Activity Data

Introduction

❖ The android platform aims at eliminating the duplication of functionality in different applications by allowing the functionality of each and every application be discovered and invoked on the fly by other applications.

❖ The two main facilities that allow separated applications interact with each other are 'Intents' and 'Remote Services'.

The Intent Class

❖ The `Intent` objects can specify an activity or a service.

❖ Each `Intent` object can deliver data from one activity to another.

Start Activity Methods

❖ The `Activity` class extends `Context` from which it
inherits various methods we can use to send Intent objects
from one activity to another, whether in the same process or
in a separated one.

```
...
public abstract void startActivity (Intent intent)
...
public void startActivityForResult(  Intent intent,
                                    int requestCode)
...
```

Coherent User Experience

❖ The `Intent` and the `Activity` objects allow inter-process communication that link different parts of different applications into one coherent user experience that allows the user navigating between the different parts as if they were one application.

Sample

❖ The following sample includes two applications. Each one of them includes one activity. The activity that belongs to the first application (Dictionary Project) calls the activity that belongs to the second (Hello Languages).

Sample

❖ The `DictionaryActivity` calls the `HelloActivity` by using an `Intent` object matched with the `IntentFilter` XML element that was configured with the `HelloActivity`.

Sample

```xml
<?xml version="1.0" encoding="utf-8"?>

<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.abelski.samples.dictionaryapp"
    android:versionCode="1"
    android:versionName="1.0">

    <application android:icon="@drawable/icon" android:label="@string/app_name">
        <activity android:name=".DictionaryActivity"
                android:label="@string/app_name">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

    <uses-sdk android:minSdkVersion="6" />

</manifest>
```

The AndroidManifest file that defines DictionaryActivity
as the entrance point of the first application

Sample

```
...

public class DictionaryActivity extends Activity        The DictionaryActivity Source Code
{
    TextView text;
    public void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        text = new TextView(this);
        setContentView(text);
        Intent helloLanguagesIntent = new Intent();
        helloLanguagesIntent.setAction("android.intent.action.PICK");
        helloLanguagesIntent.setType("vnd.abelski.hello.translate/vnd.dictionary");
        startActivityForResult(helloLanguagesIntent, 0);
    }

    protected void onActivityResult(int requestCode, int resultCode, Intent result)
    {
        if (resultCode == RESULT_OK)  {
            String str = result.getStringExtra("result");
            text.setText(str);
        }
    }
}
...
```

Sample

❖ The `IntentFilter` XML element configured with `HelloActivity` should match the Intent object in use.

Sample

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest    xmlns:android="http://schemas.android.com/apk/res/android"
             package="com.abelski.samples"
             android:versionCode="1"
             android:versionName="1.0">

    <application    android:icon="@drawable/icon"
                    android:label="@string/app_name">

        <activity    android:name=".HelloActivity"
                     android:label="@string/app_name">
            <intent-filter>
                <action      android:name="android.intent.action.PICK" />
                <category    android:name="android.intent.category.DEFAULT" />
                <data        android:mimeType=
                             "vnd.abelski.hello.translate/vnd.dictionary" />
            </intent-filter>
        </activity>

    </application>
    <uses-sdk android:minSdkVersion="6" />
</manifest>
```

The AndroidManifest file that defines
HelloActivity with the required intent filter.

Sample

❖ When executing the `DictionaryActivity` the `HelloActivity` will be executed as part of one coherent application.

❖ The `DictionaryActivity` can be part of another application.

Sample

