Programming Assignment #5:
Network Interface

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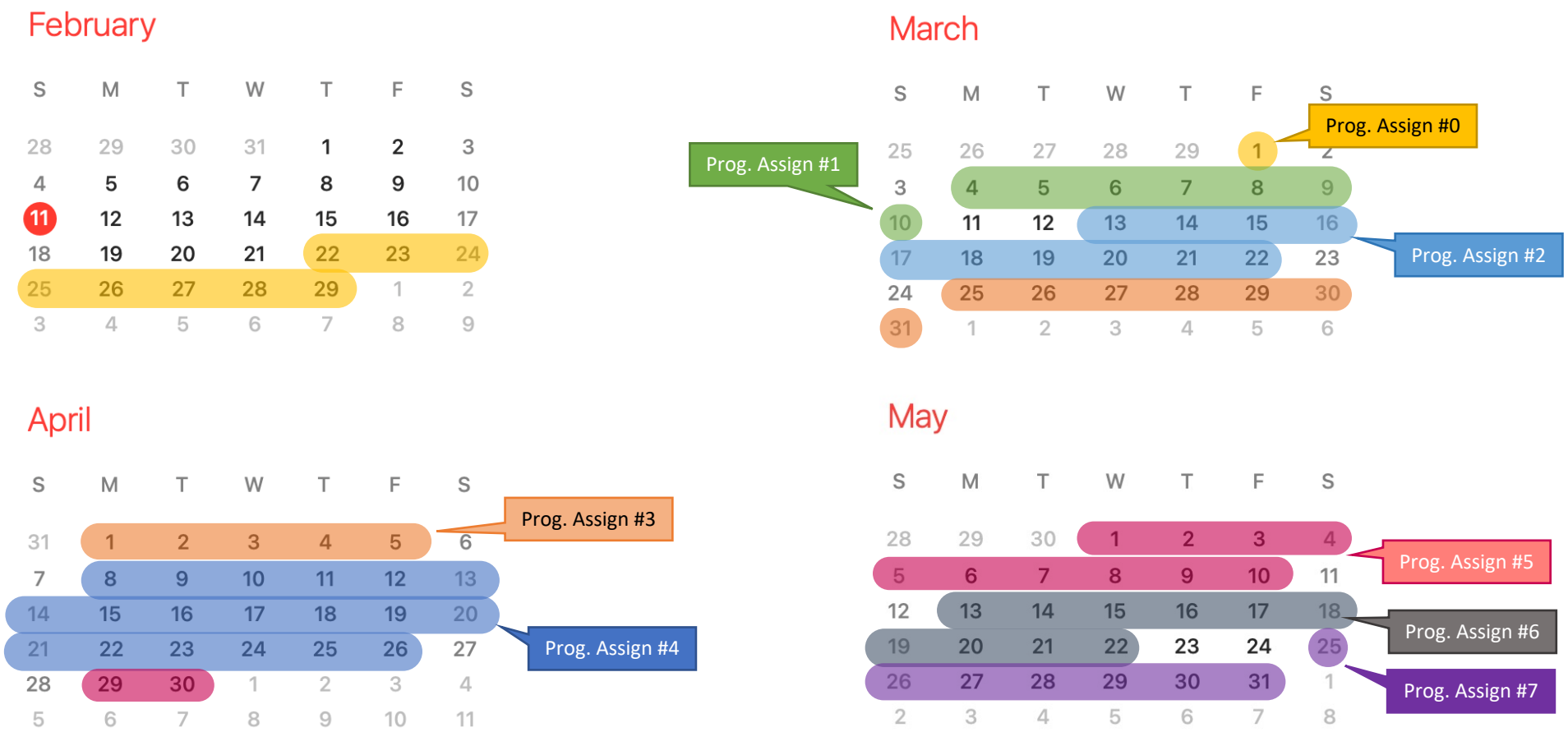
POSTECH CSE
Department of Computer Science & Engineering

Master Timetable

Regular schedules indicated by color. Regular due is at 23:59 of the last day of the same color.
Late submissions are accepted until 24 hours grace period after the regular due (at **20% penalty**)



Allocated Days & Relative Score Weights

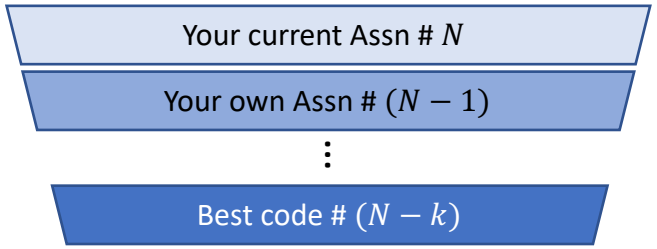
Source: "**Sponge**" in Stanford CS144 'Introduction to Computer Networking' by Prof. Keith Winstein

- We will provide our own materials with proper localization. While you are free to refer to the original CS144 materials, our materials will precede in case of discrepancy.
- Complexity would vary with assignment; LoC per assignment may be between 25 and 150 lines.
- Per-assignment weights and days are differently allocated, reflecting the varying complexity.
- After each assignment, within 7 days, the best submission will be chosen and disclosed to the class.
  The author of the best submission is rewarded with +10% extra score on top of what she/he earned from that assignment.

