POP3 Client

—— *Final Project*

BUPT/QMUL

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北京邮电大学
BEIJING UNIVERSITY OF POSTS AND TELECOMMUNICATIONS

Electronic Engineering

Agenda

- Project description
- Related knowledge
- Timesheet

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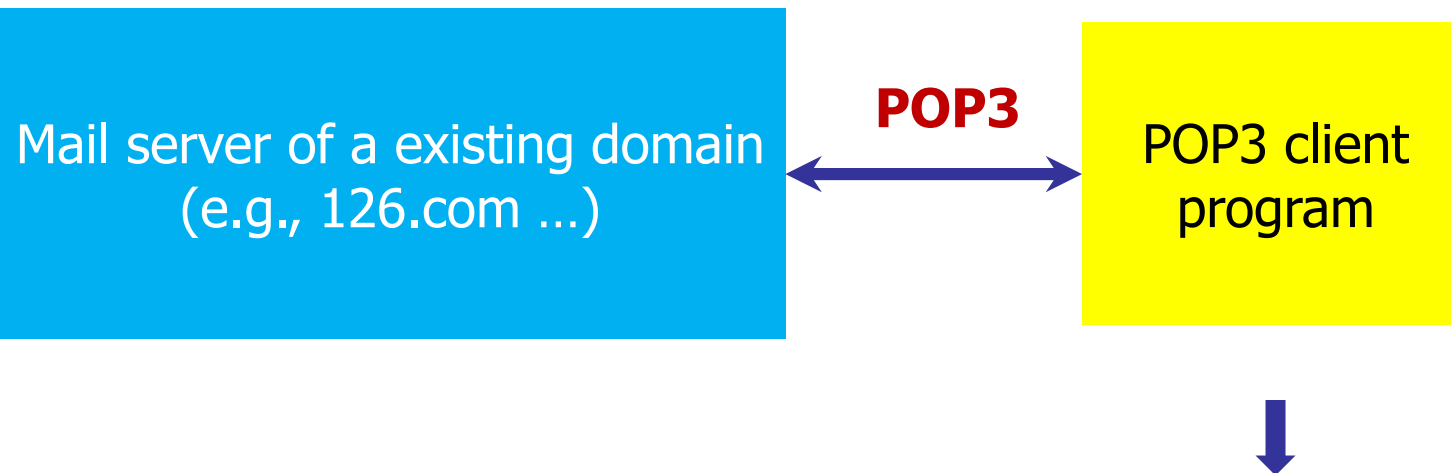- Timesheet

Subject: POP3 client

- **Goals**
  - Receive Email from pop3 server (pop.126.com, pop.163.com, pop3.sina.com …) and store it as *.eml* file.
  - Friendly User Interface and good interactive User Experience (no GUI required).
- **Preliminary**
  - Understand POP3
  - Familiar with Socket programming
  - Able to analyze network packets using wireshark

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Communication Model

| Mail server of a existing domain (e.g., 126.com …) | **POP3** ←→ | POP3 client program |

