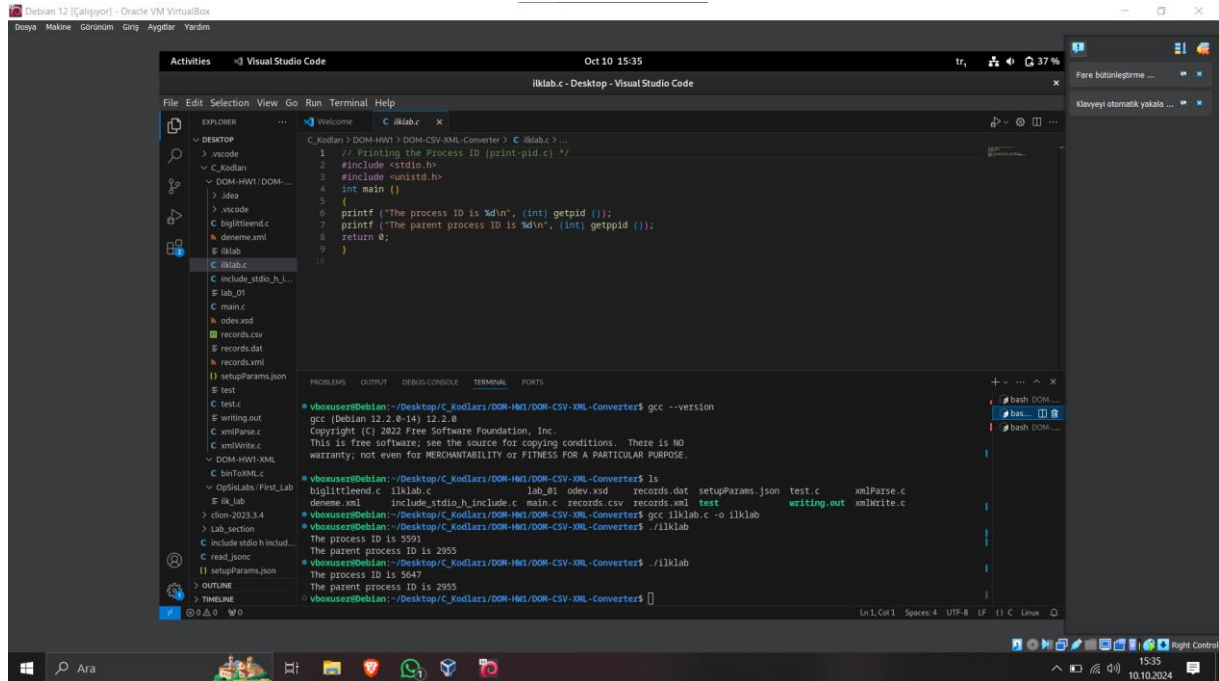


First Example:

First Terminal:



```
Debian 12 [Calypso] - Oracle VM VirtualBox
Donya Makine Görünüm Giriş Aygıtlar Yardım

Activities Visual Studio Code Oct 10 15:35 tr_ 37 %
ilklab.c - Desktop - Visual Studio Code

File Edit Selection View Go Run Terminal Help

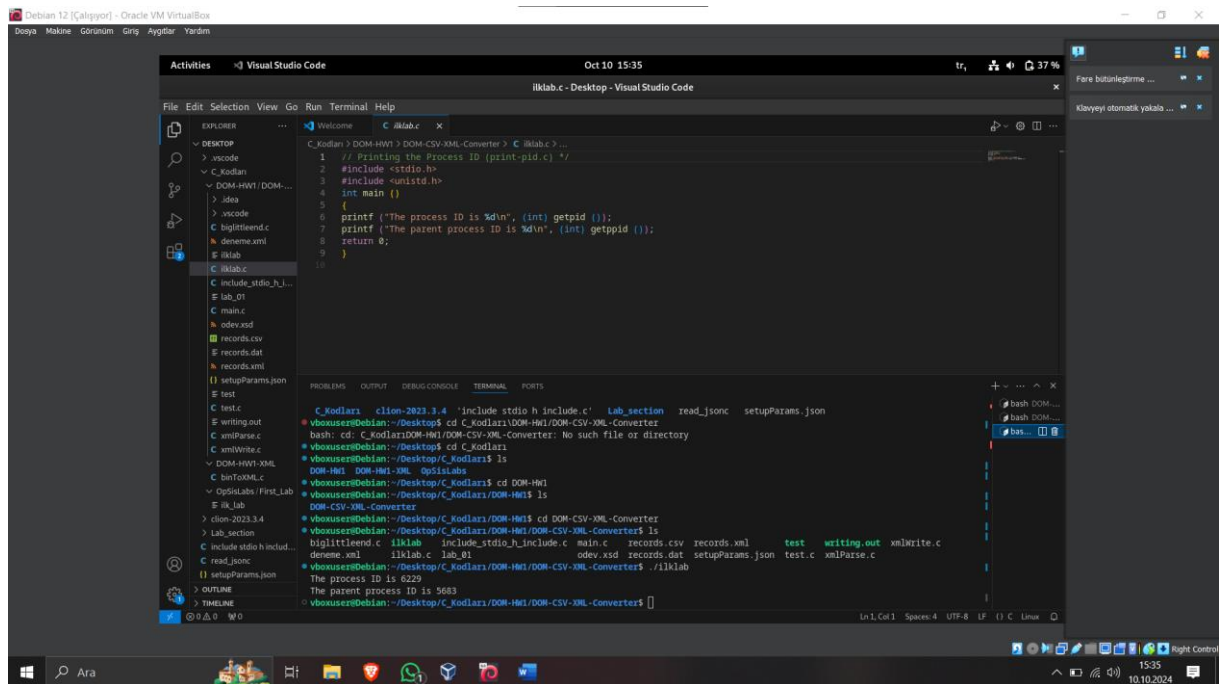
EXPLORER
DESKTOP
  .vscode
  C_Kodlari
    DOM-HWT / DOM-CSV-XML-Converter
      .idea
      .vscode
      biglittileend.c
      deneme.xml
      ilklab
      ilklab.c
      include_stdh_h_include.c
      lab_01
      main.c
      odev.xsd
      records.csv
      records.dat
      records.xml
      setupParams.json
      test
      test.c
      writing.out
      xmlParse.c
      xmlWrite.c
    DOM-HWT-XML
    binToXML.c
    DpsitLabs / First_Lab
      Rk_Lab
      clon-2023.3.4
      Lab_section
      include_stdh_h_include.c
      read_jsonc
      setupParams.json
    OUTLINE
    TIMELINE

C_Kodlari > DOM-HWT > DOM-CSV-XML-Converter > C ilklab.c > ...
1 // Printing the Process ID (print-pid.c) */
2 #include <stdio.h>
