Problem Reporter

Anthony Cope, Evan Kroske, Jesse Brizzi

Vision and Scope

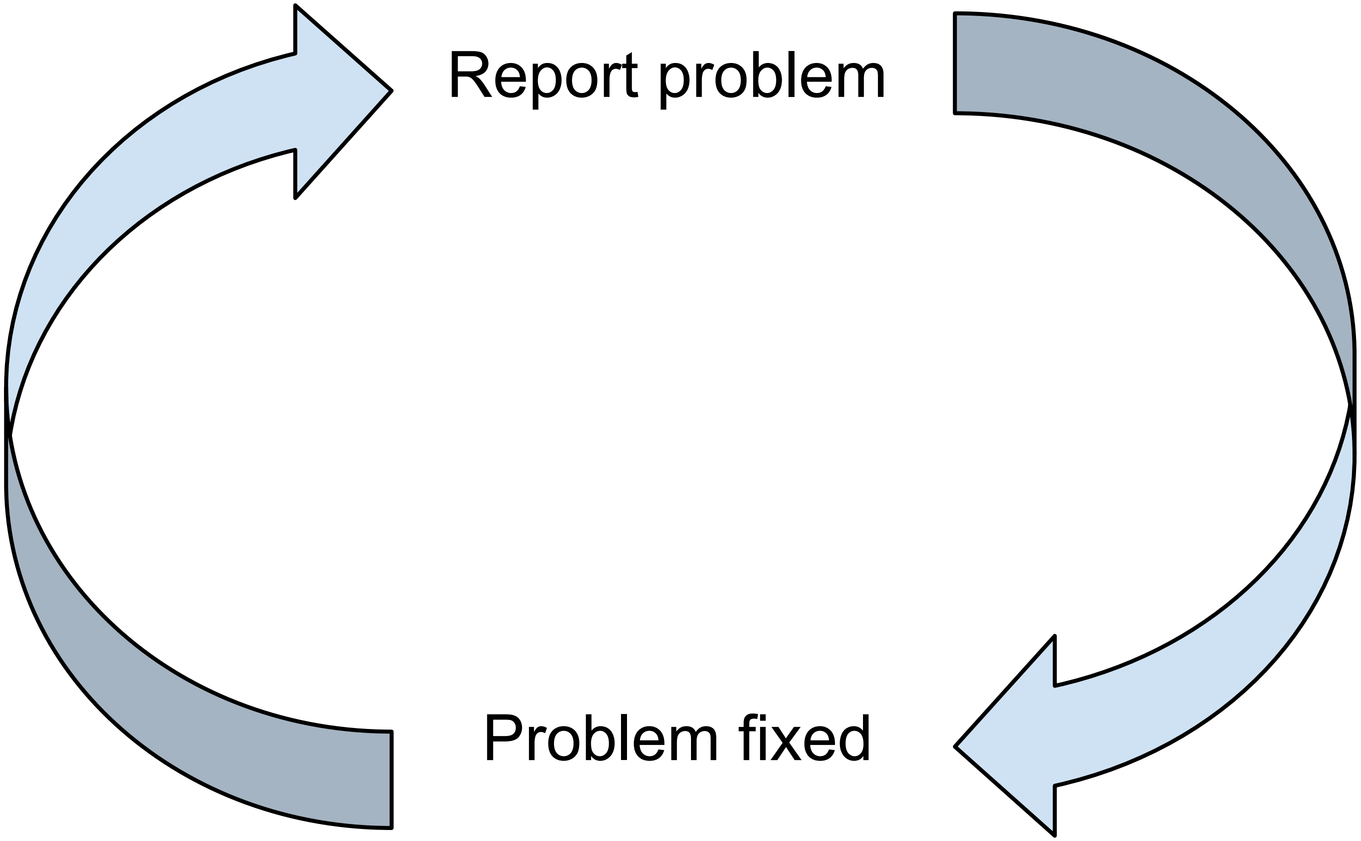
Vision

- Beautify USF campus
- Connect student with USF administration

Scope

- Report problems on campus
- View status of reported problems
- Administration manages problem reports

