Gebze Technical University
Computer Engineering

CSE 344
System Programming

MIDTERM PROJECT REPORT

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1. General Project Definition

In this project we are responsible to create a program that will simulate the student mess hall of a university. There are 3 actors, supplier, cook and students. Each of them will be a separate process. And there are also 3 places, kitchen, counter and table.

1.1. Supplier

The task of the supplier is to deliver already cooked plates of food to the kitchen. It will read a file which is filePath to deliver all the plates (so LxM times P, C, D). The filePath is includes 3xLxM plates and there is no fault among P, C, D.

1.2. Cook

The task of the cook is to place plates which supplier is already delivered to kitchen on the counter, if there is some empty place in.

1.3. Student

The task of the student is to get all the foods and sitting a table and eating food, L times.

2. Implementation

The program checks the given numbers (cook, student, table, counter size, round) and gives the information about if there is something wrong. Forked among all the actors (n+m+1 times) and kept its PID in array children. Processes continue to run and checked if the process is supplier or cook or student. Then semaphore is created with all the necessary informations. After these things, all the work will done infinite loop.

2.1. Supplier

Supplier reads the file which name is filePath. Then it delivers the plates one by one while kitchen has some empty room. Then decrease item of supplier and increase item of kitchen. Print screen about work during all the things are happen. If read plate is P, decrease soup of the supplier and items of the supplier, increase soup of the kitchen and items of the kitchen. If read plate is C, decrease main course of the supplier and items of the supplier, increase main course of the kitchen and items of the kitchen. Then say GOODBYE when all the delivery is done.

2.2. Cook

Cook gets a plate from the kitchen (P, C, D) and place it on the counter if any there is any empty room. If kitchen is empty, waits for some plates. If counter is full, waits some empty room for place plates. If kitchen has some plates and cook gets a plate from kitchen and place it counter. This work will execute all the plates is placed in counter. Print screen about work during all the things are happen. Then say GOODBYE.

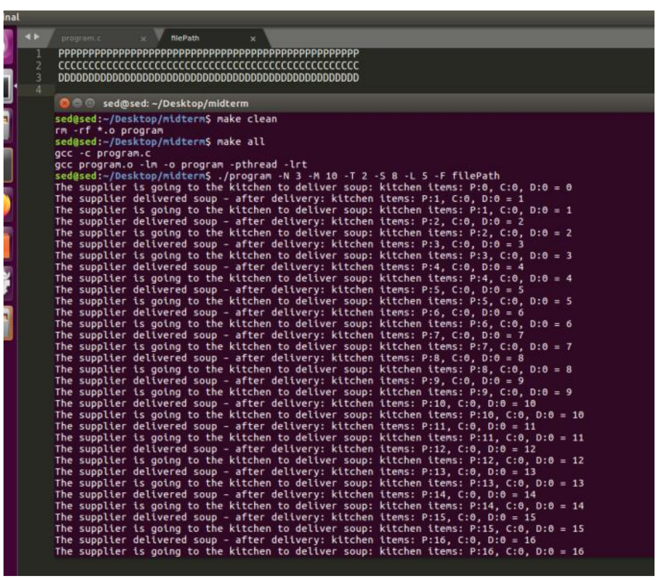
2.3. Student

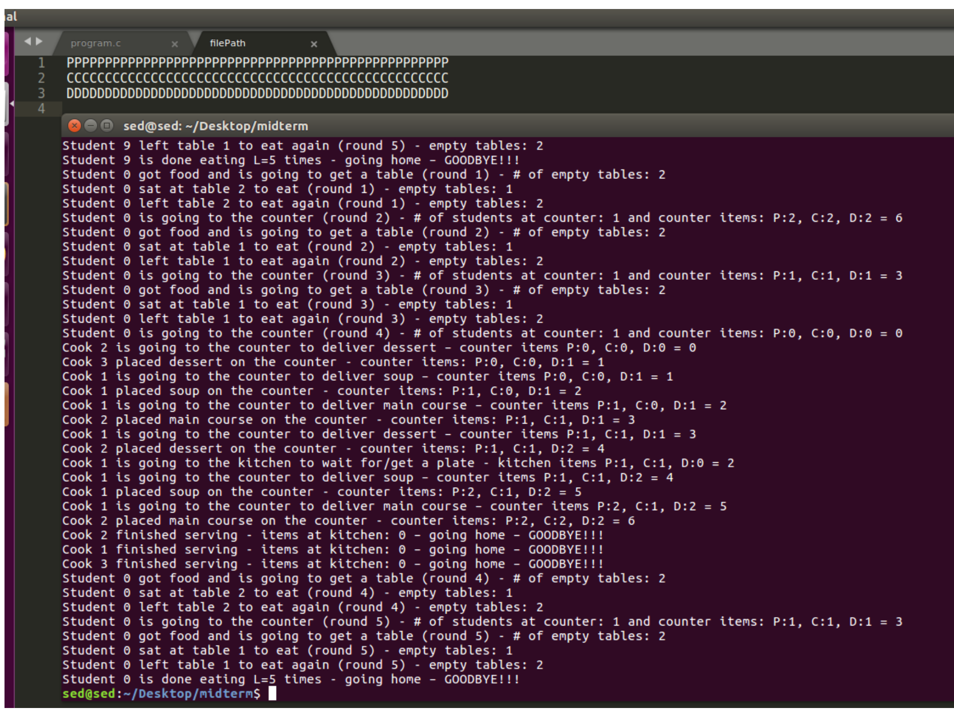
Student gets 3 plates from the counter, goes to look table and if the student finds a table (random generated) sits on it and the table is empty. Student eats its foods and leaves from the table and the table is free now. All the students repeats this L times. If student goes counter before the supplier or cook work, the student will wait on counter.

