Tut 02

Rui 22T3

IMPORTANT NOTICE

Please **check your Lab marking** by the end of this week -- if you have any doubt, please contact @RUI ASAP

Rui.Li@unsw.edu.au

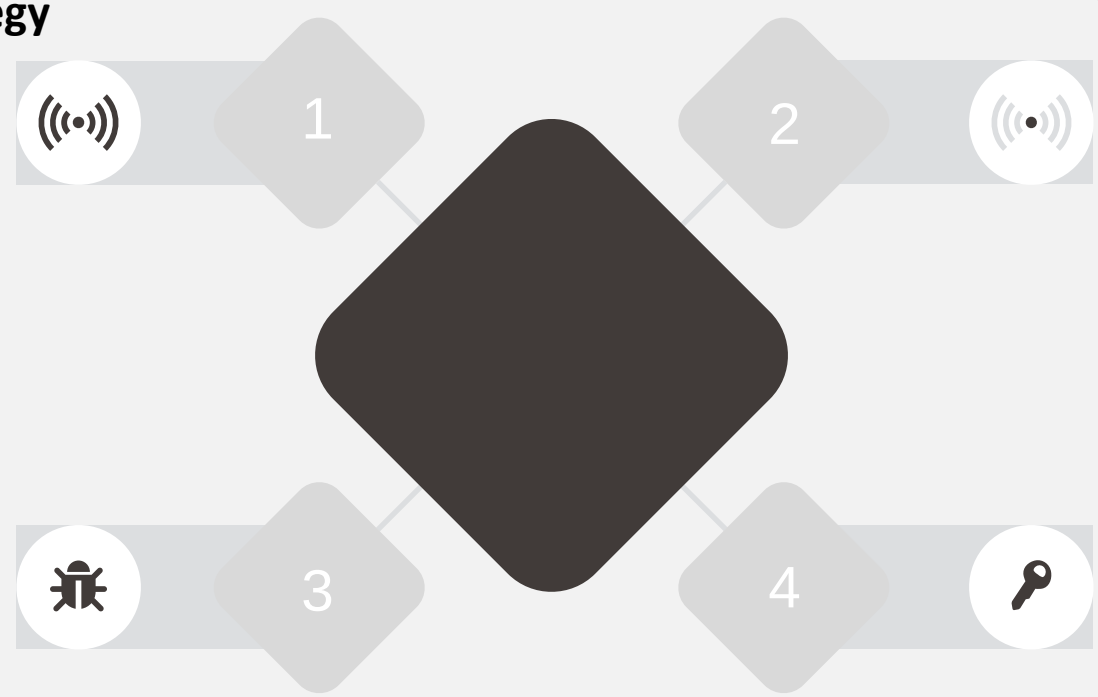
Content

Final Exam – review strategy

- SPEC
- PREPARATION
- MATERIAL

W5 – W10 Wrap-up

- Important knowledge point
- Calculation Practice



Discussion

- Tutorial
- Assignment
- Exam..

Useful links

- Github

Final Exam

When: 28th Nov 08:45~11:30 (Sydney time)

Time: 2hours+15min reading time

Worth: 40%

DOUBLE PASS – You need to score at least 16/40 to pass this course!

Question type: like midterm(multiple-choice+short answer)

Others: No programming stuff and lab content.

REF: https://webcms3.cse.unsw.edu.au/COMP3331/22T3/resources/80673

Final Exam – How to prepare

Before the exam:

- Lecture slides – Download & Merge
- Computer environment setup (backup Internet plan)
- Zoom(In case you have questions or need clarifications)

Final Exam – How to prepare

Review material:

- Lecture slides – **all the quizzes/examples on slides**
- Weekly quiz
- Practice (mock exam/past exam paper) @ github

