Mobile Application Development Services

Waterford Institute of Technology

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Services

Learning objectives

How to automatically refresh cached data using subclassed:

- Retrofit HTTP client.
- BroadcastReceiver
- IntentService.

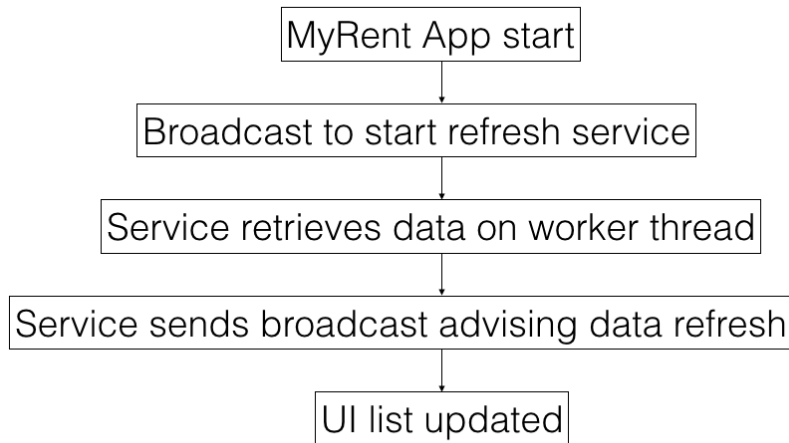How to send global broadcasts using:

- sendBroadcast.

How to send local broadcasts using:

- LocalBroadcastManager.

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Data cache refresh - how it works

```
┌─────────────────────────────────────────┐
│            MyRent App start             │
└─────────────────────────────────────────┘
                     │
                     ▼
┌─────────────────────────────────────────┐
│      Broadcast to start refresh service  │
└─────────────────────────────────────────┘
                     │
                     ▼
┌─────────────────────────────────────────┐
│   Service retrieves data on worker thread│
└─────────────────────────────────────────┘
                     │
                     ▼
┌─────────────────────────────────────────┐
│  Service sends broadcast advising data refresh│
└─────────────────────────────────────────┘
                     │
                     ▼
┌─────────────────────────────────────────┐
│              UI list updated            │
└─────────────────────────────────────────┘
```
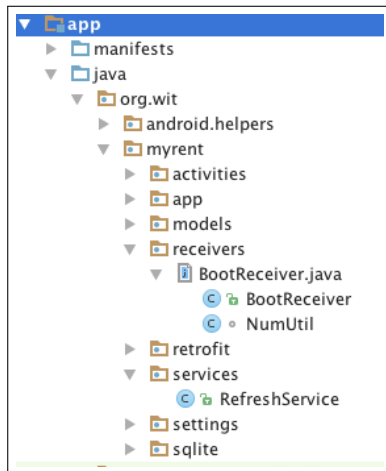
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Refactored file structure

Receivers:

- BootReceiver
- NumUtil

Services

- RefreshService

Services
BroadcastReceiver

- We subclass BroadcastReceiver.
- **onReceive** invoked on device boot.
- We also invoke when app launches to facilitate debugging.

```java
public class BootReceiver extends BroadcastReceiver
{
  ...
  @Override
  public void onReceive(Context context, Intent intent) {
    // sent intent to start refresh service
  }
}
```

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BroadcastReceiver

- Alarm triggers sending of intent.
- Alarm frequency obtained from settings.
- This intent starts refresh service.
- Refresh service updates local cache from cloud.

```java
public class BootReceiver extends BroadcastReceiver
{
  ...
  @Override
  public void onReceive(Context context, Intent intent)
  {
    // sent intent to start refresh service
  }
}
```

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RefreshService

- **onHandleIntent** invoked on worker thread.
- Call initiated in BootReceiver.

```java
@Override
protected void onHandleIntent(Intent intent) {
  // Make network call to retrieve residences from cloud.
  // Broadcast an implicit intent to facilitate cache update elsewhere.
}
```

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Use HTTP client to make network call

```java
protected void onHandleIntent(Intent intent) {
  Call<List<Residence>> call
   = (Call<List<Residence>>) app.residenceService.getResidences();
  try {
    Response<List<Residence>> response = call.execute();
    app.portfolio.refreshResidences(response.body());
    ...
  }
}
```

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RefreshService

- **onHandleIntent** invoked on worker thread.
- Call initiated in BootReceiver.

```
@Override
protected void onHandleIntent(Intent intent) {
  // Make network call to retrieve residences from cloud.
  Intent localIntent =
    new Intent(ResidenceListFragment.BROADCAST_ACTION);
  LocalBroadcastManager.getInstance(this)
                             .sendBroadcast(localIntent);
}
```

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ResidenceListFragment inner class

```java
private class ResponseReceiver extends BroadcastReceiver
{
  // Called Intent for which registered received.
  @Override
  public void onReceive(Context context, Intent intent)
  {
    adapter.residences = app.portfolio.residences;
    adapter.notifyDataSetChanged();
  }
}
```

References
Services

1. Official documentation: Services

`http://bit.ly/2feexEj`

[Accessed 2016-11-01]

2. Official documentation: BroadcastReceiver

`http://bit.ly/2feyyKV`

[Accessed 2016-11-01]

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