# Mobile Development: Plan for week 08 [week 06](file:///D:\_2017F_Mobile_Spec\plans\M2017F_plan_Week06.pdf) - [week 09](M2017F_plan_Week09.pdf)

## Goal for the week

* You should have knowledge about way of making data persistent and save some simple data.
* You should be able to use Shared Preferences and Android file system for keeping data persistent including using java serialization.
* You should be able to make simple exchange of data with a website / webservice in your app (synchronized HTTP request use Android 2.2 – API 8)
* You should be able to communicate with a website/webservice in an acynchronous way.
* You have some knowledge about using user threads in java and special knowledge about running some part in background using AsyncTask to keep liveness for the user in the app and make acynchronous request to a webservice.

## Preparation before Wednesday

* Viewing following toturial this playlist: <https://www.youtube.com/playlist?list=PL6gx4Cwl9DGBsvRxJJOzG4r4k_zLKrnxl> **65, 66 (Shared Preferences)**
* **reading briefly about** 
  + Tutorial - saving data:<https://developer.android.com/training/basics/data-storage/index.html>
  + Tutorial - Connecting to the Network: <http://developer.android.com/training/basics/network-ops/connecting.html>  
    Reference – HttpURLConnection class: <http://developer.android.com/reference/java/net/HttpURLConnection.html>
  + About AsyncTask
  + [Code Overtones Android AsyncTask template](https://codeovertones.wordpress.com/2009/11/19/android-asynctask-template/)  
    [Android Threads, Handlers and AsyncTask - Tutorial](http://www.vogella.com/tutorials/AndroidBackgroundProcessing/article.html#asynctask) (AsyncTask)
  + About parsing XML and JSON  
    [XmlPullParser Android Developers](http://developer.android.com/reference/org/xmlpull/v1/XmlPullParser.html)  
    [Android XML Parsing Tutorial](http://www.androidhive.info/2011/11/android-xml-parsing-tutorial/)  
    [JSON - Android Developers](http://developer.android.com/reference/org/json/package-summary.html)  
    [Android JSON Tutorial: Create and Parse JSON data](http://www.javacodegeeks.com/2013/10/android-json-tutorial-create-and-parse-json-data.html)

## Teachers plan for Wednesday

* Follow up on the weeks of study (adjusting plan for week together)
* Persistence (files and shared preferences) inclusive serialization  
  slides: [Android\_Persistens.ppt](http://bjoerks.net/klasser/Mobile_2015_Foraar/materials/Android_Persistens.ppt)  
  examples: [Android\_AppFiles\_20150225.zip](http://bjoerks.net/klasser/Mobile_2015_Foraar/materials/Android_AppFiles_20150225.zip)
* Accessing webservice for external data  
  I use HttpRLConnection in my example and not HttpClient, as I discovered there is discussion about only HttpURLConnection is supported by the Android team.  
  For these examples you will have to choose an and old Android version - fx API 8 as you now only are allowed to use asynchronous access for demand of liveness – but for the beginning you might find it easier to debug when using synchronous call.  
  [Android\_HttpGetRequest\_Syncrone\_20150304.zip](http://bjoerks.net/klasser/Mobile_2015_Foraar/materials/Android_HttpGetRequest_Syncrone_20150304.zip) (Basic of making synchronized web call - http get request – only allowed in older android versions)  
  [Android\_HttpGetPostRequest\_Syncrone\_20150304.zip](http://bjoerks.net/klasser/Mobile_2015_Foraar/materials/Android_HttpGetPostRequest_Syncrone_20150304.zip) (Basic of making synchronized web call - http post request – only allowed in older android versions)  
  [Android\_HttpGetPostRequest\_AssertXmlReq\_20150304.zip](http://bjoerks.net/klasser/Mobile_2015_Foraar/materials/Android_HttpGetPostRequest_AssertXmlReq_20150304.zip) (Expanded example with trick to make soap web call a little more easy).
* Accessing webservice for external data - asynchronous  
  Example using asynchronous access by running the call in background.  
  [Android\_HttpGetPostRequest\_AssertXmlReq\_Asynk\_20150304.zip](http://bjoerks.net/klasser/Mobile_2015_Foraar/materials/Android_HttpGetPostRequest_AssertXmlReq_Asynk_20150304.zip) (Last call is now done asynchronous by using AsyncTask – general async solution)  
    
  Eventual briefly about JSON and XML format
* Eventual briefly about Java threads in general  
  [TraadEksempelMedSync.zip](http://bjoerks.net/klasser/Mobile_2012_Foraar/Materiale/TraadEksempelMedSync.zip)
* **Startup with some exercises**  
    
