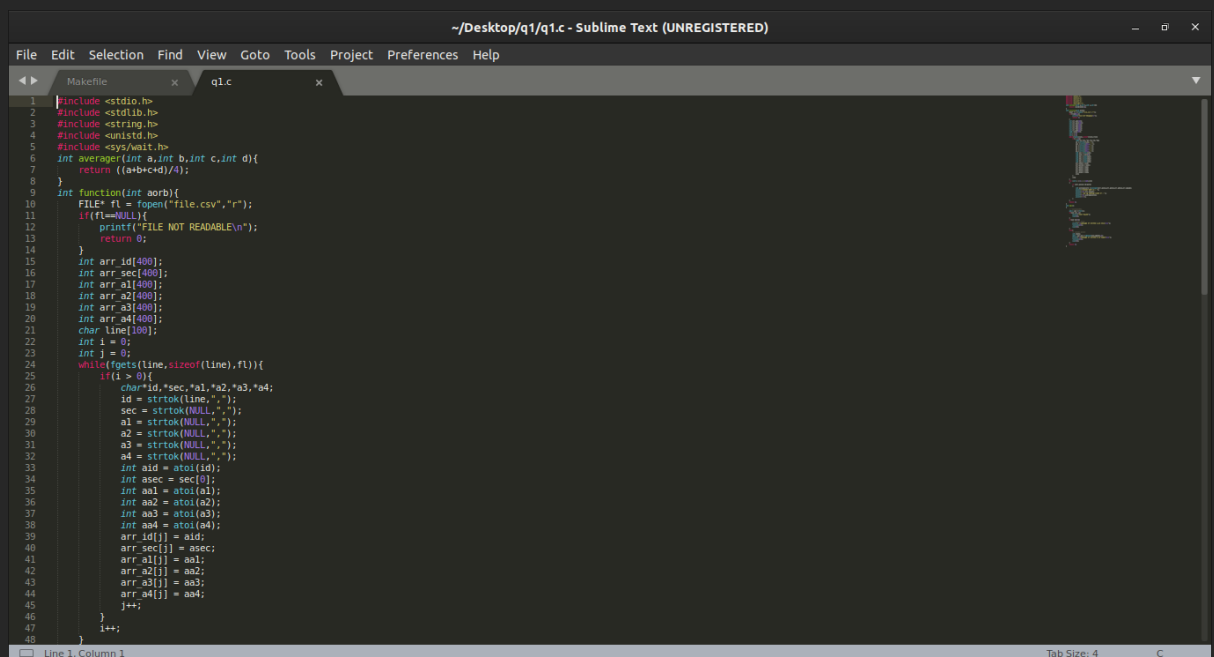


# PROCESS CREATION AND TERMINATION

## SYSTEM CALLS

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- ABOUT THE CODE  
LINES 1 - 48



```
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <string.h>
4 #include <unistd.h>
5 #include <sys/wait.h>
6 int average(int a, int b, int c, int d){
7     return ((a+b+c+d)/4);
8 }
9 int function(int aorb){
10     FILE* fl = fopen("file.csv", "r");
11     if(fl==NULL){
12         printf("FILE NOT READABLE\n");
13         return 0;
14     }
15     int arr_id[400];
16     int arr_sec[400];
17     int arr_a1[400];
18     int arr_a2[400];
19     int arr_a3[400];
20     int arr_a4[400];
21     char line[100];
22     int i = 0;
23     while(fgets(line, sizeof(line), fl)){
24         if(i > 0){
25             char* id = strtok(line, ",");
26             id = strtok(line, ",");
27             sec = strtok(NULL, ",");
28             a1 = strtok(NULL, ",");
29             a2 = strtok(NULL, ",");
30             a3 = strtok(NULL, ",");
31             a4 = strtok(NULL, ",");
32             int aid = atoi(id);
33             int asec = atoi(sec);
34             int aa1 = atoi(a1);
35             int aa2 = atoi(a2);
36             int aa3 = atoi(a3);
37             int aa4 = atoi(a4);
38             arr_id[i] = aid;
39             arr_sec[i] = asec;
40             arr_a1[i] = aa1;
41             arr_a2[i] = aa2;
42             arr_a3[i] = aa3;
43             arr_a4[i] = aa4;
44             i++;
45         }
46     }
47     i++;
48 }
```

In the lines 6-8 a function has been created that returns an average score of students.

