

DATA STRUCTURE & ALGORITHMS [01.31.24]

→ SEND PDF TO BE NOTE TAKER

OFFICE HOURS BOTH IN PERSON AND ONLINE
INFORMATION SURVEY DUE NEXT WEEK

TEXTBOOK: ALGORITHMS 4TH EDITION

LAB HOURS ARE FLEXIBLE, REPORT TIME AND ITEMS COVERED
TO STEVE.

↖ DO NOT DO ASSIGNED HW OR CHAPTERS

LAB SHOULD BE 4 HRS 5 MIN EACH WEEK

ABOUT 50% ARE PROGRAMMING ASSIGNMENTS (WITH 1 E.C.)
THURS. 7PM ARE TYPICAL DUE DATES

GIVEN DIR NAME, CREATE A FOLDER/FILE AS DEFINED

- > "FLEXIBLE LATE DAYS" YOU GET 2!
 - EXTRA CREDIT IF UNUSED
- > MUST TELL STEVE AT LEAST 15 MIN PRIOR TO DUE DATE

PAPER EXAMS ARE DONE IN CLASS AND ARE CLOSED
NOTES

MIDTERM IS WEEK 8 AND FINAL IS WEEK 16
(FINAL IS WEEK BEFORE FINALS WEEK)

FIRST PROGRAM DUE FEB. 8TH

LABS CAN BE DOCS, TXT, PROGRAMS, DESCRIPTIONS, ETC.

DSA ASSIGNMENT # 1

DIR.
NAME

21-1/p1

CREATE A DOUBLY LINKED LIST THAT HOLDS STRINGS.

CAN HARD CODE FOR STRINGS

CAN REUSE CODE NO STL!

USING LIST CLASS CREATE FUNCTIONS LIKE POP PUSH ETC.

TAKE ALL SOURCE CODE FILES

→ C++ MUST INCLUDE MAKEFILES

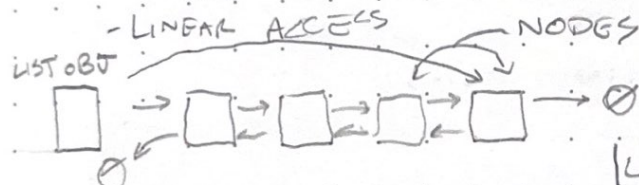
No SUB DIRECTORIES!

REVIEW

- LL, S, Q, COMP & INHERITANCE
- CLI ← IMPORTANT SKILL TO WORK IN LINUX ENV.
- PING
- LOGIN VIA SSH
- EMACS → TEXT EDITOR
- VIM
- COMPILER & RUN PROGRAMS

1. LINKED LISTS: ← GOOD FOR MANIPULATING GROUPS OF NODES

- DATA STRUCT. THAT IS NON-CONTIGUOUS
- CONTIGUOUS IN MEMORY UNLIKE AN ARRAY
- HOLDS REF/PTR TO OTHER NODES AND LINKS THEM
- LINEAR ACCESS



EMPTY LIST → HEAD = null
TAIL = null



OBJ LIST HAS REF. TO HEAD/TAIL

```
LIST OBJ {
    PUBLIC:
    > INSERT
    > REMOVE
    > PRINT
    > ETC
    PRIVATE:
    > NODES
}
```

LIST KNOWS WHEN IT ADDS OR CHANGES, NODES DO NOT

NODES ARE MERELY TO BE MANIPULATED

DUMB

LINKED NODES

NODES CAN BE A CLASS/STRUCT INSIDE LIST CLASS

FOR C++ YOU CAN/MIGHT WANT TO USE FRIENDSHIP

IN REGULAR OOP LINKED LIST THERE SHOULD BE 1:1 NODES: DATA
(ONE NODE PER PIECE OF DATA)

EVERY LIST HAS 1 LIST OBJECT

← YOU CAN STILL INTERACT IF EMPTY

```
NODE {
    REF TO NEXT
    REF TO PREV
    STRING DATA
};
```

WORKING WITH PONGO PENG00@CABRILLO.EDU

LINUX SERVER (UBUNTU) LTS

INTERACT VIA CLI

→ SHELL IS A PROGRAM ON THE OS THAT WORKS WITH CLI
PONGO USES BASH

USES SECURE SHELL (SSH) CONNECTION

SSH CLIENT TO RUN IT (DEFAULT INSTALLED ON MAC & LINUX)

PUTTY ON WINDOWS (LIGHTWEIGHT SSH)

MAC:

OPEN TERMINAL

> SSH USERNAME@PENG0.CABRILLO.EDU

FINGERPRINT?

> YES

PASSWORD

← INITIAL PASSWORD IS USERNAME

> NEW PASSWORD

COMMAPS:

pwd → PRINT WORKING DIRECTORY

ls → LIST FILES

cd → CHANGE DIRECTORY

mkdir → MAKE DIRECTORY (CREATE FOLDER)

emacs → CODE

SAVE: CTRL X → CTRL S

QUIT: CTRL X → CTRL C

SAMPLE MAKEFILE ON CANVAS