

# מטלה 1 - תכנות בסיסי בלינוקס

מגישות: קארין אהרון 312502537

אורנית כהן 313340267

1. הצלחה של הכל (0) -

```
Open ▾ [F]
#include <iostream>
#include <stdio.h>
#include <stdlib.h>

int main (int argc, char* argv[]) {

    int *arr = (int*)malloc(10*sizeof(int));
    arr[0] = 1;
    arr[1] = 2;
    arr[2] = 5;
    printf("I like cpp\n");
    free(arr);
    return 0;
}
```

```
karin@karin-VirtualBox: ~/Desktop
karin@karin-VirtualBox:~/Desktop$ ./BasicCheck.sh /home/karin/Desktop/code main.o
BasicCheck.sh </home/karin/Desktop/code> <main.o>
      compilation Memory leaks thread race
      pass          pass          pass
karin@karin-VirtualBox:~/Desktop$ echo $?
0
karin@karin-VirtualBox:~/Desktop$
```

2. שגיאת מרוצי תהליכונים (1) -

```
Open ▾ [F] Save
#include <pthread.h>

int var = 0;

void* child_fn ( void* arg ) {
    var++; /* Unprotected relative to parent */ /* this is line 6 */
    return NULL;
}

int main ( void ) {
    pthread_t child;
    pthread_create(&child, NULL, child_fn, NULL);
    var++; /* Unprotected relative to child */ /* this is line 13 */
    pthread_join(child, NULL);
    return 0;
}
```

```
karin@karin-VirtualBox: ~/Desktop
karin@karin-VirtualBox:~/Desktop$ ./Basiccheck.sh /home/karin/Desktop/both race
BasicCheck.sh </home/karin/Desktop/both> <race>
      compilation Memory leaks thread race
      pass          pass          fail
karin@karin-VirtualBox:~/Desktop$ echo $?
1
karin@karin-VirtualBox:~/Desktop$
```

### 3. זליגת זיכרון (2) -

```
Open ▾ [F] S
#include <iostream>
#include <stdio.h>
#include <stdlib.h>

int main (int argc, char* argv[]) {

    int *arr = (int*)malloc(10*sizeof(int));
    arr[0] = 1;
    arr[1] = 2;
    arr[2] = 5;
    printf("I like cpp\n");

    return 0;
}
```

```
karin@karin-VirtualBox: ~/Desktop
karin@karin-VirtualBox:~/Desktop$ ./BasicCheck.sh /home/karin/Desktop/code main.o
BasicCheck.sh </home/karin/Desktop/code> <main.o>
      compilation Memory leaks thread race
      pass         fail         pass
karin@karin-VirtualBox:~/Desktop$ echo $?
2
karin@karin-VirtualBox:~/Desktop$
```

