

# Android

## 编程权威指南

## 挑战练习参考答案

亦可以访问论坛 <http://forums.bignerdranch.com/viewforum.php?f=395>

寻求在线帮助

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## 2.8 挑战练习一：为 TextView 添加监听器

代码清单 2-1 为 TextView 添加监听器 (QuizActivity.java)

```
mQuestionTextView =
(TextView) findViewById(R.id.question_text_view);
mQuestionTextView.setOnClickListener(new View.OnClickListener()
{
    @Override
    public void onClick(View v) {
        mCurrentIndex = (mCurrentIndex + 1) %
mQuestionBank.length;
        updateQuestion();
    }
});
```

## 2.9 挑战练习二：添加后退按钮

代码清单 2-2 添加字符串资源 (strings.xml)

```
<string name="next_button">Next</string>
<string name="prev_button">Prev</string>
```

代码清单 2-3 修改布局 (activity\_quiz.xml)

```
<LinearLayout
...
<TextView
.../>
<LinearLayout
...
</LinearLayout>
<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="horizontal" >
    <Button
        android:id="@+id/prev_button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:drawableLeft="@drawable/arrow_left"
        android:drawablePadding="4dp"
        android:text="@string/prev_button" />
    <Button
```

```

        android:id="@+id/next_button"
        ... />
    </LinearLayout>
</LinearLayout>

```

#### 代码清单 2-4 修改 QuizActivity (QuizActivity.java)

```

private Button mNextButton;
private Button mPrevButton;
...
@Override
protected void onCreate(Bundle savedInstanceState) {
    ...
    mNextButton.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            mCurrentIndex = (mCurrentIndex + 1) %
mQuestionBank.length;
            updateQuestion();
        }
    });
    mPrevButton = (Button) findViewById(R.id.prev_button);
    mPrevButton.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            mCurrentIndex = (mCurrentIndex + mQuestionBank.length - 1)
            % mQuestionBank.length;
            updateQuestion();
        }
    });
}

```

## 2.10 挑战练习三：从按钮到图标按钮

#### 代码清单 2-5 修改布局 (activity\_quiz.xml)

```

<ImageButton
    android:id="@+id/prev_button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:drawableLeft="@drawable/arrow_left"
    android:drawablePadding="4dp"
    android:text="@string/prev_button"
    android:src="@drawable/arrow_left" />
<ImageButton
    android:id="@+id/next_button"
    android:layout_width="wrap_content"

```

```

        android:layout_height="wrap_content"
        android:drawablePadding="4dp"
        android:drawableRight="@drawable/arrow_right"
        android:text="@string/next_button"
        android:src="@drawable/arrow_right" />

```

代码清单 2-6 修改 QuizActivity (QuizActivity.java)

```

private ImageButton mNextButton;
private ImageButton mPrevButton;
...
@Override
protected void onCreate(Bundle savedInstanceState) {
    ...
    mNextButton = (ImageButton) findViewById(R.id.next_button);
    ...
    mPrevButton = (ImageButton) findViewById(R.id.prev_button);
}

```

## 5.5 挑战练习

代码清单 5-1 解决旋转 CheatActivity 问题 (CheatActivity.java)

```

public static final String EXTRA_ANSWER_SHOWN =
    "com.bignerdranch.android.geoquiz.answer_shown";
private static final String KEY_IS_CHEAT = "isCheat";
private boolean mAnswerIsTrue;
private boolean mIsCheat;
...
@Override
protected void onCreate(Bundle savedInstanceState) {
    ...
    mShowAnswer.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            if (mAnswerIsTrue) {
                mAnswerTextView.setText(R.string.true_button);
            } else {
                mAnswerTextView.setText(R.string.false_button);
            }
            setAnswerShownResult(true);
            mIsCheat = true;
        }
    });
    if (savedInstanceState != null
        && savedInstanceState.getBoolean(KEY_IS_CHEAT)) {
        if (mAnswerIsTrue) {

```

```

        mAnswerTextView.setText(R.string.true_button);
    } else {
        mAnswerTextView.setText(R.string.false_button);
    }
    setAnswerShownResult(true);
    mIsCheat = true;
}
}
@Override
protected void onSaveInstanceState(Bundle outState) {
    super.onSaveInstanceState(outState);
    outState.putBoolean(KEY_IS_CHEAT, mIsCheat);
}

```

#### 代码清单 5-2 解决旋转 QuizActivity 问题 (QuizActivity.java)

```

private static final String KEY_INDEX = "index";
private static final String KEY_ISCHEATER = "isCheater";
...
@Override
protected void onCreate(Bundle savedInstanceState) {
    ...
    if (savedInstanceState != null) {
        mCurrentIndex = savedInstanceState.getInt(KEY_INDEX, 0);
        mIsCheater = savedInstanceState.getBoolean(KEY_ISCHEATER);
    }
    updateQuestion();
}
@Override
public void onSaveInstanceState(Bundle savedInstanceState) {
    super.onSaveInstanceState(savedInstanceState);
    Log.i(TAG, "onSaveInstanceState");
    savedInstanceState.putInt(KEY_INDEX, mCurrentIndex);
    savedInstanceState.putBoolean(KEY_ISCHEATER, mIsCheater);
}
}

```

#### 代码清单 5-3 添加作弊信息 (TrueFalse.java)

```

private boolean mTrueQuestion;
private boolean mIsCheater;
...
public boolean isCheater() {
    return mIsCheater;
}
public void setIsCheater(boolean isCheater) {
    mIsCheater = isCheater;
}
}
}

```

## 代码清单 5-4 解决不断单击 Next 按钮问题 (QuizActivity.java)

```

private boolean mIsCheater;

...

private void checkAnswer(boolean userPressedTrue) {
    ...
    if (mQuestionBank[mCurrentIndex].isCheater()) {
        ...
    }
}

@Override
protected void onCreate(Bundle savedInstanceState) {
    ...
    mNextButton.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            mCurrentIndex = (mCurrentIndex + 1) % mQuestionBank.length;
mIsCheater = false;
            updateQuestion();
        }
    });
    ...
    if (savedInstanceState != null) {
        mCurrentIndex = savedInstanceState.getInt(KEY_INDEX, 0);
        mQuestionBank[mCurrentIndex].setIsCheater(savedInstanceState
            .getBoolean(KEY_ISCHEATER));
    }
    ...
}

@Override
protected void onActivityResult(int requestCode, int resultCode,
Intent data) {
    if (data == null) {
        return;
    }

    mQuestionBank[mCurrentIndex].setIsCheater(data.getBooleanExtra(
        CheatActivity.EXTRA_ANSWER_SHOWN, false));
}

@Override
public void onSaveInstanceState(Bundle savedInstanceState) {
    super.onSaveInstanceState(savedInstanceState);
    Log.i(TAG, "onSaveInstanceState");
    savedInstanceState.putInt(KEY_INDEX, mCurrentIndex);
    savedInstanceState.putBoolean(KEY_ISCHEATER,
        mQuestionBank[mCurrentIndex].isCheater());
}

```

## 6.4 挑战练习：报告编译版本

代码清单 6-1 增加 TextView 组件 (activity\_cheat.xml)

```
<Button
    ... />

<TextView
    android:id="@+id/APITextView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:padding="24dp" />
```

代码清单 6-2 报告编译版本 (CheatActivity.java)

```
private Button mShowAnswer;
private TextView mAPITextView;

...

@Override
protected void onCreate(Bundle savedInstanceState) {
    ...

    mAPITextView = (TextView) findViewById(R.id.APITextView);
    mAPITextView.setText("API level " + Build.VERSION.SDK_INT);
}
```

