

תרגיל בית ב – מערכות הפעלה, תשפ"ג

בתרגיל זה עליכם לכתוב ולקמפל תכנית בשפת C, הכוללת יצירת תהליכים בנים, בסביבת Linux.

Homework Assignment

Write a program under Linux that does the following:

1. Reads two numbers as arguments from the CLI, for example
`myprogram 5 12`
2. The main program creates the following children using `fork()`:
 - a. Child 1: Prints sum of the two numbers (integer)
 - b. Child 2: Prints average of the two numbers
 - c. Child 3: Prints the first number to the power of the second (i.e 5^{12}) . **Hint:** you may have to compile with `-lm` to include the math library.
 - d. Each child process should return its results (ie.. `return 17;`). Child 2 should round its result to an integer.
 - e. Additional **hints:** use the functions `atoi`, `waitpid` and the macro `WEXITSTATUS`.
3. The parent process should wait for each child to complete.
4. The parent process should print the result returned by each child process with a title,
 For example: `Process 1 returned Sum 17.`
5. The main program does not print the results of Child 3 correctly, for the example of 5 and 12. Explain what happened.
6. Why are the results not printed in order – children first and then the main program? See example below.
7. Capture the output using `script`. Submit your code . the screen capture, and your answer to steps 5 and 6

Example Run

```
avi@AVI-PC:~$ ./hw 5 12
17
8.50
Process 1 returned 17
Process 2 returned 8
244140625
Process 3 returned 81
```

Submit all of your answers (5,6,7) as a file to the submission box.