  Ideas for small exercises:
  + Expand your apps from week 06 with using Shared Preferences or file system for making information as mail / phone numbers for parent ect. persistent. (and debug them on device)
  + Make one or to apps that can retrieve data from webservice or send data to webservice for update  
    Ideas for small apps/exercises: USE API 8 to allow synchronous access
    - External data to be used with web access
      * Webservices for retrieving data <http://webservicedemo.datamatiker-skolen.dk/>   
        Both with soap and REST call for JSON and XML
      * Webservices for retrieving data <http://wcfdemo.datamatiker-skolen.dk/>
      * Webservices from Geo Fyn:  
        [http://dataportal.geofyn.dk](http://geofyn-ckan.mapcentia.com/dataset)  
        [Open Data - Geo 0Fyns Dataportal.pdf](http://bjoerks.net/klasser/Mobile_2017_Foraar/materials/Open%20Data%20-%20Geo%20Fyns%20Dataportal.pdf)  
        Explore more from Geo Fyn in slides from presentation 23th February  
        - [20160223 Erhvervsakademiet Lillebælt.pptx](http://bjoerks.net/klasser/Mobile_2016_Foraar/materials/20160223%20Erhvervsakademiet%20Lilleb%C3%A6lt.pptx)
      * More dataset to get here:  
        <http://portal.opendata.dk/>
    - Make an app for simple calculation (add and subtract), which use a webservice for doing the calculation it self.
    - Make an app, which can show a list of persons retrieved from webservice  
      When selecting an item show detail in another screen (activity)
    - Make an app, which can show a list of some data from Geo Fyn  
      When selecting an item show detail in another screen (activity)
    - Make a RSS reader to get news from:  
      - <http://dm-mobile.blogspot.dk/>  
      - <https://www.sde.dk/SDE/site.aspx?p=793>   
      - <http://www.dr.dk/Nyheder/Service/rss.htm>

**More resources**

## Extra useful tools for making interacting with webservices:

* + Special for WCF services (and ASMX) you can get the necessary data for SOAP call with WcfTestClient.exe you probably will find here "C: \ Program Files (x86) \ Microsoft Visual Studio ….. \ …… \ IDE \ WcfTestClient.exe"
  + Fidler is a usefull tool to show all what is sent and received on the http protocol: <http://www.telerik.com/download/fiddler>  
    You can use this tool for discover how to interact with a webservice, by using the service from other applications.
* [Processes and Threads Android Developers](http://developer.android.com/guide/topics/fundamentals/processes-and-threads.html)
* [Code Overtones Android AsyncTask template](https://codeovertones.wordpress.com/2009/11/19/android-asynctask-template/)
* [Using Android AsyncTask to download html file](file:///D:\_2017F_Mobile_Spec\plans\Using%20Android%20AsyncTask%20to%20download%20html%20file)
* [Android Threads, Handlers and AsyncTask - Tutorial](http://www.vogella.com/tutorials/AndroidBackgroundProcessing/article.html#asynctask) (AsyncTask)
* [Android Threads, Handlers and AsyncTask - Tutorial](http://www.vogella.de/articles/AndroidPerformance/article.html) (Handlers)
* [Handler Android Developers](http://developer.android.com/reference/android/os/Handler.html)
* Eventual study example using the HttpClient (Be aware of there is discussion about only HttpURLConnection is supported by the Android team)  
  still the example gives you some ideas using Asynchronous Http Client:   
  <http://loopj.com/android-async-http/>   
  <http://stackoverflow.com/questions/4457492/how-do-i-use-the-simple-http-client-in-android>
* From TheNewBoston about XML and JSON
  + [150 - Introduction to JSON parsing](https://www.youtube.com/watch?v=H1o15gHPw2A&index=150&list=PL2F07DBCDCC01493A)
  + [151 - JSONArrays and JSONObjects](https://www.youtube.com/watch?v=YgkhwNGIFOk&index=151&list=PL2F07DBCDCC01493A)
  + [152 - Appending with StringBuilder](https://www.youtube.com/watch?v=USzAbMTK66s&index=152&list=PL2F07DBCDCC01493A)
  + [153 - Reading JSON information](https://www.youtube.com/watch?v=5SP7a2thq6g&index=153&list=PL2F07DBCDCC01493A)
  + [154 - Setting up XML Parsing Project](https://www.youtube.com/watch?v=Z1rtldBTzCE&index=154&list=PL2F07DBCDCC01493A)
  + [155 - StringBuilder and XML Parsing Framework](https://www.youtube.com/watch?v=meXgGO4LTO8&index=155&list=PL2F07DBCDCC01493A)
  + [156 - Setting up a parsed XML data collection class](https://www.youtube.com/watch?v=pb1vwqPE9hE&index=156&list=PL2F07DBCDCC01493A)
  + [157 - SAXParserFactory and XMLReader](https://www.youtube.com/watch?v=Bi69ZAiYHOI&index=157&list=PL2F07DBCDCC01493A)
  + [158 - Start Element method](https://www.youtube.com/watch?v=iIGtHOo1fqY&index=158&list=PL2F07DBCDCC01493A)
  + [159 - Finishing XML parser](https://www.youtube.com/watch?v=dWV4Z4nHkS8&index=159&list=PL2F07DBCDCC01493A)
* General about json and xml format  
  json:  
  - <http://www.json.org/>  
  - <https://en.wikipedia.org/wiki/JSON>   
  xml:  
  - <http://www.tutorialspoint.com/xml/xml_syntax.htm>   
  - <http://www.tutorialspoint.com/xml/xml_tree_structure.htm>  
  - <http://www.tutorialspoint.com/xml/xml_attributes.htm>
* Performing Network Operations (Android developer training)  
  <https://developer.android.com/training/basics/network-ops/index.html>
* Transmitting Network Data Using Volley (Android developer training)  
  <https://developer.android.com/training/volley/index.html>