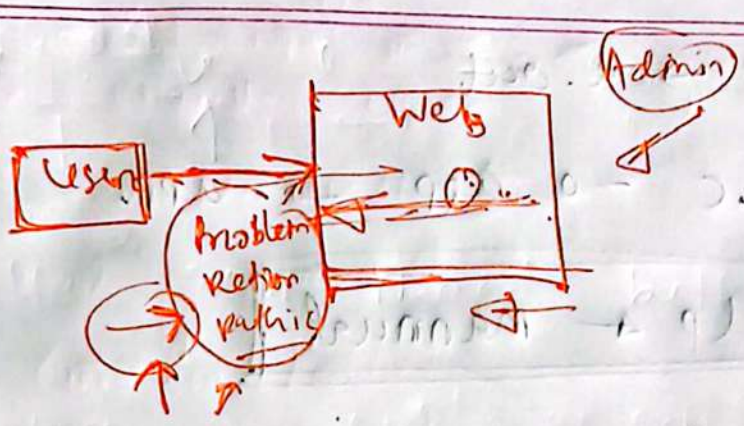


5) OS Lab — 13-11-2024

: vsplit text.txt

: split text2.txt

↳ ^W> ⇐ 1 char window বাড়ানো

↳ 20 ^W> ⇐ 20 " "

C compilation

↳ 4 stages

↳ Preprocessor ← #include <stdio.h> ← এ file এ যা আছে তা paste করে।

Compilation tool

- gcc

↳ GNU ⇒ Unix · ~~Not unix~~ GNU Not Unix

gcc main.c → a.out

gcc main.c -o app → app.

gcc --help ← manual

gcc --help | grep -i 'prepro' ← finding in a file

↳ -E flag to see preprocessing step

gcc -E main.c -o main.i

2) Compilation :-

↳ gcc -S ⇐ to compile only, do not assemble

gcc -S main.i -o main.s

3) Object code / Assembly :-

↳

* Header file ← [Prototype only]

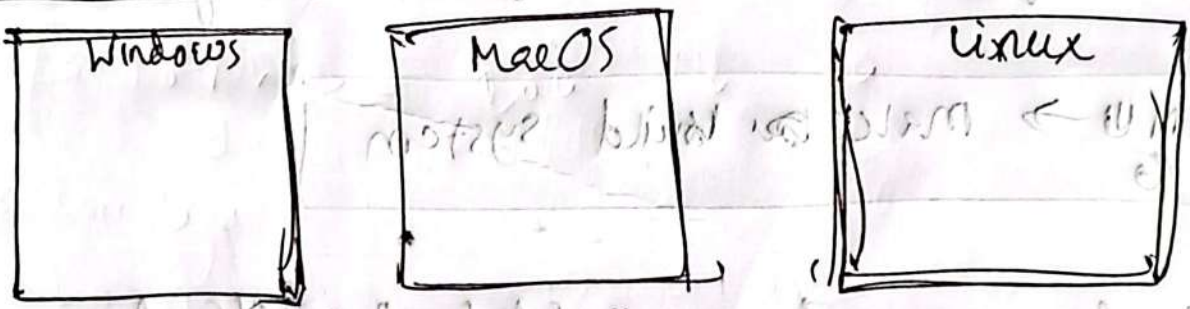
gcc -save-temps main.c -o app
↳ all temporary file in 4 stages [.o, .i, .s]

Object file + linker → execute able file
↓
library object গুলো
↳ Prototype এর আসল Definition

[./app] ← run the exe file

gcc -c ← to compile & assemble, but do not link → object file

[C++/C → Platform dependent]



সবগুলোর platform এর instruction code আলাদা হয়। সেজন্য windows এর object code mac or linux এ চলবে না

কিন্তু Java platform independent →

. Java → bytecode → [JRE] ← সবগুলো Platform এ থাকে।

object files

একসাথে অনেক space নেয় / large
→ No external dependency

Static library → সবগুলো Dependent library একসাথে একবার linkup হয় (stand alone)

Dynamic library → এখানে যেটি needed সেটি Dynamically link up করে (Stand alone নয়) External dependency আছে।

Build system for → efficient compilation.

↳ Rules / dependency will be added.

↳ graddle হচ্ছে একটি build system.

GNU → make build system

Header guard → #ifdef _INC_A_
#def _INC_A_

→ dependency checking হয় time span এর উপর ভিত্তি করে।

~~make~~

Naming convention for make file

↳ $\boxed{\text{makefile}}$ ⇐ default

↳ make command দিলে → makefile কে Run করবে।

$\boxed{\text{make -f makefile.r}}$

$\boxed{\text{touch file.txt}}$ ⇐ file timespan update হবে without changing

clean:
rm -f *.o
rm -f .app

⇐ Clean files

↳ $\boxed{\text{make clean -f makefile.r}}$

Dependency ordering matter করবে।

Scheduling + make file দিয়ে ইনকোডিং করবে
↳ Crontab

Quiz → grep with regex, Cron job, makefile, C program compilation.