3 #include <unistd.h>
4 int main ()
5 {
6     printf ("The process ID is %d\n", (int) getpid ());
7     printf ("The parent process ID is %d\n", (int) getppid ());
8     return 0;
9 }
10

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
vbmuser@Debian:~/Desktop/C_Kodlari/DOM-HWT/DOM-CSV-XML-Converter$ gcc --version
gcc (Debian 12.2.0-14) 12.2.0
Copyright (C) 2022 Free Software Foundation, Inc.
This is free software; see the source for copying conditions. There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

vbmuser@Debian:~/Desktop/C_Kodlari/DOM-HWT/DOM-CSV-XML-Converter$ ls
biglittileend.c  ilklab.c  lab_01  odev.xsd  records.dat  setupParams.json  test.c  xmlParse.c
deneme.xml      include_stdh_h_include.c  main.c  records.csv  records.xml  test      writing.out  xmlWrite.c
vbmuser@Debian:~/Desktop/C_Kodlari/DOM-HWT/DOM-CSV-XML-Converter$ gcc ilklab.c -o ilklab
vbmuser@Debian:~/Desktop/C_Kodlari/DOM-HWT/DOM-CSV-XML-Converter$ ./ilklab
The process ID is 5591
The parent process ID is 2955
vbmuser@Debian:~/Desktop/C_Kodlari/DOM-HWT/DOM-CSV-XML-Converter$ ./ilklab
