Assignment 3

Operating System Lab (CS342)

Department of CSE, IIT Patna

Date:- 02-Feb-2021 Deadline:- 02-Feb, 11.59 PM

Instructions:

1. All the assignments should be completed and uploaded before the deadline. Marks will be deducted for the submissions made after the deadline.
2. Markings will be based on the correctness and soundness of the outputs. Marks will be deducted in case of plagiarism.
3. Proper indentation & appropriate comments (if necessary) are mandatory. [2+2marks]
4. You should zip all the required files and name the zip file as roll_no .zip , eg. 1501cs11.zip. 5. Provide a **readme** file with all the execution details (commands to execute) of the codes and outputs/observations (if necessary).
6. Upload your assignment (the zip file) in the following link:

https://www.dropbox.com/request/7q53FPww7atCvl0VQVPo

Questions:

1. Create 2 child process using fork() system call, Child 1 for adding two integers and Child 2 for multiplying two integers. The parent process should divide the results of Child 2 by the result of Child 1. All the results must be printed along with the respective process ids.
   The input integers should be given as command line arguments.
   Sample input : 2 2
   Sample output:

   Sum by Child child_id : 4
   Multiplication by Child child_id : 4
   Division by Parent parent_id : 1

2. Modify the box given below using fork() system calls over a parent process to create 4 child processes and print the following output. Here, four times Hello should be printed by child process and one time Hello by the parent process.

   Output:

   Hello Hello Hello Hello Hello

```
#include <stdio.h>

#include <unistd.h>

#include <sys/types.h>
int main(){
    fork calls to get the desired
          output

printf("Hello");
return 0;
}
```

3. Write two shell scripts named task1.sh and task2.sh for the following tasks respectively:
   - A shell program that will create an array of size N having values n1 , n2 ,n3……. nN .Print a message "Search found along with its index of searched item S". All the values(N, ni , S) should be taken from the Command Line Argument(CLA). Note: If the searched item does not contain in the array then output an error message.
   - A recursive shell program that should output the product of factorial of a number with the sum of all the prime no. less than equal to that number. Take N from CLA.
     E.g : N = n , Output = fact(n) * PrimeNoLessThan(n)
     = n * fact(n-1) * (if(n∈ Prime number) + PrimeNoLessThan(n-1))

Now, write a C program which creates one parent process and one child process. The child process will execute the task1.sh and parent process will execute the task2.sh.