No.	Theme	Days allocated (regular + late)	Relative weights allocated
0	**Warmup**	9 + 1	7
1	**Byte streams**	7 + 1	9
2	**TCP receiver**	10 + 1	14
3	**TCP sender**	12 + 1	18
4	**TCP connection**	19 + 1 (including mid-term week)	18
5	**Network interface**	12 + 1	14
6	**IP router**	10 + 1	11
7	**Putting altogether**	7 + 1	9

Building upon best code

- As announced on Day 1, it is allowed to build your assignment #N on top of whole or part of the best code for assignment #$(N-k)$, $k \geq 1$
- If you used any part of best codes, **include the following in your writeup (assnX.md):** *"For this assignment, I used part or whole of the best codes of assignment #i, #j, …, #k."* (i.e., every best code number that you used)
  - Caution: See the whole dependency chain of your current code base.
    - You should specify all the past best submissions that currently exist in any part of your code base.
  - If you want to eliminate your dependency on best code #$(N-k)$, you can re-work on your assignment #$(N-k)$ and have your successive assignments based on it.



- Not specifying the use of best codes that exist in any part of your current code base will have our **automatic similarity checker trigger a cheating alert**. Please prevent such risks.
- To respect students who complete their submissions only on their own efforts, submissions that use any of previous best code #$(N-k)$ will have their top score **capped at 90%**. This policy will take effect from Assignment #2.
- When we select the best code in future assignments, our priority will be those without using others' best code.

Where to Submit

At PLMS:

Week 12 (05/06, 05/08) - No class on 05/06

- Chapter 6. Link Layer and LANs

In observance of Children's Day, we do not have class on 05/06.
Please see Lecture1.1 slides for semester-wide schedules, cancellations, and make-up lectures.

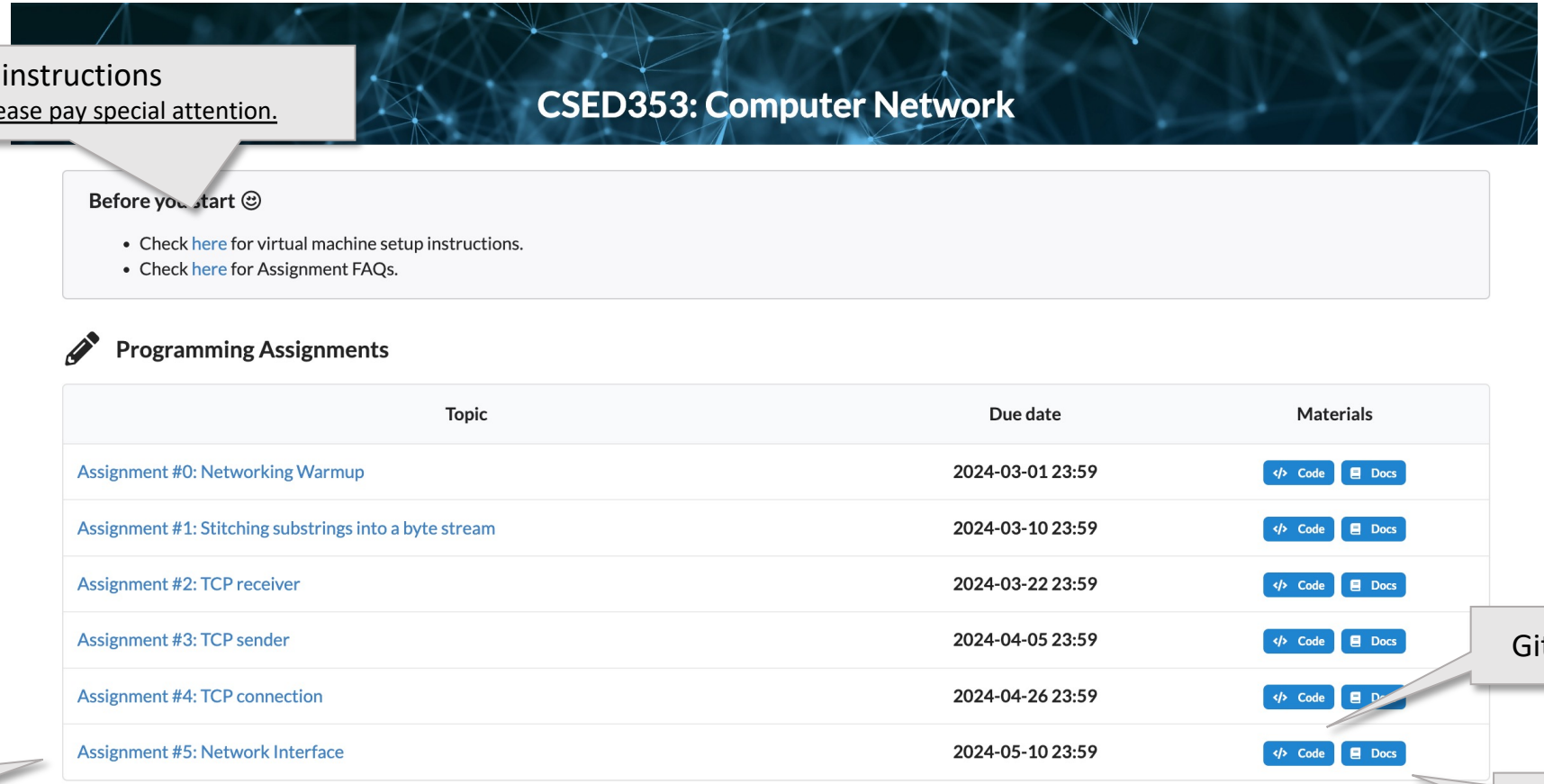
[Assignment] #5. network interface 2024-04-29 00:00:00 ~ 2024-05-10 23:59:00