Receive emails from POP3 server of 126.com

Function Requirements

- **Basic functions (Required)**
  - **POP3 client**
    - Connect POP3 server on port 110
    - Guide user to login and show information about their mails
    - Display prompt characters such as "mypop >"
    - Can display content of mails in terminal
    - The communication procedure can be captured by Wireshark
- **Advanced functions (Optional)**
  - **POP3 client**
    - Login with implicit password (replace your password by ****)
    - Can download mails and save them only on local machine (remove from remote server)
    - Provide function "display by subject"
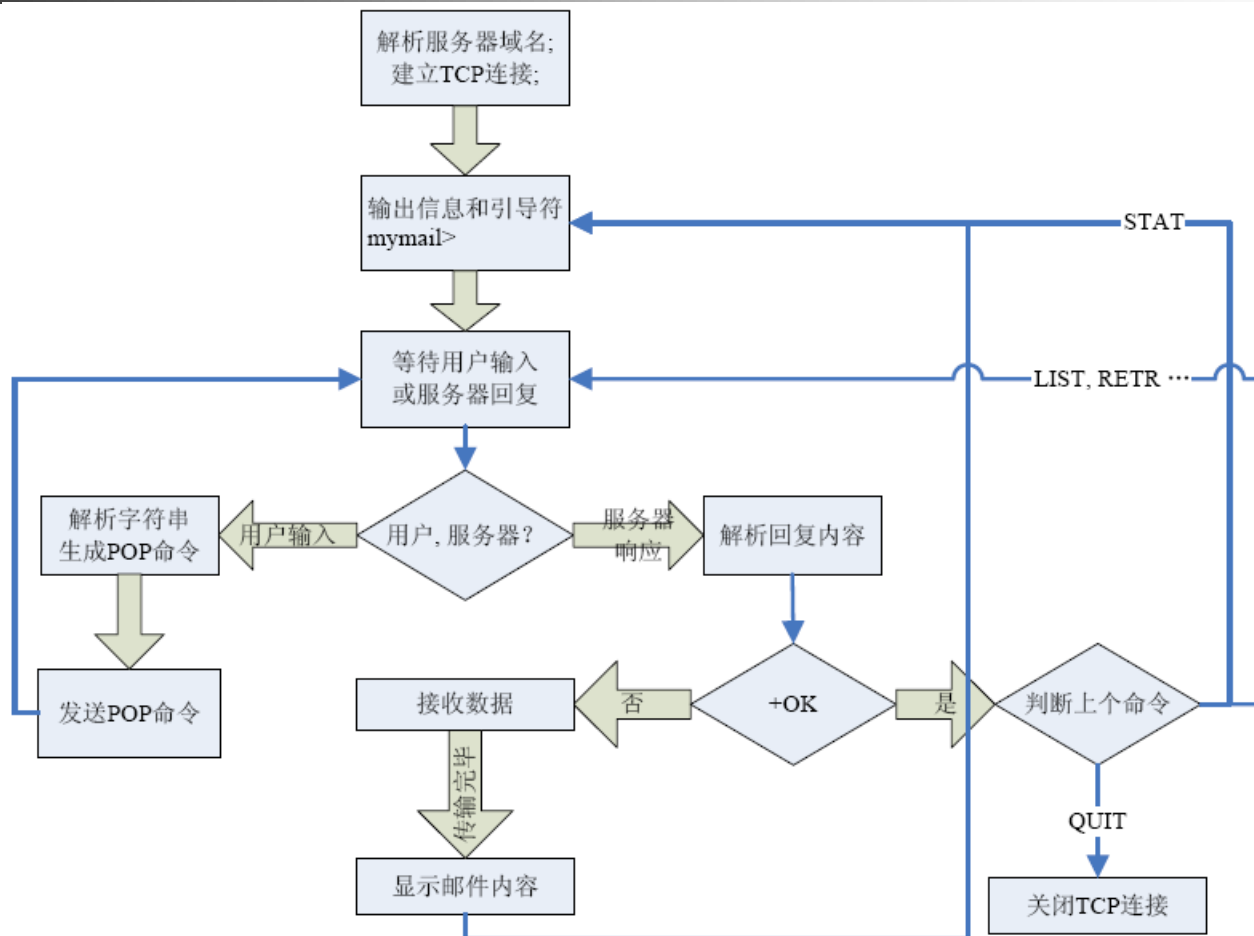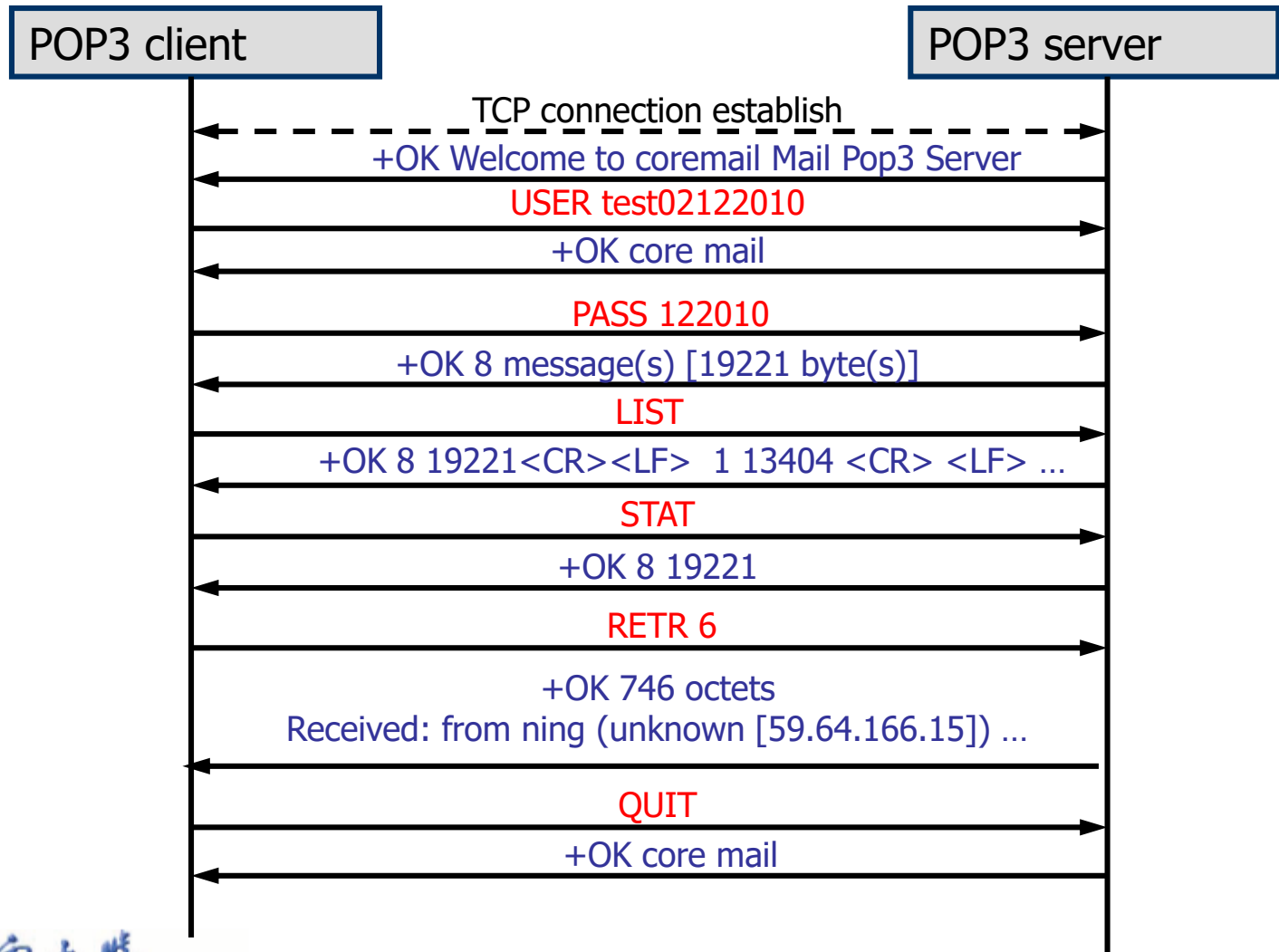   - Provide function "search text in all mails"

