Task 1. Write a program that would perform different actions when receiving SIGUSR1 and SIGUSR2.
When receiving SIGUSR1, the program should display that SIGUSR1 was received.
When receiving SIGUSR2, the program should write 100 random ASCII characters to the output and terminate itself.

Task 2 and 3. Provide implementations for the producer-consumer problem (process-based implementation / thread-based implementation)

A producer will be a process/thread that can produce up to 3 items at the same time. The item will be a random number. In order to not overproduce, please use semaphores to control the producing process.
When producing the item, the producer will also display a message on the console that will display a producer id (0, 1, 2) and the produced value.
A consumer will be a process/thread that can consume up to 5 items at the same time. The item will be the random number received from the producer. When consuming a message from the producer, the consumer will display a consumer id and the consumed value.
For inter process communication, you can use pipes (unnamed pipes for thread-based communication, named pipes for process-based communication)