

# Implemented functions

Module	Main Files	Function Description
Map & Cluster Display	com.amap.apis.cluster.*, com.noworld.notemap.utils.MapUtil	Implements map display, cluster display, and coordinate point annotation using AMap SDK (AutoNavi Maps).
Route & Overlay Drawing	RouteOverlay.java, WalkRouteOverlay.java	Provides walking route drawing and path navigation overlay functions.
Main Interface	MainActivity.java, activity_main.xml	App launch page that loads the map and displays note locations.
Add Note Interface	AddNoteActivity.java, activity_add_note.xml	Allows creating location-bound notes (supports images and text descriptions).
Note Detail View	NoteDetailActivity.java, activity_note_detail.xml	Displays saved note content and location information.
Cluster Detail Page	ClusterDetailActivity.java, activity_cluster_detail.xml	Shows all notes information in the area when clicking a map cluster point.
Image Management	PictureActivity.java, activity_picture.xml	Browses and manages uploaded images, which may be bound to locations or notes.
User Profile Page	ProfileActivity.java, activity_profile.xml	Displays user avatar, nickname.
Note Card List	NoteCardAdapter.java, item_note_card.xml	Displays note items in a card-style layout using RecyclerView.
App Entry	App.java	Global Application class that initializes SDKs, databases, and other services.

# Technical Features

## 1. Map-related

The package name com.amap.apis indicates the use of AMap SDK (AutoNavi Maps). Files such as ClusterOverlay.java, ClusterItem.java, and RegionItem.java have implemented the map cluster algorithm. WalkRouteOverlay.java implements walking route drawing. MapUtil.java and AMapServicesUtil.java are helper classes responsible for coordinate calculation, path computation, and AMap service calls.

## 2. UI Design (res/layout)

6 main Activity layouts + 1 RecyclerView card:

activity\_main.xml

activity\_add\_note.xml

activity\_note\_detail.xml

activity\_cluster\_detail.xml

activity\_picture.xml

activity\_profile.xml

item\_note\_card.xml

The app UI fully covers the entire process from the main interface, note management to the personal center.

## 3. Resource Files

The drawable/ folder contains a large number of map icons (such as start point, end point, GPS point, navigation arrow, etc.).

values/strings.xml, themes.xml, colors.xml have defined themes and interface styles.

xml/file\_paths.xml is used for file read/write permission configuration on Android 7+, indicating support for image upload or local storage.