The process ID is 5647
The parent process ID is 2955
vbmuser@Debian:~/Desktop/C_Kodlari/DOM-HWT/DOM-CSV-XML-Converter$
```

Second Terminal:



```
Debian 12 [Calypso] - Oracle VM VirtualBox
Donya Makine Görünüm Giriş Aygıtlar Yardım

Activities Visual Studio Code Oct 10 15:35 tr_ 37 %
ilklab.c - Desktop - Visual Studio Code

File Edit Selection View Go Run Terminal Help

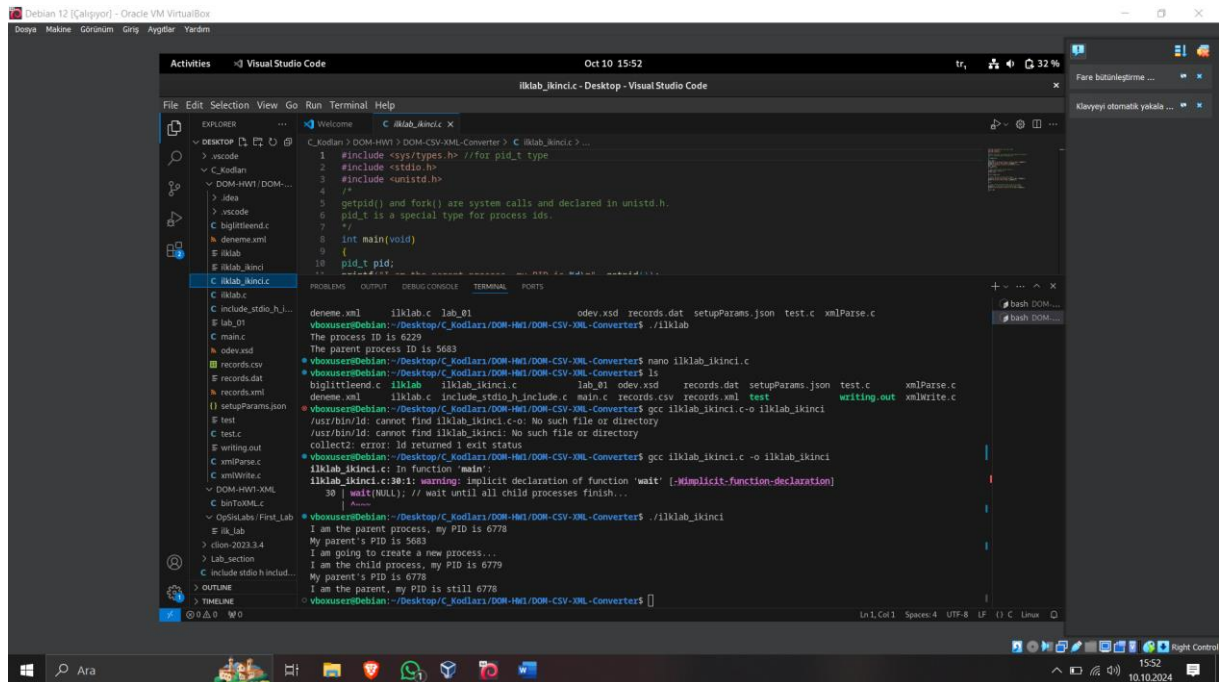
EXPLORER
DESKTOP
  .vscode
  C_Kodlari
    DOM-HWT / DOM-CSV-XML-Converter
      .idea
      .vscode
      biglittileend.c
      deneme.xml
      ilklab
      ilklab.c
      include_stdh_h_include.c
      lab_01
      main.c
      odev.xsd
      records.csv
      records.dat
      records.xml
      setupParams.json
      test
      test.c
      writing.out
      xmlParse.c
      xmlWrite.c
    DOM-HWT-XML
    binToXML.c
    DpsitLabs / First_Lab
      Rk_Lab
      clon-2023.3.4
      Lab_section
      include_stdh_h_include.c
      read_jsonc
      setupParams.json
    OUTLINE
    TIMELINE

C_Kodlari > DOM-HWT > DOM-CSV-XML-Converter > C ilklab.c > ...