## 8.6 挑战练习：日期格式化

代码清单 8-1 简单日期格式化 (CrimeFragment.java)

```
@Override
public View onCreateView(LayoutInflater inflater, ViewGroup parent,
    Bundle savedInstanceState) {
    ...

    mDateButton.setText(DateFormat.getMediumDateFormat(getActivity())
        .format(mCrime.getDate()));
}
```

代码清单 8-2 实现自己的字符串格式化 (CrimeFragment.java)

```
@Override
public View onCreateView(LayoutInflater inflater, ViewGroup parent,
    Bundle savedInstanceState) {
    ...

    mDateButton.setText(DateFormat.format("EEEE, MMM dd, yyyy",
        mCrime.getDate()));
}
```



## 12.3 挑战练习：更多对话框

代码清单 12-1 简单的练习，添加按钮（fragment\_crime.xml）

```
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content" >

    <Button
        android:id="@+id/crime_date"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginLeft="16dp"
        android:layout_marginRight="8dp"
        android:layout_weight="1" />

    <Button
        android:id="@+id/crime_time"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginLeft="8dp"
        android:layout_marginRight="16dp"
        android:layout_weight="1" />

</LinearLayout>
```

代码清单 12-2 新建 TimePicker 布局（dialog\_time.xml）

```
<?xml version="1.0" encoding="utf-8"?>
<TimePicker
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/dialog_time_timePicker"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content" />
```

代码清单 12-3 添加标题字符串资源（strings.xml）

```
<string name="date_picker_title">Date of crime:</string>
<string name="time_picker_title">Time of crime:</string>
```

代码清单 12-4 新建对话框 fragment（TimePickerFragment.java）

```
public class TimePickerFragment extends DialogFragment {
    public static final String EXTRA_TIME =
        "com.bignerdranch.android.criminalintent.time";

    private Date mDate;

    public static TimePickerFragment newInstance(Date date) {
        Bundle args = new Bundle();
        args.putSerializable(EXTRA_TIME, date);
        TimePickerFragment fragment = new TimePickerFragment();
        fragment.setArguments(args);
        return fragment;
    }
}
```

```

private void sendResult(int resultCode) {
    if (getTargetFragment() == null)
        return;
    Intent i = new Intent();
    i.putExtra(EXTRA_TIME, mDate);
    getTargetFragment().onActivityResult(getTargetRequestCode(),
        resultCode, i);
}

@Override
public Dialog onCreateDialog(Bundle savedInstanceState) {
    mDate = (Date) getArguments().getSerializable(EXTRA_TIME);
    Calendar calendar = Calendar.getInstance();
    calendar.setTime(mDate);
    int hour = calendar.get(Calendar.HOUR_OF_DAY);
    int minute = calendar.get(Calendar.MINUTE);
    View v = getActivity().getLayoutInflater().inflate(
        R.layout.dialog_time, null);
    TimePicker timePicker = (TimePicker) v
        .findViewById(R.id.dialog_time_timePicker);
    timePicker.setCurrentHour(hour);
    timePicker.setCurrentMinute(minute);
    timePicker.setOnTimeChangedListener(new
TimePicker.OnTimeChangedListener() {
        public void onTimeChanged(TimePicker timePicker,
            int hourOfDay, int minute) {
            Calendar cal = Calendar.getInstance();
            cal.setTime(mDate);
            cal.set(Calendar.HOUR_OF_DAY, hourOfDay);
            cal.set(Calendar.MINUTE, minute);
            mDate = cal.getTime();
            getArguments().putSerializable(EXTRA_TIME,
mDate);
        }
    });

    return new AlertDialog.Builder(getActivity())
        .setView(v)
        .setTitle(R.string.time_picker_title)
        .setPositiveButton(android.R.string.ok,
            new DialogInterface.OnClickListener() {
                public void onClick(
                    DialogInterface dialogInterface, int
which) {
                    sendResult(Activity.RESULT_OK);
                }
            })
        .create();
}

```

```

        }).create();
    }
}

```

#### 代码清单 12-5 添加按钮与实现 (CrimeFragment.java)

```

    private static final String DIALOG_DATE = "date";
    private static final String DIALOG_TIME = "time";
    private static final int REQUEST_DATE = 0;
    private static final int REQUEST_TIME = 1;
    ...
    Button mDateButton;
    Button mTimeButton;
    ...
    public void updateDate() {
        mDateButton.setText(DateFormat.getDateFormat(getActivity()).format(mCrime.getDate()));
        mTimeButton.setText(DateFormat.getTimeFormat(getActivity()).format(mCrime.getDate()));
    }
    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup parent,
        Bundle savedInstanceState) {
        ...
        updateDate();
        ...
        mDateButton.setOnClickListener(new View.OnClickListener() {
            ...
        });
        mTimeButton = (Button) v.findViewById(R.id.crime_time);
        mTimeButton.setOnClickListener(new View.OnClickListener() {
            public void onClick(View v) {
                FragmentManager fm =
                    getActivity().getSupportFragmentManager();
                TimePickerFragment dialog = TimePickerFragment
                    .newInstance(mCrime.getDate());
                dialog.setTargetFragment(CrimeFragment.this,
                    REQUEST_TIME);
                dialog.show(fm, DIALOG_TIME);
            }
        });
        updateDate();
        ...
    @Override
    public void onActivityResult(int requestCode, int resultCode, Intent
data) {

```

```

        if (resultCode != Activity.RESULT_OK)
            return;
        if (requestCode == REQUEST_DATE) {
            ...
        }
        if (requestCode == REQUEST_TIME) {
            Date time = (Date)
data.getSerializableExtra(TimePickerFragment.EXTRA_TIME);
            mCrime.setDate(time);
            updateDate();
        }
    }
}

```

代码清单 12-6 有点难度的练习，将布局换回原布局（fragment\_crime.xml）

```

<Button
    android:id="@+id/crime_date"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginLeft="16dp"
    android:layout_marginRight="16dp" />

```

代码清单 12-7 添加字符串资源（strings.xml）

```

<string name="crimes_title">Crimes</string>
<string name="dialog_editDate">Date</string>
<string name="dialog_editTime">Time</string>
<string name="dialog_editDateOrTime">Do you want to edit the date or
time?</string>

```

代码清单 12-8 新建选择对话框（ChoiceDialogFragment.java）

```

public class ChoiceDialogFragment extends DialogFragment {
    public static final String EXTRA_CHOICE =
"com.bignerdranch.android.criminalintent.choice";
    private int mChoice = 0;
    public static final int CHOICE_DATE = 1;
    public static final int CHOICE_TIME = 2;
    @Override
    public Dialog onCreateDialog(Bundle savedInstanceState) {
        AlertDialog.Builder builder = new
AlertDialog.Builder(getActivity());
        builder.setMessage(R.string.dialog_editDateOrTime)
            .setPositiveButton(R.string.dialog_editDate,
                new DialogInterface.OnClickListener() {
                    public void onClick(
                        DialogInterface dialogInterface, int i)
{
                        mChoice = CHOICE_DATE;
                        sendResult(Activity.RESULT_OK);

```

```

        }
    })
    .setNegativeButton(R.string.dialog_editTime,
        new DialogInterface.OnClickListener() {
            public void onClick(
                DialogInterface dialogInterface, int i)
        {
            mChoice = CHOICE_TIME;
            sendResult(Activity.RESULT_OK);
        }
    });
    return builder.create();
}

private void sendResult(int resultCode) {
    if (getTargetFragment() == null)
        return;

    Intent i = new Intent();
    i.putExtra(EXTRA_CHOICE, mChoice);
    getTargetFragment().onActivityResult(getTargetRequestCode(),
        resultCode, i);
}
}

