Software Development for Mobile Devices

# Submission for Assignment A5.3C

## Refactoring the Sun

After refactoring the project based on the specification, the app is now having a tab bar on the top of the screen. A new fragment will be created when the user swipes to a new tab. For example, if the user swipe to Sydney Region, a new fragment will be created and calculate sun activities based on the geolocation.

### App Screen

|  |  |
| --- | --- |
| Activity | Screen |
| MainActivity |  |

After refactoring, the MainActivity includes only the ViewPager, TabLayout and a FragmentAdapter to manipulate Fragments.

### MainActivity

public class MainActivity extends AppCompatActivity {  
  
 FragmentAdapter adapterViewPager;  
 private List<GeoLocation> australiaLocations = new ArrayList<>();  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 initData();  
 ViewPager vpPager = (ViewPager) findViewById(R.id.*pager*);  
 adapterViewPager = new FragmentAdapter(getSupportFragmentManager(), australiaLocations);  
 vpPager.setAdapter(adapterViewPager);  
 vpPager.addOnPageChangeListener(new ViewPager.OnPageChangeListener() {  
  
 // This method will be invoked when a new page becomes selected.  
 @Override  
 public void onPageSelected(int position) {  
// Toast.makeText(MainActivity.this,  
// "Selected page position: " + position, Toast.LENGTH\_SHORT).show();  
 }  
  
 // This method will be invoked when the current page is scrolled  
 @Override  
 public void onPageScrolled(int position, float positionOffset, int positionOffsetPixels) {  
 // Code goes here  
 }  
  
 // Called when the scroll state changes:  
 // SCROLL\_STATE\_IDLE, SCROLL\_STATE\_DRAGGING, SCROLL\_STATE\_SETTLING  
 @Override  
 public void onPageScrollStateChanged(int state) {  
 // Code goes here  
 }  
 });  
 TabLayout tabLayout = findViewById(R.id.*tabLayout*);  
 if (australiaLocations.size() > 4) {  
 tabLayout.setTabMode(TabLayout.*MODE\_SCROLLABLE*);  
 } else {  
 tabLayout.setTabMode(TabLayout.*MODE\_FIXED*);  
 }  
 tabLayout.setupWithViewPager(vpPager);  
 }  
  
 public void addLocation(GeoLocation location) {  
 this.australiaLocations.add(location);  
 }  
  
 private void initData() {  
 TimeZone tz = TimeZone.*getDefault*();  
 addLocation(new GeoLocation("Melbourne", -37.813629, 144.963058,tz));  
 addLocation(new GeoLocation("Sydney", -33.868820, 151.209290,tz));  
 addLocation(new GeoLocation("Canberra", -35.280937, 149.130005,tz));  
 addLocation(new GeoLocation("Perth", -31.950527, 115.860458,tz));  
 }  
  
}

### Fragment Adapter

public class FragmentAdapter extends FragmentStatePagerAdapter {  
 List<GeoLocation> australiaLocations;  
  
 public FragmentAdapter(FragmentManager fm, List<GeoLocation> australiaLocations) {  
 super(fm);  
 this.australiaLocations = australiaLocations;  
 }  
  
 @Override  
 public Fragment getItem(int position) {  
 return SunsetFragment.*newInstance*(australiaLocations.get(position));  
 }  
  
 @Override  
 public int getCount() {  
 return australiaLocations.size();  
 }  
  
 @Override  
 public CharSequence getPageTitle(int position) {  
 return australiaLocations.get(position).getLocationName();  
 }  
  
}

A SunsetFragment uses to setup a fragment based on the provided geolocation.

### SunsetFragment

public class SunsetFragment extends android.support.v4.app.Fragment {  
  
 private GeoLocation geoLocation;  
  
 private View rootView;  
  
 public GeoLocation getGeoLocation() {  
 return geoLocation;  
 }  
  
 public void setGeoLocation(GeoLocation geoLocation) {  
 this.geoLocation = geoLocation;  
 }  
  
 public static SunsetFragment newInstance(GeoLocation geoLocation) {  
 SunsetFragment fragmentFirst = new SunsetFragment();  
 fragmentFirst.setGeoLocation(geoLocation);  
 return fragmentFirst;  
 }  
  
 // Store instance variables based on arguments passed  
 @Override  
 public void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 }  
  
 // Inflate the view for the fragment based on layout XML  
 @Override  
 public View onCreateView(LayoutInflater inflater, ViewGroup container,  
 Bundle savedInstanceState) {  
 rootView = inflater.inflate(R.layout.*sunset\_fragment*, container, false);  
 initializeUI(rootView);  
 return rootView;  
 }  
  
 private void initializeUI(View view) {  
 TextView locationTV = view.findViewById(R.id.*locationTV*);  
 locationTV.setText(geoLocation.getLocationName());  
 DatePicker dp = view.findViewById(R.id.*datePicker*);  
 Calendar cal = Calendar.*getInstance*();  
 int year = cal.get(Calendar.*YEAR*);  
 int month = cal.get(Calendar.*MONTH*);  
 int day = cal.get(Calendar.*DAY\_OF\_MONTH*);  
 dp.init(year,month,day,dateChangeHandler); // setup initial values and reg. handler  
 updateTime(view,year, month, day);  
 }  
  
 private void updateTime(View view,int year, int monthOfYear, int dayOfMonth) {  
// TimeZone tz = TimeZone.getDefault();  
// GeoLocation geolocation = new GeoLocation("Melbourne", -37.50, 145.01, tz);  
 AstronomicalCalendar ac = new AstronomicalCalendar(geoLocation);  
 ac.getCalendar().set(year, monthOfYear, dayOfMonth);  
 Date srise = ac.getSunrise();  
 Date sset = ac.getSunset();  
  
 SimpleDateFormat sdf = new SimpleDateFormat("HH:mm");  
  
 TextView sunriseTV = view.findViewById(R.id.*sunriseTimeTV*);  
 TextView sunsetTV = view.findViewById(R.id.*sunsetTimeTV*);  
 Log.*d*("SUNRISE Unformatted", srise+"");  
  
 sunriseTV.setText(sdf.format(srise));  
 sunsetTV.setText(sdf.format(sset));  
 }  
 DatePicker.OnDateChangedListener dateChangeHandler = new DatePicker.OnDateChangedListener()  
 {  
 public void onDateChanged(DatePicker dp, int year, int monthOfYear, int dayOfMonth)  
 {  
 updateTime(rootView, year, monthOfYear, dayOfMonth);  
 }  
 };  
  
}