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POP3 client — basic flow (FYI Only)

Communications Between
Your client and POP3 Server

POP3 client		POP3 server

TCP connection establish

← +OK Welcome to coremail Mail Pop3 Server

→ USER test02122010

← +OK core mail

→ PASS 122010

← +OK 8 message(s) [19221 byte(s)]

→ LIST

← +OK 8 19221<CR><LF> 1 13404 <CR> <LF> …

→ STAT

← +OK 8 19221

→ RETR 6

← +OK 746 octets
Received: from ning (unknown [59.64.166.15]) …

→ QUIT

← +OK core mail

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Sample POP3 client

- Please refer to the demo video
- FYI only

Necessary Work before Programing

- Learning about the communication procedure and related packets in POP3

- Find the POP3 server of the destination domain
  - Help webpage of the email service provider
  - E.g., POP3 server for @163.com is pop.163.com

- Enable POP3 services for your mailbox
  - Referring to the help webpage of the email service provider
  - E.g., for @163.com
    - Web方式登录邮箱-设置-POP3/SMTP/IMAP
    - When running your program, you may use the returned code instead of your password for authentication

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Timesheet

- Teamwork
  - Two students as a group, limited within Class 1-6
  - Decide your group members now
- Deadline of evaluation
  - Lab time in the 16th week
- Deadline of submission
  - 2022-06-19 22:00
- Submission
  - Report (*.pdf) and Source code (*.c, *.h, makefile) per group
  - All files should be packed as a single file named as follows

    Pop3Client_01_ 2019111111李宁& 02_ 2019222222张安.zip

  - 教学云平台系统

以下内容供参考

编码格式转换

- Base64→ASCII
- 需在代码中完成BASE64解码功能

- 注：所有测试和验收用Email，只用英文即可，不考虑对中文的支持

base64

- 在<u>MIME</u>格式的电子邮件中，base64可以用来将binary的字节序列数据编码成<u>ASCII</u>字符序列构成的文本。使用时，在传输编码方式中指定base64。使用的字符包括大小写字母各26个，加上10个数字，和加号"+"，斜杠"/"，一共64个字符，等号"="用来作为后缀用途。

- 转换的时候，将三个byte的数据，先后放入一个24bit的缓冲区中，先来的byte占高位。数据不足3byte的话，于缓冲区中剩下的<u>Bit</u>用0补足。然后，每次取出6个bit，按照其值选择ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789+/中的字符作为编码后的输出。不断进行，直到全部输入数据转换完成。

- 如果最后剩下两个输入数据，在编码结果后加1个"="；如果最后剩下一个输入数据，编码结果后加2个"="；如果没有剩下任何数据，就什么都不要加，这样才可以保证资料还原的正确性。

Base64 Example

hello

01101000 01100101 01101100 01101100 01101111

011010 000110 010101 101100 011011 000110 1111**00**

(26)   (6)   (21)   (44)   (27)   (6)   (60)

(a)   (G)   (V)   (s)   (b)   (G)   (8)   **(=)**

aGVsbG8=

01100001	01000111	01010110	01110011	01100010	01000111	00111000	00111101

Online encode and decode: http://rssba.com.cn/tool/mailcode.php

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