2021A Lab: Sinkhole Server - Grading Sheet

CODE	Description	Grade
Base-0	Qualifying requirements: 1. The code compiles and runs using Java 11 2. Not using a library for core features 3. Not using external libraries 4. When executed without parameters, it starts listening on UDP/5300	Failing Base-0 == grade 0
IT-0	Iteratively resolves an existing name 1. Start the application in a limited environment* 2. Send a query for a valid domain name using dig 3. Receive a valid response (number of answers>0, answer(s) in the ANSWER section)	40
IT-1	Iteratively resolves a non-existing name (NXDOMIAN answer) 1. Start the application in a limited environment* 2. Send a query for a non-existing domain name using dig 3. Receive a valid response (number of answers=0, status: NXDOMAIN)	15
IT-2	Flags are properly set 1. Start the application in a limited environment* 2. Send a query for a valid domain name using dig 3. Receive a valid response (Check the flags in dig, only QR RD RA should be set)	10

IT-3	DNS response is properly sized
	1. Start the application in a limited environment*
	2. Send a query for a valid domain name using dig
	3. Receive a valid response
	    a. Not undersized: verify that the following message does not appear in dig: ";; Warning: Message parser reports malformed message packet.")
	    b. Not oversized: verify that the following message does not appear in dig: ";; WARNING: Message has ??? extra bytes at end")
		5

SI-1	A name in the blocklist is being blocked 1. Start the application with a blocklist file 2. Send a query for a domain on the list with dig 3. Receive a "Name Error" response (status: NXDOMAIN)	15
SI-2	Name not in blocklist is resolved	5

	1. Start the application with a blocklist file 2. Send a query for a domain not on the list with dig 3. Receive a valid response	
Base-1	Readability: there are undocumented hard-coded values in the code (not in a well-named constant / without a comment)	-10
Base-2	Error handling: unhandled exceptions raised in the tests above	-10
Base-3	Compilation: the code compiles with warnings on Java 11	-10

*__limited environment__: an environment where the domain names we provide must be <u>iteratively</u> resolved by your server without help from a public DNS resolver (like 8.8.8.8) or the local resolver. All other domain names (for example, intermediate DNS servers) can be resolved without limitations.