```
...
public class HelloActivity extends Activity
{
    protected void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.main);
        ((Button)findViewById(R.id.spanish)).
            setOnClickListener(spanishHelloListener);
        ((Button)findViewById(R.id.english)).
            setOnClickListener(englishHelloListener);
        ((Button)findViewById(R.id.hebrew)).
            setOnClickListener(hebrewHelloListener);
        ((Button)findViewById(R.id.arabic)).
            setOnClickListener(arabicHelloListener);
    }
    private OnClickListener spanishHelloListener = new OnClickListener()
    {
        public void onClick(View v)
        {
            Intent intent = new Intent();
            intent.putExtra("result", "Holla");
            setResult(RESULT_OK, intent);
            finish();
        }
    };
```

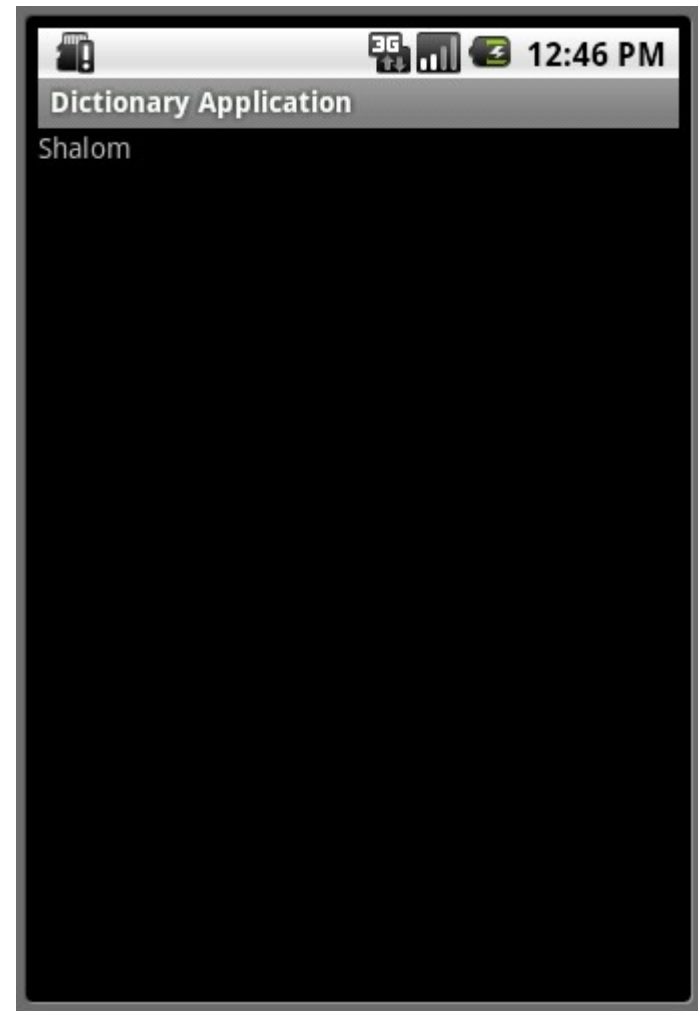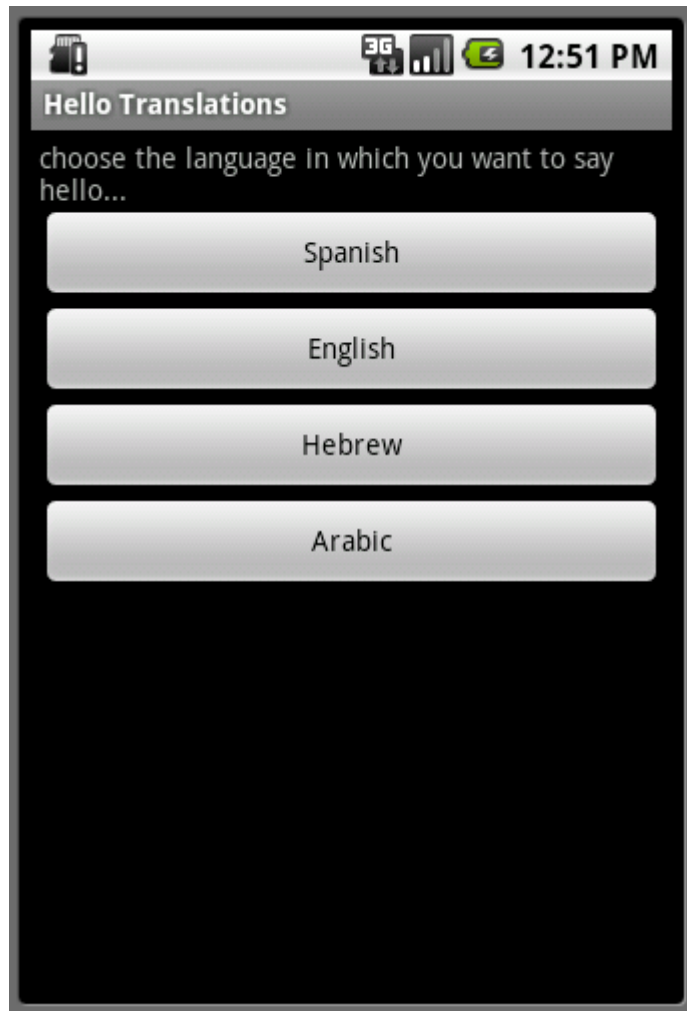The HelloActivity Source Code

Sample