For assignment description and resources, please refer to:

- Attached slides
- Our assignment webpage: https://tomahawk.postech.ac.kr/csed353/
  - For off-campus access including the dormitory, you need to turn on POSTECH VPN: https://vpn.postech.ac.kr/

Assignment Materials

VM setup instructions
Note. M1 mac users, please pay special attention.



GitHub repo

Assignment description

API docs

https://tomahawk.postech.ac.kr/csed353/

For off-campus access (including dormitory), get POSTECH VPN first: https://vpn.postech.ac.kr/

In addition, please visit regularly PLMS → Announcement bulletin for important updates about assignments.

[Review] “You’ve reached the summit.”

CS353: Computer Networks

Attribution: This series of programming assignments, including codebase and documentation, is adopted from ‘Sponge’ of Stanford CS144 Introduction to Computer Networking by Prof. Keith Winstein https://cs144.github.io/.

Assignment Checkpoint 4: the summit (TCP in full)

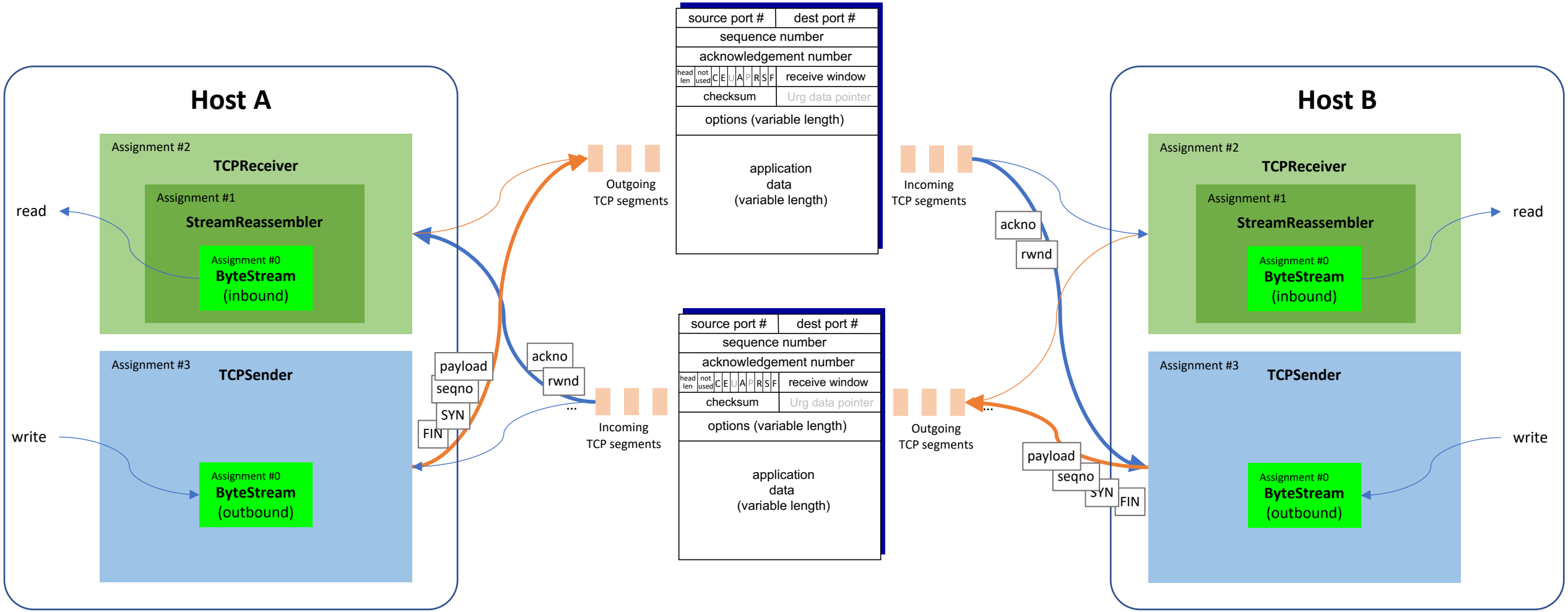
Due: April 26, 2022. 23:59
Late deadline: April 27, 2022. 23:59 (20% penalty)