Problem Reporting Feedback Loop



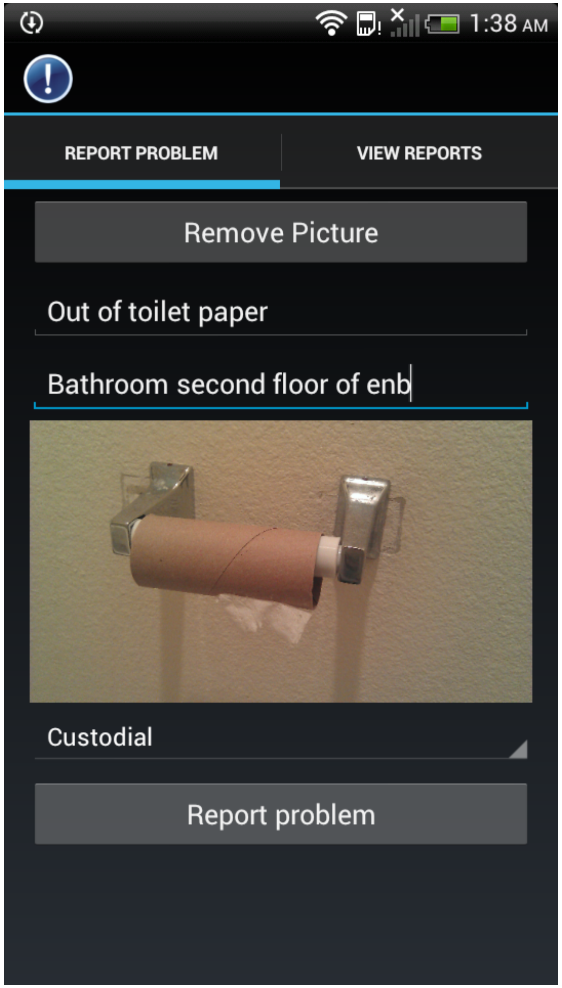
Report problem

Problem fixed

Report Problems

Technologies

- Geolocation
- Fragments
- Asynchronous networking
- JSON encoding



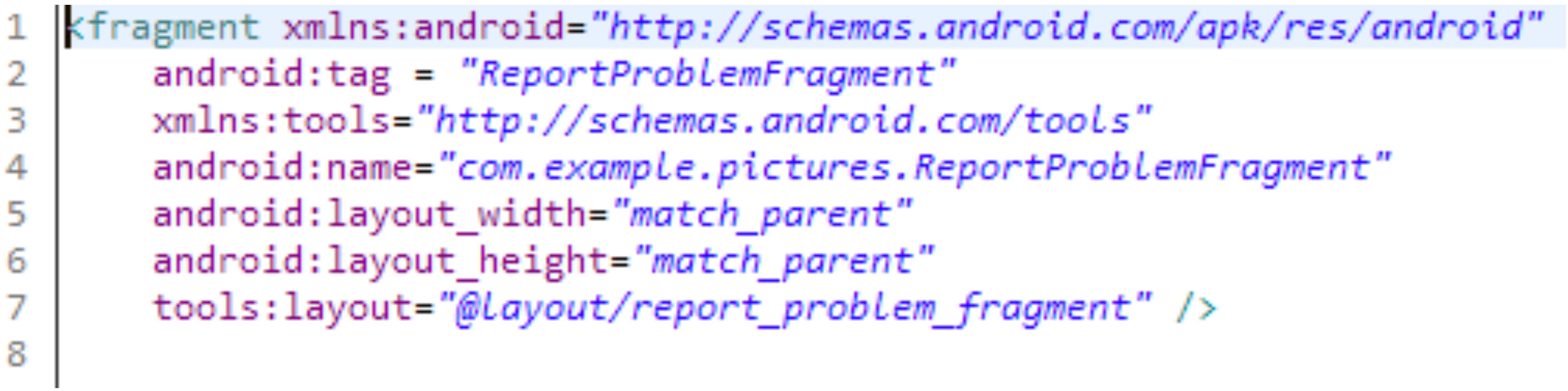
Out of toilet paper

Bathroom second floor of enb

Custodial

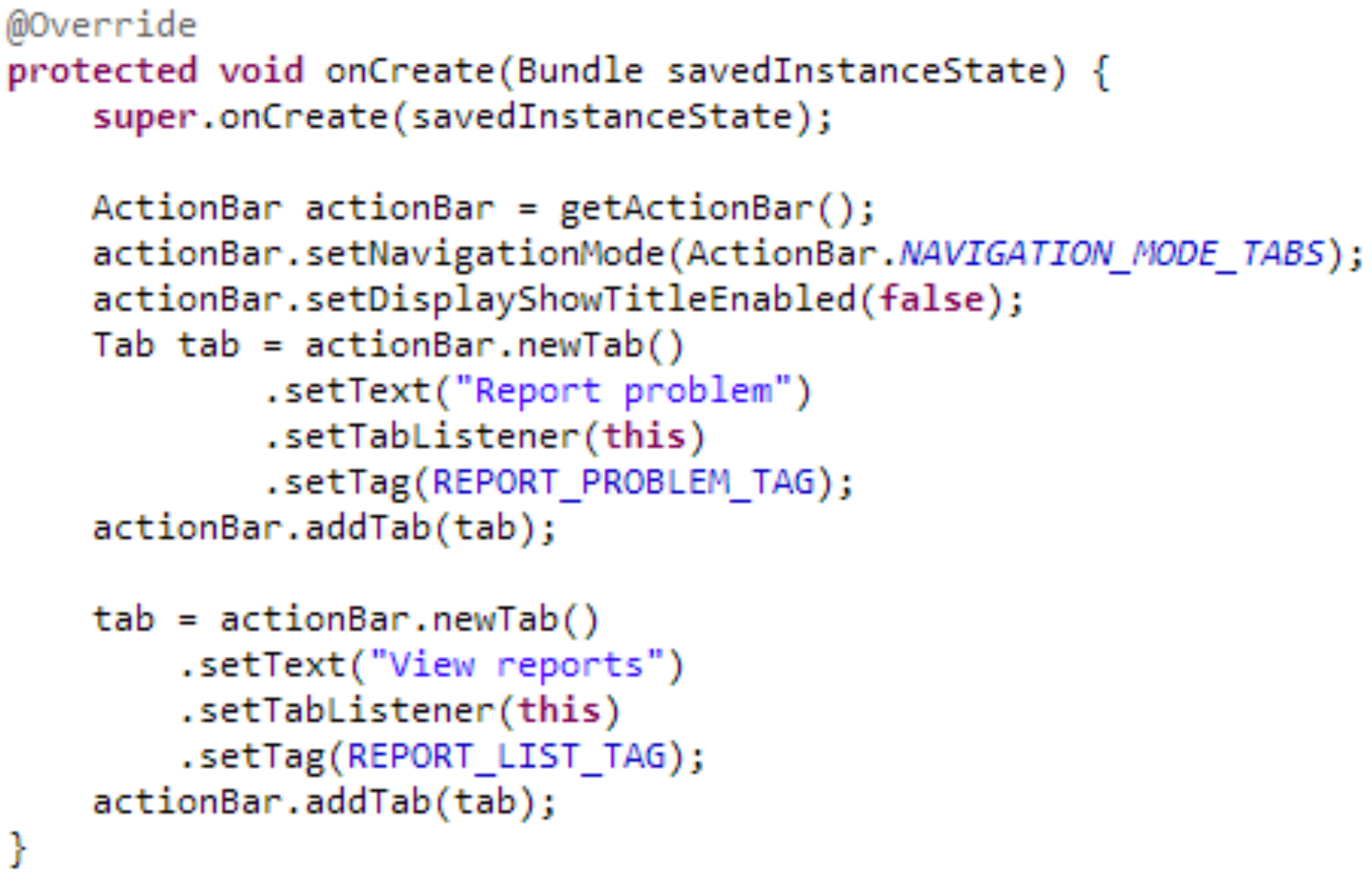
Fragments

- Fragments are normally used to manage applications layouts over screens with differing sizes.