```
private OnClickListener englishHelloListener = new OnClickListener()
{
    public void onClick(View v)
    {
        Intent intent = new Intent();
        intent.putExtra("result", "Hello");
        setResult(RESULT_OK, intent);
        finish();
    }
};
private OnClickListener hebrewHelloListener = new OnClickListener()
{
    public void onClick(View v)
    {
        Intent intent = new Intent();
        intent.putExtra("result", "Shalom");
        setResult(RESULT_OK, intent);
        finish();
    }
};
```

Sample

```
private OnClickListener arabicHelloListener = new OnClickListener()
{
    public void onClick(View v)
    {
        Intent intent = new Intent();
        intent.putExtra("result", "Salam");
        setResult(RESULT_OK, intent);
        finish();
    }
};
}
```

Sample

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Introduction

❖ The android platform aims at eliminating the duplication of functionality in different applications by allowing the functionality of each and every application be discovered and invoked on the fly by other applications.

❖ The two main facilities that allow separated applications interact with each other are 'Intents' and 'Remote Services'.

Using the intents facility one activity can select executing another activity based on the action and the data on which it operates, without having the need to know the exact path to the other activity.

The 'Remote Methods' facility allows APIs to be accessible remotely. Remote objects allow other activities calling methods on them. The 'Remote Methods' facility is involved with using the Android's interface definition language (AIDL).

The Intent Class

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Start Activity Methods

❖ The `Activity` class extends `Context` from which it inherits various methods we can use to send Intent objects from one activity to another, whether in the same process or in a separated one.

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        startActivityForResult(helloLanguagesIntent, 0);
    }

    protected void onActivityResult(int requestCode, int resultCode, Intent result)
    {
        if (resultCode == RESULT_OK)  {
            String str = result.getStringExtra("result");
            text.setText(str);
        }
    }
}
...
```

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                <category   android:name="android.intent.category.DEFAULT" />
                <data       android:mimeType=
                            "vnd.abelski.hello.translate/vnd.dictionary" />
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        ((Button)findViewById(R.id.hebrew)).
            setOnClickListener(hebrewHelloListener);
        ((Button)findViewById(R.id.arabic)).
            setOnClickListener(arabicHelloListener);
    }
    private OnClickListener spanishHelloListener = new OnClickListener()
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        public void onClick(View v)
        {
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            intent.putExtra("result", "Holla");
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            finish();
        }
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```
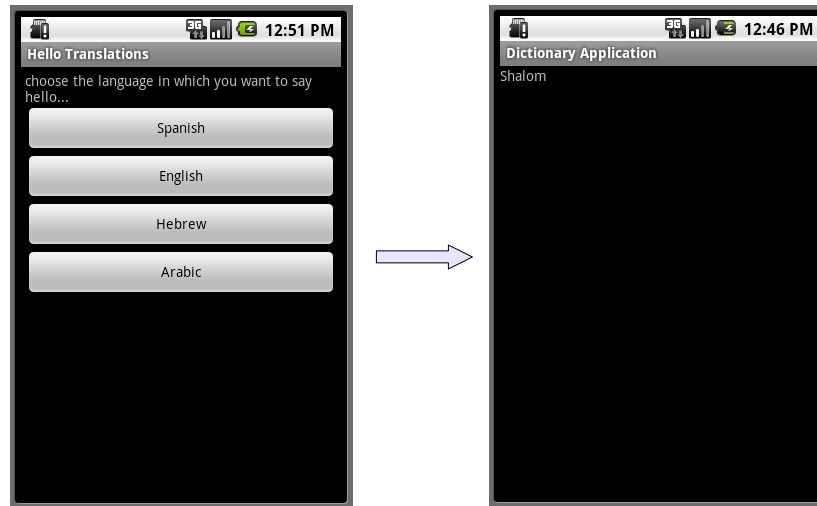
Sample

```java
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    public void onClick(View v)
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        Intent intent = new Intent();
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        setResult(RESULT_OK, intent);
        finish();
    }
};
private OnClickListener hebrewHelloListener = new OnClickListener()
{
    public void onClick(View v)
    {
        Intent intent = new Intent();
        intent.putExtra("result", "Shalom");
        setResult(RESULT_OK, intent);
        finish();
    }
};
```

Sample

```
        private OnClickListener arabicHelloListener = new OnClickListener()
        {
            public void onClick(View v)
            {
                Intent intent = new Intent();
                intent.putExtra("result", "Salam");
                setResult(RESULT_OK, intent);
                finish();
            }
        };
    }
```

Sample