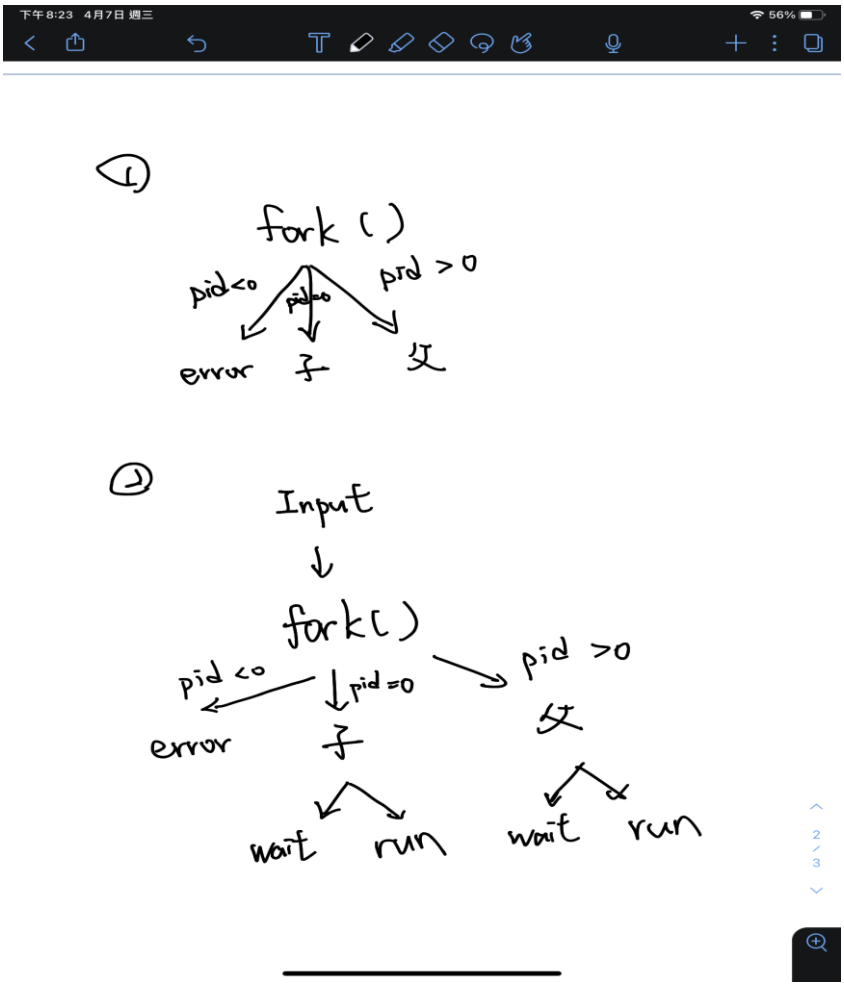
開發環境 ： Ubuntu 20.04

第一題

程式邏輯 ：



函式說明:

1-1

int main();

```
call fork() to make child process and get the return integer to know
who run first
```

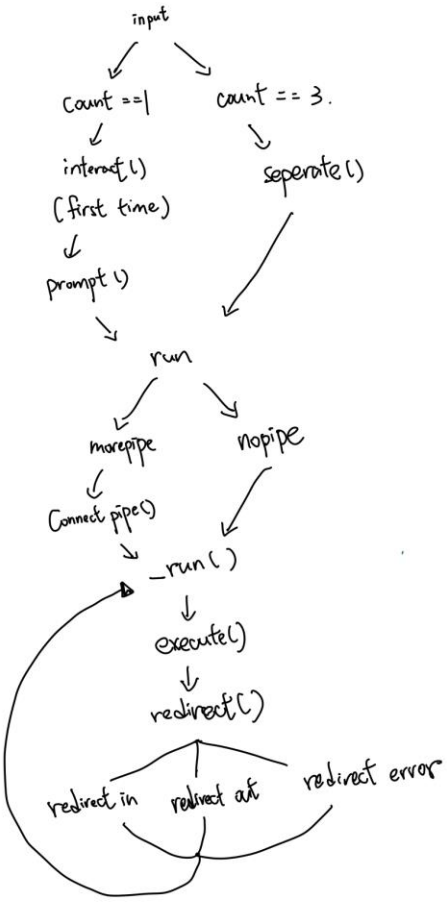
1-2

int main();

```
call fork() to make child process and get the return integer to know
who run first, and by our input we could decide which one to execute,
the other one may wait() until it finish.
```

第二題

程式邏輯 ：



函式說明:

int main();

```
set Boolean and decide which function to enter
```

void run();

```
check the inputline if there have pipes run connectpipe, else run _run
with argument nopipe
```

void separate(char *commands);

```
seperate the inputline into each string and store in command
```

void prompt();

```
write the initial line
```

void interact();

```
run prompt() and run()
```

void connectpipe();

```
check the amount of pipe and separate it to three kind of argument and
run _run
```

void _run(pipekind kind);

```
throw the pipekind and command to execute, after execute replace the co
mmand to next command
```

void redirect();

```
check which sign it is and run the correspond function
```

void redirect_in(size_t index);

```
redirect in
```

void redirect_out(size_t index);

```
 redirect out
```

void redirect_err(size_t index);

```
 redirect error
```

void execute(char **command, pipekind kind);

```
 use two pipe to get previous output and pass to current input and run
execvp after using pipe close it to end the process
```

void erase(char **command);

```
free
```

bool eof(int c);

```
end
```