In the lines 9-62 it is our main code where we read the csv file and save those as integers in integer array.

The sections are also converted to their ascii codes and entered into an integer type array.

65 - A

66 – B

After all data has been saved as required.

The status bar at the bottom shows 'Line 73, Column 56' and 'Tab Size: 4'.

we run a loop and according to the input which can be 65 or 66 we find the required positions and their average scores and print the student ids and averages.

In the main function we make our fork in line 64 and if the fork returns -1, we give an error that fork is failed.

If 0 is returned it means we have entered the child and print the averages for section A.

In else statement

When the child work is done then we run the function for 66 that means for B.

This is done by waitpid which helps the child process to first complete and then parent process to work.

- IN MAKE FILE

In make file we run gcc for the code and execute the output.

```
~/Desktop/q1/Makefile - Sublime Text (UNREGISTERED)
File Edit Selection Find View Goto Tools Project Preferences Help
Makefile q1.c
1 default:
2 # COMPILING FILE
3 # RUNNING THE FILE
4 @gcc q1.c;
5 @./a.out;
Line 5, Column 14 Tab Size: 4 Makefile
```

- OUTPUT

In the output file we get first the outputs for section A and then for section B as the child process will first complete and then the parent will work.

```
deepak@deepak-VPCEH35EN: ~/Desktop/q1
deepak@deepak-VPCEH35EN:~/Desktop/q1$ make
AVERAGES OF SECTION A IN CHILD
STUDENT WITH ID : 293 HAS AN AVERAGE SCORE OF : 10
STUDENT WITH ID : 157 HAS AN AVERAGE SCORE OF : 7
STUDENT WITH ID : 397 HAS AN AVERAGE SCORE OF : 7
STUDENT WITH ID : 129 HAS AN AVERAGE SCORE OF : 11
STUDENT WITH ID : 186 HAS AN AVERAGE SCORE OF : 12
STUDENT WITH ID : 310 HAS AN AVERAGE SCORE OF : 5
STUDENT WITH ID : 313 HAS AN AVERAGE SCORE OF : 10
STUDENT WITH ID : 288 HAS AN AVERAGE SCORE OF : 13
STUDENT WITH ID : 156 HAS AN AVERAGE SCORE OF : 8
STUDENT WITH ID : 303 HAS AN AVERAGE SCORE OF : 8
STUDENT WITH ID : 376 HAS AN AVERAGE SCORE OF : 8
STUDENT WITH ID : 347 HAS AN AVERAGE SCORE OF : 11
STUDENT WITH ID : 235 HAS AN AVERAGE SCORE OF : 8
STUDENT WITH ID : 13 HAS AN AVERAGE SCORE OF : 13
STUDENT WITH ID : 74 HAS AN AVERAGE SCORE OF : 14
STUDENT WITH ID : 243 HAS AN AVERAGE SCORE OF : 10
STUDENT WITH ID : 272 HAS AN AVERAGE SCORE OF : 15
