系統程式設計

Lab8 Race condition

學號:408410035
姓名:鄭宇辰

1. How did you implement the processes?

```
for (int i = 0; i < 5; i++)
{
    pid[i] = fork();
    if (pid[i] <= 0)
        break;
}
```

一次產生 5 個子程序 如果是子程序就 break 讓他不要額外產生子子程序

```
for(int i=0;i<5;i++)

if (pid[i] < 0)

    err_sys("fork error");

else if (pid[i] == 0)

    for (int j = 1; j <= 52; j++)
    {
        char name[128];
        FILE *ds;
        if (j < 10)
        {
            sprintf(name, "%d-0%d.txt", i+1, j);
        }
        else
        {
            sprintf(name, "%d-%d.txt", i+1, j);
        }
        ds = fopen(name, "r");
        for (int q = 0; q < 7; q++)
        {
            int d_sum = 0;
            for (int k = 0; k < 96; k++)
            {
                int tmp = 0;
                fscanf(ds, "%d", &tmp);
                d_sum += tmp;
```

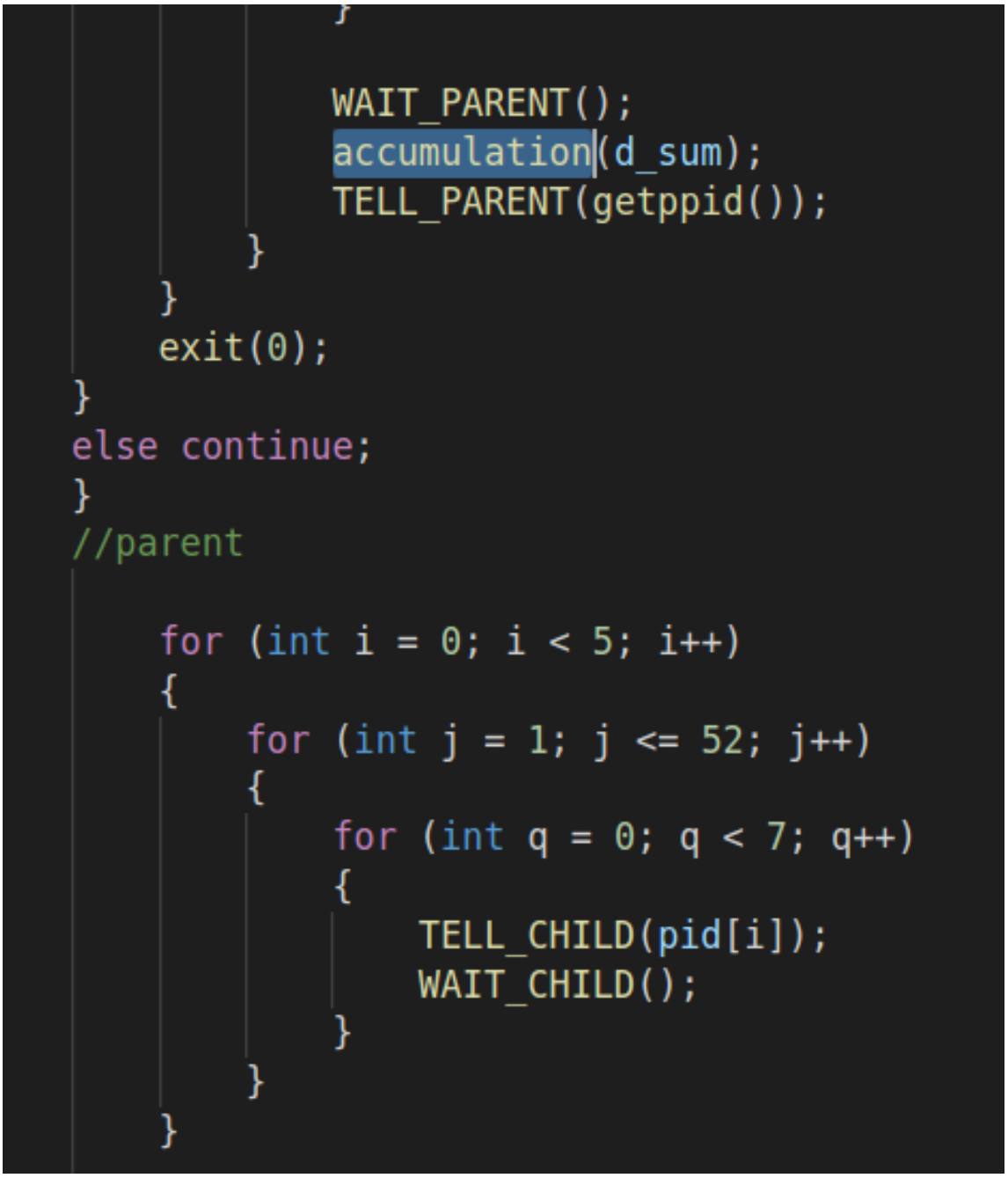
讀取並計算完成後子程序就會終止
父程序會控制子程序能不能往下做

2. How did you update the file "sum.txt"?

在得到父程序許可後用 accumulation 函式
接下來通知父程序可以繼續往下

3. How did you solve the race condition?

根據提示使用 wait 跟 tell



4. What is the average daily power consumption over the 5 years? (daily means for one day)

```
hsa1155@TKwaterHeater-VirtualBox:~/sp/lab8/Lab8_example$ ./run
Day_Average = 4743
hsa1155@TKwaterHeater-VirtualBox:~/sp/lab8/Lab8_example$ ./run
Day_Average = 4743
hsa1155@TKwaterHeater-VirtualBox:~/sp/lab8/Lab8_example$ ./run
Day_Average = 4743
hsa1155@TKwaterHeater-VirtualBox:~/sp/lab8/Lab8_example$ ./run
Day_Average = 4743
hsa1155@TKwaterHeater-VirtualBox:~/sp/lab8/Lab8_example$ ./run
Day_Average = 4743
hsa1155@TKwaterHeater-VirtualBox:~/sp/lab8/Lab8_example$ ./run
Day_Average = 4743
hsa1155@TKwaterHeater-VirtualBox:~/sp/lab8/Lab8_example$ ./run
Day_Average = 4743
hsa1155@TKwaterHeater-VirtualBox:~/sp/lab8/Lab8_example$ ./run
Day_Average = 4743
hsa1155@TKwaterHeater-VirtualBox:~/sp/lab8/Lab8_example$ ./run
Day_Average = 4743
hsa1155@TKwaterHeater-VirtualBox:~/sp/lab8/Lab8_example$ ./run
Day_Average = 4743
hsa1155@TKwaterHeater-VirtualBox:~/sp/lab8/Lab8_example$ ./run
Day_Average = 4743
hsa1155@TKwaterHeater-VirtualBox:~/sp/lab8/Lab8_example$
```