1. Overview

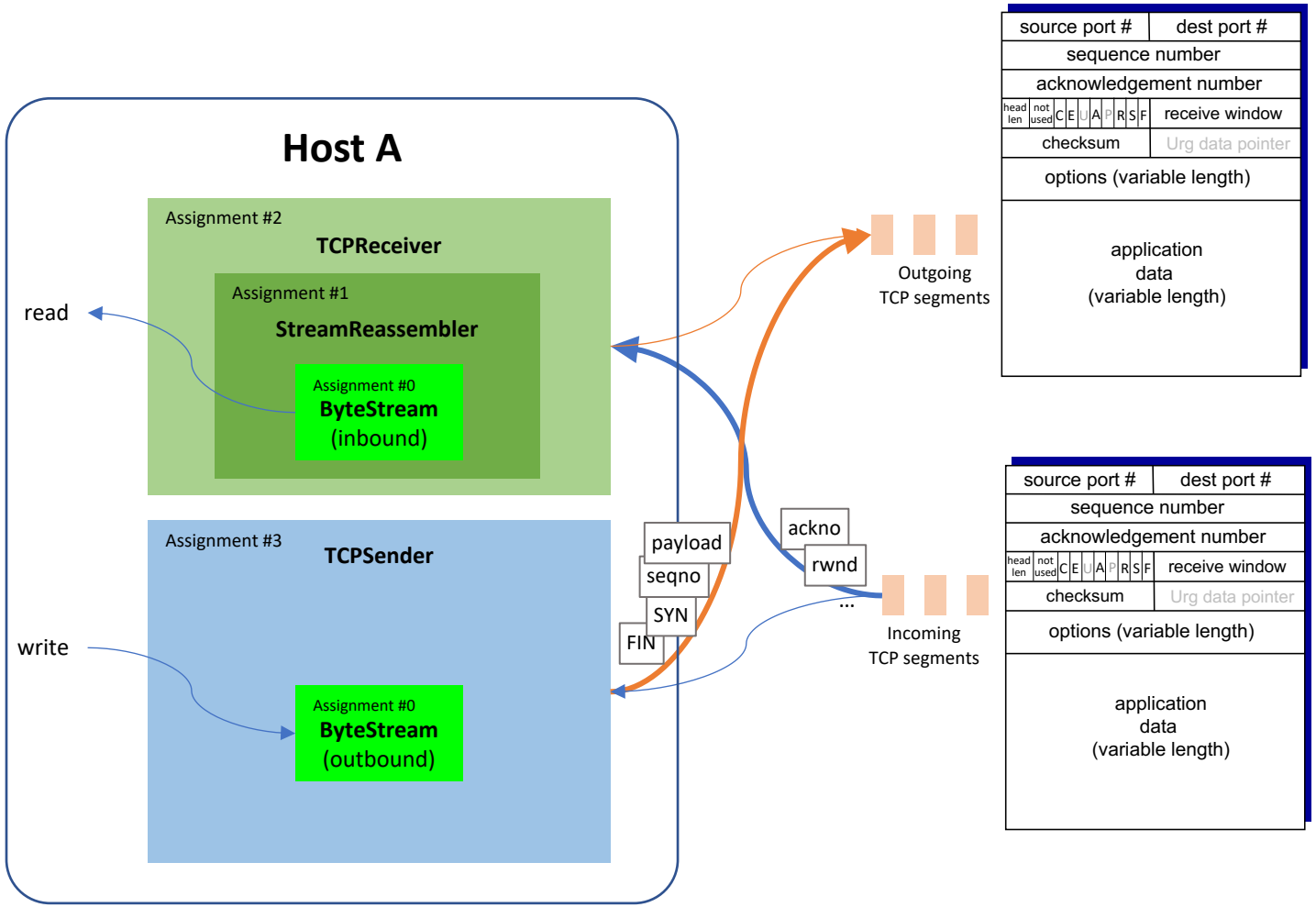
You have reached the summit.