STUDENT WITH ID : 308 HAS AN AVERAGE SCORE OF : 7
STUDENT WITH ID : 384 HAS AN AVERAGE SCORE OF : 9
STUDENT WITH ID : 171 HAS AN AVERAGE SCORE OF : 12
STUDENT WITH ID : 190 HAS AN AVERAGE SCORE OF : 4
STUDENT WITH ID : 354 HAS AN AVERAGE SCORE OF : 12
STUDENT WITH ID : 195 HAS AN AVERAGE SCORE OF : 9
STUDENT WITH ID : 220 HAS AN AVERAGE SCORE OF : 12
STUDENT WITH ID : 286 HAS AN AVERAGE SCORE OF : 10
STUDENT WITH ID : 162 HAS AN AVERAGE SCORE OF : 12
STUDENT WITH ID : 320 HAS AN AVERAGE SCORE OF : 13
STUDENT WITH ID : 134 HAS AN AVERAGE SCORE OF : 8
STUDENT WITH ID : 114 HAS AN AVERAGE SCORE OF : 5
STUDENT WITH ID : 96 HAS AN AVERAGE SCORE OF : 6
STUDENT WITH ID : 333 HAS AN AVERAGE SCORE OF : 5
STUDENT WITH ID : 324 HAS AN AVERAGE SCORE OF : 8
STUDENT WITH ID : 203 HAS AN AVERAGE SCORE OF : 13
STUDENT WITH ID : 215 HAS AN AVERAGE SCORE OF : 13
```

```
deepak@deepak-VPCEH35EN: ~/Desktop/q1

STUDENT WITH ID : 19 HAS AN AVERAGE SCORE OF : 10
STUDENT WITH ID : 258 HAS AN AVERAGE SCORE OF : 11
STUDENT WITH ID : 197 HAS AN AVERAGE SCORE OF : 8
STUDENT WITH ID : 191 HAS AN AVERAGE SCORE OF : 8
STUDENT WITH ID : 282 HAS AN AVERAGE SCORE OF : 11
STUDENT WITH ID : 47 HAS AN AVERAGE SCORE OF : 13
STUDENT WITH ID : 360 HAS AN AVERAGE SCORE OF : 12
STUDENT WITH ID : 12 HAS AN AVERAGE SCORE OF : 8

AVERAGES OF SECTION B IN PARENT

STUDENT WITH ID : 252 HAS AN AVERAGE SCORE OF : 9
STUDENT WITH ID : 365 HAS AN AVERAGE SCORE OF : 14
STUDENT WITH ID : 89 HAS AN AVERAGE SCORE OF : 9
STUDENT WITH ID : 15 HAS AN AVERAGE SCORE OF : 4
STUDENT WITH ID : 121 HAS AN AVERAGE SCORE OF : 9
STUDENT WITH ID : 102 HAS AN AVERAGE SCORE OF : 11
STUDENT WITH ID : 245 HAS AN AVERAGE SCORE OF : 10
STUDENT WITH ID : 378 HAS AN AVERAGE SCORE OF : 10
STUDENT WITH ID : 108 HAS AN AVERAGE SCORE OF : 9
STUDENT WITH ID : 296 HAS AN AVERAGE SCORE OF : 8
STUDENT WITH ID : 315 HAS AN AVERAGE SCORE OF : 7
STUDENT WITH ID : 37 HAS AN AVERAGE SCORE OF : 7
STUDENT WITH ID : 44 HAS AN AVERAGE SCORE OF : 10
STUDENT WITH ID : 28 HAS AN AVERAGE SCORE OF : 12
STUDENT WITH ID : 230 HAS AN AVERAGE SCORE OF : 9
STUDENT WITH ID : 20 HAS AN AVERAGE SCORE OF : 10
STUDENT WITH ID : 227 HAS AN AVERAGE SCORE OF : 5
STUDENT WITH ID : 85 HAS AN AVERAGE SCORE OF : 6
STUDENT WITH ID : 265 HAS AN AVERAGE SCORE OF : 12
STUDENT WITH ID : 362 HAS AN AVERAGE SCORE OF : 17