- We used them to implement our simple to use tab interface.



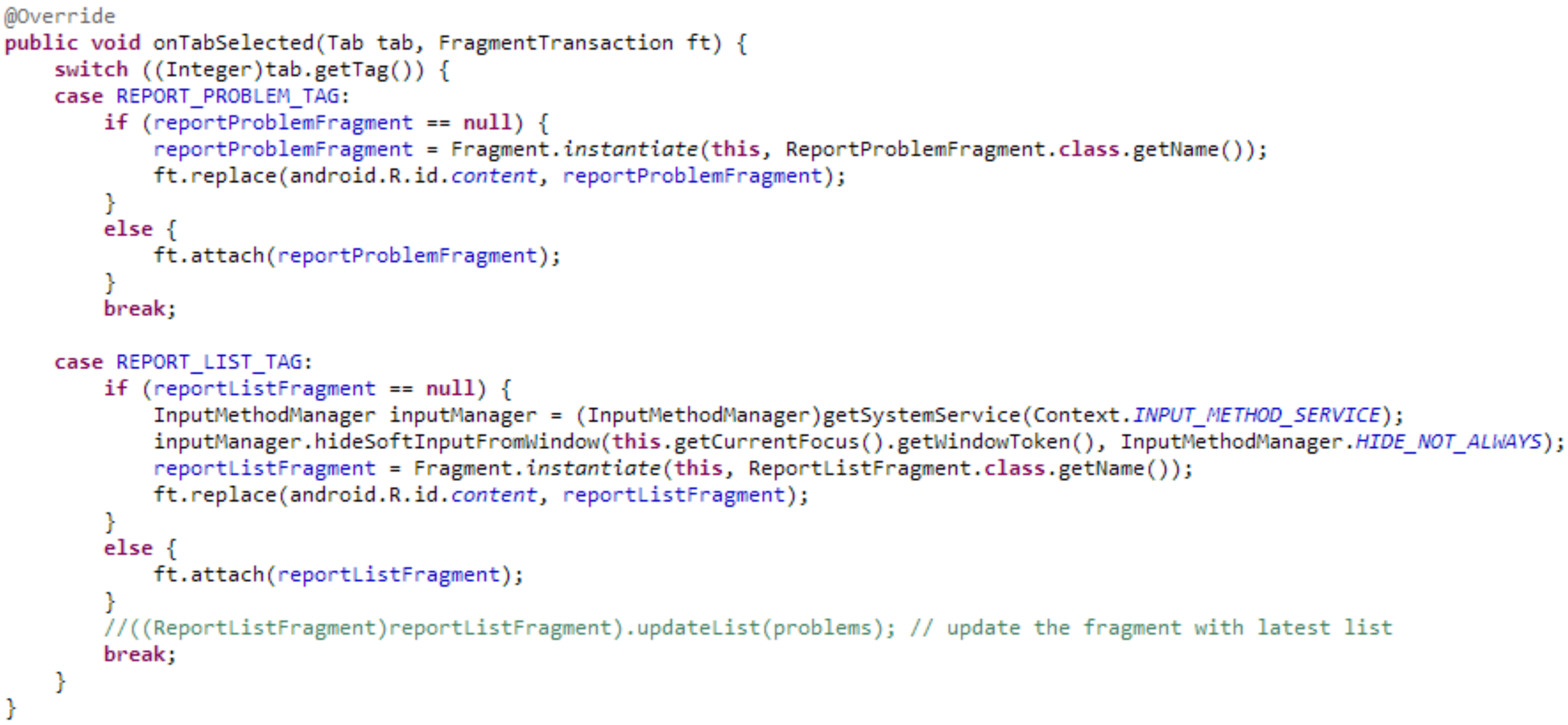
```xml
<fragment xmlns:android="http://schemas.android.com/apk/res/android"
    android:tag = "ReportProblemFragment"
    xmlns:tools="http://schemas.android.com/tools"
    android:name="com.example.pictures.ReportProblemFragment"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:layout="@layout/report_problem_fragment" />

