#F44336"/>  
  
 <!-- Control Buttons with adjusted padding -->  
 <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="16dp"  
 android:orientation="horizontal"  
 android:weightSum="3"  
 android:baselineAligned="false">  
  
 <Button  
 android:id="@+id/btnPumpOn"  
 style="@style/Widget.MaterialComponents.Button"  
 android:layout\_width="0dp"  
 android:layout\_height="52dp"  
 android:layout\_weight="1"  
 android:layout\_marginEnd="4dp"  
 android:text="@string/turn\_on"  
 android:textSize="14sp"  
 android:paddingLeft="4dp"  
 android:paddingRight="4dp"  
 android:textColor="#FFFFFF"  
 android:backgroundTint="#4CAF50"  
 android:textAllCaps="false"  
 android:contentDescription="@string/turn\_on\_pump"/>  
  
 <Button  
 android:id="@+id/btnPumpOff"  
 style="@style/Widget.MaterialComponents.Button"  
 android:layout\_width="0dp"  
 android:layout\_height="52dp"  
 android:layout\_weight="1"  
 android:layout\_marginStart="4dp"  
 android:layout\_marginEnd="4dp"  
 android:text="@string/turn\_off"  
 android:textSize="14sp"  
 android:paddingLeft="4dp"  
 android:paddingRight="4dp"  
 android:textColor="#FFFFFF"  
 android:backgroundTint="#F44336"  
 android:textAllCaps="false"  
 android:contentDescription="@string/turn\_off\_pump"/>  
  
 <Button  
 android:id="@+id/btnAutoMode"  
 style="@style/Widget.MaterialComponents.Button"  
 android:layout\_width="0dp"  
 android:layout\_height="52dp"  
 android:layout\_weight="1"  
 android:layout\_marginStart="4dp"  
 android:text="@string/auto\_mode"  
 android:textSize="14sp"  
 android:paddingLeft="4dp"  
 android:paddingRight="4dp"  
 android:textColor="#E1F5FE"  
 android:backgroundTint="#1565C0"  
 android:textAllCaps="false"  
 android:contentDescription="@string/set\_auto\_mode"/>  
 </LinearLayout>  
  
 <!-- History Button -->  
 <Button  
 android:id="@+id/historyButton"  
 android:layout\_width="match\_parent"  
 android:layout\_height="48dp"  
 android:layout\_marginTop="16dp"  
 android:text="@string/view\_history"  
 android:textColor="#3F51B5"  
 android:backgroundTint="#FFFFFF"  
 android:textAllCaps="false"  
 style="@style/Widget.MaterialComponents.Button.OutlinedButton"  
 app:strokeColor="#3F51B5"  
 android:contentDescription="@string/view\_pump\_history"/>  
 </LinearLayout>  
 </androidx.cardview.widget.CardView>  
 </LinearLayout>  
 </ScrollView>  
</androidx.swiperefreshlayout.widget.SwipeRefreshLayout>

activity\_history.xml

<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout  
 xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:orientation="vertical"  
 android:background="@color/light\_gray"  
 android:padding="16dp"  
 tools:context=".HistoryActivity">  
  
 <!-- Header -->  
 <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="horizontal"  
 android:gravity="center"  
 android:layout\_marginBottom="16dp">  
  
 <ImageView  
 android:layout\_width="32dp"  
 android:layout\_height="32dp"  
 android:src="@drawable/ic\_history"  
 android:layout\_marginEnd="8dp"  
 app:tint="@color/primary\_color" />  
  
 <TextView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Pump Activity History"  
 android:textSize="24sp"  
 android:textStyle="bold"  
 android:textColor="@color/primary\_color"/>  
 </LinearLayout>  
  
 <!-- Clear History Button -->  
 <Button  
 android:id="@+id/btnClearHistory"  
 android:layout\_width="match\_parent"  
 android:layout\_height="48dp"  
 android:text="CLEAR HISTORY"  
 android:layout\_marginBottom="16dp"  
 android:textColor="@color/white"  
 android:backgroundTint="@color/red\_500"  
 android:textAllCaps="false"  
 style="@style/Widget.MaterialComponents.Button"/>  
  
 <!-- Divider -->  
 <View  
 android:layout\_width="match\_parent"  
 android:layout\_height="1dp"  
 android:background="@color/gray\_200"  
 android:layout\_marginBottom="16dp"/>  
  
 <!-- RecyclerView for History Items -->  
 <androidx.recyclerview.widget.RecyclerView  
 android:id="@+id/historyRecyclerView"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:clipToPadding="false"  
 android:paddingTop="8dp"  
 android:paddingBottom="8dp"  
 android:scrollbars="vertical"  
 app:layoutManager="androidx.recyclerview.widget.LinearLayoutManager"  
 tools:listitem="@layout/item\_history"/>  
  
