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**Activity 02**

**Backend**

* Internet - <https://cs.fyi/guide/how-does-internet-work> – **Not Proficient**
  + HTTP
  + Domain Name
  + Hosting
  + DNS
  + Browser Functionality
* Version Control Systems – **Not Proficient**
  + Git/Github - <https://git-scm.com/doc>
* Relational Databases - <https://www.ibm.com/cloud/learn/relational-databases> – **Not Proficient**
  + MySQL - <https://www.w3schools.com/mySQl/default.asp>
  + MariaDB - <https://www.youtube.com/watch?v=_AMj02sANpI>
  + MS SQL - <https://www.youtube.com/watch?v=-EPMOaV7h_Q>
  + Oracle - <https://www.youtube.com/watch?v=ObbNGhcxXJA>
  + SQLite - <https://www.youtube.com/watch?v=8Xyn8R9eKB8>
* Caching - <https://aws.amazon.com/caching/> – **Not Proficient**
  + Server Side
  + CDN
  + Client Side
* Learn about APIs - <https://www.youtube.com/watch?v=ByGJQzlzxQg> – **Not Proficient**
  + REST - <https://restapitutorial.com/>
  + JSON APIs - <https://medium.com/@niranjan.cs/what-is-json-api-3b824fba2788>
  + SOAP - <https://www.w3schools.com/xml/xml_soap.asp>
  + gRPC - <https://www.youtube.com/watch?v=hVrwuMnCtok>
  + GraphQL- <https://www.youtube.com/watch?v=eIQh02xuVw4>
  + Authentication
    - JWT
    - OAuth
    - Basic/Token/Cookie Authentication
    - OpenID
    - SAML
* Web Security - <https://developers.google.com/web/fundamentals/security/encrypt-in-transit/why-https> – **Not Proficient**
  + MD5 - <https://infosecscout.com/why-md5-is-not-safe/>
  + SHA - <https://www.youtube.com/watch?v=DMtFhACPnTY>
  + Scrypt - <https://medium.com/@yusufedresmaina/scrypt-a-beginners-guide-cf1aecf8b010>
  + Bcrypt - <https://www.youtube.com/watch?v=AzA_LTDoFqY>
  + HTTPS - <https://www.youtube.com/watch?v=j9QmMEWmcfo>
* Testing - <https://www.browserstack.com/guide/testing-pyramid-for-test-automation> – **Somewhat Proficient**
  + Integration Testing - <https://thenewstack.io/how-to-integrate-and-test-your-tech-stack/>
  + Unit Testing
  + Functional Testing - <https://www.guru99.com/functional-testing.html>
* CI / CD - <https://www.youtube.com/watch?v=scEDHsr3APg>
* Scaling Databases - <https://medium.com/@anil.goyal0057/strategies-for-scaling-databases-a-comprehensive-guide-b69cda7df1d3> – **Not Proficient**
  + Database Indexes - <https://www.codecademy.com/article/sql-indexes>
  + Data Replication - <https://www.ibm.com/topics/data-replication>
  + Sharding Strategies - <https://stackoverflow.blog/2022/03/14/how-sharding-a-database-can-make-it-faster/>
  + Cap Theorem - <https://www.bmc.com/blogs/cap-theorem/>
* Containerization vs Virtualization - <https://middleware.io/blog/containerization-vs-virtualization/> – **Not Proficient**
* Web Servers - <https://developer.mozilla.org/en-US/docs/Learn/Common_questions/What_is_a_web_server> – **Not Proficient**
  + Nginx - <https://www.youtube.com/watch?v=9t9Mp0BGnyI>
  + Apache - <https://www.youtube.com/watch?v=9nyiY-psbMs>
  + Caddy - <https://www.youtube.com/watch?v=WgUV_BlHvj0>
  + MS IIS - <https://www.youtube.com/watch?v=hPWSqEXOjQY>
* Search Engines – **Not Proficient**
  + Elasticsearch- <https://www.elastic.co/elasticsearch/>
  + Solr - <https://www.youtube.com/watch?v=MMWBdSdbu5k>
* Message Brokers - <https://www.ibm.com/topics/message-brokers> – **Not Proficient**
  + RabbitMQ - <https://www.youtube.com/watch?v=nFxjaVmFj5E>
  + Kafka - <https://www.youtube.com/watch?v=B5j3uNBH8X4>
* Real-Time Data - <https://en.wikipedia.org/wiki/Real-time_data> – **Not Proficient**
  + Server Sent Events - <https://developer.mozilla.org/en-US/docs/Web/API/Server-sent_events>
  + WebSockets - <https://www.tutorialspoint.com/websockets/index.htm>
  + Long Polling - <https://www.youtube.com/watch?v=LD0_-uIsnOE>
  + Short Polling - <https://www.youtube.com/watch?v=ZBM28ZPlin8>
* NoSQL Databases - <https://www.mongodb.com/nosql-explained> – **Not Proficient**
  + Document DBs
    - MongoDB - <https://learn.mongodb.com/catalog>
    - CouchDB - <https://www.youtube.com/watch?v=Mru4sHzIfSA>
  + Key-Value
    - Redis - <https://www.youtube.com/watch?v=G1rOthIU-uo>
    - DynamoDB - <https://www.youtube.com/watch?v=2k2GINpO308>
  + Realtime
    - Firebase - <https://www.youtube.com/watch?v=vAoB4VbhRzM>
    - RethinkDB - <https://rethinkdb.com/>
  + Time Series
    - InfluxDB - <https://www.influxdata.com/time-series-database/>
    - TimeScale - <https://www.youtube.com/watch?v=69Tzh_0lHJ8>
  + Column DBs
    - Cassandra - <https://www.tutorialspoint.com/cassandra/cassandra_quick_guide.htm>
    - Base - <https://docs.oracle.com/en-us/iaas/base-database/index.html>
  + Graph DBs
    - Neo4j - <https://www.youtube.com/watch?v=_IgbB24scLI>
    - AWS Neptune - <https://www.youtube.com/watch?v=b04-jjM9t4g>
* Building for Scale - <https://www.sentinelone.com/blog/scalable-architecture/> – **Not Proficient**
  + Instrumentation - <https://en.wikipedia.org/wiki/Instrumentation_/(computer_programming/)>
  + Monitoring - <https://www.yottaa.com/performance-monitoring-backend-vs-front-end-solutions/>
  + Telemetry - <https://www.sumologic.com/insight/what-is-telemetry/>