```

Fragments



```
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);

    ActionBar actionBar = getActionBar();
    actionBar.setNavigationMode(ActionBar.NAVIGATION_MODE_TABS);
    actionBar.setDisplayShowTitleEnabled(false);
    Tab tab = actionBar.newTab()
            .setText("Report problem")
            .setTabListener(this)
            .setTag(REPORT_PROBLEM_TAG);
    actionBar.addTab(tab);

    tab = actionBar.newTab()
        .setText("View reports")
        .setTabListener(this)
        .setTag(REPORT_LIST_TAG);
    actionBar.addTab(tab);
}
```

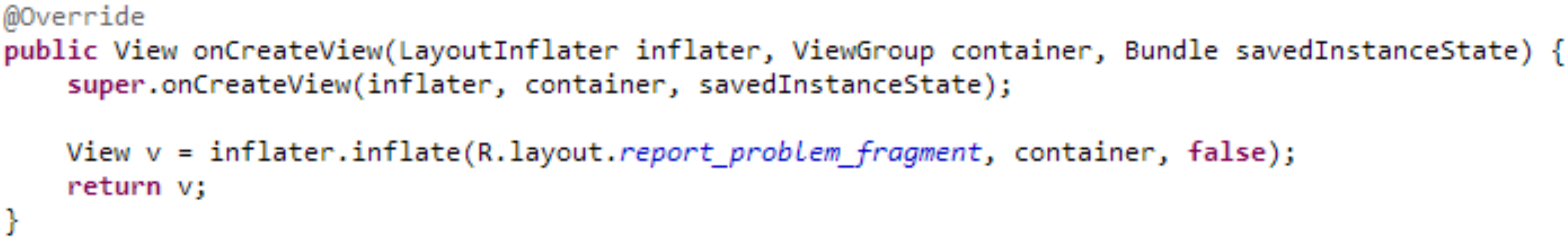
Fragments



```
@Override
public void onTabSelected(Tab tab, FragmentTransaction ft) {
    switch ((Integer)tab.getTag()) {
    case REPORT_PROBLEM_TAG:
        if (reportProblemFragment == null) {
            reportProblemFragment = Fragment.instantiate(this, ReportProblemFragment.class.getName());
            ft.replace(android.R.id.content, reportProblemFragment);
        }
        else {
            ft.attach(reportProblemFragment);
        }
        break;

    case REPORT_LIST_TAG:
        if (reportListFragment == null) {
            InputMethodManager inputManager = (InputMethodManager)getSystemService(Context.INPUT_METHOD_SERVICE);
            inputManager.hideSoftInputFromWindow(this.getCurrentFocus().getWindowToken(), InputMethodManager.HIDE_NOT_ALWAYS);
            reportListFragment = Fragment.instantiate(this, ReportListFragment.class.getName());
            ft.replace(android.R.id.content, reportListFragment);
        }
        else {
            ft.attach(reportListFragment);
        }
        //((ReportListFragment)reportListFragment).updateList(problems); // update the fragment with latest list
        break;
    }
}
```

Fragments

Fragments vs Activities
onCreate vs onCreateView

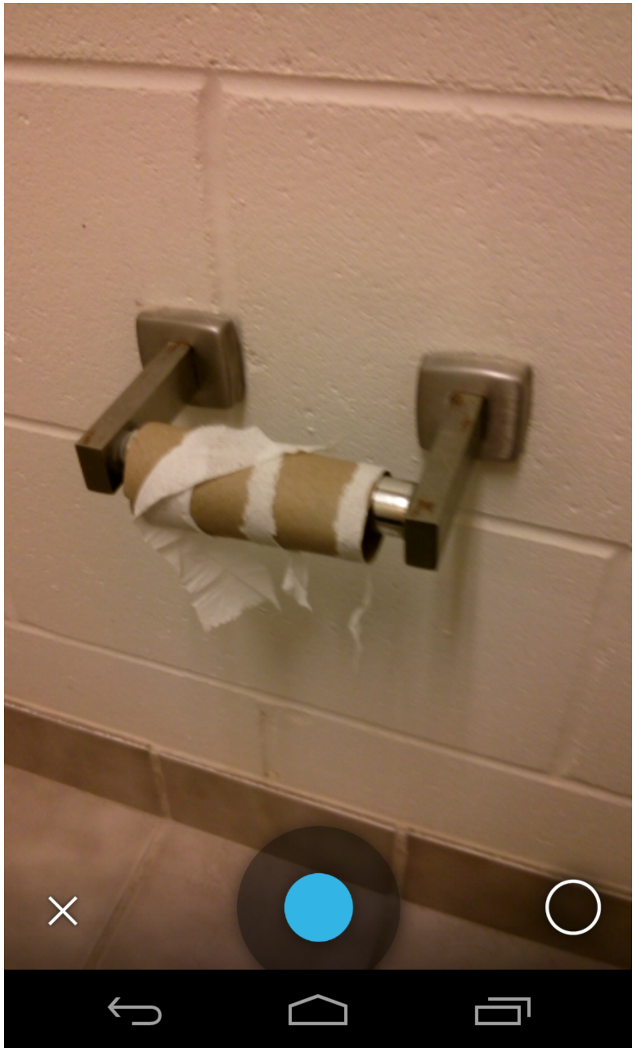


```
@Override
public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState) {
    super.onCreateView(inflater, container, savedInstanceState);

    View v = inflater.inflate(R.layout.report_problem_fragment, container, false);
    return v;
}
```