1 // Printing the Process ID (print-pid.c) */
2 #include <stdio.h>
3 #include <unistd.h>
4 int main ()
5 {
6     printf ("The process ID is %d\n", (int) getpid ());
7     printf ("The parent process ID is %d\n", (int) getppid ());
8     return 0;
9 }
10

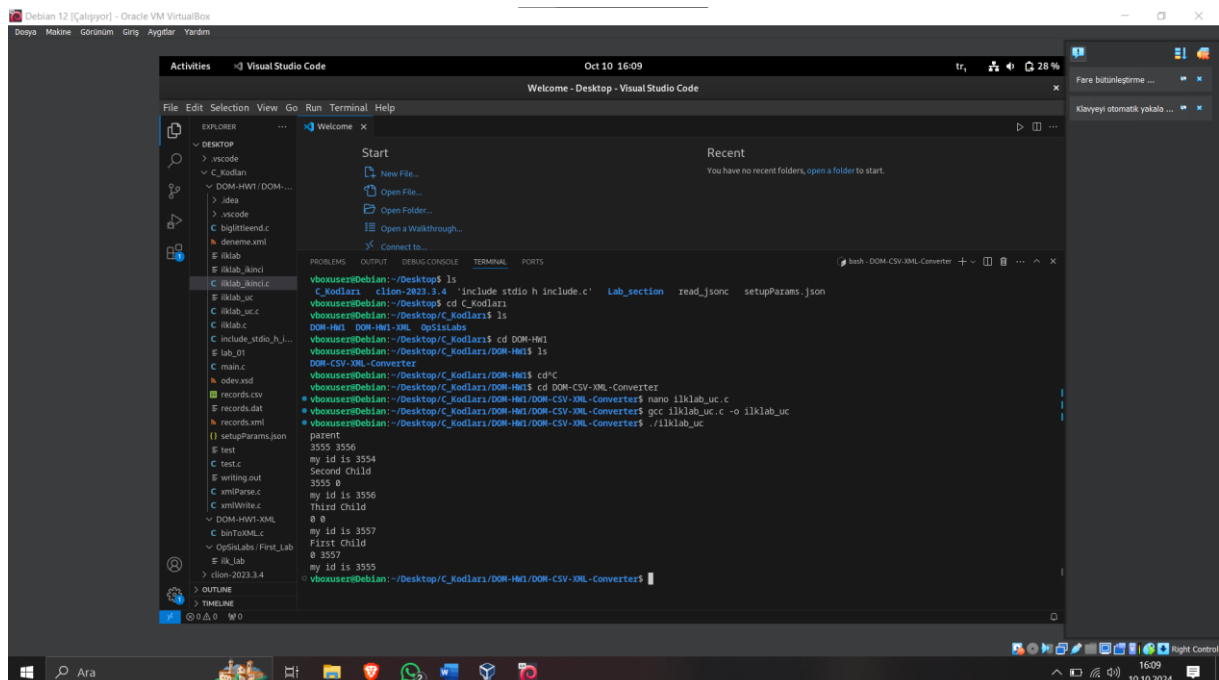
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
vbmuser@Debian:~/Desktop/C_Kodlari/DOM-HWT/DOM-CSV-XML-Converter$ gcc --version
gcc (Debian 12.2.0-14) 12.2.0
Copyright (C) 2022 Free Software Foundation, Inc.
This is free software; see the source for copying conditions. There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

vbmuser@Debian:~/Desktop/C_Kodlari/DOM-HWT/DOM-CSV-XML-Converter$ ls
biglittileend.c  ilklab.c  lab_01  odev.xsd  records.dat  setupParams.json  test.c  xmlParse.c
deneme.xml      include_stdh_h_include.c  main.c  records.csv  records.xml  test      writing.out  xmlWrite.c
vbmuser@Debian:~/Desktop/C_Kodlari/DOM-HWT/DOM-CSV-XML-Converter$ gcc ilklab.c -o ilklab
vbmuser@Debian:~/Desktop/C_Kodlari/DOM-HWT/DOM-CSV-XML-Converter$ ./ilklab
The process ID is 5629
The parent process ID is 5683
vbmuser@Debian:~/Desktop/C_Kodlari/DOM-HWT/DOM-CSV-XML-Converter$
```

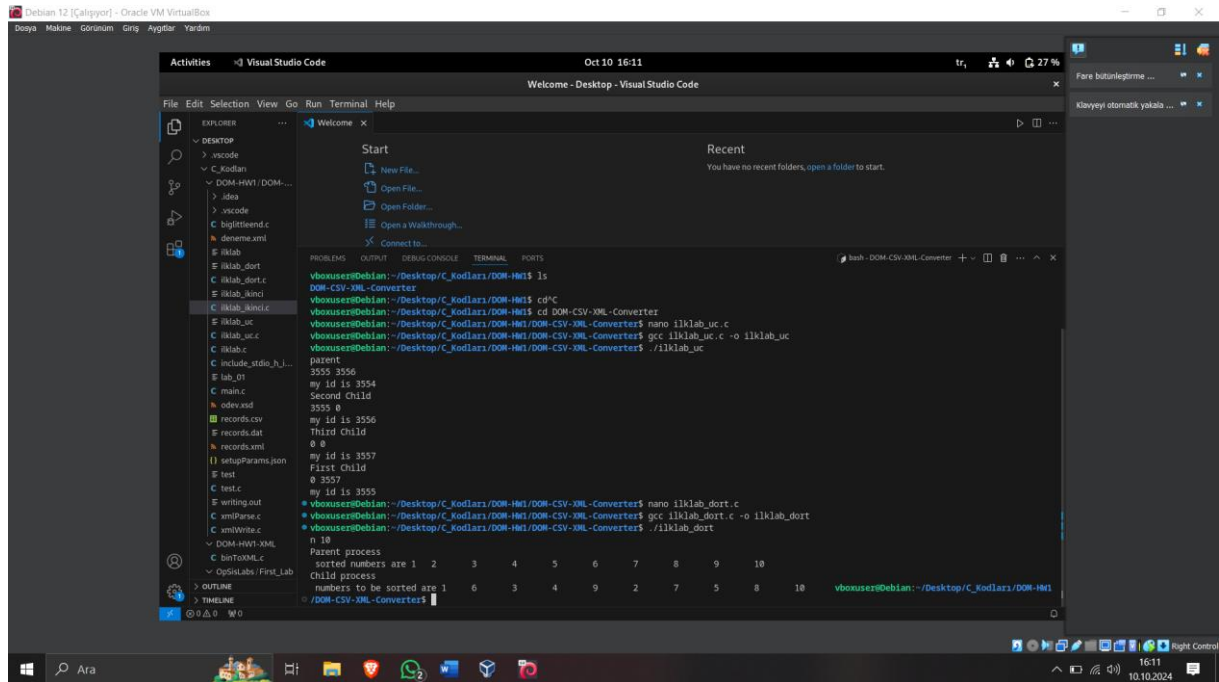
Second Example:



Third Example:



Fourth Example:



```
bash - DOM-CSV-XML-Converter
vboxuser@Debian: ~/Desktop/C_Kodlari/DOM-HM1$ ls
DOM-CSV-XML-Converter
vboxuser@Debian: ~/Desktop/C_Kodlari/DOM-HM1$ cd
vboxuser@Debian: ~/Desktop/C_Kodlari/DOM-HM1$ cd DOM-CSV-XML-Converter
vboxuser@Debian: ~/Desktop/C_Kodlari/DOM-HM1/DOM-CSV-XML-Converter$ nano ilklab_uc.c