**Java**

* Learn the Fundamentals – **Proficient**
* Getting Deeper – **Proficient**
  + Serialization – <https://www.javatpoint.com/serialization-in-java>
  + Networking & Sockets - <https://youtu.be/BqBKEXLqdvI>
* Build Tools - <https://www.youtube.com/results?search_query=build%20tools%20for%20java%20developer> – **Not Proficient**
  + Gradle - <https://www.javatpoint.com/gradle>
  + Maven - <https://www.baeldung.com/spring-with-maven>
  + Ant - <https://www.javatpoint.com/apache-ant-tutorial>
* Web Frameworks – **Not Proficient**
  + Spring - <https://www.marcobehler.com/guides/spring-framework>
  + Spring Boot - <https://youtu.be/UfOxcrxhC0s>
  + Play Framework - <https://youtu.be/bLrmnjPQsZc>
  + Spark - <https://www.javatpoint.com/spark-java>
* ORM - <https://www.altexsoft.com/blog/object-relational-mapping/> – **Not Proficient**
  + Spring Data - <https://www.javatpoint.com/spring-and-jpa-integration>
  + JPA - <https://www.tutorialspoint.com/jpa/jpa_architecture.htm>
  + Hibernate - <https://www.javatpoint.com/hibernate-tutorial>
  + EBean - <https://www.baeldung.com/ebean-orm>
* JDBC - <https://www.ibm.com/docs/en/informix-servers/12.10?topic=started-what-is-jdbc>

– **Not Proficient**

* + JDBI3 - <https://www.baeldung.com/jdbi>
  + JDBC Template - <https://www.baeldung.com/spring-jdbc-jdbctemplate>
* Logging Frameworks - <https://www.javatpoint.com/java-logger> – **Not Proficient**
  + SLF4J - <https://www.slf4j.org/>
  + TinyLog - <https://tinylog.org/v2/>
* Testing your Apps - <https://www.browserstack.com/guide/testing-pyramid-for-test-automation> – **Not Proficient**
  + Mocking > Mockito - <https://site.mockito.org/>
  + Cucumber-JVM - <https://automationpanda.com/2017/10/24/cucumber-jvm-for-java/>
  + Cukes - <https://speakerdeck.com/larchaon/getting-started-with-cukes-rest?slide=23>
  + Jbehave - <https://jbehave.org/tutorials.html>