Attach Picture to Problem Report

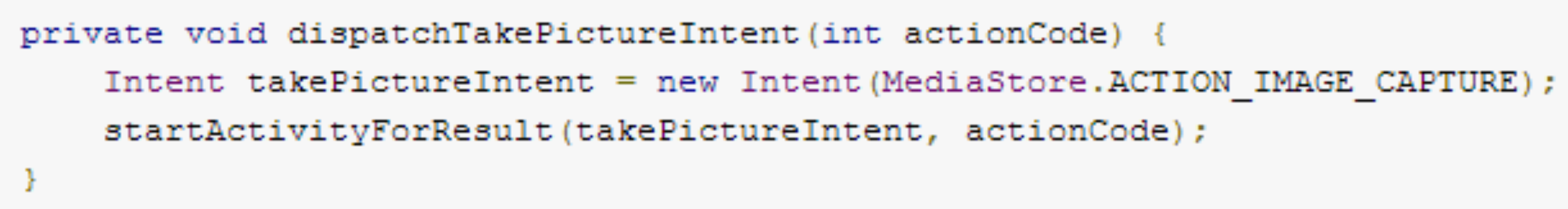
Technologies

- Intents
- Camera
- Local storage



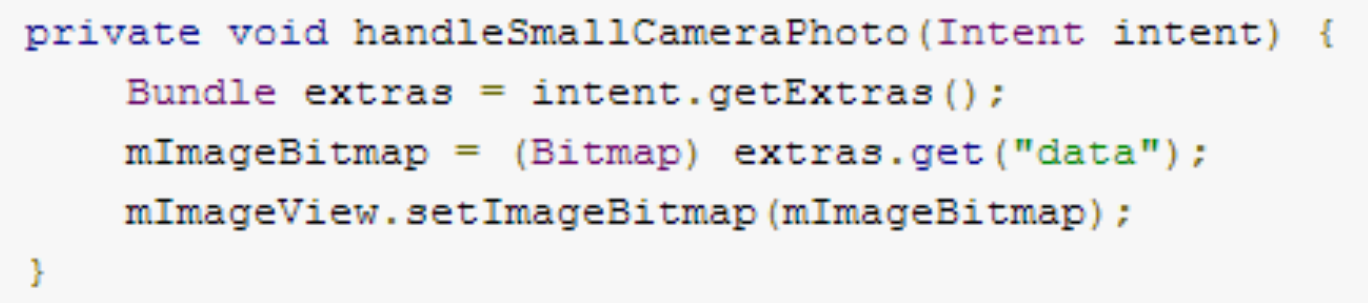
Camera

Call the default in Camera app.



```
private void dispatchTakePictureIntent(int actionCode) {
    Intent takePictureIntent = new Intent(MediaStore.ACTION_IMAGE_CAPTURE);
    startActivityForResult(takePictureIntent, actionCode);
}
```

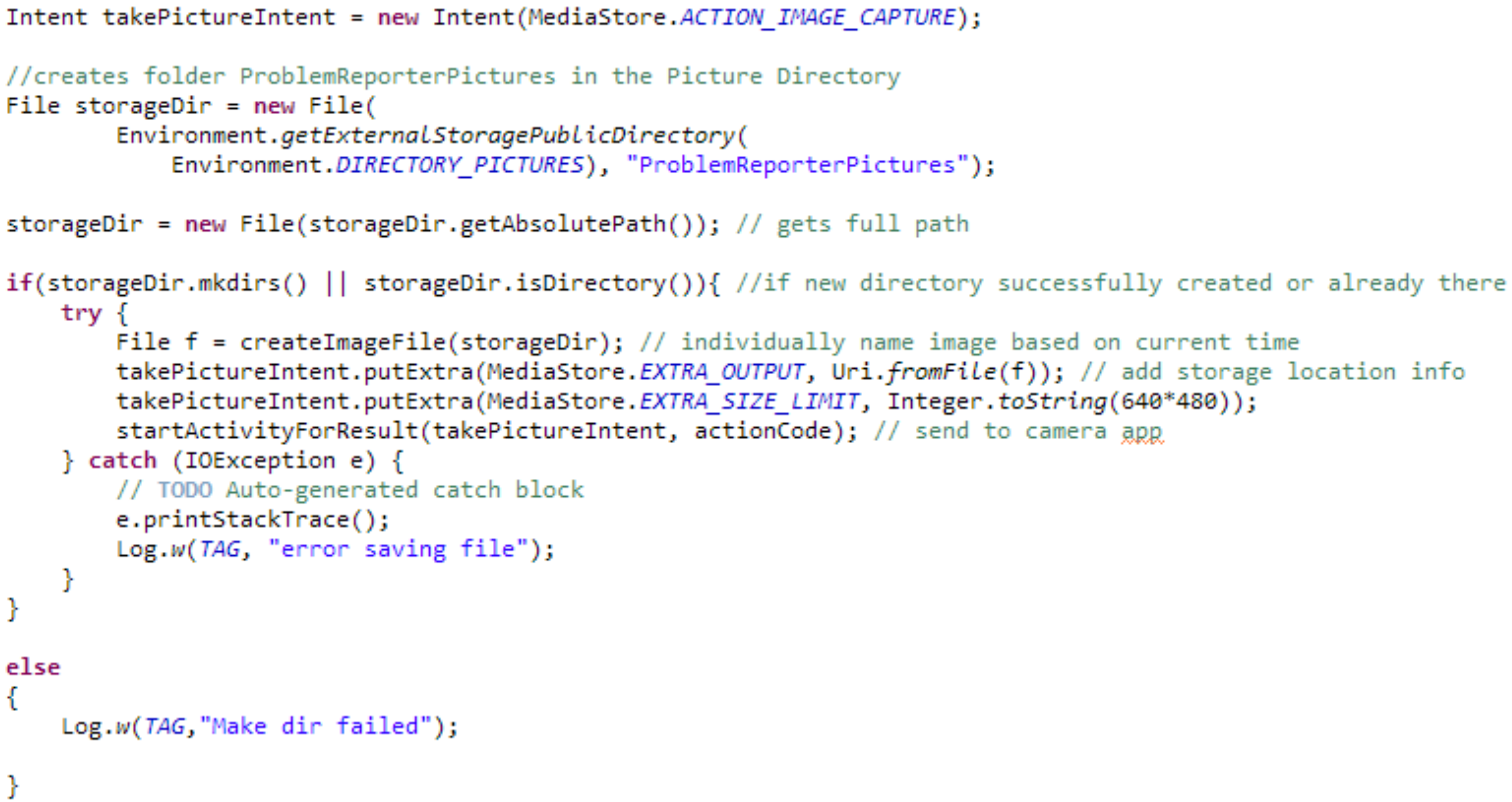
Retrieve the image.



```
private void handleSmallCameraPhoto(Intent intent) {
    Bundle extras = intent.getExtras();
    mImageBitmap = (Bitmap) extras.get("data");
    mImageView.setImageBitmap(mImageBitmap);
}
```

