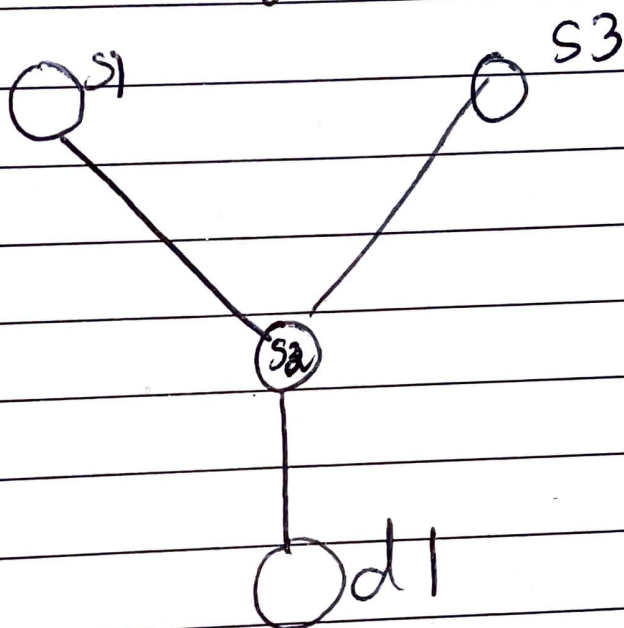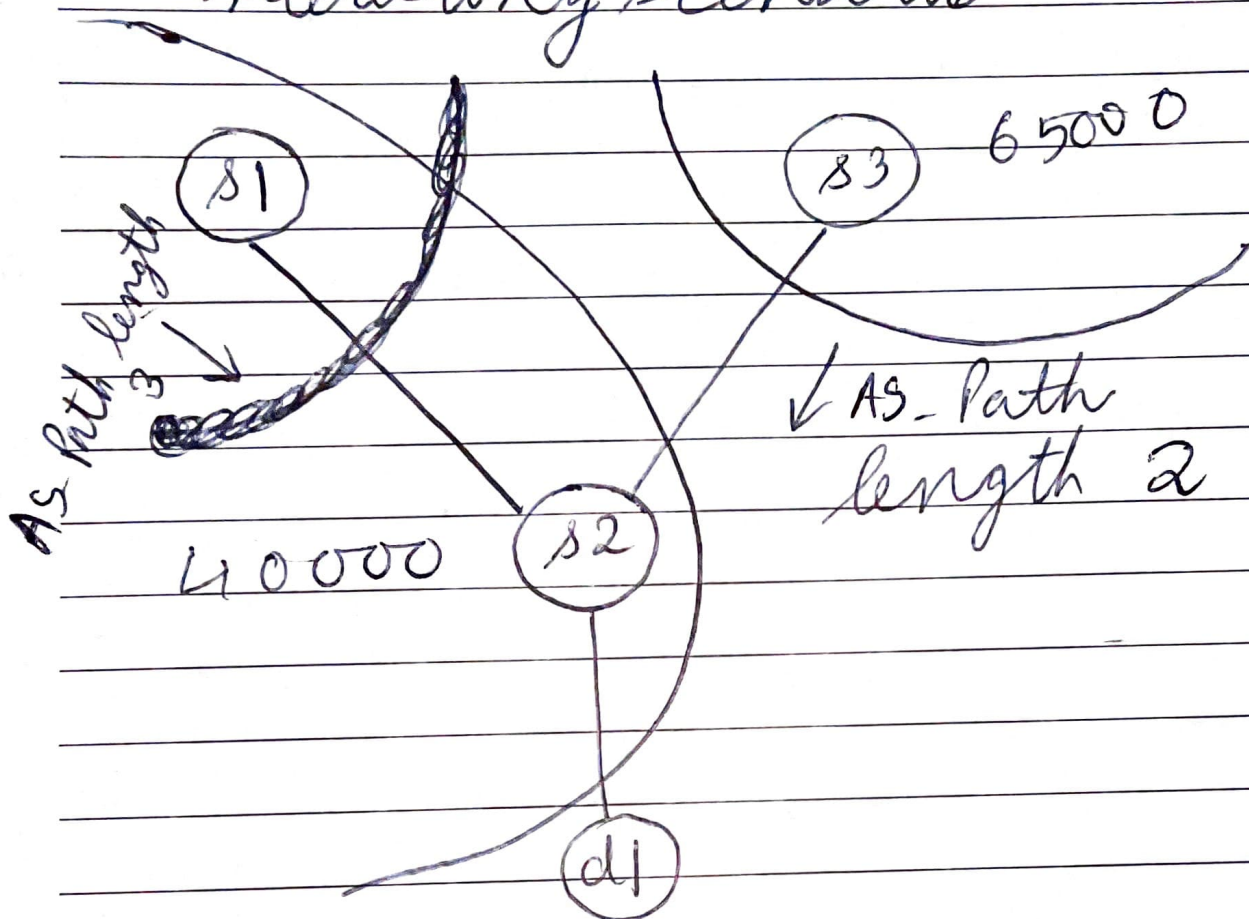- First, we started with experimenting ~~with the fo~~