In this homework there is 2 functions; 1 is main (all the thing happens there) and handler (for signal SIGINT). If the signal SIGINT is arrived, all the resources will be clean by handler.

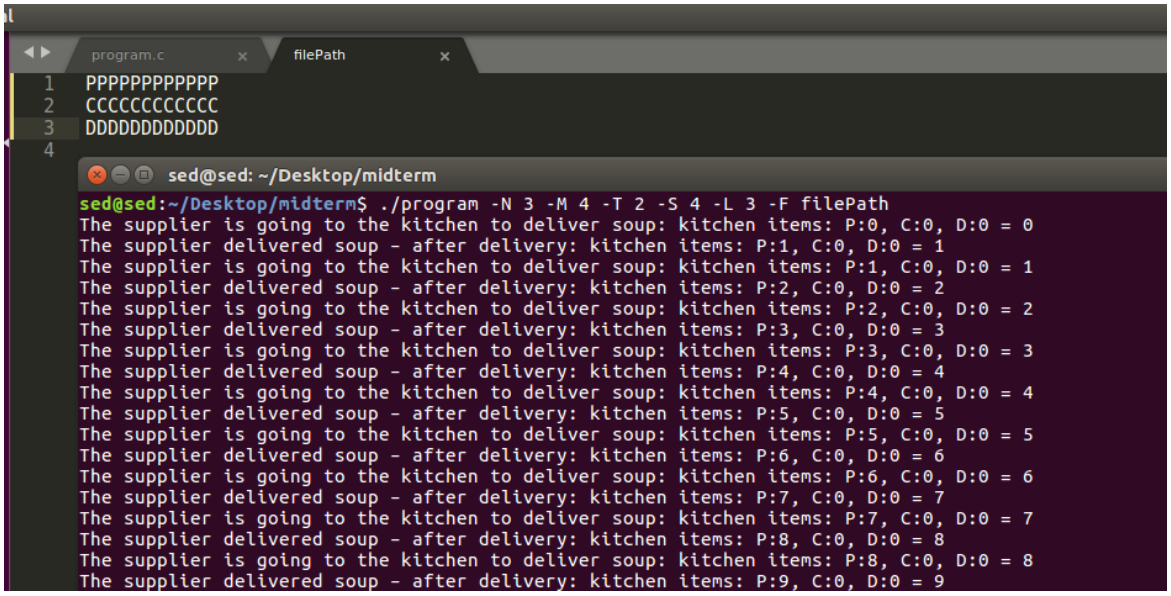
- Sample Results

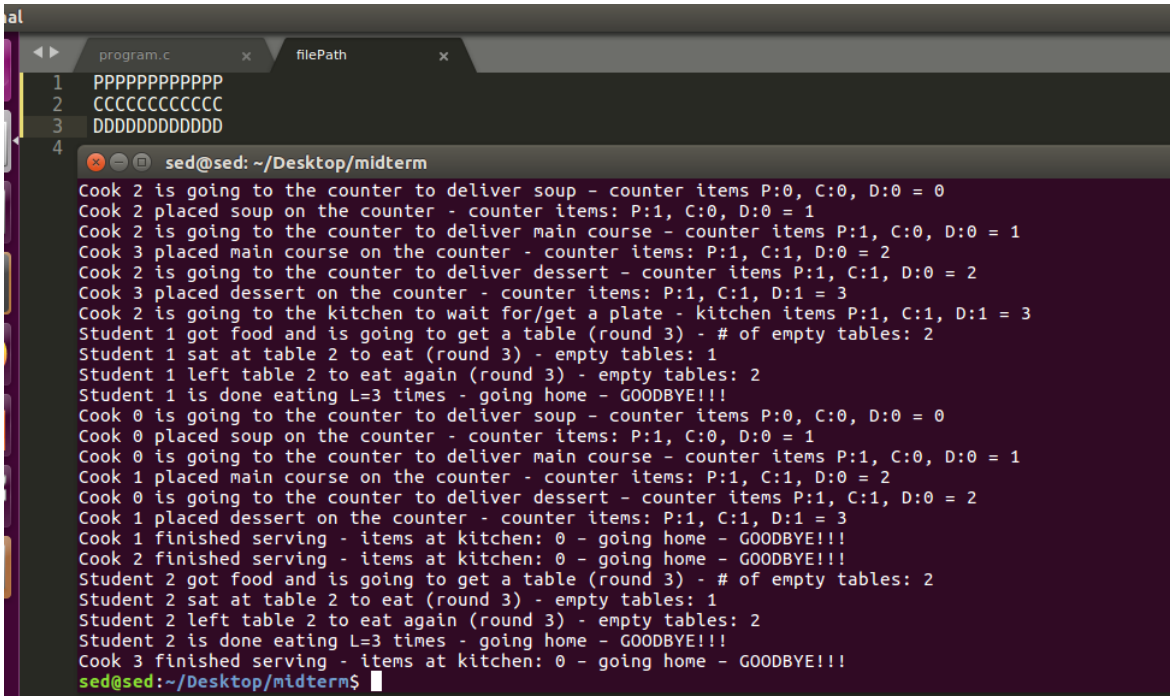
This example includes 50 P, 50 C, 50 D and all the students makes 5 round, so it can not fit on screen.
There is not an error.



