main.c

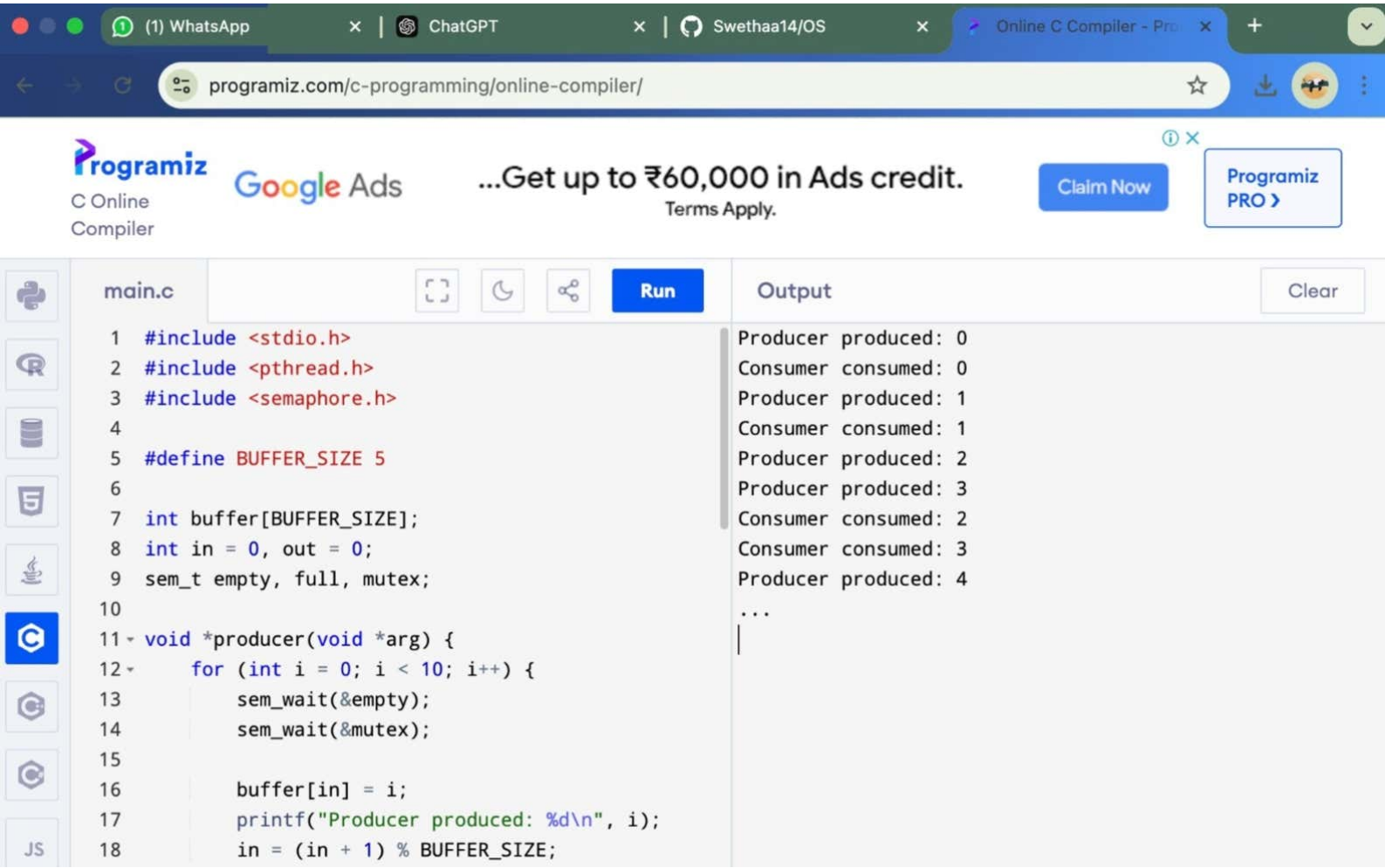
Run

```c
#include <stdio.h>
#include <pthread.h>
#include <unistd.h>

// Thread function to be executed
void *thread_function(void *arg) {
    int thread_num = *((int *)arg);
    printf("Thread %d is running\n", thread_num
        );
    sleep(2);  // Simulate some work
    printf("Thread %d is exiting\n", thread_num
        );
    pthread_exit(NULL);  // Exit the thread
        explicitly
}

int main() {
    pthread_t thread1, thread2;
```

Output

Clear

```
Thread 1 is running
Thread 2 is running
Thread 1 and Thread 2 are different
Thread 1 is exiting
Thread 2 is exiting
Both threads have finished execution
```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Run
Output
Clear
#include <stdio.h>
#include <pthread.h>
#include <semaphore.h>
#define BUFFER_SIZE 5
int buffer[BUFFER_SIZE];
int in = 0, out = 0;
sem_t empty, full, mutex;
void *producer(void *arg) {
for (int i = 0; i < 10; i++) {
sem_wait(&empty);
sem_wait(&mutex);
buffer[in] = i;
printf("Producer produced: %d\n", i);
in = (in + 1) % BUFFER_SIZE;
Producer produced: 0
Consumer consumed: 0
Producer produced: 1
Consumer consumed: 1
Producer produced: 2
Producer produced: 3
Consumer consumed: 2
Consumer consumed: 3
Producer produced: 4
...