Camera

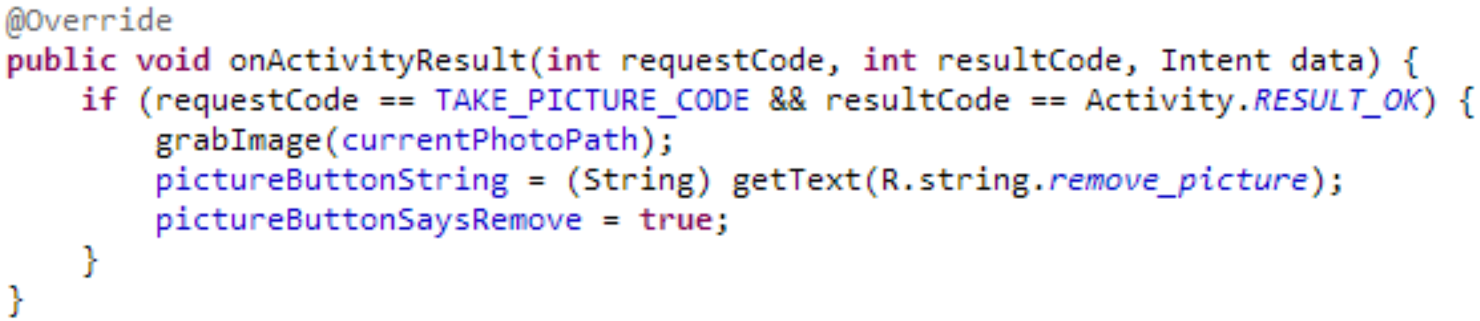
Call the default in Camera app.



```java
Intent takePictureIntent = new Intent(MediaStore.ACTION_IMAGE_CAPTURE);

//creates folder ProblemReporterPictures in the Picture Directory
File storageDir = new File(
        Environment.getExternalStoragePublicDirectory(
            Environment.DIRECTORY_PICTURES), "ProblemReporterPictures");

storageDir = new File(storageDir.getAbsolutePath()); // gets full path

if(storageDir.mkdirs() || storageDir.isDirectory()){ //if new directory successfully created or already there
    try {
        File f = createImageFile(storageDir); // individually name image based on current time
        takePictureIntent.putExtra(MediaStore.EXTRA_OUTPUT, Uri.fromFile(f)); // add storage location info
        takePictureIntent.putExtra(MediaStore.EXTRA_SIZE_LIMIT, Integer.toString(640*480));
        startActivityForResult(takePictureIntent, actionCode); // send to camera app
    } catch (IOException e) {
        // TODO Auto-generated catch block
        e.printStackTrace();
        Log.w(TAG, "error saving file");
    }
}

else
{
    Log.w(TAG,"Make dir failed");

}
```

Camera

Retrieve the image.



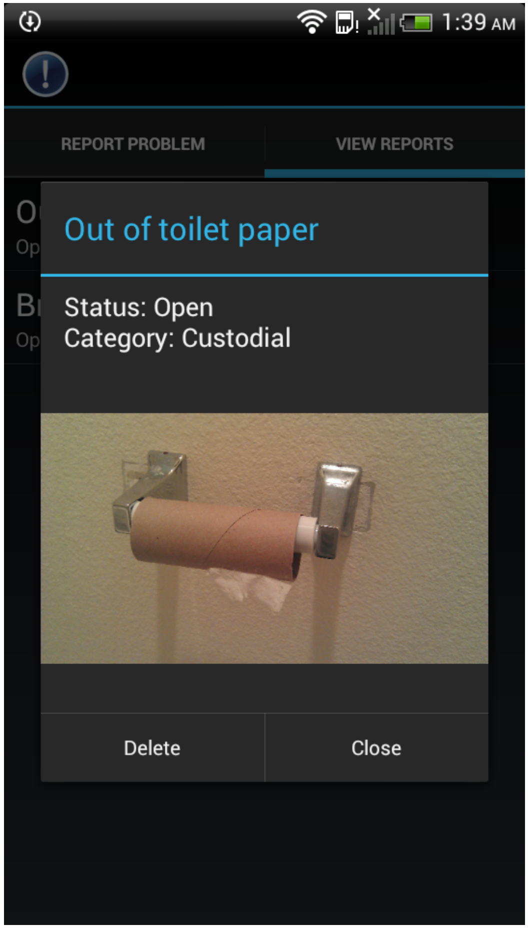
```
@Override
public void onActivityResult(int requestCode, int resultCode, Intent data) {
    if (requestCode == TAKE_PICTURE_CODE && resultCode == Activity.RESULT_OK) {
        grabImage(currentPhotoPath);
        pictureButtonString = (String) getText(R.string.remove_picture);
        pictureButtonSaysRemove = true;
    }
}
```

