Questions in bold:

1. **How to Match ICMP responses**
    a. Option 1 (the one I implemented): I saved the destination IP address that a packet was sent, and checked the destination IP address of the original IP header stored in the payload of the ICMP response. If they matched, I would know that this is the response to the specific probe I sent.
        i. This was the one I implemented because I sent all of my probes in one go, so I would not only have to distinguish between "my" packets from someone else's, but I would have to distinguish between responses to different probes.
    b. Option 2: checking if the source port and destination port matched the port I sent the datagram from and the port I sent the datagram to.
        i. If I sent the probes sequentially, waiting for the response to the specific probe before moving to the next probe, this method could be used to determine if this was the ICMP response to my probe
    c. Option 3: Checking if the source IP address of the original IP header in the payload is my IP address.
        i. Again, this is an option if the program is implemented sequentially
    d. Option 4: Computing the UDP checksum before sending the packet out, and matching it to the UDP checksum stored in the ICMP payload.
2. **Reasons for not getting a response:**
    a. The sent packet was lost in transit. UDP is unreliable, so it was possible the packet was lost. The loss could have been due to packet corruption or perhaps the website was too busy to handle it and dropped it.
    b. The website uses the port for something of its own business, and this packet was deemed unimportant and dropped.
    c. The website does not support ICMP responses for some reason.
3. **Metrics correlations**

r(hops, RTT)	0.638164
r(hops, direct_dist)	0.744497
r(hops, indirect_dist)	0.763945
r(RTT, direct_dist)	0.791013
r(RTT, indirect_dist)	0.808701

    a. According to my sample, there is a positive correlation between distance and RTT, which indicates that they can be used to predict each other. A higher RTT indicates a further direct and indirect distance, and vice versa
    b. There appears to be a positive correlation between the distance and the number of hops, and they can be used to predict each other. A larger distance would indicate a larger number of hops, and vice versa.
    c. There appears to be a slightly weaker positive correlation between hops and RTT, which means that a higher value of one is probably accompanied by a higher value of the other. Although, it seems reasonable to assume that they can be used to predict one another, since both have positive correlations to distance.
    d. Graphs: in excel file included with project folder