

Computer Networks (CS321)

Tutorial 3

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- 1) According to the routing table provided in the dataset, we have:
 - a) 525483 unique IP prefixes. (***unique-prefix.txt***)
 - b) 48119 unique ASs.[including the intermediate AS in the AS path and excluding AS path with sets] (***unique-as.txt***)
- 2) The list of prefixes in range of 103.21.124.0 - 103.21.127.255 with is in ***instiA-data.txt***
as <prefix> | <AS_path>
- 3) The ISPs that Insti-A (*IIT Bombay*) buys network service from have ASs that directly connect to the AS of IITB(AS132423). The ISPs according to the routing table are,

```
55410    Vodafone Idea Ltd
55824    NKN Core Network
4755     TATA Communications formerly VSNL is Leading ISP
```

ASs can also be found in ***instiA-isp.txt*** or ***instiA-isp-name.txt***

- 4) Taking into account all the AS paths in the routing table data, we can find the degree for all the ASs (intermediate ASs in the path will have 2 degrees, unlike the first and last AS in the path, which would have 1 degree).

```
174 Degrees:4304    Cogent Communications
3356 Degrees:4032    Level 3 Communications
6939 Degrees:3059    Hurricane Electric LLC
7018 Degrees:2374    AT&T Services, Inc.
4323 Degrees:1869    TW telecom holdings, inc.
209 Degrees:1546     CenturyLink Communications, LLC
701 Degrees:1450     Verizon Business
6461 Degrees:1220     Zayo Bandwidth
3549 Degrees:1111     Level 3 Parent, LLC
9002 Degrees:1105     RETN Limited
```

Can also be found in ***top10-as.txt*** and ***top10-as-name.txt***