```

#### 代码清单 12-9 修改 CrimeFragment (CrimeFragment.java)

```

public class CrimeFragment extends Fragment {
    public static final String EXTRA_CRIME_ID =
"com.bignerdranch.android.criminalintent.crime_id";
    private static final String DIALOG_DATE = "date";
    private static final String DIALOG_TIME = "time";
    private static final String DIALOG_CHOICE = "choice";
    private static final int REQUEST_DATE = 0;
    private static final int REQUEST_TIME = 1;
    private static final int REQUEST_CHOICE = 2;
    ...
    Button mTimeButton;
    ...
    public void updateDate() {
        mDateButton.setText(mCrime.getDate().toString());
        mTimeButton.setText(DateFormat.getTimeFormat(getActivity()).format
t(mCrime.getDate()));
    }
    ...
    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup parent,
        Bundle savedInstanceState) {

```

```

...
mDateButton = (Button) v.findViewById(R.id.crime_date);
updateDate();
mDateButton.setOnClickListener(new View.OnClickListener() {
    public void onClick(View v) {
        FragmentManager fm =
getActivity().getSupportFragmentManager();
        DatePickerFragment dialog = DatePickerFragment
        .newInstance(mCrime.getDate());
        AlertDialogFragment dialog = new AlertDialogFragment();
        dialog.setTargetFragment(CrimeFragment.this,
REQUEST_CHOICE);
        dialog.show(fm, DIALOG_CHOICE);
    }
});
mTimeButton = (Button) v.findViewById(R.id.crime_time);
mTimeButton.setOnClickListener(new View.OnClickListener() {
    public void onClick(View v) {
        FragmentManager fm =
getActivity().getSupportFragmentManager();
        TimePickerFragment dialog =
TimePickerFragment.newInstance(mCrime.getDate());
        dialog.setTargetFragment(CrimeFragment.this,
REQUEST_TIME);
        dialog.show(fm, DIALOG_TIME);
    }
});
updateDate();
...
@Override
public void onActivityResult(int requestCode, int resultCode, Intent
data) {
    ...
    if (requestCode == REQUEST_CHOICE) {
        int choice =
data.getIntExtra(AlertDialogFragment.EXTRA_CHOICE, 0);
        if (choice == 0) {
            return;
        }
        FragmentManager fm =
getActivity().getSupportFragmentManager();
        if (choice == AlertDialogFragment.CHOICE_DATE) {
            DatePickerFragment dialog = DatePickerFragment
                .newInstance(mCrime.getDate());

```

```

        dialog.setTargetFragment(CrimeFragment.this,
REQUEST_DATE);
        dialog.show(fm, DIALOG_DATE);
    } else if (choice == ChoiceDialogFragment.CHOICE_TIME) {
        TimePickerFragment dialog = TimePickerFragment
            .newInstance(mCrime.getDate());
        dialog.setTargetFragment(CrimeFragment.this,
REQUEST_TIME);
        dialog.show(fm, DIALOG_TIME);
    }
}
}
}

```

## 13.6 挑战练习：暂停音频播放

代码清单 13-1 添加字符串资源 (strings.xml)

```

<string name="hellomoon_play">Play</string>
<string name="hellomoon_pause">Pause</string>

```

代码清单 13-2 提供暂停功能 (AudioPlayer.java)

```

public class AudioPlayer {
    private MediaPlayer mPlayer;
    private boolean isPause;

    public void stop() {
        if (mPlayer != null) {
            mPlayer.release();
            mPlayer = null;
            isPause = false;
        }
    }

    public void play(Context c) {
        if (isPause) {
            mPlayer.start();
        } else {
            stop();
            mPlayer = MediaPlayer.create(c, R.raw.one_small_step);
            mPlayer.setOnCompletionListener(new
MediaPlayer.OnCompletionListener() {
                @Override
                public void onCompletion(MediaPlayer mp) {
                    mPlayer.start();
                }
            });
            mPlayer.start();
        }
    }
}

```

```

    }
    isPause = false;
}
public void pause() {
    if (mPlayer != null) {
        mPlayer.pause();
        isPause = true;
    }
}
public boolean isPlaying() {
    if (mPlayer != null)
        return mPlayer.isPlaying();
    else
        return false;
}
}

```

### 代码清单 13-3 修改 HelloMoonFragment (HelloMoonFragment.java)

```

@Override
public View onCreateView(LayoutInflater inflater, ViewGroup parent,
    Bundle savedInstanceState) {
    ...
    mPlayButton.setOnClickListener(new View.OnClickListener() {
        public void onClick(View v) {
            if (mPlayer.isPlaying()) {
                mPlayer.pause();
                mPlayButton.setText(R.string.hellomoon_play);
            } else {
                mPlayer.play(getActivity());
                mPlayButton.setText(R.string.hellomoon_pause);
            }
        }
    });
    mStopButton = (Button)
v.findViewById(R.id.hellomoon_stopButton);
    mStopButton.setOnClickListener(new View.OnClickListener() {
        public void onClick(View v) {
            mPlayer.stop();
            mPlayButton.setText(R.string.hellomoon_play);
        }
    });
}

```



## 13.8 挑战练习：在 HelloMoon 应用中播放视频

代码清单 13-4 修改布局 (fragment\_hello\_moon.xml)

```
<ImageView
    android:src="@drawable/armstrong_on_moon"
    android:contentDescription="@string/hellomoon_description"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:scaleType="centerInside"
    android:layout_weight="1" />

<SurfaceView
    android:id="@+id/hellomoon_surfaceView"
    android:contentDescription="@string/hellomoon_description"
    android:layout_width="320dp"
    android:layout_height="240dp"
    android:layout_gravity="center" />
```

代码清单 13-5 修改 AudioPlayer (AudioPlayer.java)

```
public class AudioPlayer {
    ...
    private boolean isPause;
    private SurfaceHolder mSurfaceHolder;
    ...
    public void play(Context c) {
        ...
        mPlayer = MediaPlayer.create(c, R.raw.apollo_17_stroll);
        mPlayer.setDisplay(mSurfaceHolder);
        ...
    }

    public void setSurfaceHolder(SurfaceHolder surfaceHolder) {
        mSurfaceHolder = surfaceHolder;
    }
}
```

代码清单 13-6 修改 HelloMoonFragment (HelloMoonFragment.java)

```
private Button mStopButton;
private SurfaceView mSurfaceView;
...
@Override
public View onCreateView(LayoutInflater inflater, ViewGroup
container, Bundle savedInstanceState) {
    ...
    mSurfaceView =
    (SurfaceView)v.findViewById(R.id.hellomoon_surfaceView);
    mPlayer.setSurfaceHolder(mSurfaceView.getHolder());
    return v;
}
```

```
}
```

如果出现错误，请将mpg文件转换成mp4文件。

## 16.4 挑战练习：用于列表的空视图

### 代码清单 16-1 添加字符串资源（strings.xml）

```
<string name="subtitle">If you see something, say something.</string>
<string name="empty">没有crime记录可以显示</string>
```

### 代码清单 16-2 创建 XML 布局（fragment\_list\_crime.xml）

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent" >
    <ListView
        android:id="@android:id/list"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" >
    </ListView>

    <LinearLayout
        android:id="@android:id/empty"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:gravity="center"
        android:orientation="vertical" >
        <TextView
            android:id="@+id/emptyTextView"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="@string/empty"
            android:textSize="24sp" />
        <Button
            android:id="@+id/newCrimeButton"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="@string/new_crime" />
    </LinearLayout>
</FrameLayout>
```

### 代码清单 16-3 修改 CrimeListFragment（CrimeListFragment.java）