### 4. שגיאת זליגת זיכרון ושגיאת מרוצי תהליכונים (3) -

```
Open ▾ [F] Save
#include <pthread.h>

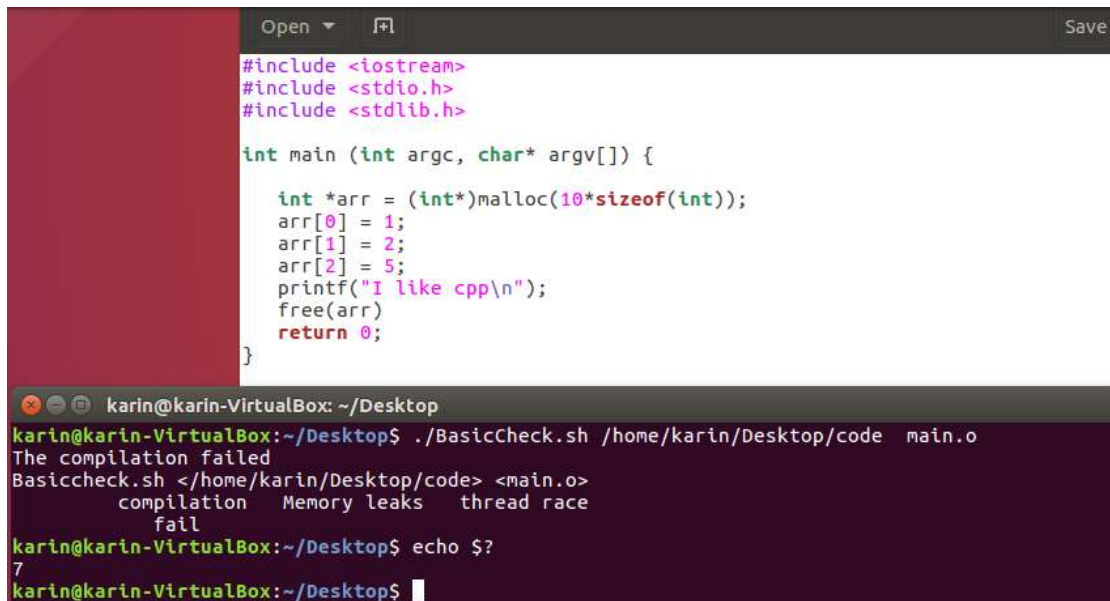
int var = 0;

void* child_fn ( void* arg ) {
    var++; /* Unprotected relative to parent */ /* this is line 6 */
    int *p = (int*)malloc(100*sizeof(int));
    return NULL;
}

int main ( void ) {
    pthread_t child;
    pthread_create(&child, NULL, child_fn, NULL);
    var++; /* Unprotected relative to child */ /* this is line 13 */
    pthread_join(child, NULL);
    return 0;
}
```

```
karin@karin-VirtualBox: ~/Desktop
karin@karin-VirtualBox:~/Desktop$ ./Basiccheck.sh /home/karin/Desktop/both race
BasicCheck.sh </home/karin/Desktop/both> <race>
      compilation Memory leaks thread race
      pass         fail         fail
karin@karin-VirtualBox:~/Desktop$ echo $?
3
karin@karin-VirtualBox:~/Desktop$
```

## 5. שגיאת קומפילציה (7) -



The screenshot shows a code editor window with a C++ program. The program includes `<iostream>`, `<stdio.h>`, and `<stdlib.h>`. The `main` function takes `argc` and `argv` as arguments. It declares an array `arr` of 10 integers, initializes the first three elements to 1, 2, and 5, prints "I like cpp\n", and then returns 0. Below the code editor is a terminal window. The terminal shows the command `./BasicCheck.sh /home/karin/Desktop/code main.o` being executed. The output indicates that the compilation failed due to memory leaks and thread race conditions. The terminal also shows the command `echo $?` being executed, which returns the exit code 7.

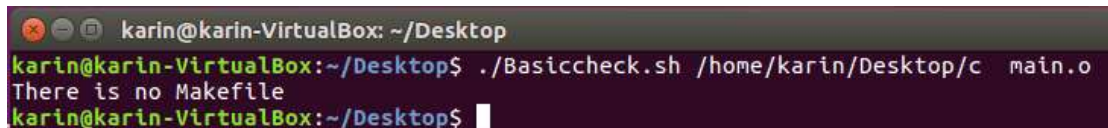
```
#include <iostream>
#include <stdio.h>
#include <stdlib.h>

int main (int argc, char* argv[]) {

    int *arr = (int*)malloc(10*sizeof(int));
    arr[0] = 1;
    arr[1] = 2;
    arr[2] = 5;
    printf("I like cpp\n");
    free(arr)
    return 0;
}
```

```
karin@karin-VirtualBox: ~/Desktop
karin@karin-VirtualBox:~/Desktop$ ./BasicCheck.sh /home/karin/Desktop/code main.o
The compilation failed
Basiccheck.sh </home/karin/Desktop/code> <main.o>
      compilation  Memory leaks  thread race
      fail
karin@karin-VirtualBox:~/Desktop$ echo $?
7
karin@karin-VirtualBox:~/Desktop$
```

## 6. אין Makefile -



The screenshot shows a terminal window. The command `./Basiccheck.sh /home/karin/Desktop/c main.o` is executed. The output is "There is no Makefile".

```
karin@karin-VirtualBox: ~/Desktop
karin@karin-VirtualBox:~/Desktop$ ./Basiccheck.sh /home/karin/Desktop/c main.o
There is no Makefile
karin@karin-VirtualBox:~/Desktop$
```