

קישור לגיט - <https://github.com/Roiabr/CPP-Assignments.git>

```
1 #include <iostream>
2 using namespace std;
3
4 int main() {
5     ...
6     cout << "hello, world!";
7     return 0;
8 }
```

```
ro@roi-VirtualBox:~/Desktop$ ^C
ro@roi-VirtualBox:~/Desktop$ ^C
ro@roi-VirtualBox:~/Desktop$ ^C
ro@roi-VirtualBox:~/Desktop$ ^C
ro@roi-VirtualBox:~/Desktop$ ^C
ro@roi-VirtualBox:~/Desktop$ ^C
ro@roi-VirtualBox:~/Desktop$ bash BasicCheck.sh /home/roi/Desktop/ a.out
clang++ 5.0 hello.cpp
compilation      memory leak      thread race;
pass             pass             pass
ro@roi-VirtualBox:~/Desktop$
```

תמונה 1) הצלחת התוכנית

```
1 #include <pthread.h>
2
3 int var = 0;
4
5 void* child_fn(void* arg) {
6     var++; /* Unprotected relative to parent */ /* this is line 6 */
7     return NULL;
8 }
9
10 int main(void) {
11     pthread_t child;
12     pthread_create(&child, NULL, child_fn, NULL);
13     var++; /* Unprotected relative to child */ /* this is line 13 */
14     pthread_join(child, NULL);
15     return 0;
16 }
```

```
ro@roi-VirtualBox:~/Desktop$ ./BasicCheck ~/Desktop race
bash: ./BasicCheck: No such file or directory
ro@roi-VirtualBox:~/Desktop$ ./BasicCheck.sh ~/Desktop race
make: *** No targets specified and no makefile found. Stop.
ro@roi-VirtualBox:~/Desktop$ ./BasicCheck.sh ~/Desktop race
make: Circular race <- race dependency dropped.
gcc race.c -o race -lpthread
0
compilation      memory leak      thread race;
pass             pass             fail
ro@roi-VirtualBox:~/Desktop$
```

תמונה 2) הפעלת קוד של מירץ תהליכים וכשלון כפי שמוצג

The screenshot shows the Visual Studio Code interface within a Linux virtual machine. The Explorer sidebar on the left displays the project structure with files `hello.cpp`, `Makefile`, and `BasicCheck.sh`. The main editor window shows the `hello.cpp` file with the following code:

```
1 #include <iostream>
2 using namespace std;
3
4 int main()
5 {
6     int *p = new int[5];
7     cout << "hello, world";
8     delete[] p;
9     return 0;
10 }
```

The bottom panel contains a terminal window with the following commands and output:

```
ro@ro-VirtualBox:~/Desktop$ ^C
ro@ro-VirtualBox:~/Desktop$ ^C
ro@ro-VirtualBox:~/Desktop$ ^C
ro@ro-VirtualBox:~/Desktop$ ^C
ro@ro-VirtualBox:~/Desktop$ ^C
ro@ro-VirtualBox:~/Desktop$ clang++-5.0 hello.cpp
ro@ro-VirtualBox:~/Desktop$ bash BasicCheck.sh /home/ro/Desktop/ a.out
compilation      memory leak      thread race;
pass              pass              pass
ro@ro-VirtualBox:~/Desktop$
```

תמונה 3) הצלחת ההסקריפט לזליגת זיכרון

This screenshot shows the same Visual Studio Code environment. The `hello.cpp` file is open in the editor. The terminal window shows the execution of the program multiple times, with the following output:

```
ro@ro-VirtualBox:~/Desktop$ ^C
ro@ro-VirtualBox:~/Desktop$ ^C
ro@ro-VirtualBox:~/Desktop$ bash BasicCheck.sh /home/ro/Desktop/ a.out
clang++-5.0 hello.cpp
compilation      memory leak      thread race;
pass              pass              pass
ro@ro-VirtualBox:~/Desktop$ bash BasicCheck.sh /home/ro/Desktop/ a.out
clang++-5.0 hello.cpp
compilation      memory leak      thread race;
pass              fail              pass
ro@ro-VirtualBox:~/Desktop$
```

תמונה 4) כישלון בזליגת זיכרון