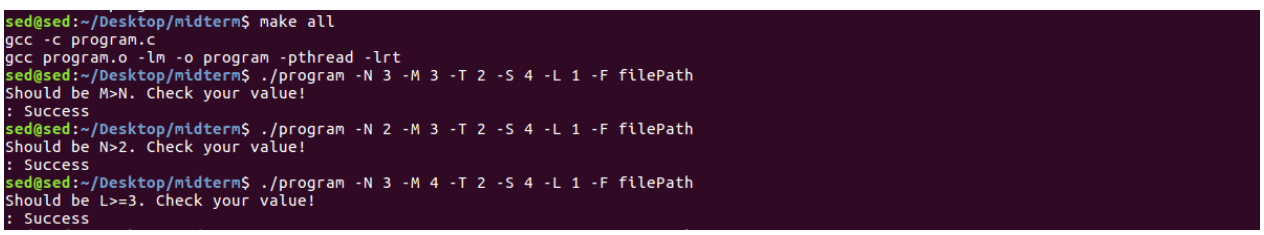


This example includes 12 P, 12 C, 12 D and all the students makes 3 round, so it can not fit on screen.
There is not an error.



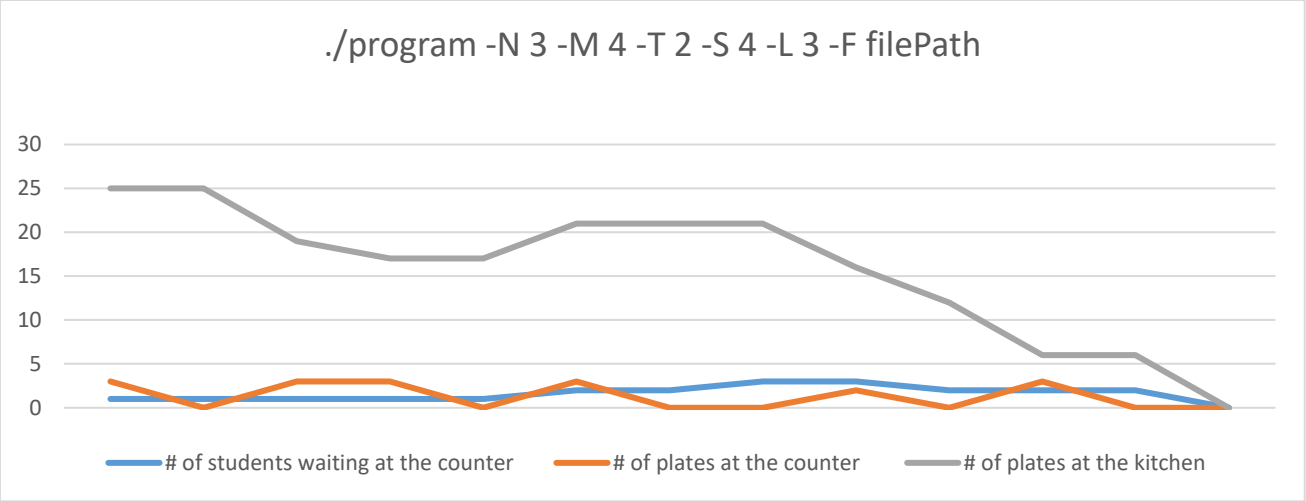


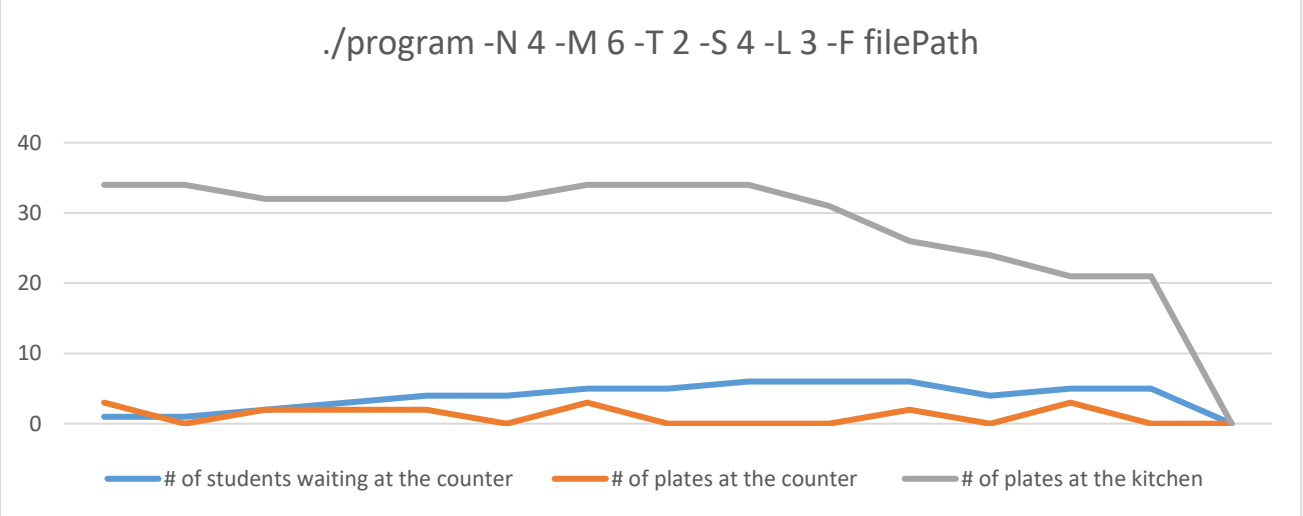
In some error cases.

