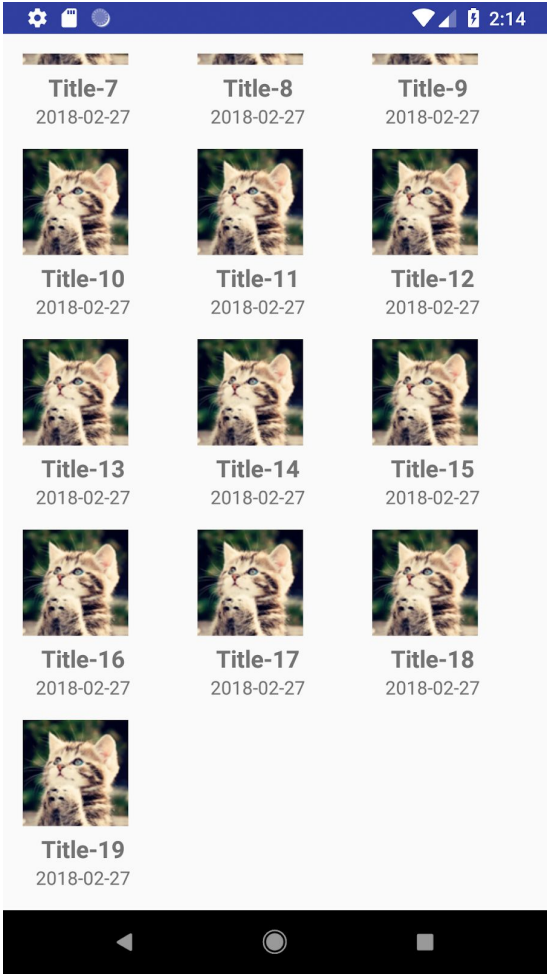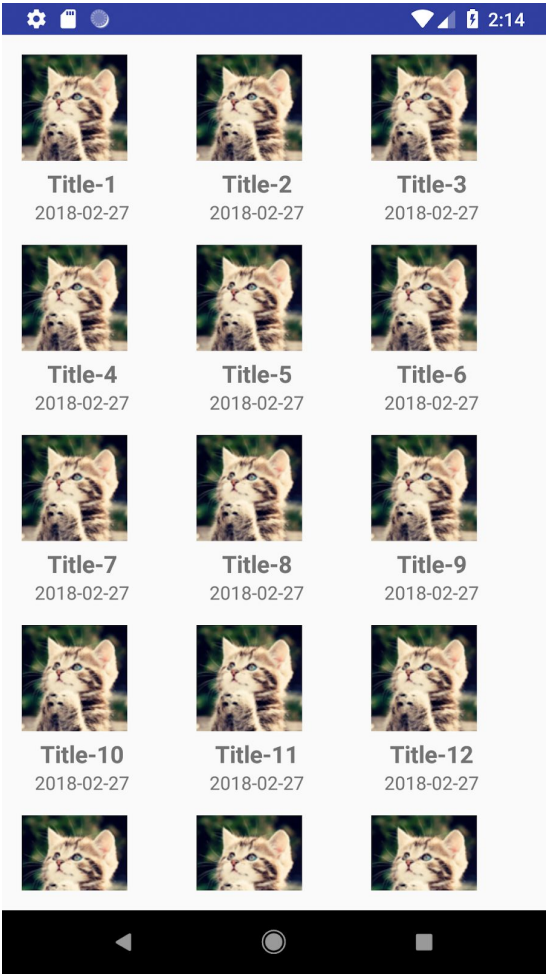Jake Mathews

Lab 7

Problem Statement

      The problem is that someone may want to view images of the same cat in a gridview instead of a listview.

Analysis

      I will create a mobile application to display images of a cat in a grid. The image title will be displayed below the image in the format "Title-#" where '#' is replaced with the image's position in the grid. The current date will be displayed below the title in the following format: "yyyy-MM-dd" (Ex. 2018-02-27)

      Some difficulties are getting the text in the grid_item.xml layout to be centered.

