

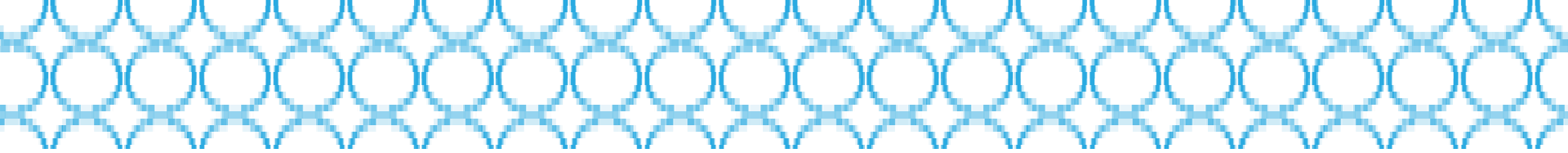


**NEW MEDIA &
COMMUNICATION
TECHNOLOGY**

Mobile App Development

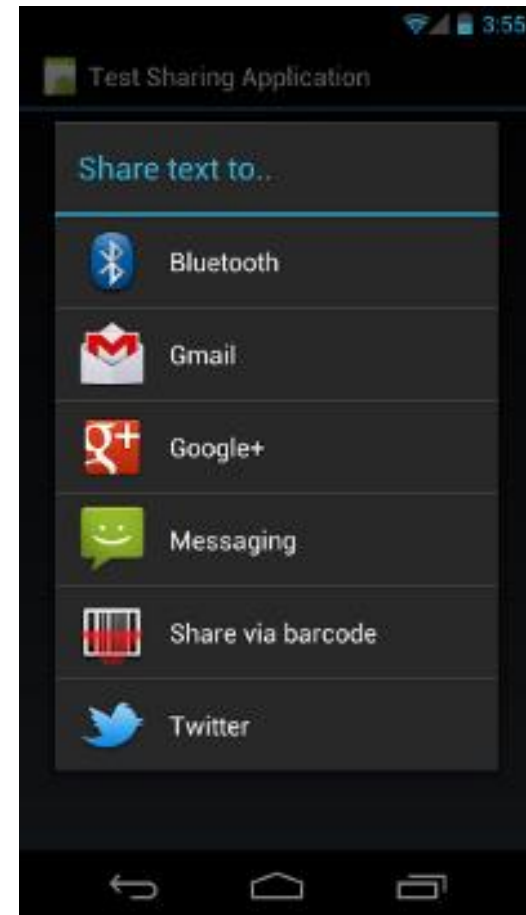
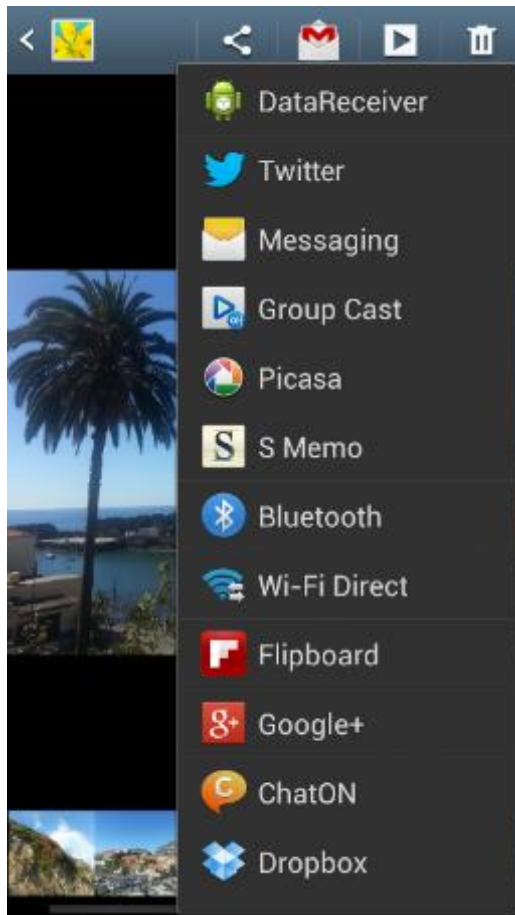
Activities, Intents & IntentFilters