```
private boolean mSubtitleVisible;
private Button newCrimeButton;
...
```

```

@TargetApi(11)
@Override
public View onCreateView(LayoutInflater inflater, ViewGroup parent,
    Bundle savedInstanceState) {
    View v = inflater.inflate(R.layout.fragment_list_crime, parent,
false);
    ListView listView = (ListView)
v.findViewById(android.R.id.list);
    listView.setEmptyView(v.findViewById(android.R.id.empty));
    newCrimeButton = (Button) v.findViewById(R.id.newCrimeButton);
    newCrimeButton.setOnClickListener(new View.OnClickListener() {
        public void onClick(View v) {
            Crime crime = new Crime();
            CrimeLab.get(getActivity()).addCrime(crime);
            Intent i = new Intent(getActivity(), CrimeActivity.class);
            i.putExtra(CrimeFragment.EXTRA_CRIME_ID,
crime.getId());
            startActivityForResult(i, 0);
        }
    });
}

```

## 17.2 挑战练习：使用外部存储

代码清单 17-1 添加权限 (AndroidManifest.xml)

```

<uses-sdk android:minSdkVersion="8" android:targetSdkVersion="17"/>
<uses-permission
android:name="android.permission.WRITE_EXTERNAL_STORAGE" />

```

代码清单 17-2 读写外部存储 (CriminalIntentJSONSerializer.java)

```

public ArrayList<Crime> loadCrimes() throws IOException,
JSONException {
    ArrayList<Crime> crimes = new ArrayList<Crime>();
    BufferedReader reader = null;
    try {
        // Open and read the file into a StringBuilder
        InputStream in = null;
        if (Environment.getExternalStorageState().equals(
            Environment.MEDIA_MOUNTED)) {
            in = new FileInputStream(new File(Environment
.getExternalStorageDirectory().getAbsolutePath(),
mFilename));
        } else {
            in = mContext.openFileInput(mFilename);
        }
    }
}

```

```

        reader = new BufferedReader(new InputStreamReader(in));
        ...
        public void saveCrimes(ArrayList<Crime> crimes) throws JSONException,
        IOException {
            ...
            try {
                OutputStream out = null;
                if (Environment.getExternalStorageState().equals(
                    Environment.MEDIA_MOUNTED)) {
                    out = new FileOutputStream(new File(Environment
                        .getExternalStorageDirectory().getAbsolutePath(), mFilename));
                } else {
                    out = mContext.openFileOutput(mFilename,
Context.MODE_PRIVATE);
                }
                writer = new OutputStreamWriter(out);
                writer.write(array.toString());
            } finally {
                if (writer != null)
                    writer.close();
            }
        }
    }
}

```

## 18.5 挑战练习：在 CrimeFragment 视图中删除 crime 记录

代码清单 18-1 添加菜单资源 (delete\_crime.xml)

```

<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android" >
    <item
        android:id="@+id/menu_delete_crime"
        android:icon="@android:drawable/ic_menu_delete"
        android:showAsAction="ifRoom|withText"
        android:title="@string/delete_crime"/>
</menu>

```

代码清单 18-2 实现删除 crime 记录的选项菜单 (CrimeFragment.java)

```

@Override
public void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setHasOptionsMenu(true);
    ...
@Override
public void onCreateOptionsMenu(Menu menu, MenuInflater inflater) {
    super.onCreateOptionsMenu(menu, inflater);
}

```

```

        inflater.inflate(R.menu.delete_crime, menu);
    }
    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        switch (item.getItemId()) {
            case R.id.menu_delete_crime:
                CrimeLab.get(getActivity()).getCrimes().remove(mCrime);
            case android.R.id.home:

```

## 18.7 挑战练习：使用 ActionBarSherlock

略

## 20.6 挑战练习：Crime 照片的显示方向

代码清单 20-1 附加方向到 Intent 并让 Camera 跟随旋转 (CrimeCameraFragment.java)

```

    public static final String EXTRA_PHOTO_ORIENTATION =
    "com.bignerdranch.android.criminalintent.photo_orientation";

    ...

    private Camera.PictureCallback mJpegCallback = new
    Camera.PictureCallback() {
        @Override
        public void onPictureTaken(byte[] data, Camera camera) {
            ...
            // Set the photo filename on the result intent
            if (success) {
                Intent i = new Intent();
                i.putExtra(EXTRA_PHOTO_FILENAME, filename);
                i.putExtra(EXTRA_PHOTO_ORIENTATION, getActivity()
                    .getResources().getConfiguration().orientation);
                getActivity().setResult(Activity.RESULT_OK, i);
            } else {
                getActivity().setResult(Activity.RESULT_CANCELED);
            }
            getActivity().finish();
        }
    };

    ...

    @Override
    public void surfaceChanged(SurfaceHolder holder, int format,
        int width, int height) {

```

```

        ...
        mCamera.setParameters(parameters);
        if
(getActivity().getResources().getConfiguration().orientation ==
Configuration.ORIENTATION_PORTRAIT) {
            mCamera.setDisplayOrientation(90);
        }
        ...
    }

```

代码清单 20-2 给 Photo 添加方向信息 (Photo.java)

```

public class Photo {
    private static final String JSON_FILENAME = "filename";
    private static final String JSON_ORIENTATION = "orientation";
    private String mFilename;
    private int mOrientation;
    /** Create a Photo representing an existing file on disk */
    public Photo(String filename, int orientation) {
        mFilename = filename;
        mOrientation = orientation;
    }
    public Photo(JSONObject json) throws JSONException {
        mFilename = json.getString(JSON_FILENAME);
        mOrientation = json.getInt(JSON_ORIENTATION);
    }
    public JSONObject toJSON() throws JSONException {
        JSONObject json = new JSONObject();
        json.put(JSON_FILENAME, mFilename);
        json.put(JSON_ORIENTATION, mOrientation);
        return json;
    }
    public String getFilename() {
        return mFilename;
    }
    public int getOrientation() {
        return mOrientation;
    }
}

```

代码清单 20-3 给 PictureUtils 添加新方法 (PictureUtils.java)

```

public static BitmapDrawable getPortraitDrawable(ImageView iView,
        BitmapDrawable origImage) {
    Matrix m = new Matrix();
    m.postRotate(90);
    Bitmap br = Bitmap.createBitmap(origImage.getBitmap(), 0, 0,
        origImage.getIntrinsicWidth(),

```

```

        origImage.getIntrinsicHeight(), m, true);
        origImage = new BitmapDrawable(iView.getResources(), br);
        return origImage;
    }

```

#### 代码清单 20-4 修改 CrimeFragment 的 onActivityResult() 和 showPhoto() 方法 (CrimeFragment.java)

```

@Override
    public void onActivityResult(int requestCode, int resultCode, Intent data) {
        ...
        } else if (requestCode == REQUEST_PHOTO) {
            // Create a new Photo object and attach it to the crime
            String filename = data
                .getStringExtra(CrimeCameraFragment.EXTRA_PHOTO_FILENAME);
            int orientation = data.getIntExtra(
                CrimeCameraFragment.EXTRA_PHOTO_ORIENTATION, 0);
            if (filename != null) {
                Photo p = new Photo(filename, orientation);
                mCrime.setPhoto(p);
                showPhoto();
            }
        }
        ...
        private void showPhoto() {
            ...
            if (p != null) {
                String path =
                    getActivity().getFileStreamPath(p.getFilename()).getAbsolutePath();
                b = PictureUtils.getScaleDrawable(getActivity(), path);
                if (p.getOrientation() ==
                    Configuration.ORIENTATION_PORTRAIT) {
                    b = PictureUtils.getPortraitDrawable(mPhotoView, b);
                }
                mPhotoView.setImageDrawable(b);
            }
        }
    }

```

#### 代码清单 20-5 修改 ImageFragment (ImageFragment.java)

