

10: App registration: generate a UUID and save it in shared preferences.

```
mRegistrationId = UUID.randomUUID();  
preferences.edit().putString(register_id, mRegistrationId.toString());
```

10: ServiceHelper class used by UI to access Web services

ServiceHelper

10: RequestService (extending IntentService) for performing Web service requests onbackground thread (serializing service requests

through the service handler thread).

RequestService

10: RequestProcessor provides business logic for Web service request processing.

RequestProcessor

15: RestMethod provides logic for performing HTTP requests (using code samples fromnotes).

RestMethod

10: Sync operation should use streaming http: RestMethod operation returnsStreamingResponse (pair of HttpURLConnection and

Response).

```
Response.SynchronizeResponse response = (Response.SynchronizeResponse)  
    RestMethod.perform(request, this);  
if(response==null){  
    return 0;  
}  
JsonReader reader = new JsonReader(new BufferedReader(  
    new InputStreamReader(response.mHttpURLConnection.getInputStream())));  
  
public static class SynchronizeResponse extends Response  
{  
    public static final Responseable.Creator CREATOR = new Responseable.Creator()  
    {  
        @Override  
        public Responseable create(JsonReader reader) throws IOException  
        {  
            final JsonWriter writer = new JsonWriter(new BufferedWriter(  
                new OutputStreamWriter(connection.getOutputStream(), "UTF-8")));  
            writer.write(request);  
            writer.write(response);  
            return new SynchronizeResponse(connection, writer);  
        }  
    }  
}
```

15: RequestProcessor implements sync protocol in the assignment spec: upload new operations, download new operations (version

number greater than current versionnumber) from the service.

```
public long perform(Synchronize request)
{
```

10: Use AlarmManager to schedule periodic synchronizations.

```
Intent intent = new Intent("android.intent.action.MAIN");
mSyncingIntent = PendingIntent.getBroadcast(MainActivity.this,
    0,
    intent,
    0);
AlarmManager alarmMan = (AlarmManager)
    getSystemService(Context.ALARM_SERVICE);
alarmMan.setRepeating(AlarmManager.RTC, new Date().getTime(),
    2 * 1000, mSyncingIntent);
```

10: Json data is read using JsonReader, and written using JsonWriter.

```
JsonReader reader = new JsonReader(new BufferedReader(
    new InputStreamReader(response.mHttpURLConnection.getInputStream())));
final JsonWriter writer = new JsonWriter(new BufferedWriter(
    new OutputStreamWriter(connection.getOutputStream(), "UTF-8")));
```