Building interaction

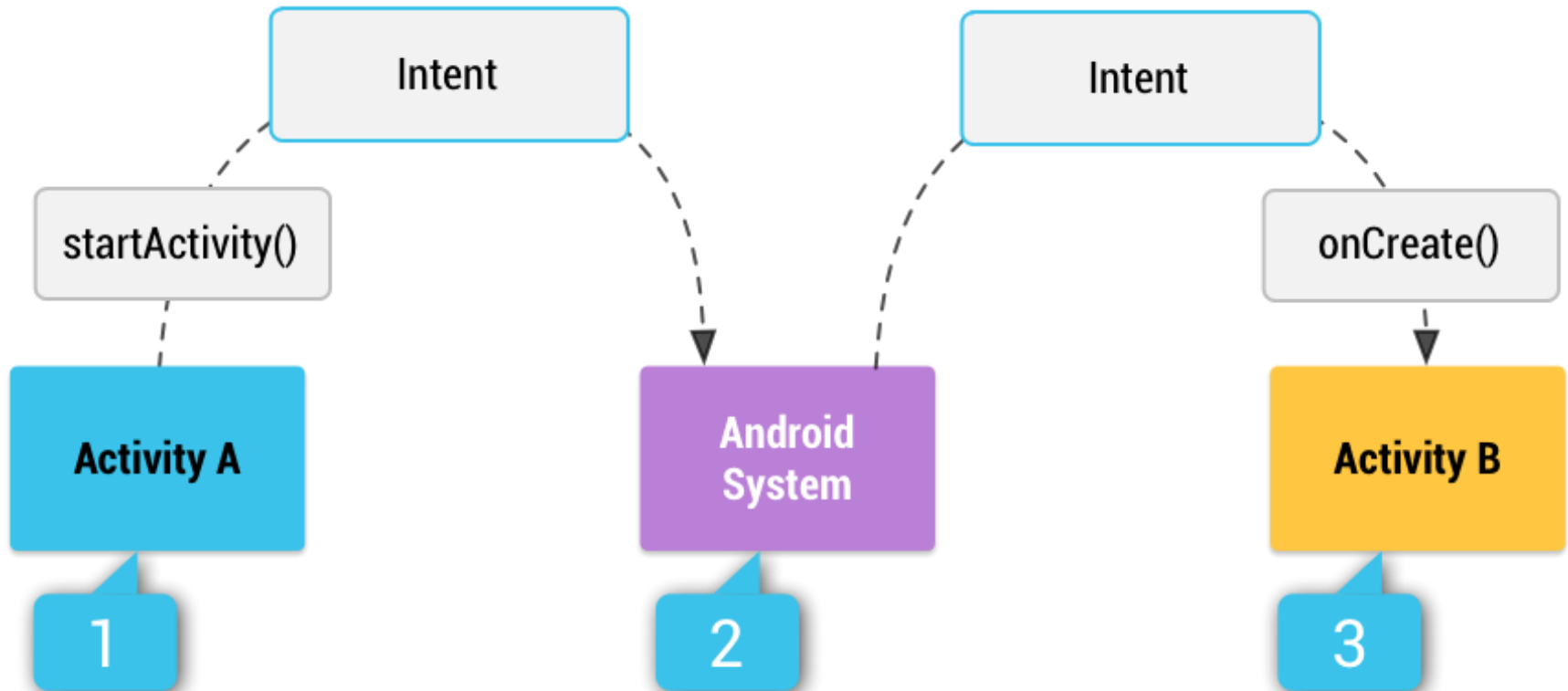


*“Our intentions may be very good,
but the action may turn out mistakes,,*

Intents




Intents



Expliciete Intents

```
public class FirstActivity extends Activity {  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_first);  
    }  
  
    public void onLaunchSecondActivity(View v){  
        Intent intent = new Intent(  
            this, /* packageContext (Context) */  
            SecondActivity.class /* Activity Class */);  
        startActivity(intent);  
    }  
  
    public void onLaunchMaps(View v){  
        Intent intent = new Intent();  
        intent.setComponent(  
            new ComponentName(  
                "com.google.android.apps.maps",  
                "com.google.android.apps.maps.MainActivity");  
        startActivity(intent);  
    }  
}
```



