The Fibonacci sequence is the series of numbers 0,1,1,2,3,5,... Formally, it can be expressed as:
fib(0) = 0
fib(1) = 1
fib(n) = fib(n-1) + fib(n-2)

Write a C program using the fork() system call that generates the Fibonacci sequence in the child process. The number of sequence will be provided in the command line. Perform necessary error checking to ensure that a non-negative number is passed on the command line.
You will implement this program by using shared memory segment between child and parent processes. This technique allows the child to write the contents of the Fibonacci sequence to the shared memory segment and has the parent output the sequence when the child completes. Because the memory is shared, any changes the child makes to the shared memory will be reflected in the parent process as well.
The program first requires creating the data structure for the shared memory segment. This is most easily accomplished using a struct. This data structure will contain two items.
1. A fixed size array of size MAX_SEQUENCE that will hold the Fibonacci values.
2. The size of the sequence the child process is to generate –sequence_size where sequence_size ≤ MAX_SEQUENCE. These items can be represented in a struct as follows:

#define MAX_SEQUENCE 10

typedef struct {
    long fib_sequence[MAX_SEQUENCE];
    int sequence_size;
}shared_data;

The parent process will progress through the following steps:
● Accept the parameter passed on the command line and perform error checking to ensure that the parameter is ≤ MAX_SEQUENCE
● Create a shared-memory segment of size shared_data
● Attach the shared-memory segment to its address space.
● Set the value of sequence_size to the parameter on the command line.
● Fork the child process
● Output the value of the Fibonacci sequence in the shared memory segment
● Detach and remove the shared memory segment.

Because the child process is a copy of the parent, the shared memory region will be attached to the child's address space as well. The child process will then write the Fibonacci sequence to shared memory and finally detach the segment.