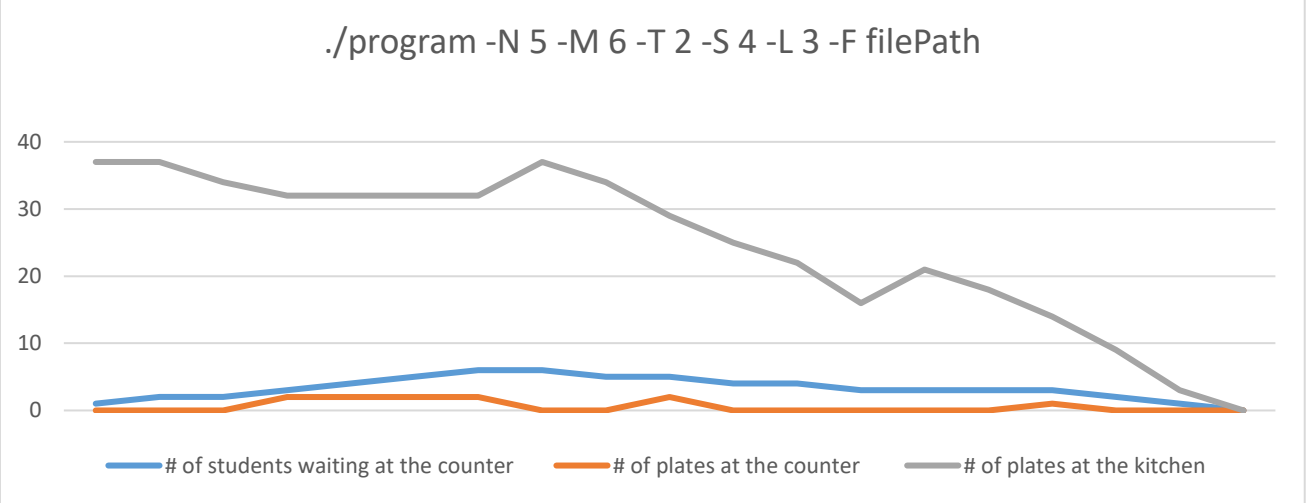


3. Pilot Graphics

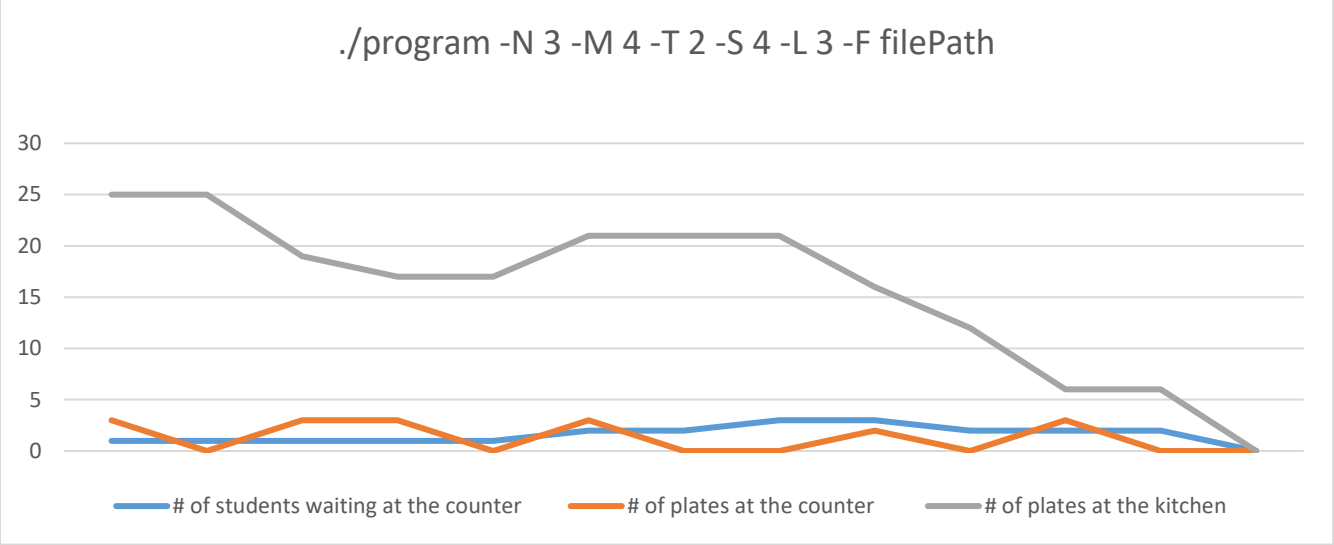