Impliciete Intents

```
public class FirstActivity extends Activity {
    public final String ACTION_PARTY_HARDY = "be.howest.nmct.action.PARTY_HARDY";

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_first);
    }

    public void onLaunchSecondActivity(View v) {
        Intent intent = new Intent(ACTION_PARTY_HARDY);
        startActivity(intent);
    }

    public void onLaunchMaps(View v) {
        Intent intent = new Intent(
            Intent.ACTION_VIEW, /* action */
            Uri.parse("geo:0,0?q=50.8253878,3.2499509 (Howest Kortrijk)"));
        startActivity(intent);
    }
}
```

Standaard Intents

ACTION	DATA	MIME_TYPE
ACTION_IMAGE_CAPTURE ACTION_VIDEO_CAPTURE		
ACTION_PICK		vnd.android.cursor.dir/contact
ACTION_VIEW ACTION_EDIT ACTION_INSERT	http:// content:// file://	
ACTION_SEND		*/ text/plain
ACTION_DIAL	tel:...	
ACTION_SEND	Sms:	
...		

<http://developer.android.com/guide/components/intents-common.html>

<http://developer.android.com/reference/android/content/Intent.html>

Intent Filter

```
<activity
    android:name="be.howest.nmct.intents.ShareActivity" android:label="@string/app_name" >
    <intent-filter>
        <action android:name="android.intent.action.MAIN" />
        <category android:name="android.intent.category.LAUNCHER" />
    </intent-filter>
    <intent-filter>
        <action android:name="android.intent.action.SEND" />
        <category android:name="android.intent.category.DEFAULT" />
        <data android:mimeType="*/*" />
    </intent-filter>
</activity>
```

Intent Filter

```
<intent-filter>

  <action android:name=" ... " />

  <category android:name=" ... " />

  <data
    android:scheme=" ... "
    android:host=" ... "
    android:port=" ... "
    android:path=" ... "
    android:pathPrefix=" ... "
    android:pathPattern=" ... "

    android:ssp=""
    android:sspPrefix=""
    android:sspPattern=""

    android:mimeType="..." />

</intent-filter>
```

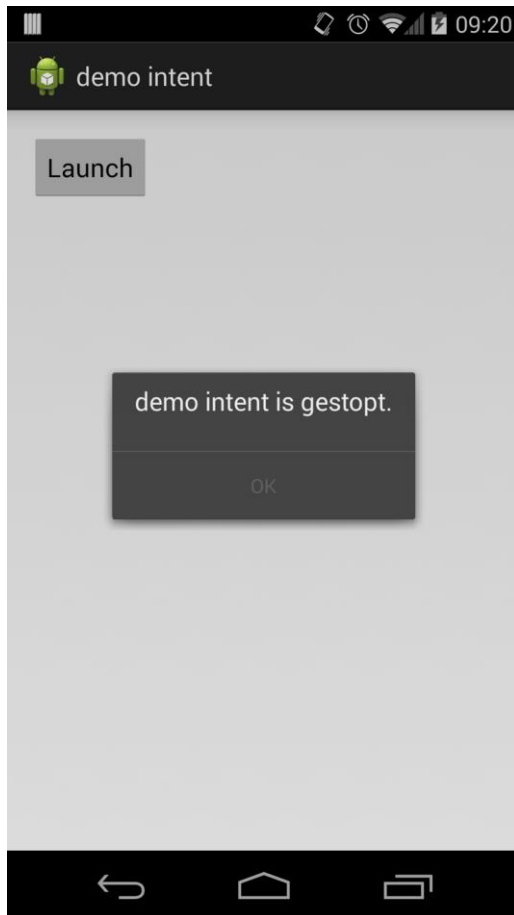
Intent Resolution

1. Match one Action
2. Match All Categories
(implicit intents always get DEFAULT from startActivity)
3. Match Data: Uri & Mime-Type