Report Problem Demo

View Status of Reported Problems

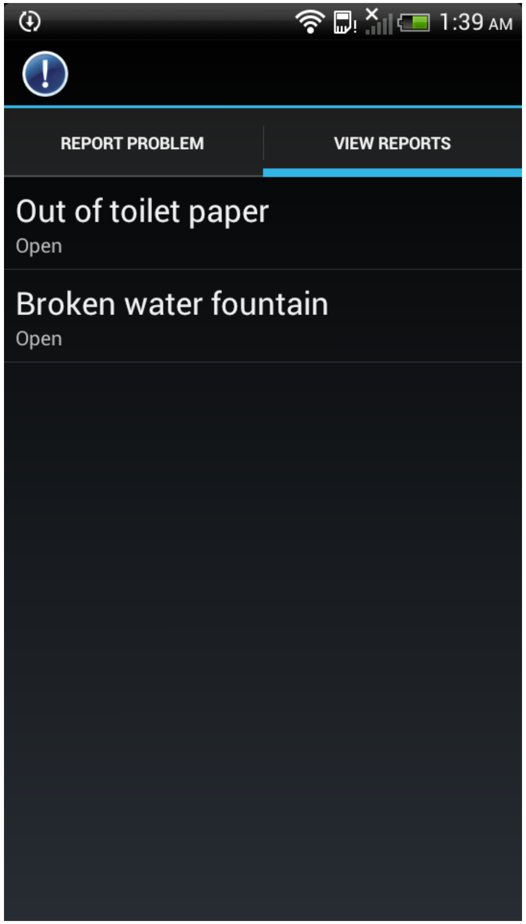
Technologies

- ListFragment
- ListAdapter
- Asynchronous networking
- JSON



Out of toilet paper

Status: Open
Category: Custodial

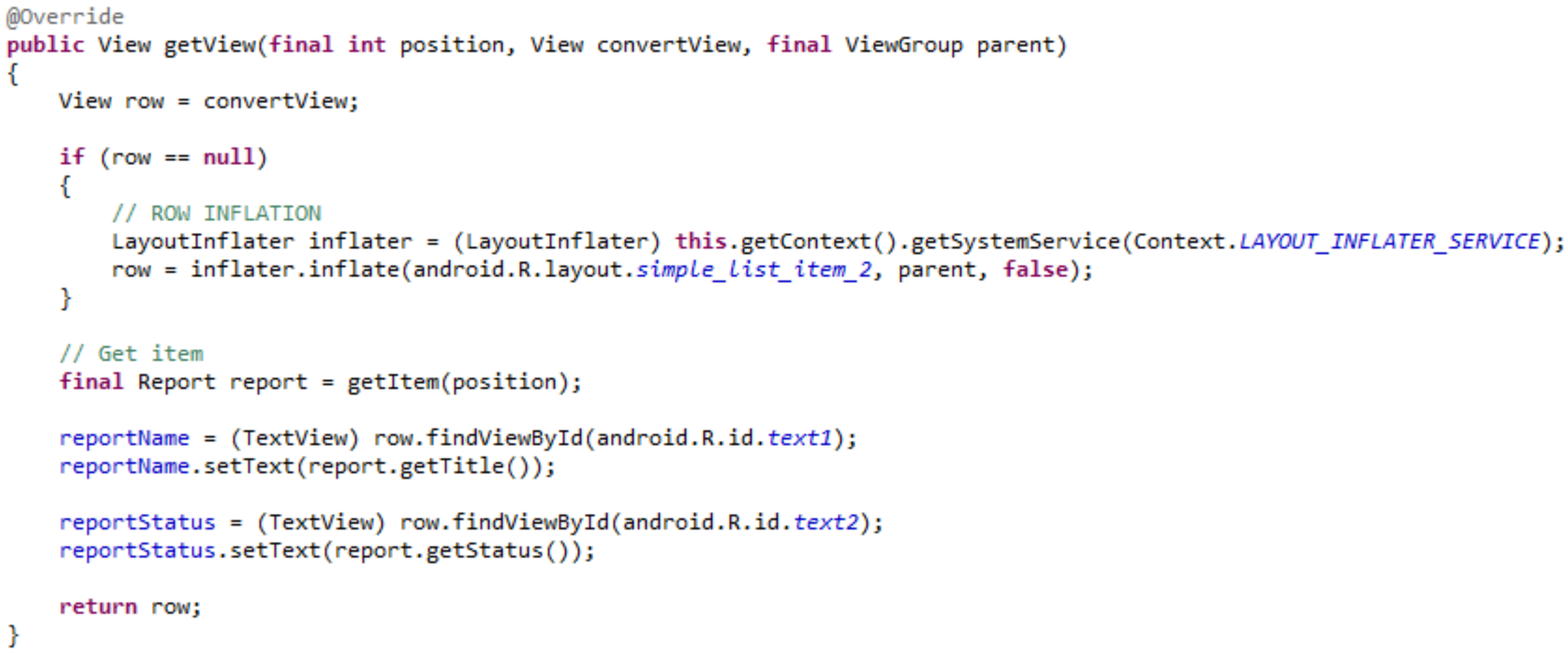


Out of toilet paper
Open

Broken water fountain
Open

ListAdapter

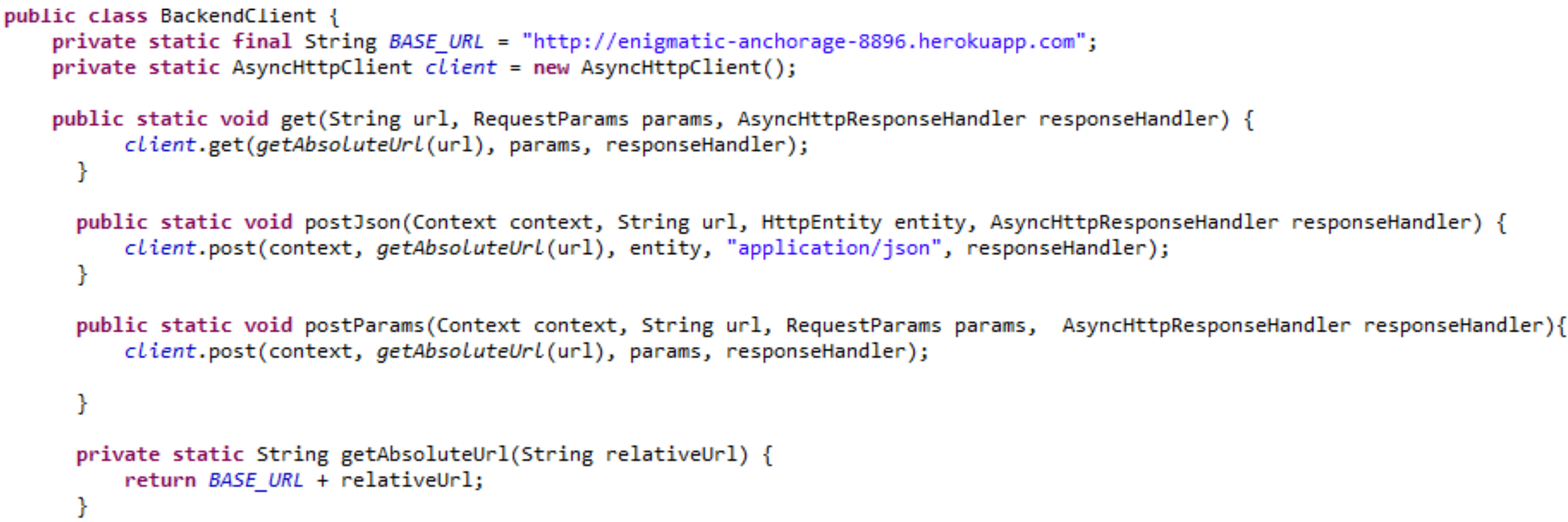
- Custom adapter for displaying list
- Bridge between the data and the ListView



```
@Override
public View getView(final int position, View convertView, final ViewGroup parent)
{
    View row = convertView;

    if (row == null)
    {
        // ROW INFLATION
        LayoutInflater inflater = (LayoutInflater) this.getContext().getSystemService(Context.LAYOUT_INFLATER_SERVICE);
        row = inflater.inflate(android.R.layout.simple_list_item_2, parent, false);
    }

    // Get item
    final Report report = getItem(position);

    reportName = (TextView) row.findViewById(android.R.id.text1);
    reportName.setText(report.getTitle());

    reportStatus = (TextView) row.findViewById(android.R.id.text2);
    reportStatus.setText(report.getStatus());

    return row;
}
```

Asynchronous networking

- Android Asynchronous Http Client



```
public class BackendClient {
    private static final String BASE_URL = "http://enigmatic-anchorage-8896.herokuapp.com";