- N is not constant

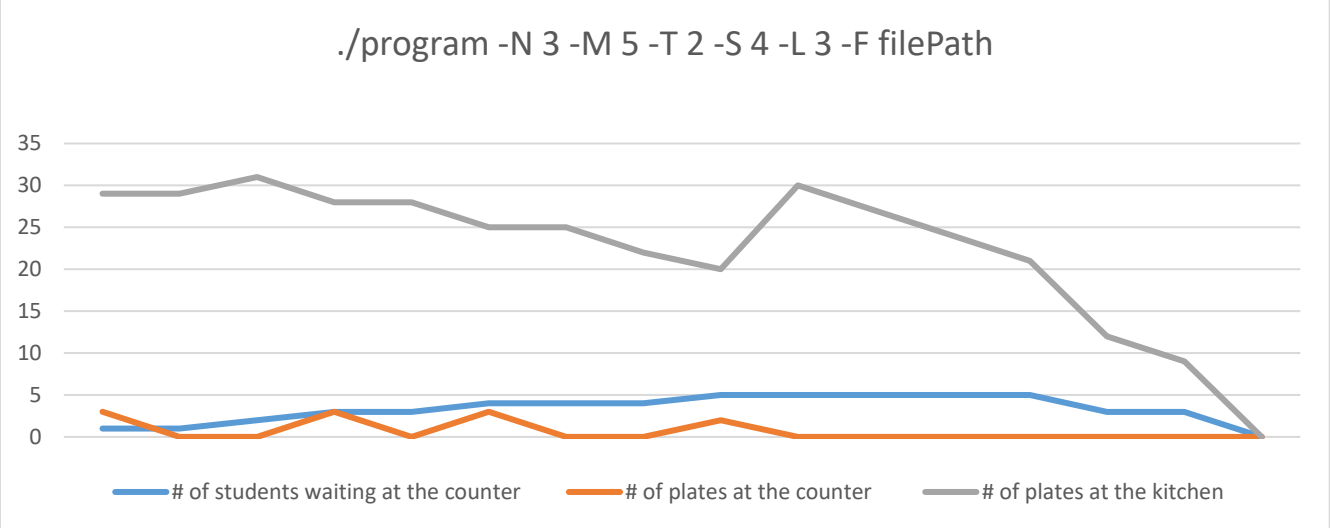


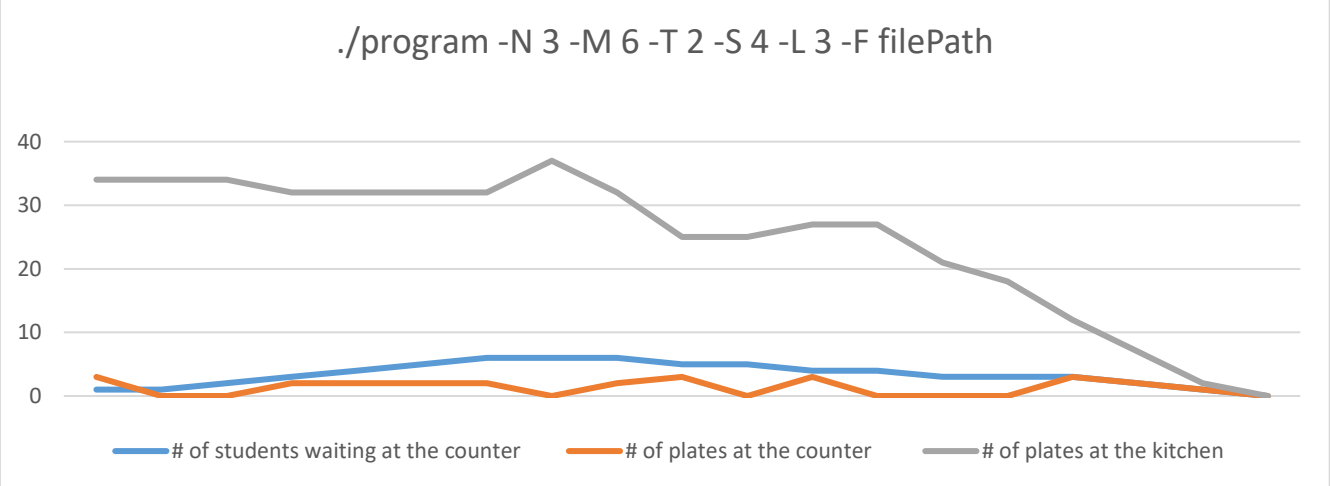