Intent Resolution: Data

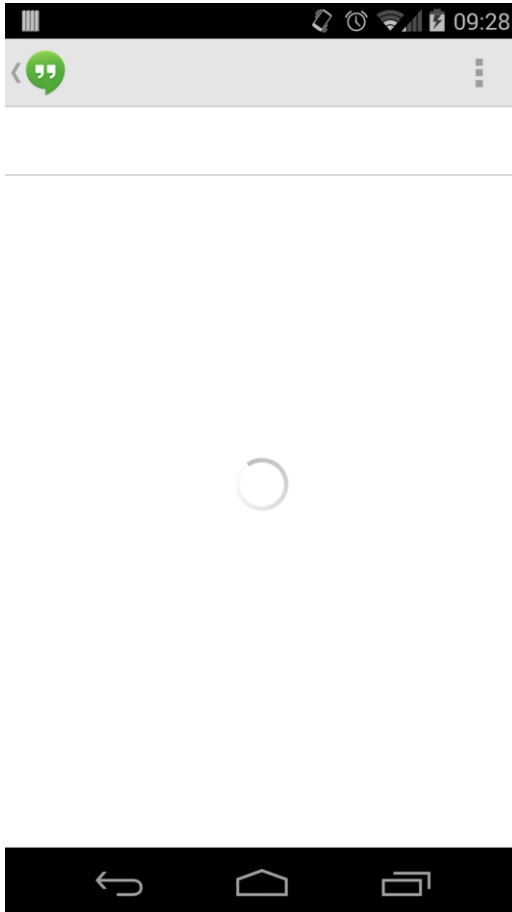
1. No URI, no Mime-Type
2. URI, no (Implicit or Explicit) Mime-Type
3. Mime-Type, no URI
4. Uri and Mime-Type

No Match



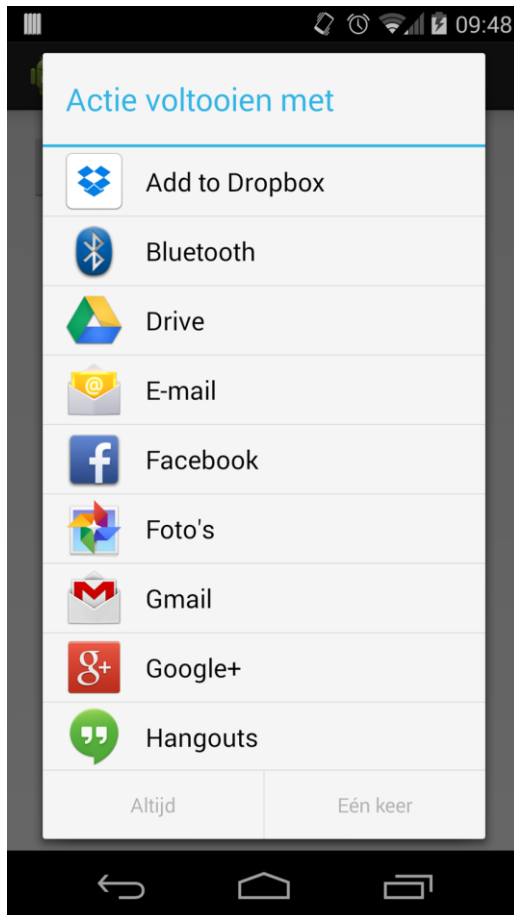
```
public void onLaunchActivity(View v) {  
    Intent intent = new Intent(  
        Intent.ACTION_VIEW,  
        Uri.parse("oegoboego://trolololoo"));  
    startActivity(intent);  
}
```

One Match



```
public void onLaunchActivity(View v) {  
    Intent intent = new Intent(  
        Intent.ACTION_SENDTO,  
        Uri.parse("smsto:"));  
  
    startActivity(intent);  
}
```

Many Matches



```
public void onLaunchActivity(View v) {  
    Intent intent = new Intent(  
        Intent.ACTION_SEND);  
    intent.setType("image/*");  
    startActivity(intent);  
}
```