In Assignment 0, you implemented the abstraction of a *flow-controlled byte stream* (`ByteStream`). In Assignment 1, 2, and 3, you implemented the tools that translate—*in both directions*—between that abstraction and the one the Internet provides: unreliable datagrams.

[Review] Programming Assignment #4: TCP connection



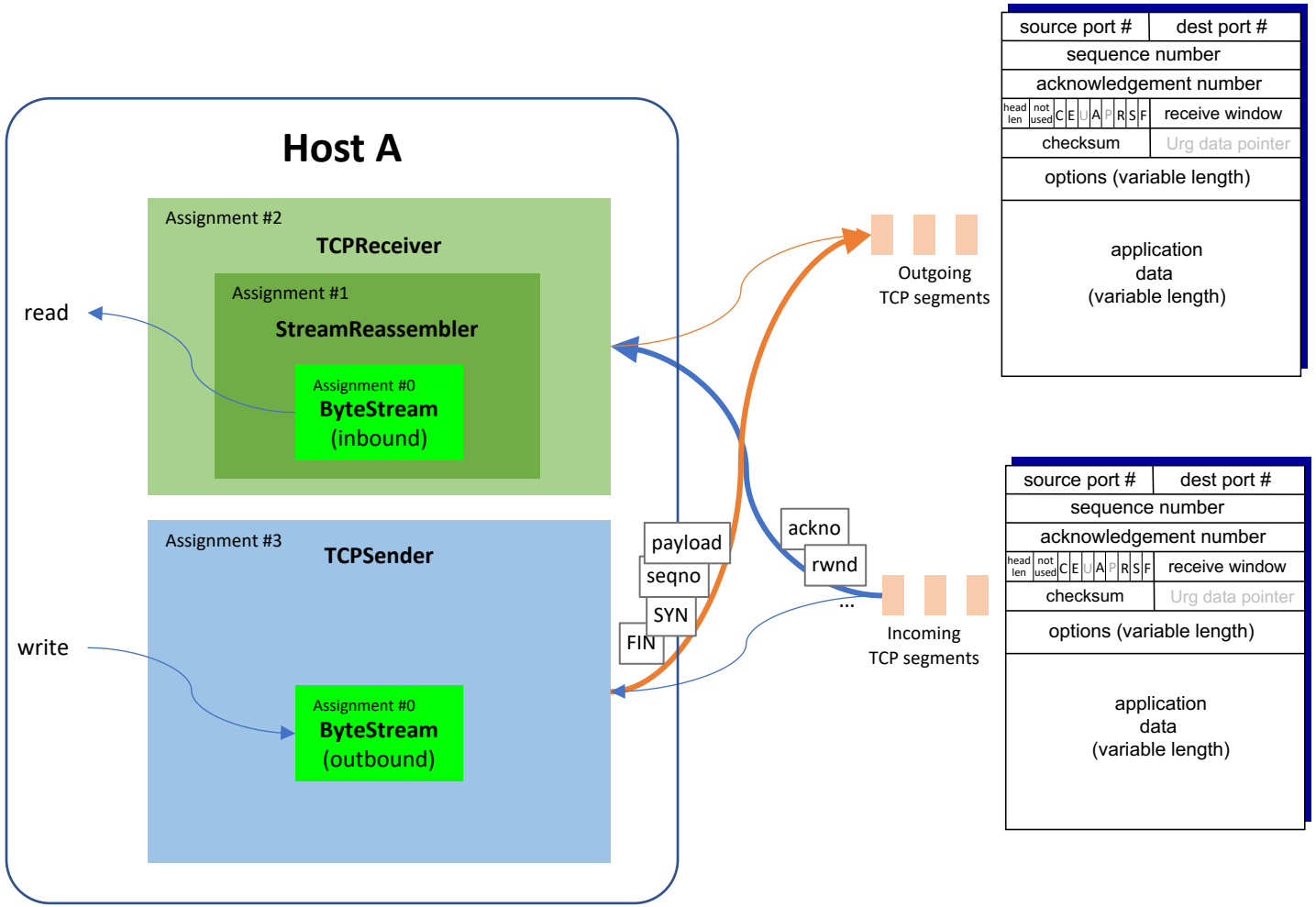
Programming Assignment #5: Network Interface

