

Mobile solutions

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SharedPreferences

The Android SDK provides a native tool for persistent data storage by the use of the SharedPreferences file

Using this makes it possible for an application to be restored even after quitting. However this solution requires way more resources than using savedInstanceState.

Download and change our previous ShoppingList application so that it stores the list's data persistently.



SharedPreferences

Add a new private file storing the sharedPreferences and also add a String key.

```
private SharedPreferences sharedPref;  
private String sharedPrefFile = "shprf";
```

Initialize the sharedPref field in the onCreate method

```
sharedPref = getSharedPreferences(sharedPrefFile, MODE_PRIVATE);
```



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Saving is done in the onPause method by using SharedPreferences.Editor:

```
SharedPreferences.Editor preferencesEditor = sharedPref.edit();  
preferencesEditor.putString("LIST", itemsList.getText().toString());  
preferencesEditor.putBoolean("LIST_BOOL", isListEmpty);  
  
preferencesEditor.apply();
```



SharedPreferences

Finally we can load back our data from the sharedPreferences in the onCreate method.

```
itemsList.setText(sharedPref.getString("LIST", itemsList.getText().toString()));  
isEmpty = sharedPref.getBoolean("LIST_BOOL", isEmpty);
```

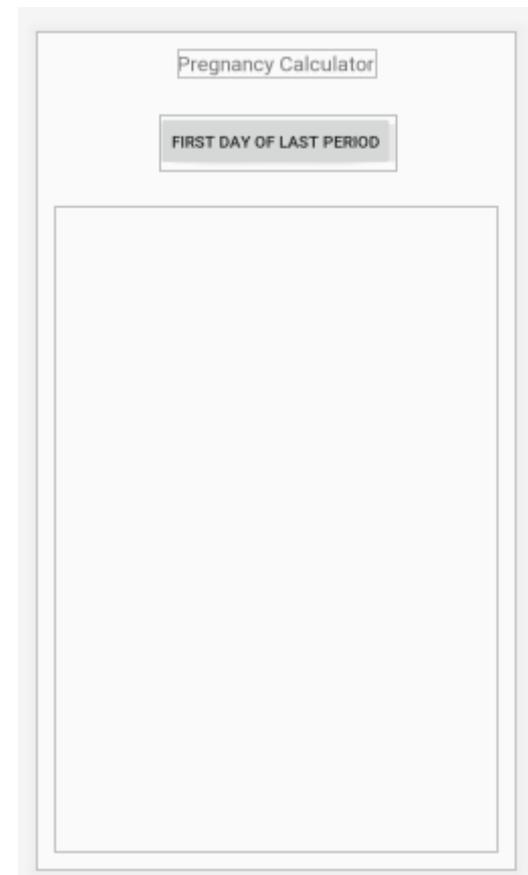
The second parameter is the default value that is set when data cannot be loaded from the persistent storage.



Date picker

Create a pregnancy calculator application that tells to the user based on a date that how many weeks and day pregnant she is.

The main Activity builds up from a TextView and a Button. When the button is pushed a DatePicker appears in which the user can set a date. After this the result appears in another TextView.



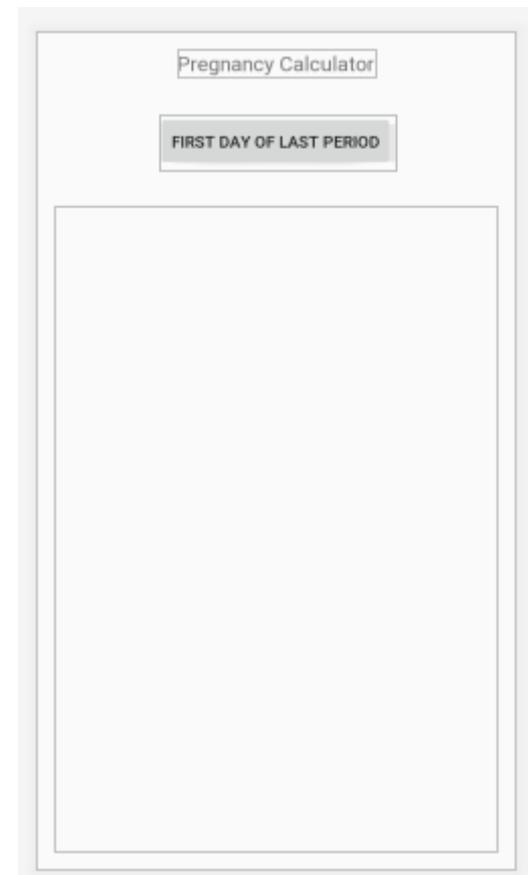
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Don't forget to generate a handler method for the button.

```
public void showDatePicker(View view) {  
}
```



Date picker

Create a new Fragment implementing the choosing of the date.

The Fragment has to be a subclass of the DialogFragment class and it has to implement the required interface of DatePickerDialog.