```

    public static final String EXTRA_IMAGE_ORIENTATION =
        "com.bignerdranch.android.criminalintent.image_orientation";
    ...
    public static ImageFragment newInstance(String imagepath, int
        orientation) {
        Bundle args = new Bundle();

```

```

        args.putSerializable(EXTRA_IMAGE_PATH, imagepath);
        args.putInt(EXTRA_IMAGE_ORIENTATION, orientation);
        ImageFragment fragment = new ImageFragment();
        fragment.setArguments(args);
        fragment.setStyle(DialogFragment.STYLE_NO_TITLE, 0);
        return fragment;
    }
    ...
    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup
container, Bundle savedInstanceState) {
        mImageView = new ImageView(getActivity());
        String path = (String)
getArguments().getSerializable(EXTRA_IMAGE_PATH);
        int orientation = (int)
getArguments().getInt(EXTRA_IMAGE_ORIENTATION);
        BitmapDrawable image =
PictureUtils.getScaleDrawable(getActivity(), path);
        if (orientation == Configuration.ORIENTATION_PORTRAIT) {
            image = PictureUtils.getPortraitDrawable(mImageView, image);
        }
        mImageView.setImageDrawable(image);
        return mImageView;
    }

```

#### 代码清单 20-6 修改 CrimeFragment 的 onCreateView() 方法 (CrimeFragment.java)

```

public View onCreateView(LayoutInflater inflater, ViewGroup parent,
        Bundle savedInstanceState) {
    ...
    mPhotoView.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            ...
            ImageFragment.newInstance(path,
                mCrime.getPhoto().getOrientation()).show(fm,
                DIALOG_IMAGE);
        }
    });
}

```

#### 代码清单 20-7 复制 fragment\_crime\_camera.xml 到 layout-land, 并修改原文件为竖直方式 (layout/fragment\_crime\_camera.xml)

```

...
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical" >

```



```

<SurfaceView
    android:id="@+id/crime_camera_surfaceView"
    android:layout_width="match_parent"
    android:layout_height="0dp"
    android:layout_weight="1" />
<Button
    android:id="@+id/crime_camera_takePictureButton"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="@string/take" />
</LinearLayout>

```

...

#### 代码清单 20-8 取消强制横屏 (AndroidManifest.xml)

```

<activity
    android:name=".CrimeCameraActivity"
    android:exported="true"
    android:label="@string/app_name"
    android:screenOrientation="landscape" >
</activity>

```

## 20.7 挑战练习：删除照片

#### 代码清单 20-9 给 Crime 添加删除照片方法 (Crime.java)

```

public boolean deletePhoto(String filename) {
    File file = new File(filename);
    setPhoto(null);
    return file.delete();
}

```

#### 代码清单 20-10 修改 CrimeFragment 的 onActivityResult 方法 (CrimeFragment.java)

```

@Override
public void onActivityResult(int requestCode, int resultCode, Intent data) {
    ...
} else if (requestCode == REQUEST_PHOTO) {
    if (mCrime.getPhoto() != null) {
        mCrime.deletePhoto(getActivity().getFileStreamPath(
mCrime.getPhoto().getFilename()).getAbsolutePath());
    }
    // Create a new Photo object and attach it to the crime
    String filename = data
.getStringExtra(CrimeCameraFragment.EXTRA_PHOTO_FILENAME);
    ...
}

```

```
}
```

代码清单 20-11 给 CrimeFragment 添加上下文 (CrimeFragment.java)

```
@Override
public View onCreateView(LayoutInflater inflater, ViewGroup parent,
    Bundle savedInstanceState) {
    ...
    mPhotoView.setOnClickListener(new View.OnClickListener() {
        ...
    });
    registerForContextMenu(mPhotoView);
    ...
}

@Override
public void onCreateContextMenu(ContextMenu menu, View v,
    ContextMenuInfo menuInfo) {
    getActivity().getMenuInflater().inflate(R.menu.crime_list_item_co
ntext, menu);
}

@Override
public boolean onContextItemSelected(MenuItem item) {
    if (mCrime.getPhoto() != null
        && mCrime.deletePhoto(getActivity().getFileStreamPath(
mCrime.getPhoto().getFilename()).getAbsolutePath())) {
        showPhoto();
        return true;
    }
    return super.onContextItemSelected(item);
}
```

## 21.5 挑战练习：又一个隐式 intent

代码清单 21-1 添加 Call 按钮文字 (strings.xml)

```
<string name="send_report">Send crime report via</string>
<string name="call">Call</string>
```

代码清单 21-2 给竖直布局添加按钮 (layout/fragment\_crime.xml)

```
<Button
    android:id="@+id/crime_reportButton"
    ... />
<Button
    android:id="@+id/crime_callButton"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginLeft="16dp"
```

```

        android:layout_marginRight="16dp"
        android:text="@string/call" />

```

代码清单 21-3 给水平布局添加按钮 (layout-land/fragment\_crime.xml)

```

<Button
    android:id="@+id/crime_reportButton"
    ... />

<Button
    android:id="@+id/crime_callButton"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:text="@string/call" />

```

代码清单 21-4 修改 CrimeFragment (CrimeFragment.java)

```

...
private ImageView mPhotoView;
private Button mCallButton;
...
@Override
public View onCreateView(LayoutInflater inflater, ViewGroup parent,
    Bundle savedInstanceState) {
    ...
    if (mCrime.getSuspect() != null) {
        mSuspectButton.setText(mCrime.getSuspect());
    }
    mCallButton = (Button)v.findViewById(R.id.crime_callButton);
    mCallButton.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            Uri number = Uri.parse("tel:5551234");
            Intent i = new Intent(Intent.ACTION_DIAL, number);
            startActivity(i);
        }
    });
    return v;
}

```

代码清单 21-5 添加号码信息 (Crime.java)

```

private String mSuspect;
private String mPhoneNumber;
...
public String getPhoneNumber() {
    return mPhoneNumber;
}
public void setPhoneNumber(String phoneNumber) {
    mPhoneNumber = phoneNumber;
}

```

```
}
```

#### 代码清单 21-6 改为拨打联系人的手机号码 (CrimeFragment.java)

```
@Override
public View onCreateView(LayoutInflater inflater, ViewGroup parent,
    Bundle savedInstanceState) {
    ...
    mSuspectButton.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            Intent i = new Intent(Intent.ACTION_PICK,
ContactsContract.CommonDataKinds.Phone.CONTENT_URI);
            startActivityForResult(i, REQUEST_CONTACT);
        }
    });
    ...
    mCallButton.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            Uri number = Uri.parse("tel:" + mCrime.getPhoneNumber());
            Intent i = new Intent(Intent.ACTION_DIAL, number);
            startActivity(i);
        }
    });
    ...
    @Override
    public void onActivityResult(int requestCode, int resultCode, Intent
data) {
        ...
    } else if (requestCode == REQUEST_CONTACT) {
        ...
        String[] queryFields = new String[] {
            ContactsContract.Contacts.DISPLAY_NAME,
            ContactsContract.CommonDataKinds.Phone.NUMBER };
        ...
        String suspect = c.getString(0);
        String number = c.getString(1);
        mCrime.setSuspect(suspect);
        mCrime.setPhoneNumber(number);
    }
}
```

## 23.6 挑战练习：应用图标与任务重排

在网上找的方案，但是未成功

#### 代码清单 23-1 添加应用图标 (NerdLauncherFragment.java)