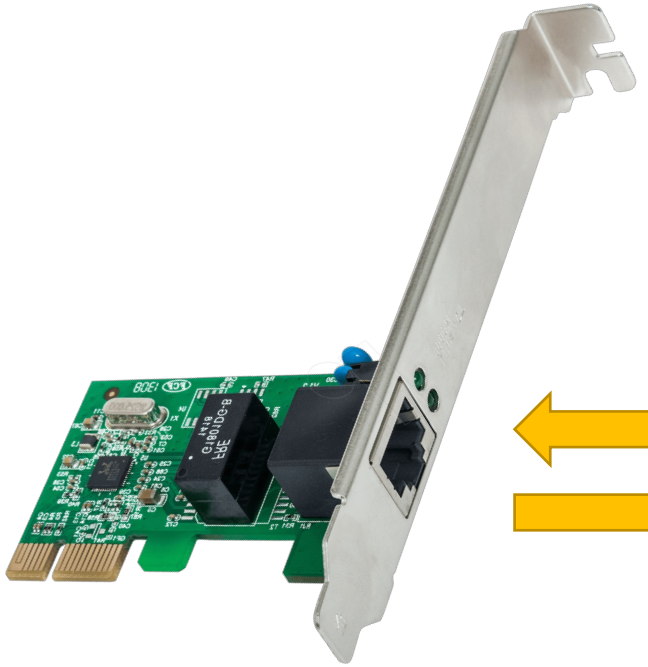


Protocol Layers of Internet

- Application Layer
- Transport Layer
- Network Layer
- Link Layer
- Physical Layer

Programming Assignment #5: Network Interface





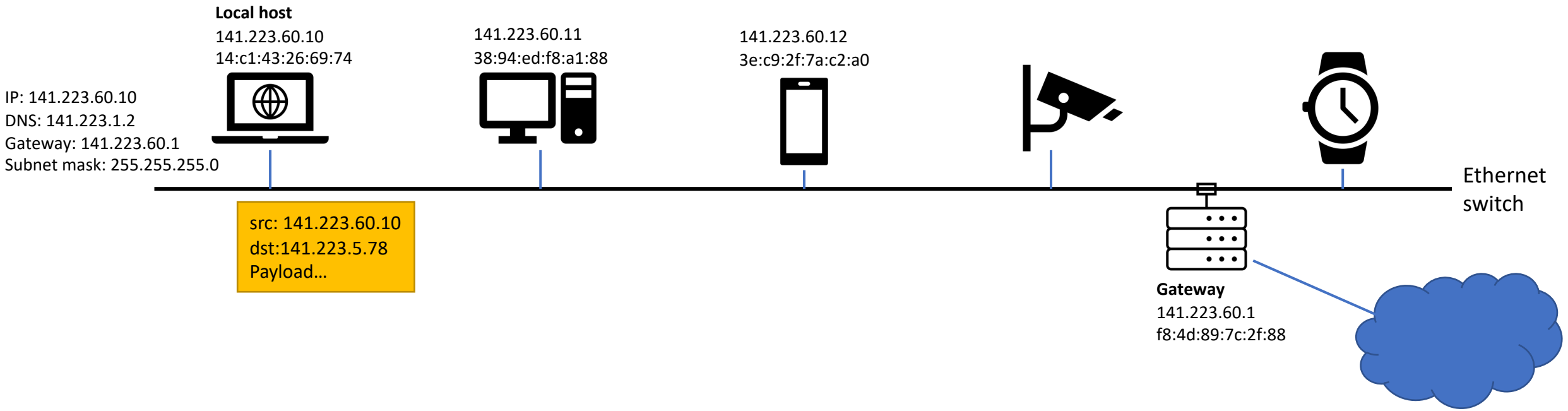
Physical medium

Programming Assignment #5: Network Interface

Local host's routing table

Destination	Gateway
141.223.60.11	38:94:ed:f8:a1:88
141.223.60.12	3e:c9:2f:7a:c2:a0
default	141.223.60.1
141.223.60.1	F8:4d:89:7c:2f:88

How to know the mapping at the first place??



