Name: Muhammad Usman  
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Submitted to: Professor Jameel

Subject: Android Development

Assignment: 03

Topic: Android Activity

**Description**

1. **MainActivity:**
   * This class serves as the most main activity of the application.
   * First of all It extends the AppCompatActivity class, which provides compatibility for older Android Operating Systems.
   * The onCreate method is called the very moment when the activity is created.
   * Inside onCreate, the layout file activity\_main.xml is set as the content view to display on screen using setContentView(R.layout.activity\_main).
2. **Toolbar:**
   * The toolbar is a part of the app's layout and its code is defined in the app\_bar\_main.xml file.
   * It is included or imported in the main activity's layout (activity\_main.xml) using the <include> tag.
   * The toolbar acts as the app's action bar and provides a space for displaying the app's title and other necessary elements.
3. **Navigation Drawer:**
   * The navigation drawer’s code is implemented using a DrawerLayout in the drawer\_layout.xml file.
   * Which wraps the entire layout and allows the user to swipe from the left edge or tap the navigation drawer button in the toolbar to open or close the drawer respectively.
   * Inside the DrawerLayout, there is a NavigationView (nav\_view) that displays the navigation drawer's content from its xml file.
   * The NavigationView contains menu items wrote in the activity\_main\_drawer.xml file.
4. **ActionBarDrawerToggle:**
   * An ActionBarDrawerToggle is used to synchronize the navigation drawer's open and close states with the toolbar respectively.
   * It provides the hamburger icon in the toolbar, which allows the user to open and close the navigation drawer respectively.
   * The ActionBarDrawerToggle is created and initialized with the activity, the DrawerLayout, and the toolbar.
   * The toggle.syncState() method is called to synchronize the toggle's state with the drawer respectively.
5. **Fragments:**
   * Three fragments are implemented: HomeFragment, GalleryFragment, and SettingsFragment.
   * Each fragment extends the Fragment class and overrides the onCreateView method in their java classes respectively.
   * In the onCreateView method, the corresponding fragment layouts are inflated and returned as the views for the fragmenst.
   * The HomeFragment layout is defined in fragment\_home.xml, GalleryFragment layout in fragment\_gallery.xml, and SettingsFragment layout in fragment\_settings.xml respectively.
6. **Fragment Transactions:**
   * When a menu item is selected in the navigation drawer, the onNavigationItemSelected method is called.
   * It receives the selected MenuItem and identifies its unique ID.
   * Based on the unique ID, the corresponding fragment object is created (HomeFragment, GalleryFragment, or SettingsFragment).
   * The FragmentManager is used to handle fragment transactions.
   * The current fragment is replaced with the selected fragment using the beginTransaction().replace() method chain.
   * The replaced fragment is added to the back stack, which allows the user to navigate back to the previous fragment by pressing the back button easily.
7. **Back Button Handling:**
   * The onBackPressed method is overridden to handle the back button presses.
   * It checks if the navigation drawer is open (drawer.isDrawerOpen(GravityCompat.START)).
   * If the drawer is open, it will close the drawer using drawer.closeDrawer(GravityCompat.START).
   * If the drawer is not open, the default behavior of the back button is executed by calling super.onBackPressed().
8. **XML Layouts:**
   * The XML layout files define the UI components and their arrangement in each of the screens.
   * activity\_main.xml contains the main layout, which includes the app\_bar\_main.xml layout.
   * app\_bar\_main.xml defines the toolbar layout.
   * drawer\_layout.xml contains the layout for the DrawerLayout and includes activity\_main.xml as its content.
   * activity\_main\_drawer.xml defines the menu items displayed in the NavigationView of the navigation drawer.
   * nav\_header\_main.xml defines the header layout for the navigation drawer.