Jake Mathews

Screen Shots

Source Code

<u>MainActivity.java</u>

```java
package edu.wit.mobileapp.lab7;

import android.app.Activity;
import android.graphics.Bitmap;
import android.graphics.BitmapFactory;
import android.os.Bundle;
import android.widget.GridView;

import java.text.SimpleDateFormat;
import java.util.ArrayList;
import java.util.Calendar;
import java.util.Date;
import java.util.List;

public class MainActivity extends Activity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        // Create image & place it at /res/drawable
        final Bitmap defaultImage = BitmapFactory.decodeResource(getResources(), R.drawable.default_image);

        // Generate date string
        final Date date = Calendar.getInstance().getTime();
        final SimpleDateFormat dateFormat = new SimpleDateFormat("yyyy-MM-dd");
        final String formattedDate = dateFormat.format(date);

        // Create testing data
        List<GridItem> list = new ArrayList<GridItem>();
        for (int i = 1; i < 20; i++) {
            GridItem gridItem = new GridItem();
            gridItem.image = defaultImage;
            gridItem.name = "Title-" + i;
            gridItem.date = formattedDate;
            list.add(gridItem);
        }

        // Create and assign GridItemAdapter
        GridItemAdapter gridItemAdapter = new GridItemAdapter(this, 0, list);
        GridView gridView = (GridView)findViewById(R.id.GridView01);
        gridView.setAdapter(gridItemAdapter);
    }
}
```

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GridItemAdapter.java

```java
package edu.wit.mobileapp.lab7;

import android.content.Context;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.ArrayAdapter;
import android.widget.ImageView;
import android.widget.TextView;

import java.text.SimpleDateFormat;
import java.util.Calendar;
import java.util.Date;
import java.util.List;

public class GridItemAdapter extends ArrayAdapter<GridItem> {
    private LayoutInflater mInflater;

    public GridItemAdapter(Context context, int rid, List<GridItem> list){
        super(context, rid, list);
        mInflater = (LayoutInflater)context.getSystemService(context.LAYOUT_INFLATER_SERVICE);
    }

    @Override
    public View getView(int position, View convertView, ViewGroup parent){
        // Retrieve data
        GridItem item = (GridItem)getItem(position);

        // Use layout file to generate View
        View view = mInflater.inflate(R.layout.grid_item, null);

        // Set item image
        ImageView image;
        image = (ImageView)view.findViewById(R.id.image);
        image.setImageBitmap(item.image);

        // Set item name
        TextView name;
        name = (TextView)view.findViewById(R.id.name);
        name.setText(item.name);

        // Set item date
        TextView dateTextView = (TextView) view.findViewById(R.id.date);
        dateTextView.setText(item.date);

        return view;
    }
}
```

GridItem.Java

```java
package edu.wit.mobileapp.lab7;

import android.graphics.Bitmap;

public class GridItem {
    public Bitmap image;
    public String name;
    public String date;
}
```

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activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent">

    <GridView
        android:id="@+id/GridView01"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:columnWidth="90dp"
        android:gravity="center"
        android:horizontalSpacing="15dp"
        android:numColumns="auto_fit"
        android:padding="15dp"
        android:stretchMode="columnWidth"
        android:verticalSpacing="15dp" />
</LinearLayout>
```

grid_item.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
  android:layout_width="wrap_content"
  android:layout_height="wrap_content"
  android:orientation="vertical">

  <ImageView
    android:id="@+id/image"
    android:layout_width="80dip"
    android:layout_height="80dip"
    android:contentDescription="Cat" />

  <LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="vertical"
    android:paddingLeft="10dp"
    android:paddingTop="5dp">

    <TextView
      android:id="@+id/name"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:textSize="18sp"
      android:textStyle="bold"
      android:textAlignment="center"/>

    <TextView
      android:id="@+id/date"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:textSize="14sp"
      android:textAlignment="center"/>

  </LinearLayout>

</LinearLayout>
```