vboxuser@Debian: ~/Desktop/C_Kodlari/DOM-HM1/DOM-CSV-XML-Converter$ gcc ilklab_uc.c -o ilklab_uc
vboxuser@Debian: ~/Desktop/C_Kodlari/DOM-HM1/DOM-CSV-XML-Converter$ ./ilklab_uc
parent
my id is 3554
Second Child
3555 0
my id is 3556
Third Child
0 0
my id is 3557
First Child
0 3557
my id is 3555
vboxuser@Debian: ~/Desktop/C_Kodlari/DOM-HM1/DOM-CSV-XML-Converter$ nano ilklab_dort.c
vboxuser@Debian: ~/Desktop/C_Kodlari/DOM-HM1/DOM-CSV-XML-Converter$ gcc ilklab_dort.c -o ilklab_dort
vboxuser@Debian: ~/Desktop/C_Kodlari/DOM-HM1/DOM-CSV-XML-Converter$ ./ilklab_dort
n 10
Parent process
sorted numbers are 1 2 3 4 5 6 7 8 9 10
Child process
numbers to be sorted are 1 6 3 4 9 2 7 5 8 10
vboxuser@Debian: ~/Desktop/C_Kodlari/DOM-HM1/DOM-CSV-XML-Converter$
```

Why Outputs Are Different:

The different outputs by the codes is mainly because of the `fork()` system call, which creates a new child process every time its called. The child process runs the exact same code as the parent process, but it operates in its own address space except for the shared IPC mechanisms used by these processes to communicate with each other. The `'fork()'` function returns the PID to the parent process and 0 to the child process, so that it can change its behavior based on which code path executes. Parent process, other tasks are performed by the child process in parallel. Also, due to the operating system multitasking feature processes could take place at different times therefore in each execution we could have a slightly different output. It looks and acts like a heap structure.