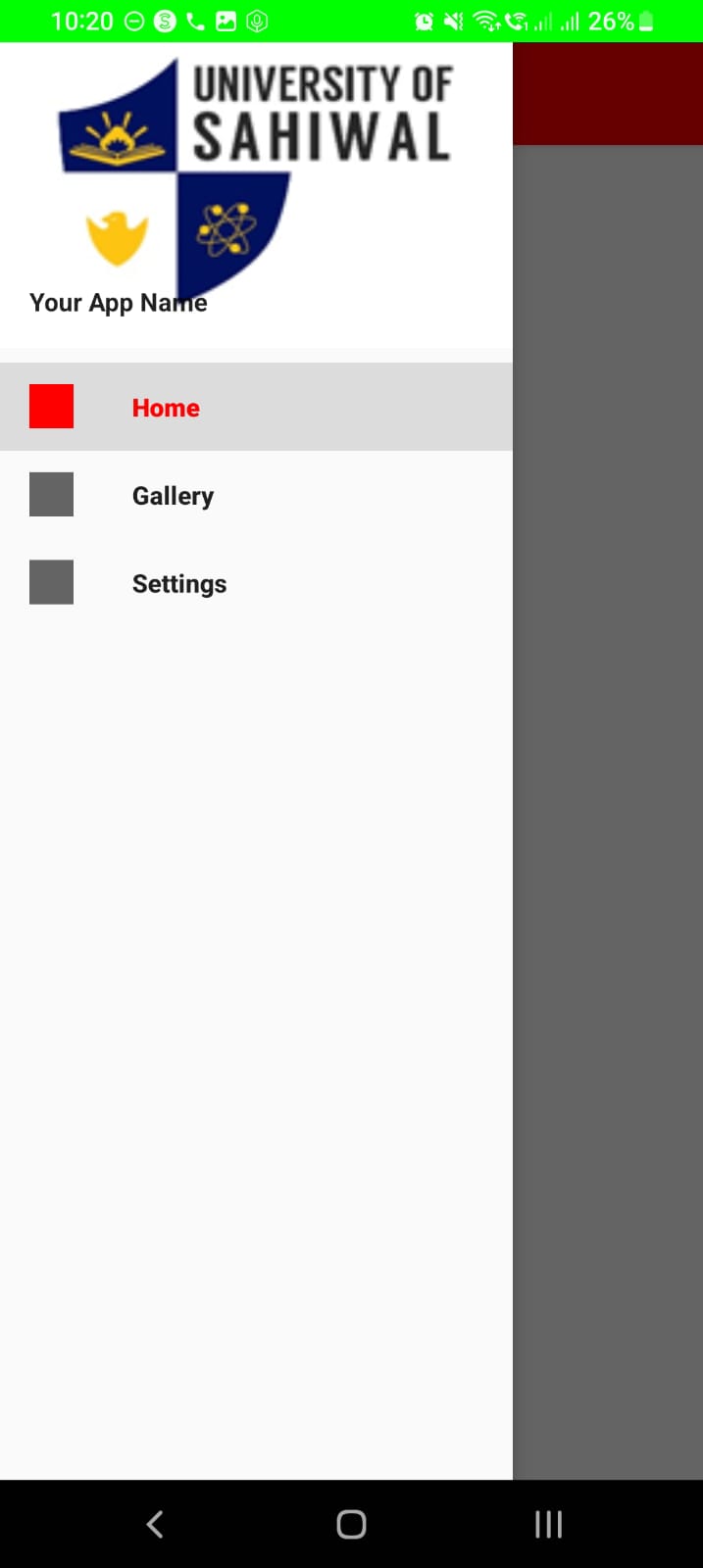
In summary, this code implements a navigation drawer pattern in an Android application. The navigation drawer contains menu items that allow the user to switch between different fragments. Each fragment represents a separate screen and has its own layout. The code handles the selection of menu items respectively, fragment transactions, synchronization of the navigation drawer with the toolbar, and back button presses. The XML layout files define the structure and appearance of the app's screens and components.

**Code**

Complete code can be found on my [GitHub](https://github.com/MatrixUsman/BSITM2/tree/main/Semester%206/Android%20Devlopment/Assignment_3/Shared%20Prefrences/BSITM22048).

Link to [APK](https://github.com/MatrixUsman/BSITM2/blob/main/Semester%206/Android%20Devlopment/Assignment_3/Shared%20Prefrences/BSIT-M2-20-48_Assignment_3_App_1.zip)

[Compressed Code zip](https://github.com/MatrixUsman/BSITM2/blob/main/Semester%206/Android%20Devlopment/Assignment_3/Shared%20Prefrences/Shared%20Pref.apk)

**Screenshots  
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