Handling No Matches

```
public void onLaunchActivity(View v){
    Intent intent = new Intent(
        Intent.ACTION_SEND,
        Uri.parse("oegoboego://trolololoo"));

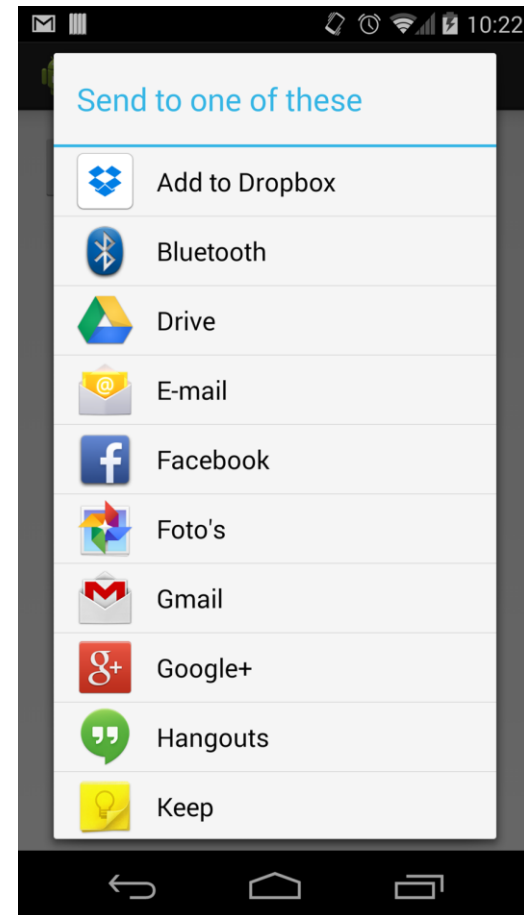
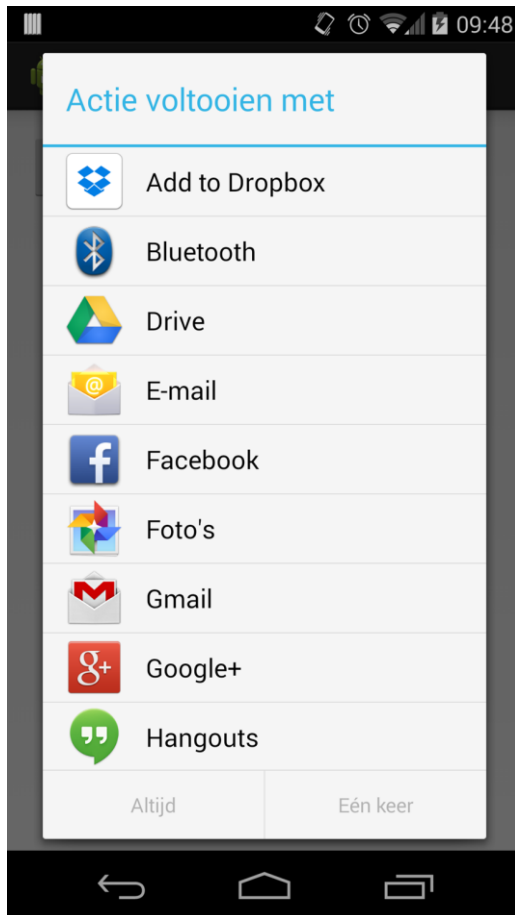
    if(intent.resolveActivity(getPackageManager()) != null)
        startActivity(intent);
    else
        Toast.makeText(this, "Can't open oegoboego://", Toast.LENGTH_SHORT).show();
}
```


Launching the play Store

```
Intent playStoreIntent = new Intent(  
    Intent.ACTION_VIEW,  
    Uri.parse("market://details?id=be.howest.nmct.oegoboego"));  
startActivity(playStoreIntent);
```

```
AlertDialog.Builder builder = new AlertDialog.Builder(this);  
builder.setMessage("You need an external app to use this functionality")  
    .setTitle("Install helper app?")  
    .setPositiveButton("Install App", new DialogInterface.OnClickListener() {  
        @Override  
        public void onClick(DialogInterface arg0, int arg1) { /* Launch appstore intent */ })  
    .setNegativeButton("cancel", null);  
AlertDialog dialog = builder.create();  
dialog.show();
```

Forcing a chooser



Forcing a chooser

```
public void onLaunchActivity(View v){  
    Intent intent = new Intent( Intent.ACTION_SEND);  
    intent.setType("image/*");  
    if(intent.resolveActivity(getPackageManager()) != null) {  
        Intent chooserIntent = Intent.createChooser(intent, "Send to one of these");  
        startActivity(chooserIntent);  
    } else {  
        /* ... Launch store dialog? ...*/  
    }  
}
```