STUDENT WITH ID : 115 HAS AN AVERAGE SCORE OF : 8
STUDENT WITH ID : 184 HAS AN AVERAGE SCORE OF : 10
STUDENT WITH ID : 209 HAS AN AVERAGE SCORE OF : 14
STUDENT WITH ID : 395 HAS AN AVERAGE SCORE OF : 10
STUDENT WITH ID : 136 HAS AN AVERAGE SCORE OF : 7
STUDENT WITH ID : 323 HAS AN AVERAGE SCORE OF : 12
STUDENT WITH ID : 232 HAS AN AVERAGE SCORE OF : 14
STUDENT WITH ID : 284 HAS AN AVERAGE SCORE OF : 8
```

```
deepak@deepak-VPCEH35EN: ~/Desktop/q1

STUDENT WITH ID : 259 HAS AN AVERAGE SCORE OF : 7
STUDENT WITH ID : 341 HAS AN AVERAGE SCORE OF : 9
STUDENT WITH ID : 93 HAS AN AVERAGE SCORE OF : 4
STUDENT WITH ID : 262 HAS AN AVERAGE SCORE OF : 6
STUDENT WITH ID : 318 HAS AN AVERAGE SCORE OF : 3
STUDENT WITH ID : 40 HAS AN AVERAGE SCORE OF : 11
STUDENT WITH ID : 172 HAS AN AVERAGE SCORE OF : 8
STUDENT WITH ID : 346 HAS AN AVERAGE SCORE OF : 9
STUDENT WITH ID : 388 HAS AN AVERAGE SCORE OF : 12
STUDENT WITH ID : 42 HAS AN AVERAGE SCORE OF : 9
STUDENT WITH ID : 30 HAS AN AVERAGE SCORE OF : 13
STUDENT WITH ID : 31 HAS AN AVERAGE SCORE OF : 9
STUDENT WITH ID : 36 HAS AN AVERAGE SCORE OF : 10
STUDENT WITH ID : 283 HAS AN AVERAGE SCORE OF : 6
STUDENT WITH ID : 90 HAS AN AVERAGE SCORE OF : 11
STUDENT WITH ID : 160 HAS AN AVERAGE SCORE OF : 10
STUDENT WITH ID : 359 HAS AN AVERAGE SCORE OF : 10
STUDENT WITH ID : 62 HAS AN AVERAGE SCORE OF : 12
STUDENT WITH ID : 95 HAS AN AVERAGE SCORE OF : 5
STUDENT WITH ID : 73 HAS AN AVERAGE SCORE OF : 10
STUDENT WITH ID : 248 HAS AN AVERAGE SCORE OF : 10
STUDENT WITH ID : 269 HAS AN AVERAGE SCORE OF : 4
STUDENT WITH ID : 198 HAS AN AVERAGE SCORE OF : 12
STUDENT WITH ID : 257 HAS AN AVERAGE SCORE OF : 12
STUDENT WITH ID : 196 HAS AN AVERAGE SCORE OF : 13
STUDENT WITH ID : 267 HAS AN AVERAGE SCORE OF : 10
STUDENT WITH ID : 99 HAS AN AVERAGE SCORE OF : 7
STUDENT WITH ID : 201 HAS AN AVERAGE SCORE OF : 8
STUDENT WITH ID : 212 HAS AN AVERAGE SCORE OF : 10
STUDENT WITH ID : 32 HAS AN AVERAGE SCORE OF : 8
STUDENT WITH ID : 17 HAS AN AVERAGE SCORE OF : 5
STUDENT WITH ID : 239 HAS AN AVERAGE SCORE OF : 15
STUDENT WITH ID : 369 HAS AN AVERAGE SCORE OF : 14
STUDENT WITH ID : 141 HAS AN AVERAGE SCORE OF : 7
STUDENT WITH ID : 372 HAS AN AVERAGE SCORE OF : 10
STUDENT WITH ID : 127 HAS AN AVERAGE SCORE OF : 8
STUDENT WITH ID : 175 HAS AN AVERAGE SCORE OF : 5
deepak@deepak-VPCEH35EN:~/Desktop/q1$
```