    private static AsyncHttpClient client = new AsyncHttpClient();

    public static void get(String url, RequestParams params, AsyncHttpResponseHandler responseHandler) {
          client.get(getAbsoluteUrl(url), params, responseHandler);
      }

      public static void postJson(Context context, String url, HttpEntity entity, AsyncHttpResponseHandler responseHandler) {
          client.post(context, getAbsoluteUrl(url), entity, "application/json", responseHandler);
      }

      public static void postParams(Context context, String url, RequestParams params,  AsyncHttpResponseHandler responseHandler){
          client.post(context, getAbsoluteUrl(url), params, responseHandler);

      }

      private static String getAbsoluteUrl(String relativeUrl) {
          return BASE_URL + relativeUrl;
      }
```

ListAdapter Demo

Manage Problem Reports with Web Application

- View reports on map
- Mark reports as complete
- Authentication

Web Application Technologies

Amazon S3

- Durable file storage and hosting
- Pay for what you use
- No storage limits

Using S3

On Amazon:

1. Sign up
2. Create bucket
3. Create credentials for your app

In your app:

1. Create client with credentials
2. Create request
3. Send request

Demo Time!

http://enigmatic-anchorage-8896.herokuapp.com/admin/login

In conclusion

- Goals
- Features
- Technologies

Questions?