

Final Exam Review

- I. Java
 - a. Classes
 - i. Constructors
 - ii. Fields (public, private, protected)
 - iii. Getters/Setters
 - iv. toString()
 - v. equals(...)
 - vi. hashCode()
 - vii. Comparable interface
 - b. Collections (Sets, Lists, Maps of all types)
 - c. Exceptions: declaring, throwing, and catching
 - d. Inheritance
 - e. Inner classes including anonymous inner classes
 - f. I/O
 - i. Input: InputStream, Reader, InputStreamReader, BufferedInputStream, BufferedReader, Scanner, FileInputStream, FileReader
 - ii. Output: OutputStream, Writer, OutputStreamWriter, BufferedOutputStream, BufferedWriter, PrintWriter, FileOutputStream, FileWriter
 - iii. StringBuilder
- II. Databases
 - a. Create table statements
 - b. Design tables for a given scenario
 - c. Insert / Update / Delete statements
 - d. Query: SELECT columns FROM tables WHERE condition
 - i. Like you did in your project
 - ii. Be able to do joins
- III. XML/JSON: especially JSON creation and parsing as used in the project
 - a. Serializing objects as XML/JSON

- i. Using Gson to serialize a Java object to JSON
 - b. Parsing XML/JSON data
 - i. Parser types (tree, token stream, object serializer)
 - ii. Using Gson to deserialize a Java object from JSON
- IV. Server Project
 - a. Understand the purpose / responsibility of each component in the server architecture: Model, Data Access, Services, HTTP Handlers
 - b. HTTP protocol: URLs, Contents of HTTP requests, Contents of HTTP responses, difference between GET and POST requests
- V. Software Design: Abstraction, Decomposition, Single Responsibility Principle/Cohesion, minimize dependencies, separation of interface and implementation, Information hiding, avoiding code duplication
- VI. High quality code: Comments, Good names, Indenting, Whitespace, Complex expressions, Curly braces, Statement per line, Parameters, Deep nesting, Wrapping long lines, Pseudo-code
- VII. Unit testing including how you tested your project
- VIII. Defensive Programming
 - a. Assertions, parameter checking (assertions or exceptions)
- IX. Layouts and Widgets (all kinds of widgets used in project)
 - a. As they appear in the XML file
 - i. All of the layout managers (Linear, Relative, Frame, Table, Grid).
 - ii. Identifiers(@+)
 - b. Getting references to widgets
 - c. Attaching listeners to widgets
 - d. Displaying toasts
 - e. RecyclerView and Adapters (how they work, what they're for)
- X. Activities
 - a. Lifecycle
 - b. Code to start an activity
 - c. Returning from an activity
 - i. Returning information from an activity to its caller
 - d. What are bundles and intents?

- i. How to pass arguments into activities and fragments
- XI. Fragments (what are they for?)
- XII. Web Access
 - a. Server Proxy and Java's HttpURLConnection class
- XIII. The toolbar
 - a. Options menu
 - b. Up button
- XIV. Testing
 - a. Blackbox
 - i. Equivalence partitioning
 - ii. Boundary value analysis
 - b. Whitebox
 - i. Coverage: Line, branch, complete condition coverage, partial condition coverage