1) We extended Zen-generated test cases to ~~inc~~ generate separate AS numbers for the two exa-bgp routers in our ~~e~~ topology.
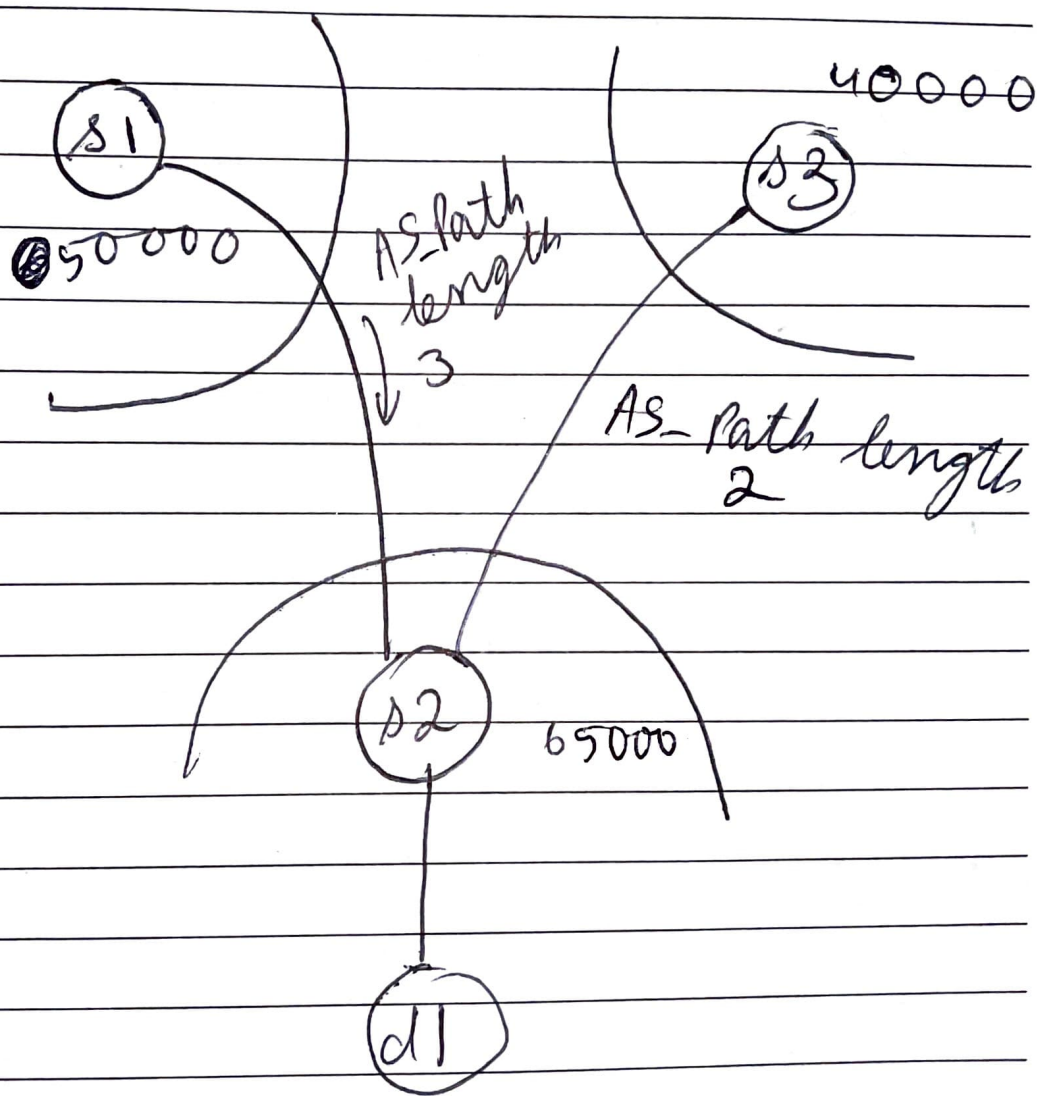