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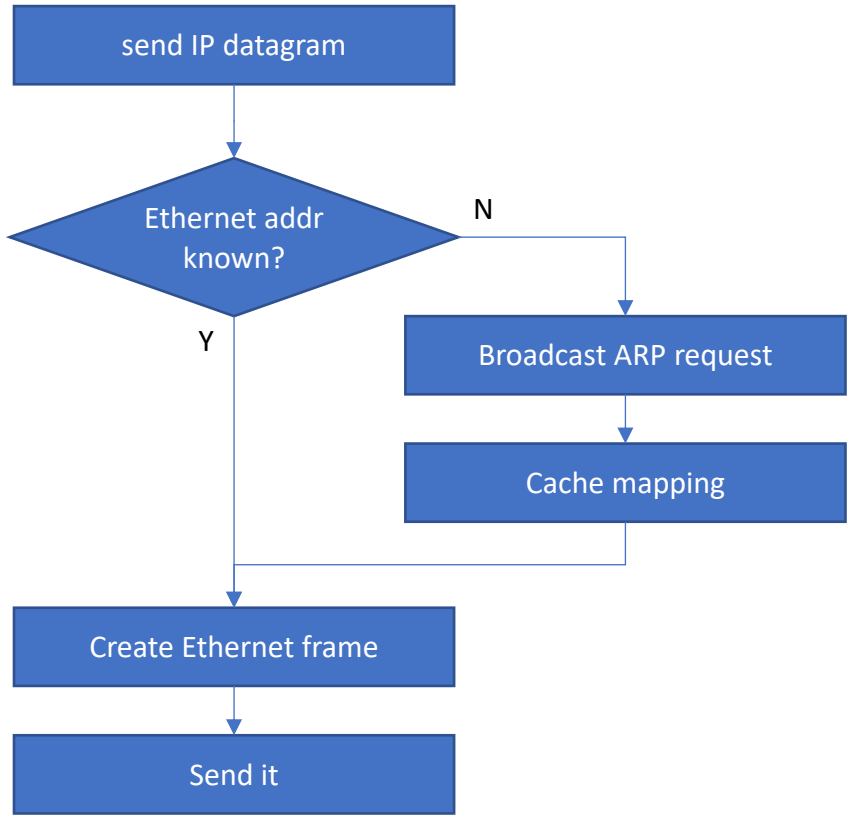
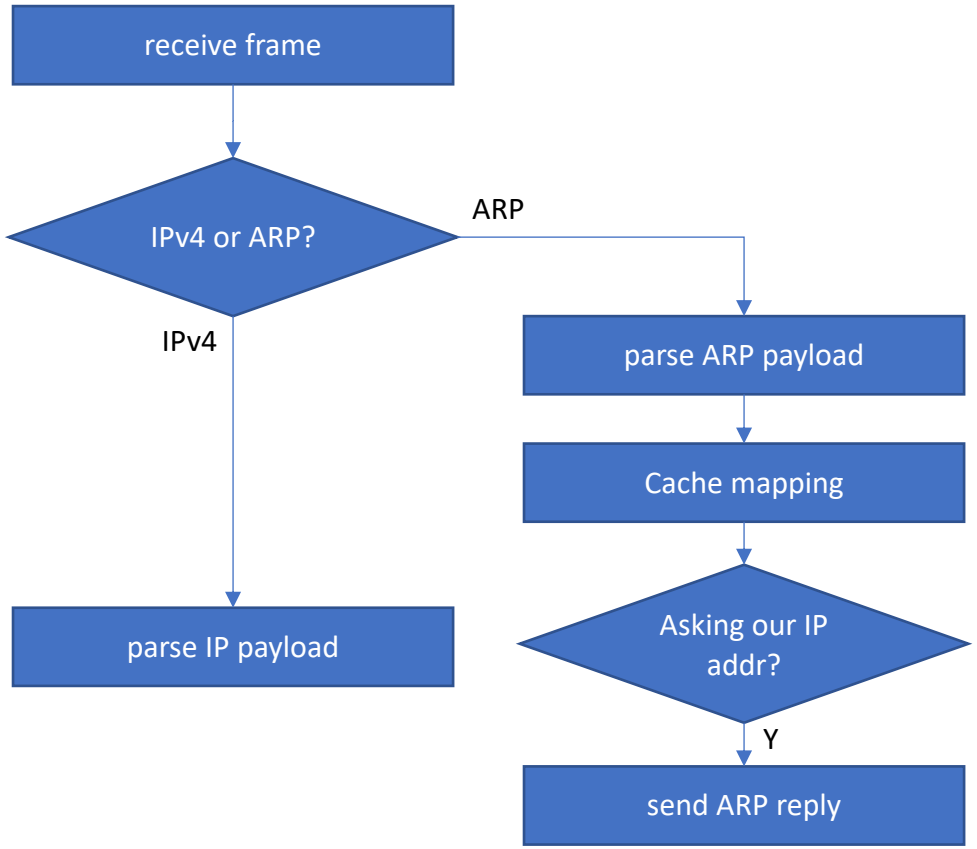