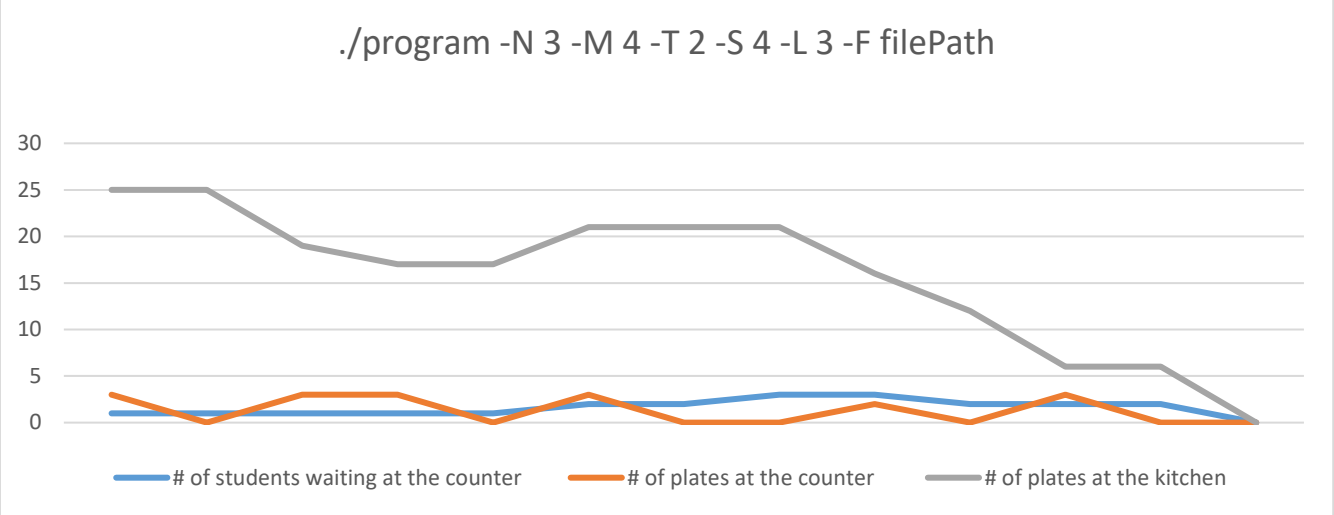
- M is not constant

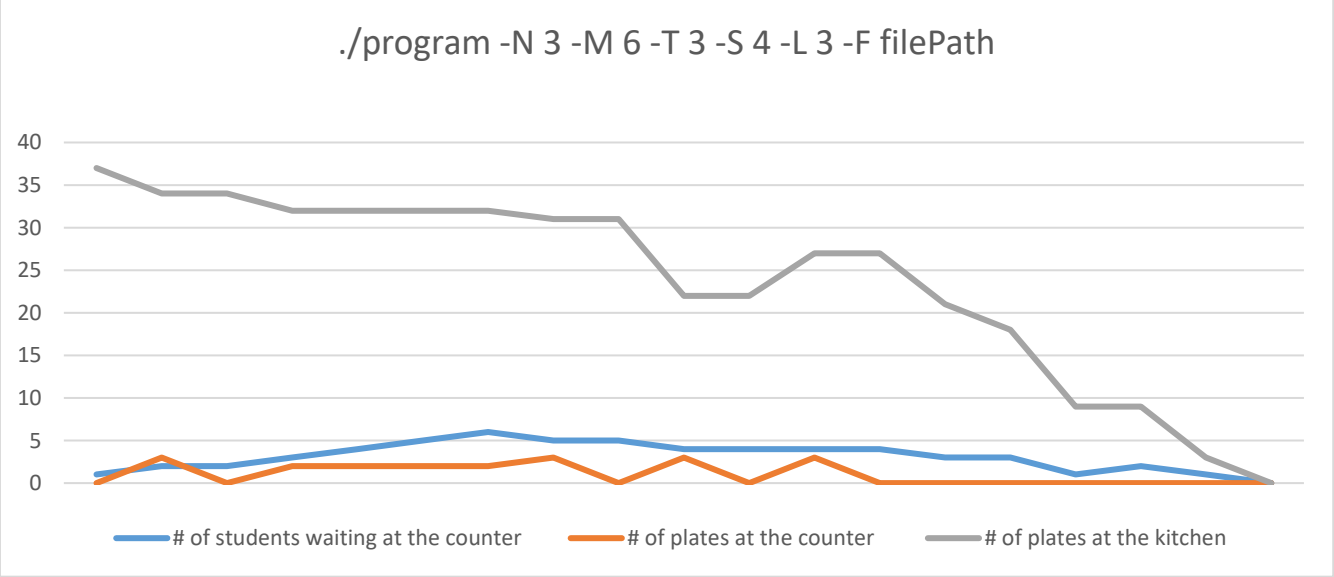