to s1 and s3, each may now have different AS numbers as compared to s2.

2. We observed the following interesting scenario

AS-Path length 3

S_1

S_3 65000

40000 S_2

↓ AS-Path length 2

d_1

S_2 selects route with AS-Path length 3 since it seems to be giving higher preference to a BGP route incoming from a router another on its own AS.
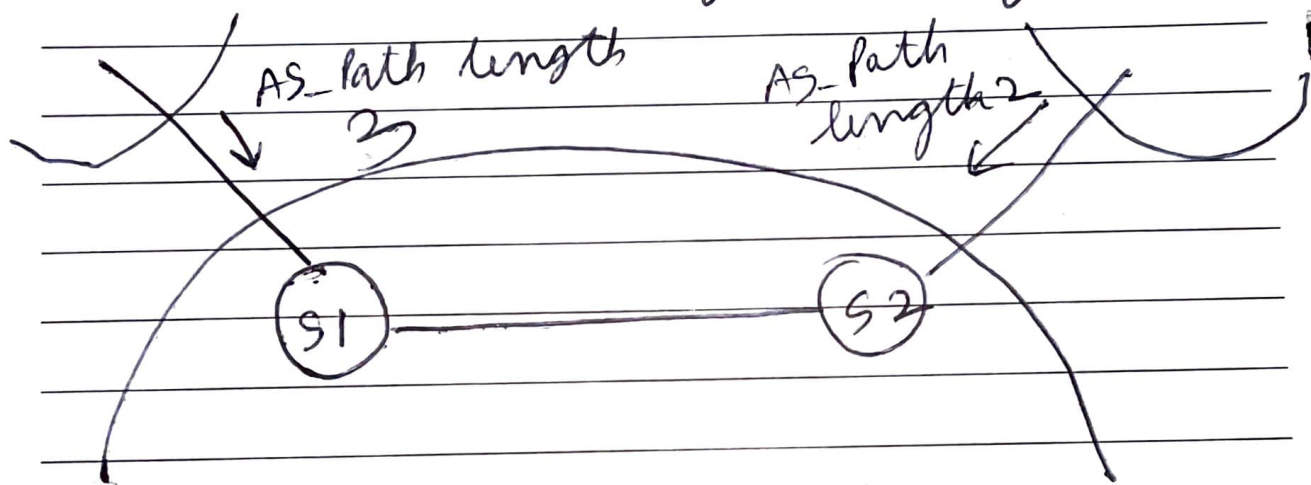
3) To verify this claim, we tested with the same topology, but this time assigning different ASes to all the three routers