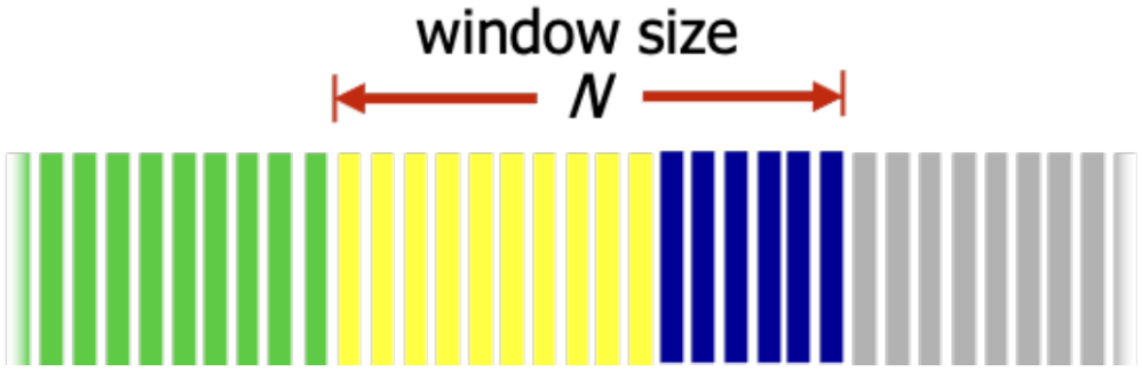
Final Exam – How to prepare

Content

W1~W5: The same as midterm

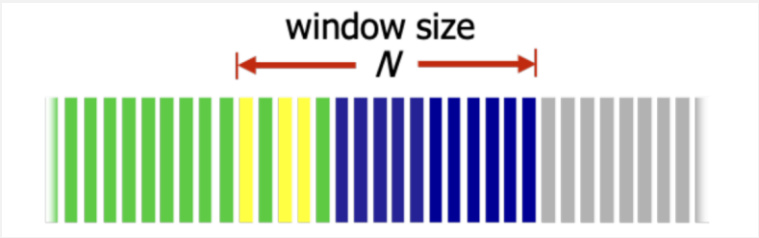
- Computation of throughput, dela
- HTTP, DNS, E-mail
- Sockets (multiplexing/demultiplexing), UDP, Reliable Data Transfer Principles, TCP, Congestion Control

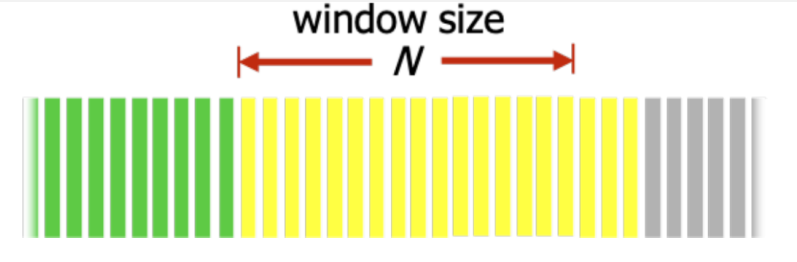
Final Exam – sample questions



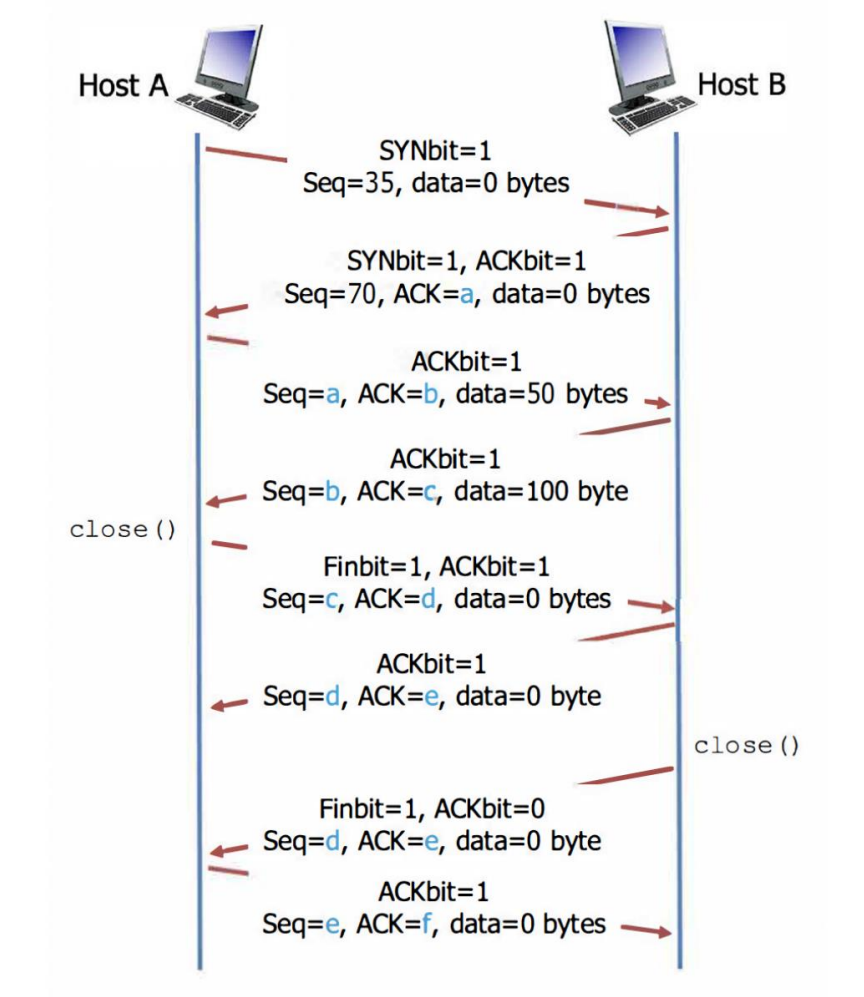
Select one alternative:

- Both GBN and SR sender.
- Only a SR sender.
- Neither GBN nor SR sender.
- Only a GBN sender.

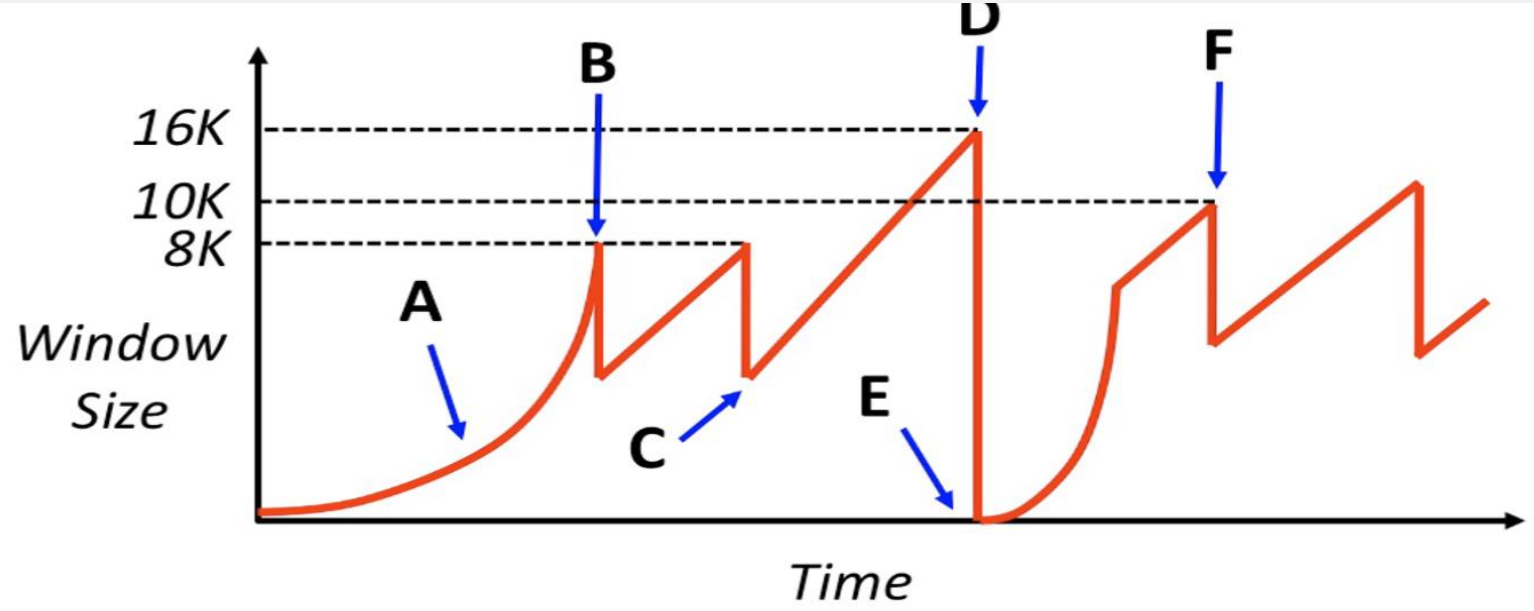




Final Exam – sample questions



Final Exam – sample questions



(1) The window size of the TCP sender decreases at several points in the graph, including those marked by B and D. (2 marks)

- Name the event at B that occurs that causes the sender to decrease its window.
- Does the event at B necessarily imply that the network discarded a packet (Yes or No)? Why or why not?