```

        ArrayAdapter<ResolveInfo> adapter = new
ArrayAdapter<ResolveInfo>(getActivity(),
android.R.layout.simple_list_item_1, activities) {
    public View getView(int pos, View convertView, ViewGroup
parent) {
        ...
        tv.setText(ri.loadLabel(pm));
        Drawable icon = ri.loadIcon(pm);
        icon.setBounds(0, 0, icon.getIntrinsicWidth(),
            icon.getIntrinsicHeight());
        tv.setCompoundDrawables(icon, null, null, null);
        return v;
    }
};

```

#### 代码清单 23-2 添加另一个 activity (NerdLauncherFragment.java)

```

@Override
public void onCreate(Bundle savedInstanceState) {
    ...
    PackageManager pm = getActivity().getPackageManager();
    List<ResolveInfo> activities =
pm.queryIntentActivities(startupIntent, 0);
    ActivityManager am = (ActivityManager)
getActivity().getSystemService(getActivity().ACTIVITY_SERVICE);
    List<ActivityManager.RunningTaskInfo> activities =
am.getRunningTasks(5);
    Log.i(TAG, "I've found " + activities.size() + " activities.");
    Collections.sort(activities, new Comparator<ResolveInfo>() {
        public int compare(ResolveInfo a, ResolveInfo b) {
            PackageManager pm = getActivity().getPackageManager();
            return
String.CASE_INSENSITIVE_ORDER.compare(a.loadLabel(pm)
                .toString(), b.loadLabel(pm).toString());
        }
    });
    ArrayAdapter<ActivityManager.RunningTaskInfo> adapter = new
ArrayAdapter<ActivityManager.RunningTaskInfo>(getActivity(),
android.R.layout.simple_list_item_1, activities) {
    public View getView(int pos, View convertView, ViewGroup
parent) {
        if (convertView == null) {
            convertView =
getActivity().getLayoutInflater().inflate(R.layout.app_list, null);
        }
        ActivityManager.RunningTaskInfo rt = getItem(pos);
    }
};

```

```

PackageManager pm = getActivity().getPackageManager();
View v = super.getView(pos, convertView, parent);
// Documentation says that simple_list_item_1 is a
TextView,
// so cast it so that you can set its text value
TextView tv = (TextView)
convertView.findViewById(R.id.app_list_text);
ResolveInfo ri = getItem(pos);
tv.setText(rt.baseActivity.getPackageName()
.toString());
Drawable icon = ri.loadIcon(pm);
icon.setBounds(0, 0, icon.getIntrinsicWidth(),
icon.getIntrinsicHeight());
tv.setCompoundDrawables(icon, null, null, null);
return convertView;
}
};
setListAdapter(adapter);
}
@Override
public void onItemClick(ListView l, View v, int position, long
id) {
ResolveInfo resolveInfo = (ResolveInfo) l.getAdapter().
.getItem(position);
ActivityInfo activityInfo = resolveInfo.activityInfo;
if (activityInfo == null)
return;
Intent i = new Intent(Intent.ACTION_MAIN);
i.setClassName(activityInfo.applicationInfo.packageName,
activityInfo.name);
i.addFlags(Intent.FLAG_ACTIVITY_NEW_TASK);
startActivity(i);
ActivityManager.RunningTaskInfo ri =
(ActivityManager.RunningTaskInfo) l.getAdapter().getItem(position);
ActivityManager am = (ActivityManager)
getActivity().getSystemService(getActivity().ACTIVITY_SERVICE);
am.moveTaskToFront(ri.id, 0);
}

```

代码清单 23-3 增加权限配置 (AndroidManifest.xml)

```

<uses-sdk
    android:minSdkVersion="8"
    android:targetSdkVersion="17" />
<uses-permission android:name="android.permission.GET_TASKS" />
<uses-permission android:name="android.permission.REORDER_TASKS" />

```

## 24.5 挑战练习：样式的继承

代码清单 24-1 新建样式 (styles.xml)

```
<style name="RemoteButton">
    ...
</style>
<style name="BoldRemoteButton" parent="RemoteButton">
    <item name="android:textStyle">bold</item>
</style>
```

代码清单 24-2 在 layout 里新建 xml 文件 (button\_delete\_enter.xml)

```
<?xml version="1.0" encoding="utf-8"?>
<TableRow xmlns:android="http://schemas.android.com/apk/res/android">
    <Button style="@style/BoldRemoteButton" />
    <Button style="@style/RemoteButton" />
    <Button style="@style/BoldRemoteButton" />
</TableRow>
```

代码清单 24-3 修改最后一个 include 标签 (fragment\_remote\_control.xml)

```
<include
    android:layout_weight="1"
    layout="@layout/button_delete_enter" />
```

## 26.8 挑战练习：分页

代码清单 26-1 附加 page 参数 (FlickrFetchr.java)

```
public class FlickrFetchr {
    ...
    private static final String EXTRA_SMALL_URL = "url_s";
    private static final String PAGE = "page";
    ...
    public ArrayList<GalleryItem> fetchItems(Integer page) {
        ArrayList<GalleryItem> items = new ArrayList<GalleryItem>();
        try {
            String url = Uri.parse(ENDPOINT).buildUpon()
                .appendQueryParameter("method", METHOD_GET_RECENT)
                .appendQueryParameter("api_key", API_KEY)
                .appendQueryParameter(PARAM_EXTRAS, EXTRA_SMALL_URL)
                .appendQueryParameter(PAGE, page.toString())
                .build().toString();
            ...
        }
    }
}
```

代码清单 26-2 添加代码 (PhotoGalleryFragment.java)

```
public class PhotoGalleryFragment extends Fragment {
```

```

GridView mGridView;
ArrayList<GalleryItem> mItems;
private int current_page = 1;
private int fetched_page = 0;
private int scrollPosition = 0;
@Override
public void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setRetainInstance(true);
    new FetchItemsTask().execute(current_page);
}
@Override
public View onCreateView(LayoutInflater inflater, ViewGroup
container, Bundle savedInstanceState) {
    View v = inflater.inflate(R.layout.fragment_photo_gallery,
container, false);
    mItems = new ArrayList<GalleryItem>();
    mGridView = (GridView) v.findViewById(R.id.gridView);
    mGridView.setOnScrollListener(new
AbsListView.OnScrollListener(){
        public void onScroll(AbsListView view, int firstVisibleItem,
int visibleItemCount, int totalItemCount) {
            if(firstVisibleItem + visibleItemCount == totalItemCount
&& totalItemCount > 0 && current_page == fetched_page){
                scrollPosition = firstVisibleItem + 3;
                new FetchItemsTask().execute(++current_page);
            }
        }
        public void onScrollStateChanged(AbsListView view, int
scrollState) {}
    });
    setupAdapter();
    return v;
}
...
void setupAdapter() {
    if (getActivity() == null || mGridView == null)
        return;
    if (mItems != null) {
        mGridView.setAdapter(new GalleryItemAdapter(mItems));
        mGridView.setSelection(scrollPosition);
    } else {
        mGridView.setAdapter(null);
    }
}

```



```

    }

    private class FetchItemsTask extends AsyncTask<Integer, Void,
ArrayList<GalleryItem>> {
        @Override
        protected ArrayList<GalleryItem> doInBackground(Integer...
params) {
            return new FlickrFetchr().fetchItems(params[0]);
        }
        @Override
        protected void onPostExecute(ArrayList<GalleryItem> items) {
            if (mItems != null) {
                mItems.addAll(items);
            } else {
                mItems = items;
            }
            setupAdapter();
            fetched_page++;
        }
    }
}

```

## 27.7 挑战练习：预加载以及缓存

代码清单 27-1 为 ThumbnailDownloader 增加缓存功能 (ThumbnailDownloader.java)