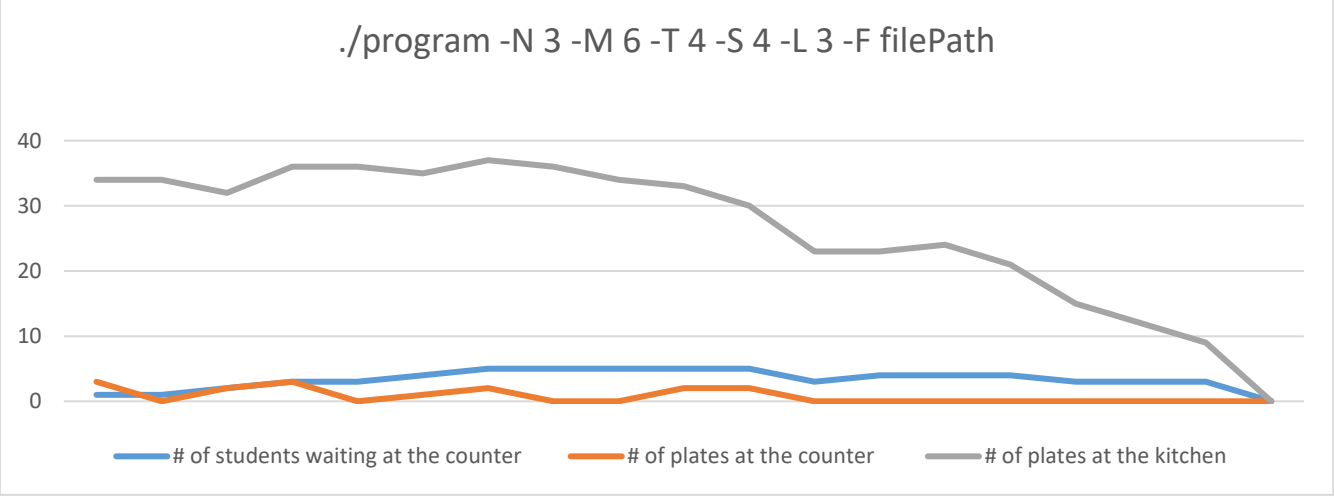




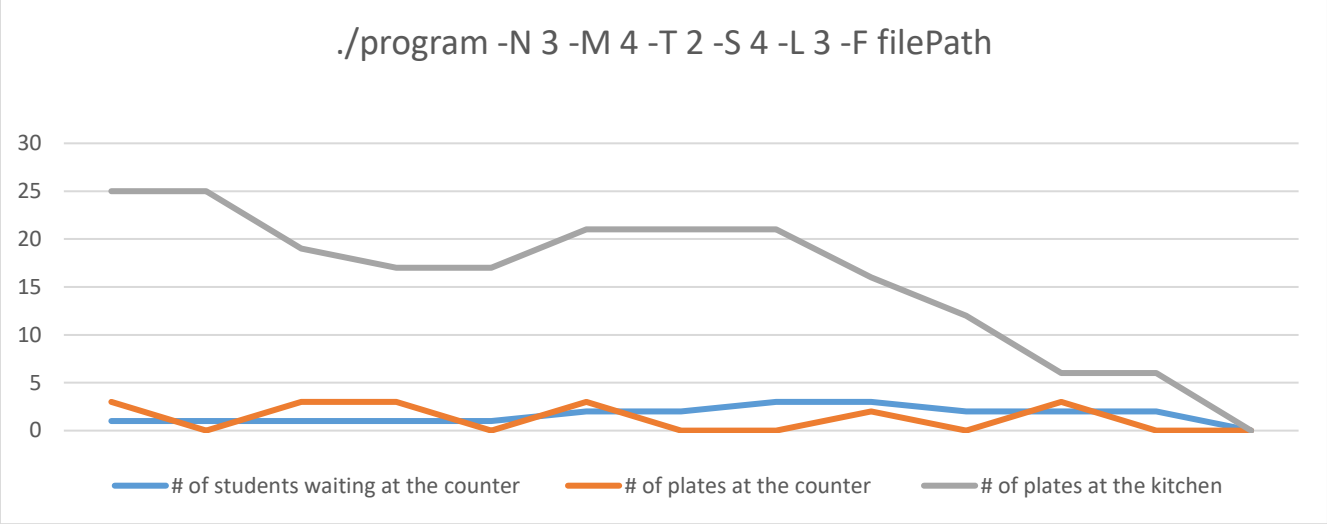
- T is not constant

