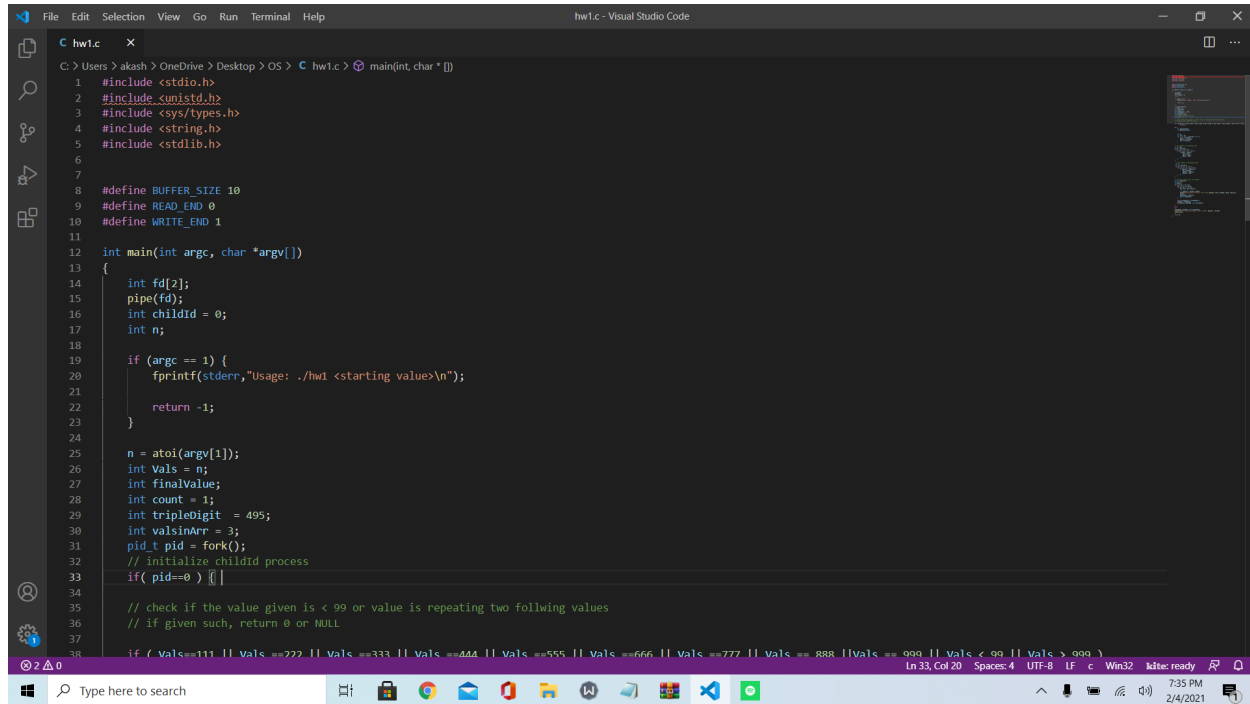


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Homework1
Operating Systems
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The three screenshots below is my code that I made



```
C: > Users > akash > OneDrive > Desktop > OS > C: hw1.c > main(int, char *[])
1 #include <stdio.h>
2 #include <unistd.h>
3 #include <sys/types.h>
4 #include <string.h>
5 #include <stdlib.h>
6
7
8 #define BUFFER_SIZE 10
9 #define READ_END 0
10 #define WRITE_END 1
11
12 int main(int argc, char *argv[])
13 {
14     int fd[2];
15     pipe(fd);
16     int childid = 0;
17     int n;
18
19     if (argc == 1) {
20         fprintf(stderr, "Usage: ./hw1 <starting values>\n");
21         return -1;
22     }
23
24     n = atoi(argv[1]);
25     int Vals = 0;
26     int finalValue;
27     int count = 1;
28     int tripleDigit = 499;
29     int valsinArr = 3;
30     pid_t pid = fork();
31     // initialize childid process
32     if (pid == 0) {
33
34         // check if the value given is < 99 or value is repeating two following values
35         // if given such, return 0 or NULL
36
37         if ( Vals==111 || Vals ==222 || Vals ==333 || Vals ==444 || Vals ==555 || Vals ==666 || Vals ==777 || Vals == 888 || Vals == 999 || Vals < 99 || Vals > 999 )
```

```
File Edit Selection View Go Run Terminal Help hwl.c - Visual Studio Code
C hwl.c x
C:\Users> akash > OneDrive > Desktop > OS > C hwl.c > main(int, char * [])
38 if ( Vals==111 || Vals ==222 || Vals ==333 || Vals ==444 || Vals ==555 || Vals ==666 || Vals ==777 || Vals == 888 || Vals == 999 || Vals < 99 || Vals > 999 )
39     return 0;
40
41 do {
42     int up[valsinArr];
43     int down[valsinArr];
44
45
46     int i;
47     int ten = 10;
48     for ( i = 0; i < valsinArr; i++ ) {
49         up[i] = Vals%ten;
50         down[i] = Vals%ten;
51         Vals = Vals/ten;
52     }
53
54
55     // sort numbers in ascending order
56     int j, tmp;
57     int k = valsinArr;
58     for(i = 0; i < k; i++) {
59         for(j = i+1; j < k; j++) {
60             if(up[j] < up[i]){
61                 tmp = up[i];
62                 up[i] = up[j];
63                 up[j] = tmp;
64             }
65         }
66     }
67
68     // sort numbers in descending order
69     int x;
70     int y = valsinArr;
71     for ( i = 0; i < y; ++i ) {
72         for ( j = i + 1; j < y; ++j ) {
73             if (down[i] < down[j]) {
74                 tmp = down[i];
```

```
File Edit Selection View Go Run Terminal Help hwl.c - Visual Studio Code
C hwl.c x
