

# Computer Networks-odd-sem-21-22

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## Minimum Expectations from Projects

Mark as done

### Rules:

- Project can be done alone or on a group of two.
- Marks in Project will count towards both theory and lab as already explained in the beginning of the course.

### Minimum Expectations from Projects

For all projects, the commands should follow unix conventions. That is, the use of hyphenated options (e.g. `ls -a`) and arguments on the command line (e.g. `ls /tmp/`) should be supported. The default behavior of each software should be like the existing tools.

### Bittorrent:

Reference: [https://www.bittorrent.org/beps/bep\\_0003.html](https://www.bittorrent.org/beps/bep_0003.html)

<https://wiki.theory.org/index.php/BitTorrentSpecification>

<https://en.wikipedia.org/wiki/BitTorrent>

<http://conferences.sigcomm.org/imc/2006/papers/p20-logout.pdf>

[https://en.wikipedia.org/wiki/Torrent\\_file](https://en.wikipedia.org/wiki/Torrent_file)

Command line download of a torrent (getting list of trackers, getting list of peers, get list of chunks, default download algorithm), with seeding, top-4, progress report, specify location to download,

**settings: download/upload limits, Max no. of peers setting**

Additional (for no marks): GUI

*Marks distribution:* download - 30 marks, rarest first - 4 marks, top-four algorithm - 4 marks, seeding - 4 marks, settings - 3 marks, overall quality of code: 5 marks.

### HTTP Server

Reference: <https://tools.ietf.org/html/rfc2616>

GET, POST, PUT, HEAD, DELETE, Cookies, Headers, persistent and non-persistent connections, Multi-threaded, logging with levels of logging, handling file permissions, stop-start-restart commands; Server configuration : config file with DocumentRoot, log file name, max simultaneous connections ;

List of headers will be specified separately

*Marks:* Basic HTTP 5 method = 15 marks; Headers: 10 marks; multi-threading = 5 marks; Config file, cookies: 5 marks; logging, overall code quality = 5 marks; Automated Testing of all options = 10 marks.

### DNS Server and client (e.g. nslookup)

Reference: <https://datatracker.ietf.org/doc/html/rfc2616>

DNS Server: supporting all types of queries and replies. Should be able to do both recursive and iterative queries. Caching to be implemented. : 30 marks.

Client like nslookup: as close as possible to the existing nslookup, all options, all functionality, use of the file `/etc/resolv.conf` : 20 marks

### Email Client (IMAP, SMTP)

Reference: <https://tools.ietf.org/html/rfc3501>

A client like 'alpine' to fetch email using the IMAP protocol. Should support basic options like reading, deleting, writing an email. You should be implementing the IMAP protocol. Do not use existing IMAP libraries in programming languages, but rather implement them. : 30 Marks

SMTP protocol implementation in the client to send email. Note that as of now you have only new.toad.com to test your settings: 20 Marks

## Animation

Animation of various networking protocols. TCP, go-back-n, selective repeat: GUI, User-configurable all parameters, automated demo + interactive demo, way to specify timeouts, dropped packets:

TCP protocol: 20 marks

Go back N, Selective repeat: 15 each

## NS3 based

Adding a module to the NS3 network simulator. The module should be discussed with your lab in-charge before you start doing the project.

## Any other project


Can be discussed with the teacher.

Last modified: Thursday, 16 September 2021, 2:13 PM

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