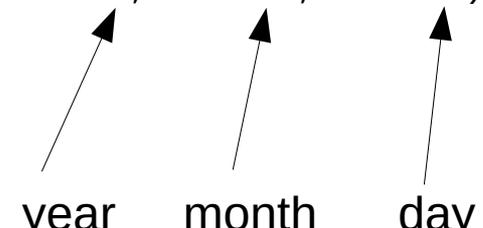
When creating make sure that all three checkboxes are not selected.

```
import androidx.fragment.app.DialogFragment;
import android.widget.DatePicker;

public class DatePickerFragment extends DialogFragment
    implements DatePickerDialog.OnDateSetListener {

    @Override
    public void onDateSet(DatePicker datePicker, int i, int i1, int i2) {
    }
}

year month day
```



Date picker

Instead of onCreate we override now the onCreateDialog method.

```
@NonNull
@Override
public Dialog onCreateDialog(@Nullable Bundle savedInstanceState) {
    // Use the current date as the default date in the picker.
    final Calendar c = Calendar.getInstance();
    int year = c.get(Calendar.YEAR);
    int month = c.get(Calendar.MONTH);
    int day = c.get(Calendar.DAY_OF_MONTH);

    // Create a new instance of DatePickerDialog and return it.
    return new DatePickerDialog(getActivity(), this, year, month, day);
}
```

The DatePicker starting as a result is set to show today, (Localdate class is available only from API level 26 unfortunately.)



Date picker

Now set the handler method of the button in MainActivity to show the DatePicker.

```
DialogFragment newFragment = new DatePickerFragment();  
newFragment.show(getSupportFragmentManager(), "datePicker");
```

To process data selected in the DatePicker add a new method to the MainActivity:

```
public void processDatePickerResult(int year, int month, int day) {  
}
```

Call this method from the onDataChange method:

```
MainActivity activity = (MainActivity) getActivity();  
activity.processDatePickerResult(i, i1, i2);
```



Date picker

In the `processDatePickerResult` calculate how many weeks and days pregnant the user is.

Sadly we still have to use the `Calendar` class... :(

```
public void processDatePickerResult(int year, int month, int day) {
    Calendar c = Calendar.getInstance();
    c.set(year, month, day);

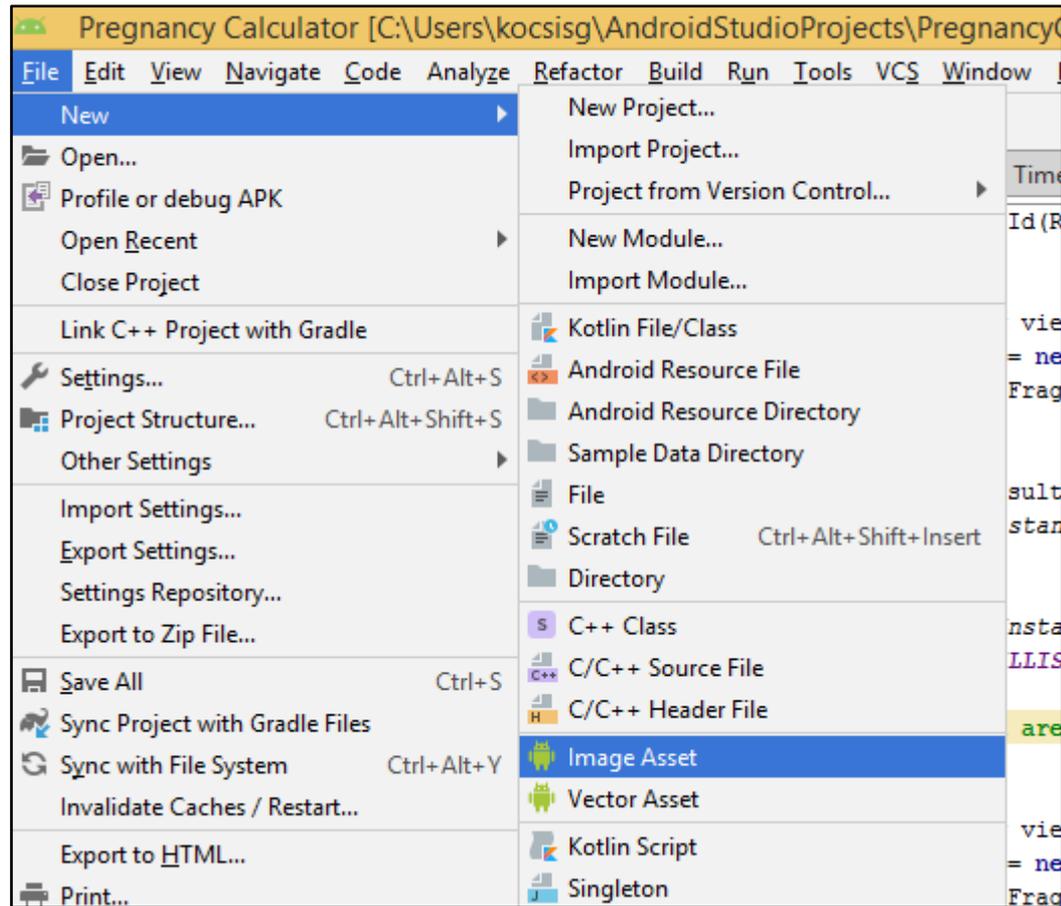
    long msDiff = Calendar.getInstance().getTimeInMillis() -
                  c.getTimeInMillis();
    long daysDiff = TimeUnit.MILLISECONDS.toDays(msDiff);

    answerTextView.setText("You are " + daysDiff/7 + " weeks\nand "
                          + daysDiff%7 + " days pragent!");
}
```



Date picker

Extra:



Exercise – Time picker

Create a new Application that has only one Button. After pressing the Button a TimePickerDialog appears in which the user can select a time. Show this time in a Toast message.

Help:

```
... implements TimePickerDialog.OnTimeSetListener
```

```
... Toast.makeText(this, "Time: " + i + ":" + i1, Toast.LENGTH_SHORT).show();
```