C:\Users> akash > OneDrive > Desktop > OS > C hwl.c > main(int, char * [])
75         down[i] = down[j];
76         down[j] = tmp;
77     }
78 }
79
80
81 // converting values into real numbers
82 int z = valsinArr;
83 int inc= 0;
84 int dec= 0;
85 for (i = 0; i < z; i++)
86     inc= ten * inc+ up[i];
87 for (i = 0; i < z; i++)
88     dec= ten * dec+ down[i];
89
90     int subtract = abs(dec- upend);
91     printf("Child process %d %d %d - %d = %d \n",getpid(),count, downend, upend, subtract);
92     count++;
93     finalValue = subtract;
94     Vals = finalValue;
95 }
96
97 while( finalValue != tripleDigit );
98 childId = finalValue;
99 write(fd[1], &childId, sizeof(childId));
100
101 }
102 else
103 {
104     read(fd[0], &childId, sizeof(childId));
105     printf("result from child process: (%d) is: %d\n", getpid(), childId);
106     close(fd[2]);
107 }
108 return 0;
109 }
110
111
```

```
kash@kash-VirtualBox: ~/Desktop/4320
kash@kash-VirtualBox:~$ ls
Desktop  Downloads  Music      Public  Templates
Documents  examples.desktop  Pictures  snap    Videos
kash@kash-VirtualBox:~$ cd Desktop/
kash@kash-VirtualBox:~/Desktop$ cd 4320/
kash@kash-VirtualBox:~/Desktop/4320$ gcc hw1.c
kash@kash-VirtualBox:~/Desktop/4320$ gcc -o hw1 hw1.c
kash@kash-VirtualBox:~/Desktop/4320$ hw1
hw1: command not found
kash@kash-VirtualBox:~/Desktop/4320$ ./hw1
Usage: ./hw1 <starting value>
kash@kash-VirtualBox:~/Desktop/4320$
```

This is the process of compiling the file

```
kash@kash-VirtualBox: ~/Desktop/4320
kash@kash-VirtualBox:~$ cd Desktop/
kash@kash-VirtualBox:~/Desktop$ cd 4320/
kash@kash-VirtualBox:~/Desktop/4320$ ls
a.out  hw1  hw1.c  __MACOSX  OperatingSystem  Project1  sol
kash@kash-VirtualBox:~/Desktop/4320$ ./hw1 123
Child process 9726 1 321 - 123 = 198
Child process 9726 2 981 - 189 = 792
Child process 9726 3 972 - 279 = 693
Child process 9726 4 963 - 369 = 594
Child process 9726 5 954 - 459 = 495
Result from child process: (9725) is: 495
kash@kash-VirtualBox:~/Desktop/4320$
```

As you can see the output is the same as in the HW1 instructions below

```
(base) king@king-Latitude-E5540:~/Documents/os-ass1/onechild$  
./csc4320_hw_1 123  
  
Child process 2659: 1th: 321 - 123 = 198  
Child process 2659: 2th: 981 - 189 = 792  
Child process 2659: 3th: 972 - 279 = 693  
Child process 2659: 4th: 963 - 369 = 594  
Child process 2659: 5th: 954 - 459 = 495  
Child process 2659: 6th: 954 - 459 = 495  
  
Result from child process 1: 495  
(base) king@king-Latitude-E5540:~/Documents/os-ass1/onechild$  
█
```

Screenshot 2