 <!-- Empty State View -->  
 <TextView  
 android:id="@+id/emptyView"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:gravity="center"  
 android:text="No history available"  
 android:visibility="gone"  
 android:textSize="18sp"  
 android:textColor="@color/dark\_gray"/>  
</LinearLayout>

AndroidManifest.xml

<?xml version="1.0" encoding="utf-8"?>  
<manifest xmlns:android="http://schemas.android.com/apk/res/android"  
 package="com.example.smartirrigation">  
  
 <uses-permission android:name="android.permission.INTERNET" />  
 <uses-permission android:name="android.permission.ACCESS\_NETWORK\_STATE" />  
  
 <application  
 android:allowBackup="true"  
 android:icon="@mipmap/ic\_launcher"  
 android:label="@string/app\_name"  
 android:roundIcon="@mipmap/ic\_launcher\_round"  
 android:supportsRtl="true"  
 android:theme="@style/Theme.SmartIrrigation"  
 android:usesCleartextTraffic="true">  
  
 <activity  
 android:name=".MainActivity"  
 android:exported="true"  
 android:screenOrientation="portrait">  
 <intent-filter>  
 <action android:name="android.intent.action.MAIN" />  
 <category android:name="android.intent.category.LAUNCHER" />  
 </intent-filter>  
 </activity>  
  
 <activity  
 android:name=".HistoryActivity"  
 android:exported="false"  
 android:screenOrientation="portrait"  
 android:parentActivityName=".MainActivity" />  
  
 </application>  
</manifest>

colors.xml

<?xml version="1.0" encoding="utf-8"?>  
<resources>  
 <!-- Primary Colors -->  
 <color name="primary\_color">#3F51B5</color>  
 <color name="primary\_dark">#303F9F</color>  
 <color name="primary\_light">#C5CAE9</color>  
  
 <!-- Background Colors -->  
 <color name="white">#FFFFFF</color>  
 <color name="light\_gray">#F5F5F5</color>  
 <color name="gray\_200">#EEEEEE</color>  
 <color name="dark\_gray">#424242</color>  
  
 <!-- Button Colors -->  
 <color name="green\_500">#4CAF50</color>  
 <color name="red\_500">#F44336</color>  
 <color name="blue\_500">#2196F3</color>  
  
 <!-- Sensor Data Colors -->  
 <color name="soil\_moisture\_color">#009688</color>  
 <color name="temperature\_color">#FF5722</color>  
 <color name="humidity\_color">#03A9F4</color>  
  
 <!-- Mode Colors -->  
 <color name="manual\_color">#FF5722</color> <!-- Orange -->  
 <color name="auto\_color">#3F51B5</color> <!-- Indigo -->  
</resources>

item\_historu.xml

<?xml version="1.0" encoding="utf-8"?>  
<androidx.cardview.widget.CardView  
 xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_margin="8dp"  
 android:elevation="2dp"  
 app:cardCornerRadius="8dp"  
 app:cardBackgroundColor="@color/white">  
  
 <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="vertical"  
 android:padding="16dp">  
  
 <TextView  
 android:id="@+id/historyEvent"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:textSize="14sp"  
 android:lineSpacingExtra="4dp"/>  
 </LinearLayout>  
</androidx.cardview.widget.CardView>

strings.xml

<resources>  
 <string name="app\_name">Smart Irrigation System</string>  
 <string name="soil\_moisture">Soil Moisture</string>  
 <string name="temperature">Temperature</string>  
 <string name="humidity">Humidity</string>  
 <string name="pump\_status">Pump Status</string>  
 <string name="turn\_on">Turn ON</string>  
 <string name="turn\_off">Turn OFF</string>  
 <string name="auto\_mode">Auto Mode</string>  
 <string name="view\_history">View History</string>  
  
 <!-- Accessibility strings -->  
 <string name="soil\_moisture\_icon">Soil moisture icon</string>  
 <string name="temperature\_icon">Temperature icon</string>  
 <string name="humidity\_icon">Humidity icon</string>  
 <string name="turn\_on\_pump">Turn pump on</string>  
 <string name="turn\_off\_pump">Turn pump off</string>  
 <string name="set\_auto\_mode">Set auto mode</string>  
 <string name="view\_pump\_history">View pump history</string>  
  
 <string name="ai\_recommendation">AI Recommendation</string>  
 <string name="ai\_recommendation\_desc">Get AI recommendations for your plants</string>  
 <string name="select\_plant">Select Plant Type</string>  
 <string name="tomato">Tomato</string>  
 <string name="lettuce">Lettuce</string>  
 <string name="pepper">Pepper</string>  
 <string name="custom">Custom</string>  
 <string name="recommendation\_title">AI Recommendation</string>  
 <string name="optimal\_moisture">Optimal Moisture: %1$d%%</string>  
 <string name="pump\_schedule">Pump Schedule: %1$s</string>  
 <string name="water\_requirement">Water Needed: %1$s</string>  
</resources>