```

public class ThumbnailDownloader<Token> extends HandlerThread {
    ...
    Map<Token, String> requestMap = Collections
        .synchronizedMap(new HashMap<Token, String>());
    LruCache<String, Bitmap> mBitmapCache;
    ...
    public ThumbnailDownloader(Handler responseHandler, LruCache<String,
Bitmap> bitmapCache) {
        super(TAG);
        mResponseHandler = responseHandler;
        mBitmapCache = bitmapCache;
    }
    ...
    private void handleRequest(final Token token) {
        try {
            final String url = requestMap.get(token);
            if (url == null)
                return;
            final Bitmap bitmap;
            if (mBitmapCache.get(url) != null) {

```

```

        bitmap = mBitmapCache.get(url);
    } else {
        byte[] bitmapBytes = new FlickrFetchr().getUrlBytes(url);
        bitmap = BitmapFactory.decodeByteArray(bitmapBytes, 0,
            bitmapBytes.length);
        mBitmapCache.put(url, bitmap);
    }
    Log.i(TAG, "Bitmap created");

```

代码清单 27-2 为 PhotoGalleryFragment 增加缓存功能 (PhotoGalleryFragment.java)

```

public class PhotoGalleryFragment extends Fragment {
    ...
    ThumbnailDownloader<ImageView> mThumbnailThread;
    LruCache<String, Bitmap> mBitmapCache;
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setRetainInstance(true);
        new FetchItemsTask().execute();
        int cacheSize = 4 * 1024 * 1024; // 4MB
        mBitmapCache = new LruCache<String, Bitmap>(cacheSize);
        mThumbnailThread = new ThumbnailDownloader<ImageView>(new
Handler(), mBitmapCache);

```

代码清单 27-3 为前十个和后十个 GalleryItem 预加载 Bitmap (ThumbnailDownloader.java)

```

private static final int MESSAGE_DOWNLOAD = 0;
private static final int MESSAGE_CACHING = 1;
Map<String, String> requestMapCache = Collections
    .synchronizedMap(new HashMap<String, String>());
...
public void queueThumbnailCache(String id, String url) {
    requestMapCache.put(id, url);
    mHandler.obtainMessage(MESSAGE_CACHING, id).sendToTarget();
}

```

代码清单 27-4 为前十个和后十个 GalleryItem 预加载 Bitmap (PhotoGalleryFragment.java)

```

private class GalleryItemAdapter extends ArrayAdapter<GalleryItem>
{
    public GalleryItemAdapter(ArrayList<GalleryItem> items) {
        super(getActivity(), android.R.layout.simple_gallery_item,
items);
    }
    @Override
    public View getView(int position, View convertView, ViewGroup
parent) {
        if (convertView == null) {
            convertView = getActivity().getLayoutInflater().inflate(

```

```

        R.layout.gallery_item, parent, false);
    }
    ImageView imageView = (ImageView) convertView
        .findViewById(R.id.gallery_item_imageView);
    imageView.setImageResource(R.drawable.brian_up_close);
    GalleryItem item = getItem(position);
    mThumbnailThread.queueThumbnail(imageView, item.getUrl());
    String url = item.getUrl();
    if (mItems.size() > 1) {
        int endPos = position - 10;
        if (endPos <= 0)
            endPos = 0;
        if (endPos > 0) {
            for (int i = position - 1; i >= endPos; i--) {
                if (i < mItems.size()) {
                    url = mItems.get(i).getUrl();
                    String id = mItems.get(i).getId();
                    if (url != null) {
                        mThumbnailThread.queueThumbnailCache(id,
url);
                    }
                }
            }
        }
        for (int i = position + 1; i <= position + 10; i++) {
            if (i < mItems.size()) {
                url = mItems.get(i).getUrl();
                String id = mItems.get(i).getId();
                if (url != null) {
                    mThumbnailThread.queueThumbnailCache(id,
url);
                }
            }
        }
    }
    return convertView;
}
}

```

## 28.4 挑战练习

代码清单 28-1 在菜单中删除操作视图 (res/menu/fragment\_photo\_gallery.xml)

```
android:actionViewClass="android.widget.SearchView"
```

### 代码清单 28-2 取消 SearchView 并使用 Activity.startSearch(...) 方法 (PhotoGalleryFragment.java)

```

@Override
@TargetApi(11)
public void onCreateOptionsMenu(Menu menu, MenuInflater inflater) {
    super.onCreateOptionsMenu(menu, inflater);
    inflater.inflate(R.menu.fragment_photo_gallery, menu);
if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.HONEYCOMB) {
    // Pull out the SearchView
    MenuItem searchItem = menu.findItem(R.id.menu_item_search);
    SearchView searchView = (SearchView)
searchItem.getActionView();
    // Get the data from our searchable.xml as a SearchableInfo
    SearchManager searchManager = (SearchManager) getActivity().
        .getSystemService(Context.SEARCH_SERVICE);
    ComponentName name = getActivity().getComponentName();
    SearchableInfo searchInfo =
searchManager.getSearchableInfo(name);
    searchView.setSearchableInfo(searchInfo);
}
}
...
@Override
public boolean onOptionsItemSelected(MenuItem item) {
    switch (item.getItemId()) {
        case R.id.menu_item_search:
            getActivity().startSearch(PreferenceManager
                .getDefaultSharedPreferences(getActivity())
                .getString(FlickrFetchr.PREF_SEARCH_QUERY, null),
                true, null, false);
            return true;
    }
}

```

### 代码清单 28-3 获知返回的搜索结果数目 (FlickrFetchr.java)

```

public class FlickrFetchr {
    ...
    private static final String XML_PHOTO = "photo";
    private static final String XML_PHOTOS = "photos";
    ...
    private String total;
    ...
    void parseItems(ArrayList<GalleryItem> items, XmlPullParser parser)
        throws XmlPullParserException, IOException {
        int eventType = parser.next();
        while (eventType != XmlPullParser.END_DOCUMENT) {
            if (eventType == XmlPullParser.START_TAG

```

```

        && XML_PHOTOS.equals(parser.getName())) {
            total = parser.getAttributeValue(null, "total");
            break;
        }
        eventType = parser.next();
    }
    while (eventType != XmlPullParser.END_DOCUMENT) {
        ...
    }
    eventType = parser.next();
}

public String getTotal() {
    return total;
}

```

代码清单 28-4 使用 Toast 消息提示返回的查询结果总数 (PhotoGalleryFragmet.java)

```

public class PhotoGalleryFragment extends Fragment {
    ...
    ThumbnailDownloader<ImageView> mThumbnailThread;
    String mTotal;
    ...
    private class FetchItemsTask extends
        AsyncTask<Void, Void, ArrayList<GalleryItem>> {
        @Override
        protected ArrayList<GalleryItem> doInBackground(Void... params)
        {
            Activity activity = getActivity();
            if (activity == null)
                return new ArrayList<GalleryItem>();
            String query =
                PreferenceManager.getDefaultSharedPreferences(activity).getString(FlickrFetchr.PREF_SEARCH_QUERY, null);
            if (query != null) {
                FlickrFetchr flickrFetchr = new FlickrFetchr();
                ArrayList<GalleryItem> items =
                    flickrFetchr.search(query);
                mTotal = flickrFetchr.getTotal();
                return items;
            } else {
                return new FlickrFetchr().fetchItems();
            }
        }
        @Override
        protected void onPostExecute(ArrayList<GalleryItem> items) {

```