Sending Extra's

```
public void onLaunchActivity(View v) throws Exception{  
    Intent intent = new Intent(Intent.ACTION_SENDTO);  
    intent.setData(Uri.parse("mailto:"));  
  
    intent.putExtra(Intent.EXTRA_EMAIL, new String[] {"steven.verborgh@howest.be"});  
    intent.putExtra(Intent.EXTRA_SUBJECT, "Testing email");  
    intent.putExtra(Intent.EXTRA_STREAM, getFileStreamPath("boss.png"));  
  
    startActivity(intent);  
}
```

Some Defined Extras

EXTRA_ALLOW_MULTIPLE EXTRA_MIME_TYPES	ACTION_GET_CONTENT ACTION_OPEN_CONTENT
EXTRA_EMAIL EXTRA_BCC EXTRA_CC	ACTION_SENDTO
EXTRA_TEXT EXTRA_HTML_TEXT EXTRA_STREAM	ACTION_SEND
EXTRA_PHONE_NUMBER	ACTION_CALL
EXTRA_SHORTCUT_INTENT EXTRA_SHORTCUT_NAME EXTRA_SHORTCUT_ICON EXTRA_SHORTCUT_ICON_RESOURCE	ACTION_CREATE_SHORTCUT
...	..

Receiving Extra's

```
public class SecondActivity extends Activity {
    public static final String EXTRA_SOME = "be.howest.nmct.extra.SOME";

    private TextView mMessageView;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_second);

        mMessageView = (TextView) findViewById(R.id.message);

        Intent createIntent = getIntent();
        String some = createIntent.getStringExtra(EXTRA_SOME);
        mMessageView.setText(some);
    }
}
```

Communication in Stack

```
public class FirstActivity extends Activity {  
    private static final int REQUEST_CODE_EDIT_SOME = 1;  
  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_first);  
    }  
  
    public void onLaunchActivity(View v) throws Exception{  
        Intent intent = new Intent(this, SecondActivity.class);  
        startActivityForResult(intent, REQUEST_CODE_EDIT_SOME);  
    }  
  
    @Override  
    protected void onActivityResult(int requestCode, int resultCode, Intent data) {  
        /* ... Handle result ...*/  
    }  
}
```

Sending results back

```
public class SecondActivity extends Activity {  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_second);  
    }  
  
    public void onOk(View v) {  
        setResult(RESULT_OK);  
        finish();  
    }  
}
```


Getting results back

```
@Override
protected void onActivityResult(int requestCode, int resultCode, Intent data) {
    switch(requestCode) {
        case REQUEST_CODE_EDIT_SOME:
            switch(resultCode) {
                case RESULT_OK:
                    Toast.makeText(this, "OK", Toast.LENGTH_LONG).show();
                    break;
                case RESULT_CANCELED:
                    Toast.makeText(this, "Cancel", Toast.LENGTH_LONG).show();
                    break;
                /* Maybe custom code starting from RESULT_FIRST_USER */
            }
            break;
        /* more request codes */
    }
}
```

Sending Data with Result

```
public class SecondActivity extends Activity {  
    private static final String EXTRA_SOME = "be.howest.nmct.extra.SOME";  
  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_second);  
    }  
  
    public void onOk(View v) {  
        Intent intent = new Intent();  
        intent.setDataAndType(Uri.parse("file:///image.png"), "image/png");  
        intent.putExtra(EXTRA_SOME, "some extra");  
  
        setResult(RESULT_OK, intent);  
        finish();  
    }  
}
```

Getting Data from Result

```
@Override
protected void onActivityResult(int requestCode, int resultCode, Intent data) {
    switch(requestCode) {
        case REQUEST_CODE_EDIT_SOME:
            switch(resultCode) {
                case RESULT_OK:
                    Uri dataUri = data.getData();
                    String some = data.getStringExtra(SecondActivity.EXTRA_SOME);
                    break;
            }
        break;
    }
}
```

