CSE-344 SYSTEMS PROGRAMMING
HW03 REPORT

Emire Korkmaz
141044043

In this homework we were supposed to calculate the given matrices multiplication. I took **the given files** and **n** value as the program arguments and checked their validity.

Created 4 child process to help the parent process in calculation. The parent process took 2 matrices and divided both of them into four and sent them to the children. Each child took their part and calculated the result matrix and sent back to the parent using the same pipe. As mentioned in the homework we should use bi-directional pipes between the parent and the children, so, I used only four pipes for each child. Each one was used in both writing and reading by the parent and the child. I used signals to synchronization. After the dividing, parent waited for the children to be finished by waiting them to send SIGCHLD. The moment, the number of SIGCHLD signals hit the four, a signal sent to the parent to read the pipes and collect the calculated parts into one matrix. In order to calculate SVD correctly, I casted all values into float and sent them to the SVD function which I referenced. The returned array contained singular values and I printed them on the screen.

Example:

```
emire@emire-X555LN:~/Desktop$ ./1 -i /home/emire/Desktop/1.txt -j /home/emire/Desktop/2.txt -n 3
Matrix A:
10 116 103 42 104 47 106 107
108 10 10 110 98 104 43 51
118 10 47 54 103 102 116 10
54 55 121 117 104 106 107 110
102 53 115 100 50 49 102 119
101 116 57 56 101 114 54 53
10 103 119 49 115 42 47 101
114 116 57 43 115 101 52 119

Matrix B:
56 53 101 115 102 100 47 119
101 114 102 56 115 97 42 119
10 57 54 97 10 100 102 115
100 10 106 107 102 101 45 102
103 115 42 114 101 97 43 122
102 10 114 101 51 52 53 102
115 102 47 54 55 55 103 100
102 106 102 115 100 10 101 102

Matrix C:
56116 54629 48478 56763 49105 46226 46426 70119
49007 30636 47323 55583 46153 41669 30772 58478
48861 36370 43626 53925 42149 44699 35983 61735
66538 52793 62701 74536 57772 57237 54676 84240
56231 48261 57136 66395 52908 51139 50522 75306
57189 46267 56229 61671 54209 51933 39253 72846
48889 48690 45265 55209 45495 44774 41352 65446
63235 55098 61908 69540 61450 53152 45652 79981
```

Converted the C matrix to float values. Printed out again. Finally printed all the singular values of matrix C.