```

        mItems = items;
        setupAdapter();
        Toast.makeText(getActivity(), "Total: " + mTotal,
                        Toast.LENGTH_SHORT).show();
    }
}

```

## 32.5 挑战练习：设备旋转问题

代码清单 32-1 解决设备旋转问题 (BoxDrawingView.java)

```

public class BoxDrawingView extends View {
    public static final String TAG = "BoxDrawingView";
    private static final String KEY = "key";
    ...
    public BoxDrawingView(Context context, AttributeSet attrs) {
        super(context, attrs);
        setId(655); // Identify the id of view
        ...
        @Override
        protected Parcelable onSaveInstanceState() {
            Bundle onSaveInstanceState = new Bundle();
            onSaveInstanceState.putParcelable(KEY,
super.onSaveInstanceState());
            onSaveInstanceState.putSerializable(KEY, mBoxs);
            return onSaveInstanceState;
        }
        @SuppressWarnings("unchecked")
        @Override
        protected void onRestoreInstanceState(Parcelable state) {
            Bundle onSaveInstanceState = (Bundle)state;
            mBoxs = (ArrayList<Box>)
onSaveInstanceState.getSerializable(KEY);
            super.onRestoreInstanceState(onSaveInstanceState.getParcelable(KEY));
            invalidate();
        }
    }
}

```

代码清单 32-2 添加布局 ID (fragment\_drag\_and\_draw.xml)

```

<com.bignerdranch.android.draganddraw.BoxDrawingView
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/boxDrawingView"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
/>

```

## 代码清单 32-3 旋转矩形框 (Box.java)

```

public class Box {
    private PointF mOrigin;
    private PointF mCurrent;
    private int mAngle;
    ...
    public int getAngle() {
        return mAngle;
    }
    public void setAngle(int angle) {
        mAngle = angle;
    }
    public PointF getCenter() {
        float middleX = (mCurrent.x + mOrigin.x) / 2.0f;
        float middleY = (mCurrent.y + mOrigin.y) / 2.0f;
        return new PointF(middleX, middleY);
    }
}

```

## 代码清单 32-4 旋转矩形框 (BoxDrawingView.java)

```

public class BoxDrawingView extends View {
    ...
    @Override
    public boolean onTouchEvent(MotionEvent event) {
        PointF curr = new PointF(event.getX(), event.getY());
        Log.i(TAG, "Received event at x=" + curr.x + ", y=" + curr.y + ":");
        switch (event.getActionMasked()) {
            ...
            case MotionEvent.ACTION_MOVE:
                Log.i(TAG, " ACTION_MOVE");
                if (mCurrentBox != null) {
                    mCurrentBox.setCurrent(curr);
                    if (event.getPointerCount() == 2) {
                        int angle = (int) (Math.atan((event.getY(1) -
event.getY(0)) / (event.getX(1) - event.getX(0))) * 180 / Math.PI);
                        mCurrentBox.setAngle(angle);
                    }
                    invalidate();
                }
                break;
            ...
        }
        @Override
        protected void onDraw(Canvas canvas) {
            // Fill the background
            canvas.drawPaint(mBackgroundPaint);
            for (Box box : mBoxs) {

```

```

        float left = Math.min(box.getOrigin().x, box.getCurrent().x);
        float right = Math.max(box.getOrigin().x,
box.getCurrent().x);
        float top = Math.min(box.getOrigin().y, box.getCurrent().y);
        float bottom = Math.max(box.getOrigin().y,
box.getCurrent().y);
        canvas.save();
        canvas.rotate(box.getAngle(), box.getCenter().x,
box.getCenter().y);
        canvas.drawRect(left, top, right, bottom, mBoxPaint);
        canvas.restore();
    }
}

```

## 34.6 挑战练习：识别当前跟踪的旅程

代码清单 34-1 识别当前跟踪的旅程（RunListFragment.java）

```

public class RunListFragment extends ListFragment {
    ...
    @Override
    public void onListItemClick(ListView l, View v, int position, long
id) {
        // The id argument will be the Run ID; CursorAdapter gives us this
for free
        Intent i = new Intent(getActivity(), RunActivity.class);
        i.putExtra(RunActivity.EXTRA_RUN_ID, id);
        startActivity(i);
        startActivityForResult(i, REQUEST_NEW_RUN);
    }
    private static class RunCursorAdapter extends CursorAdapter {
        ...
        @Override
        public void bindView(View view, Context context, Cursor cursor)
{
            // Get the run for the current row
            Run run = mRunCursor.getRun();
            // Set up the start date text view
            TextView startDateTextView = (TextView) view;
            String cellText = context.getString(R.string.cell_text,
                run.getStartDate());
            startDateTextView.setText(cellText);
            if (RunManager.get(mContext).isTrackingRun(run)) {
                startDateTextView.setBackgroundColor(Color.GREEN);
            }
        }
    }
}

```



```

    } else {
        startDateTextView.setBackgroundColor(Color.TRANSPARENT);
    }
}

```

将 android-sdk\platforms\android-17\data\res 下各分辨率的 drawable 中的 ic\_menu\_notifications.png 复制到项目 res 下各分辨率的 drawable 中

#### 代码清单 34-2 通知信息 (RunFragment.java)

```

public class RunFragment extends Fragment {
    ...
    mStartButton.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            if (mRun == null) {
                mRun = mRunManager.startNewRun();
            } else {
                mRunManager.startTrackingRun(mRun);
            }
            updateUI();
            Intent i = new Intent(getActivity(), RunActivity.class);
            i.putExtra(RunActivity.EXTRA_RUN_ID, mRun.getId());
            PendingIntent pi =
PendingIntent.getActivity(getActivity(), 0, i,
PendingIntent.FLAG_UPDATE_CURRENT);
            Notification notification = new
NotificationCompat.Builder(getActivity())
                .setTicker("A run is tracking...")
                .setSmallIcon(R.drawable.ic_menu_notifications)
                .setContentTitle("Tracking a run")
                .setContentText(mRun.getStartDate().toString())
                .setContentIntent(pi).setAutoCancel(true).build();
            NotificationManager notificationManager =
(NotificationManager) getActivity()
                .getSystemService(Context.NOTIFICATION_SERVICE);
            notificationManager.notify(0, notification);
        }
    });
}

```

#### 代码清单 34-3 修改 onResume()方法 (RunListFragment.java)

```

@Override
public void onResume() {
    super.onResume();
    ((RunCursorAdapter) getListAdapter()).notifyDataSetChanged();
}

```

## 36.5 挑战练习：实时数据更新

代码清单 36-1 实时数据更新 (RunMapFragment.java)

```
private LocationCursor mLocationCursor;
private boolean mDelayed;
...
private void restartLoader() {
    Bundle args = getArguments();
    if (args != null) {
        long runId = args.getLong(ARG_RUN_ID, -1);
        if (runId != -1) {
            LoaderManager lm = getLoaderManager();
            lm.restartLoader(LOAD_LOCATIONS, args, this);
        }
    }
}

private LocationReceiver mLocationReceiver = new LocationReceiver() {
    @Override
    protected void onLocationReceived(Context context, Location loc) {
        if (!mDelayed) {
            mDelayed = true;
            final Handler handler = new Handler();
            handler.postDelayed(new Runnable() {
                @Override
                public void run() {
                    if (!isVisible())
                        return;
                    mGoogleMap.clear();
                    restartLoader();
                    mDelayed = false;
                }
            }, 5000);
        }
    }
};

@Override
public void onStart() {
    super.onStart();
    getActivity().registerReceiver(mLocationReceiver,
        new IntentFilter(RunManager.ACTION_LOCATION));
}

@Override
public void onStop() {
```

```
        getActivity().unregisterReceiver(mLocationReceiver);  
        super.onStop();  
    }  
}
```