Report of Homework 1

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Introduction

In this homework, with fork() function we will create specific process trees that asked from us. In the beginning of program, it asks us to set parameters N and M, and after that, program creates the process tree according to these parameters just like in examples in homework.

1   Question 1

1.1

Initially; to arrive scenario of question 1, we should set M=1. Code of question 1 and question 2 are same but in question 1, M is fixed at value 1.

1.2

$$number \quad of \quad processes$$
$$-$$
$$number \quad of \quad childless \quad processes \quad (leaves \quad of \quad the \quad tree) \tag{1}$$
$$=$$
$$number \quad of \quad parent \quad processes$$

For this question, equation (1) in terms of N is like this:

$$2(N+1) - (N+1) = N+1 \tag{2}$$

So for this part our answer is N+1.

Example of Question 1


```
Enter the number N: 3
Enter the number M: 1
Hi I'm child PID: 1855 and my parent is PPID: 1854
Heey hey people, I'm child PID: 1856 and my parent is PPID: 1854
Hi I'm child PID: 1857 and my parent is PPID: 1855
Heey hey people, I'm child PID: 1858 and my parent is PPID: 1855
Hi I'm child PID: 1859 and my parent is PPID: 1857
Heey hey people, I'm child PID: 1860 and my parent is PPID: 1857
Heey hey people, I'm child PID: 1862 and my parent is PPID: 1859
```
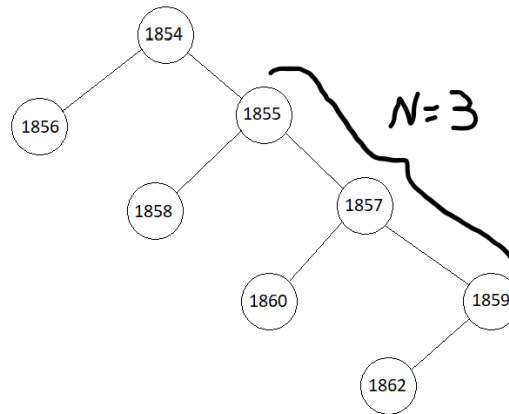
Figure 1: In terminal

Figure 2: Visualized

2 Question 2

2.1

In scenario of question 2, our M is not fixed at value 1 anymore, it can be whatever we want.

2.2

For this question, equation (1) in terms of N and M is like this:

$$(N+1)(M+1) - (N+1) = (N+1)M = MN + M \tag{3}$$

Hence for this part our answer is MN+M.

Example of Question 2


```
Enter the number N: 4
Enter the number M: 2
Hi I'm child PID: 1996 and my parent is PPID: 1994
Heey hey people, I'm child PID: 1997 and my parent is PPID: 1994
Heey hey people, I'm child PID: 1999 and my parent is PPID: 1996
Heey hey people, I'm child PID: 2000 and my parent is PPID: 1997
Hi I'm child PID: 1998 and my parent is PPID: 1996
Heey hey people, I'm child PID: 2001 and my parent is PPID: 1999
Heey hey people, I'm child PID: 2003 and my parent is PPID: 1998
Hi I'm child PID: 2002 and my parent is PPID: 1998
Heey hey people, I'm child PID: 2005 and my parent is PPID: 2003
Heey hey people, I'm child PID: 2006 and my parent is PPID: 2002
Hi I'm child PID: 2004 and my parent is PPID: 2002
Heey hey people, I'm child PID: 2007 and my parent is PPID: 2006
Heey hey people, I'm child PID: 2009 and my parent is PPID: 2004
Heey hey people, I'm child PID: 2010 and my parent is PPID: 2009
```
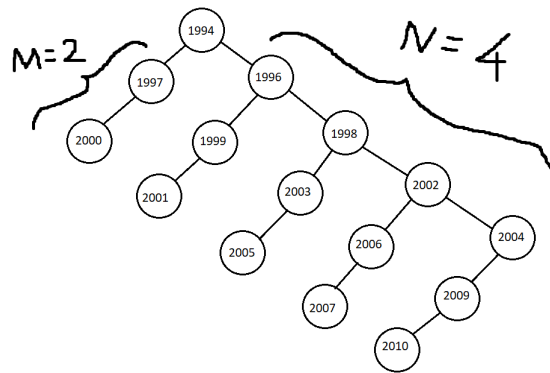
Figure 3: In terminal

Figure 4: Visualized