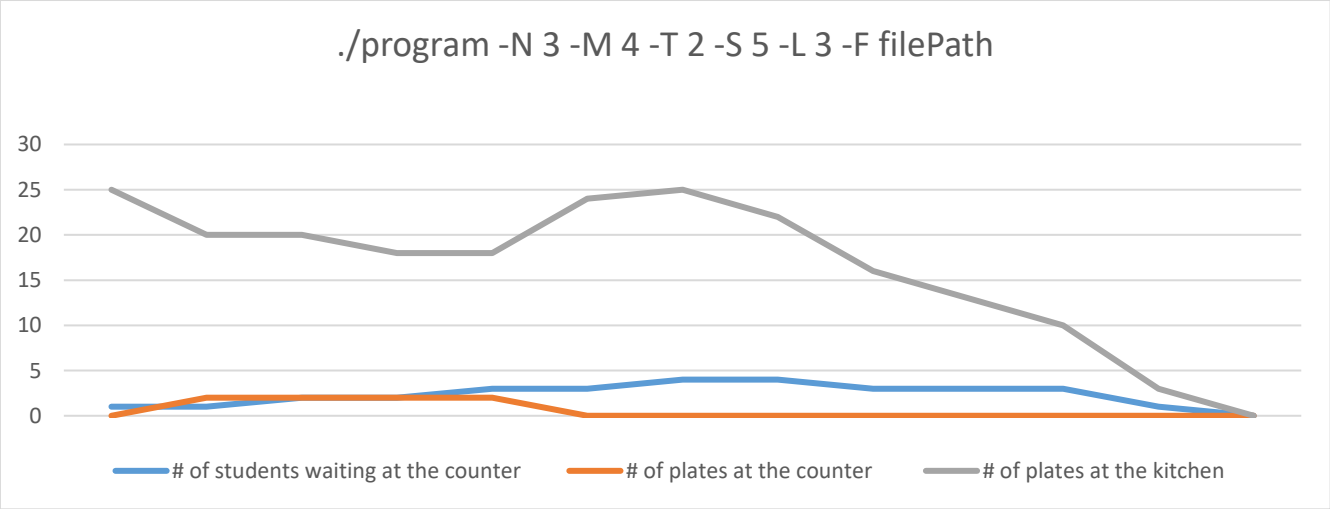


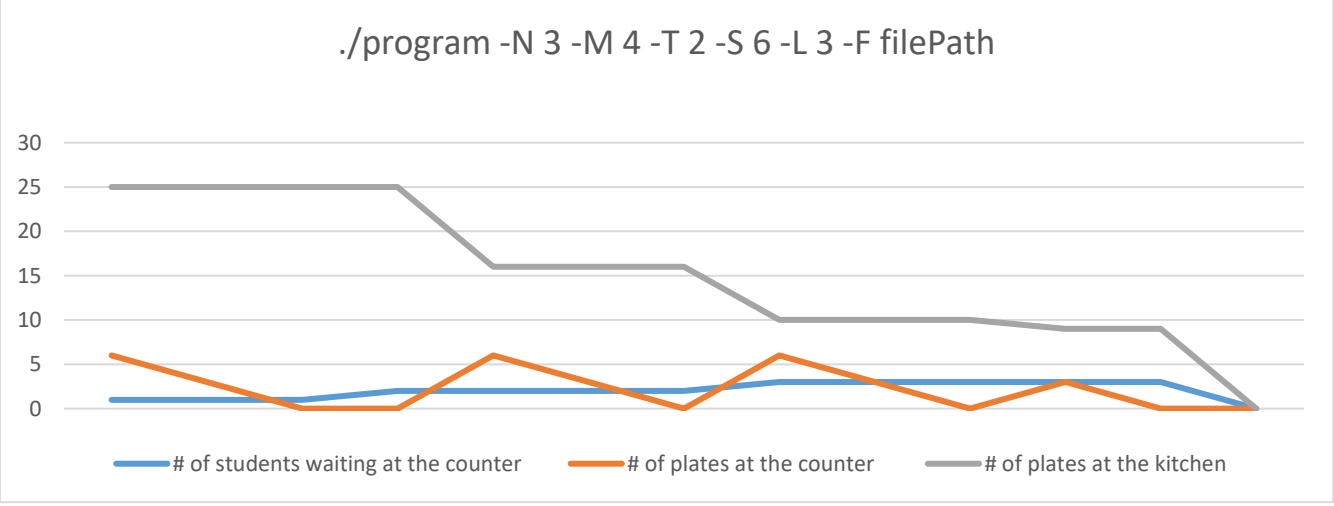




- S is constant







- L is constant