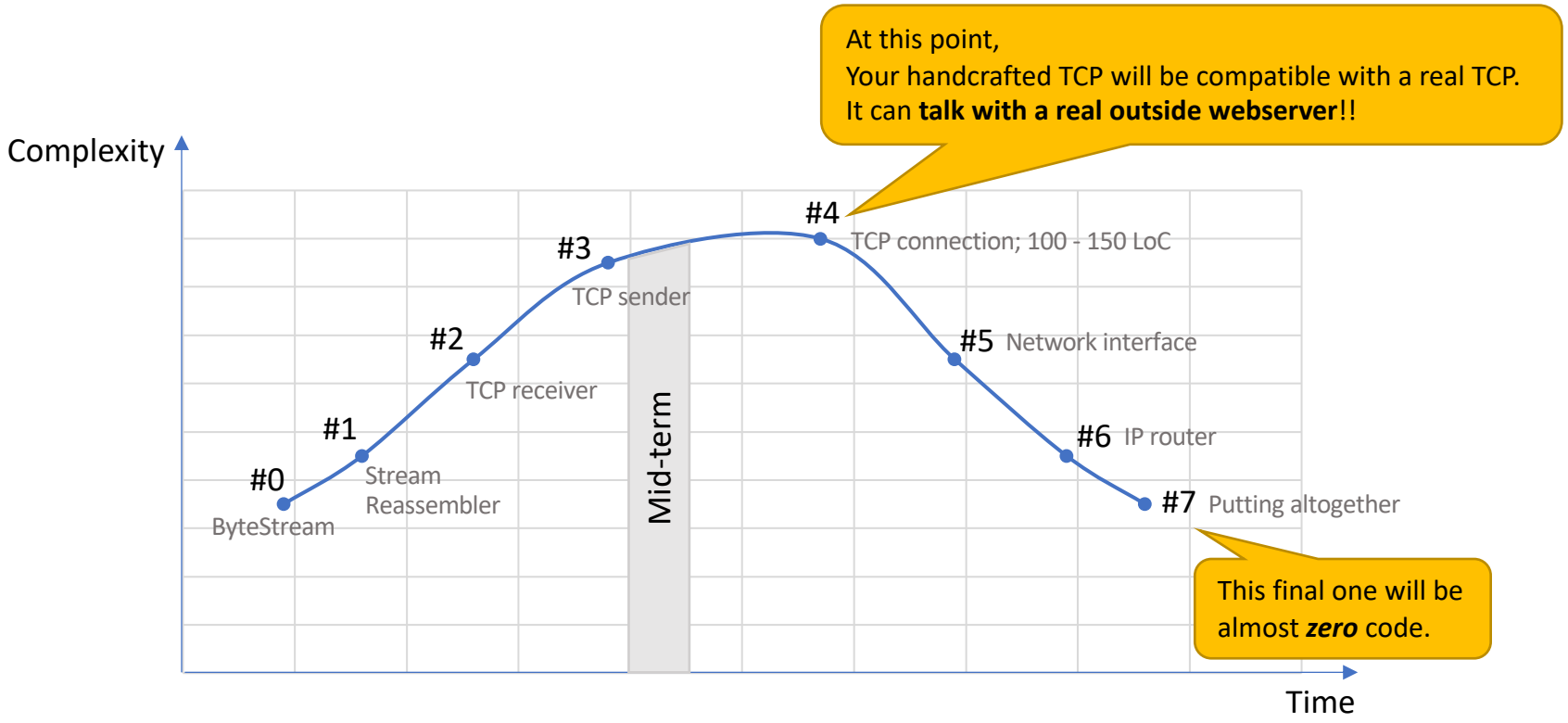


Programming Assignment #5: Network Interface

- To Dos
  - Two tests: `make check_lab5` See p.5 & 6
  - Entire tests including previous: `make check` See p.6 & 7

- **Regular due** : May. 10, 23:59 (**12** days including today)
- **Late due** : May. 11, 23:59 (20% penalty)
- **14% weight** out of the whole programming assignments
- **Naming convention**: <your_student_id>.git (e.g., 20209876.git)

Heads-up on what's coming



Please start working on your assignment ***early***

- You may find troubles in setting up your environment.
- You may find some differences between your output and the assignment PDF.
  - Partly our mistakes that a known discrepancy was not fixed already.

- You are welcome to post questions, as long as you are not asking us to solve or debug your assignment directly.
- However, it takes time for us to provide responses, typically ≦ 24 hours.
  - If many of you do your assignment close to the deadlines, many questions will be poured in a short period of time.
  - Due to the peak load, our responses may get delayed.
  - In the worst case, you may not have your answer before the deadline. Still, the due won't be extended.