Taking a picture

```
public void onTakePicture(View v) throws Exception {
    File image = createImageFile();
    Intent intent = new Intent(MediaStore.ACTION_IMAGE_CAPTURE);
    intent.putExtra(MediaStore.EXTRA_OUTPUT, Uri.fromFile(image));
    startActivityForResult(intent, REQUEST_CODE_IMAGE_CAPTURE);
}

private File createImageFile() throws IOException {
    File dir = Environment.getExternalStoragePublicDirectory(
        Environment.DIRECTORY_PICTURES);
    File image = File.createTempFile("tpi", ".jpg", dir);
    path = image.getAbsolutePath();
    return image;
}

@Override
protected void onActivityResult(int requestCode, int resultCode, Intent data) {
    if(requestCode == REQUEST_CODE_IMAGE_CAPTURE && resultCode == RESULT_OK) {
        Bitmap bitmap = BitmapFactory.decodeFile(path);
        image.setImageBitmap(bitmap);
    }
}
```

Capturing URL requests

```
<activity
    android:name="be.howest.nmct.bi.MainActivity"
    android:label="@string/app_name" >

    <intent-filter>
        <action android:name="android.intent.action.VIEW" />
        <data
            android:host=www.howest.be
            android:scheme="http"
            android:pathPrefix="/Default.aspx"/>

            <category android:name="android.intent.category.DEFAULT" />
            <category android:name="android.intent.category.BROWSABLE" />
        </intent-filter>
    </activity>
```

Using the DownloadManager

```
public class MainActivity extends Activity{
    private static final String uri
        = "http://www.ovh.net/files/10Mb.dat";

    private DownloadManager downloadManager;
    private long downloadId;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        downloadManager = (DownloadManager) getSystemService(Context.DOWNLOAD_SERVICE);
    }

    public void onStartDownload(View v){
        DownloadManager.Request req = new DownloadManager.Request(Uri.parse(uri));
        req.setAllowedNetworkTypes(DownloadManager.Request.NETWORK_WIFI)
            .setTitle("Speed Test")
            .setDescription("Downloading test file.")
            .setDestinationInExternalPublicDir(Environment.DIRECTORY_DOWNLOADS, "image.jpg");

        downloadId = downloadManager.enqueue(req);
    }
}
```

Getting notified of download

```
@Override
public void onResume() {
    super.onResume();
    IntentFilter intentFilter = new IntentFilter(DownloadManager.ACTION_DOWNLOAD_COMPLETE);
    intentFilter.addAction(DownloadManager.ACTION_NOTIFICATION_CLICKED);
    registerReceiver(receiver, intentFilter);
}

@Override
protected void onPause() {
    super.onPause();
    unregisterReceiver(receiver);
}

private BroadcastReceiver receiver = new BroadcastReceiver() {
    @Override
    public void onReceive(Context context, Intent intent) {
        if(intent.getAction() == DownloadManager.ACTION_DOWNLOAD_COMPLETE) {
            Toast.makeText(MainActivity.this, "Download Complete", Toast.LENGTH_SHORT).show();
        }
    }
};
```

Setting an Alarm

```
public class MainActivity extends Activity {  
  
    private static final String EXTRA_MESSAGE = "be.howest.nmct.extras.MESSAGE";  
    private static final int REQUEST_CODE_TASK = 1;  
  
    private AlarmManager alarmManager;  
  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_main);  
        alarmManager = (AlarmManager) getSystemService(Context.ALARM_SERVICE);  
  
        Bundle extras = getIntent().getExtras();  
        if (extras != null && extras.containsKey(EXTRA_MESSAGE))  
            Toast.makeText(this, extras.getString(EXTRA_MESSAGE), Toast.LENGTH_LONG).show();  
    }  
  
    public void onSheduleTask(View v) {  
        Intent intent = new Intent(this, MainActivity.class);  
        intent.putExtra(EXTRA_MESSAGE, "Time for a break");  
  
        PendingIntent pendingIntent =  
            PendingIntent.getActivity(getApplicationContext(), REQUEST_CODE_TASK, intent, 0);  
        alarmManager.setWindow( AlarmManager.ELAPSED_REALTIME,  
            SystemClock.elapsedRealtime() + 2000, 500, pendingIntent);  
    }  
}
```