- Name the event at D that occurs that causes the sender to decrease its window?
- Does the event at D necessarily imply that the network discarded a packet (Yes or No)? Why or why not?

Final Exam – How to prepare

Content

W6~9: Pay more attention to this part

- Data Plane: Overview, IP, Addressing, NAT, IPv6
- Control Plane: Overview, link-state routing, distance vector routing, ICMP
- Link Layer: Collision avoidance/detection
- Security: should be easy for you

Final Exam – sample questions

(1) An IP router receives a packet with destination IP address 128.143.71.21. If the router's forwarding table contains the following entries, which one will the router choose as the best match? Recall that, 0.0.0.0/0 is the default route that matches any destination IP address. (1 mark)

Select one alternative:

- 128.143.0.0/16
- 128.143.64.0/20
- 128.143.71.55/32
- 128.143.71.0/24
- 0.0.0.0/0

(2) An organisation has a class B network address block and wishes to form 128 equally sized subnets. The subnet mask to be used should be:: (1 mark)

Select one alternative

- 255.255.248.0
- 255.255.255.0
- 255.255.254.0
- 255.255.240.0
- 255.255.252.0

An IP router has received an IP datagram of size 1440 bytes. It is to be forwarded on an outgoing link with MTU of 576 bytes. Assume that the IP headers are always 20 bytes. Enter the values of the following fields in the IP header of the last fragment generated by the IP router for this datagram. No explanation is required.

MF (More Fragments) flag:

Total Length:

Fragment Offset:

Final Exam – sample questions

SouthPole is an ISP which owns the IP address block: 130.25.192.0/22. A known tradition at this ISP is to allocate IP addresses consecutively from the smallest IP address available. Ever since the penguins went extinct, business has been quiet at SouthPole. This year, Santa and Elf decide to move to the south pole for a change and subscribe to SouthPole.

Answer the following questions. Explanations are not required.

(1) What is the smallest and the largest usable IP address that can be offered by SouthPole?

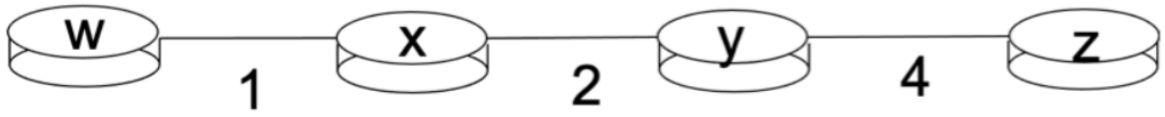
(2) Suppose Santa requests first, for a block of 64 IP addresses. Write the block of addresses assigned to Santa in a.b.c.d/x format. What would be the smallest and the largest usable IP address assigned to Santa? (1.7 marks)

(3) Continue from (2). Next, Elf requests for a block of 128 IP addresses. Write the block of addresses assigned to Elf in a.b.c.d/x format. What would be the smallest and the largest usable IP address assigned to Elf? (1.7 marks)

Fill in your answer here

Final Exam – sample questions

Consider a network of 4 routers as shown below. The link costs are as depicted and are the same in either direction (e.g, the link cost from w to x is the same as the link cost from x to w, both of which are equal to 1).



Assume that at time t0, the distance vector table for each node is initialised. Assume that at time t1, each node receives the initial distance vector for its neighbours and completes the execution of the distance vector algorithm (i.e. one complete iteration).

Fill in the numeric values for the distance vectors computed at each node at t1. No explanations are required.If you wish to enter infinity then type in the word "inf" in the space provided. 0.22 mark for each correct entry and a bonus 0.04 mark for all entries being correct, for a maximum of 4 marks.

Distance Vector at w

minimum distance to x:

minimum distance to y:

minimum distance to z:

Distance Vector at x

minimum distance to w:

minimum distance to y:

minimum distance to z:

Distance Vector at y

minimum distance to w:

minimum distance to x:

minimum distance to z:

Future courses

- COMP 9332: Network Switching and Routing
- COMP 9334: System Capacity and Planning
- COMP 4336/9336: Mobile Data Networks
- COMP 6441/9441: Security Engineering and Cybersecurity (+ other security courses)
- COMP4337/9337: Wireless Network Security
- COMP6337: IoT Experimental Design Studio
- Undergraduate/Postgraduate Projects and Thesis

Good Luck

Rui