This time s2 selects the shorter path of length 2.
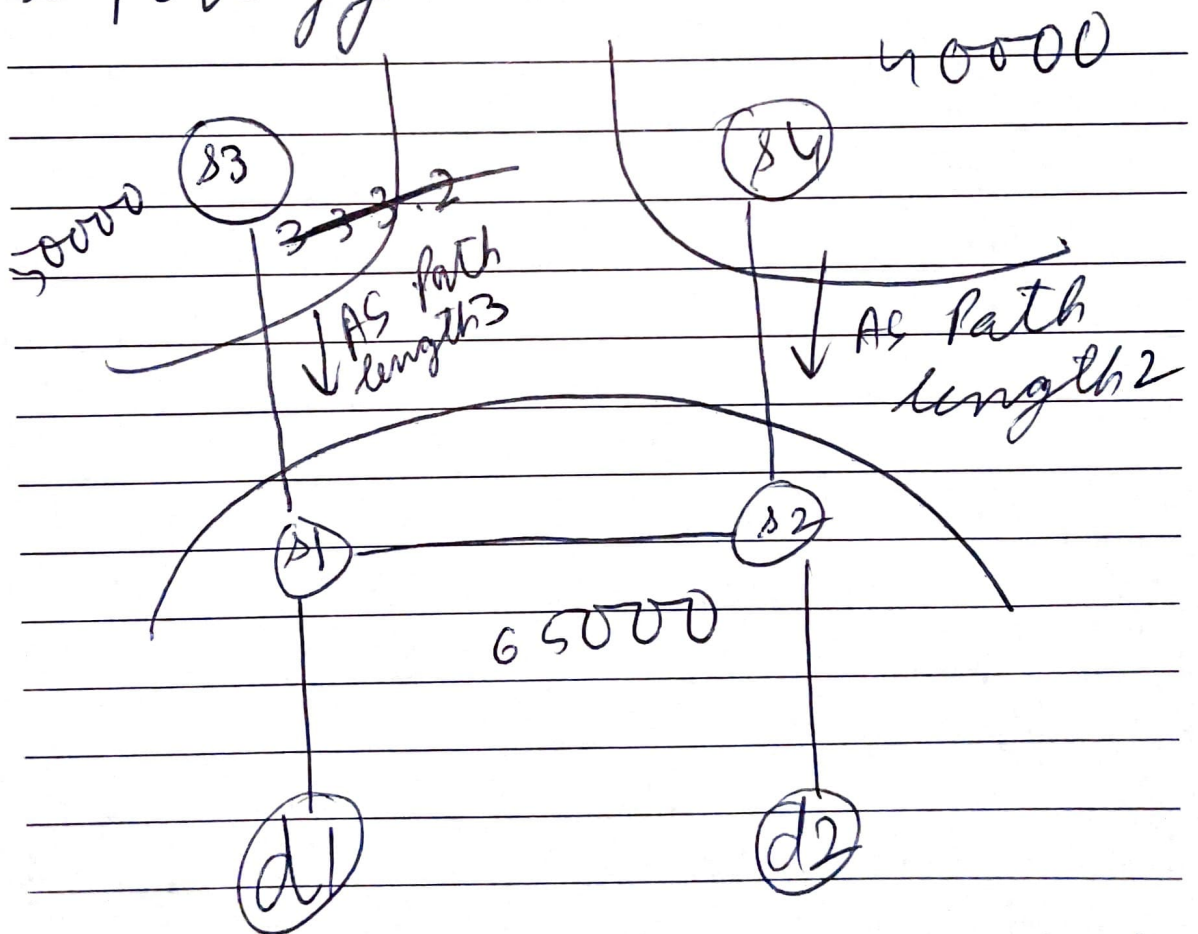
4) This raises the following question:

If there are two directly-linked edge routers in an AS such as the following:-

AS_path length 3 → ⬤S1 ——— S2⬤ ← AS_path length 2

and S1 receives an AS-path length 3 and S2 receives an AS-path 2, then either router gives more preference to a path that goes through its own AS, S1 should select the path through S2, and S2 should select the path through S1, irrespective of path length.

This raises a further problem
If a packet arrives at s2,
it ~~will render the~~ it
will direct it to s1, which
might ~~so~~ will again
redirect it to s2, forming
a loop.

To check this out, we
checked ~~out~~ the following
topology:

s3, s4 → exabgp routers
s1, s2 → quagga routers

¶ In this case, we found both s1 and s2 selected the shorter route through s2.

This gave us the conclusion that it is possible to forcefully inject a route into a BGP router, and prevent a complete IBGP session, there can be spurious paths o/ (invalid paths/longer paths injected.