

# **MANUAL TECNICO**

Sistemas Operativos 1 - 200924468

# Descripcion

- El proyecto consiste en la creación de un juego similar a “Space Invaders” en lenguajes C. El juego fue desarrollado para dos jugadores en simultaneo (modo versus). Para ello se deben utilizar dos instancias diferentes del mismo programa. El cual se podrá jugar utilizando conexión SSH y usuario local.



# Servidor Remoto AWS-EC2

EC2 Management Console - Mozilla Firefox

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https://console.aws.amazon.com/ec2/v2/home?region=us-east-1

Buscar



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Resource Groups



crissramire

N. Virginia

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<input type="checkbox"/>	Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public
<input type="checkbox"/>	EC2amazon	i-00378f18f04906f52	t2.micro	us-east-1c	running	2/2 checks ...	None	ec2-54-

Instance: i-00378f18f04906f52 (EC2amazon)

Public DNS: ec2-54-166-68-245.compute-1.amazonaws.com

Description

Status Checks

Monitoring

Tags

Instance ID i-00378f18f04906f52

Public DNS (IPv4) ec2-54-166-68-245.compute-1.amazonaws.com

Instance state running

IPv4 Public IP 54.166.68.245

Instance type t2.micro

IPv6 IPs -

Feedback English (US)

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# Conexión SSH

EC2 Management Console - Mozilla Firefox

EC2 Management Console X

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## Connect To Your Instance

I would like to connect with

☒ A standalone SSH client

☐ A Java SSH Client directly from my browser (Java required)

To access your instance:

1. Open an SSH client. (find out how to [connect using PuTTY](#))
2. Locate your private key file (keyAmazonEC2.pem). The wizard automatically detects the key you used to launch the instance.
3. Your key must not be publicly viewable for SSH to work. Use this command if needed:  

```
chmod 400 keyAmazonEC2.pem
```
4. Connect to your instance using its Public DNS:  

```
ec2-54-166-68-245.compute-1.amazonaws.com
```

Example:

```
ssh -i "keyAmazonEC2.pem" ubuntu@ec2-54-166-68-245.compute-1.amazonaws.com
```

Please note that in most cases the username above will be correct, however please ensure that you read your AMI usage instructions to ensure that the AMI owner has not changed the default AMI username.

If you need any assistance connecting to your instance, please see our [connection documentation](#).

Close

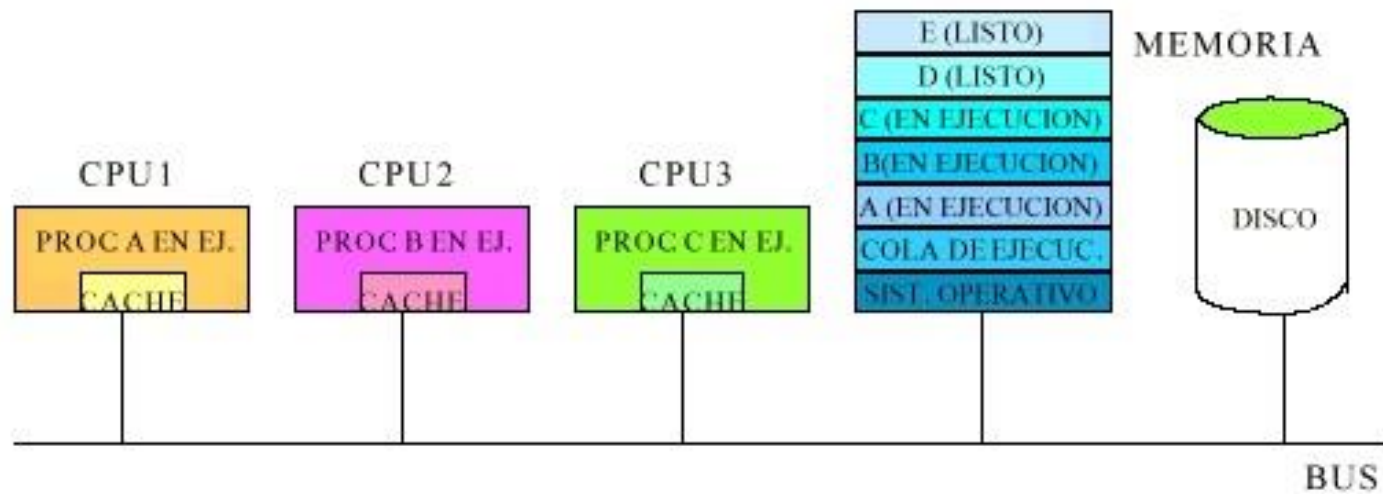
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# Connexion ssh

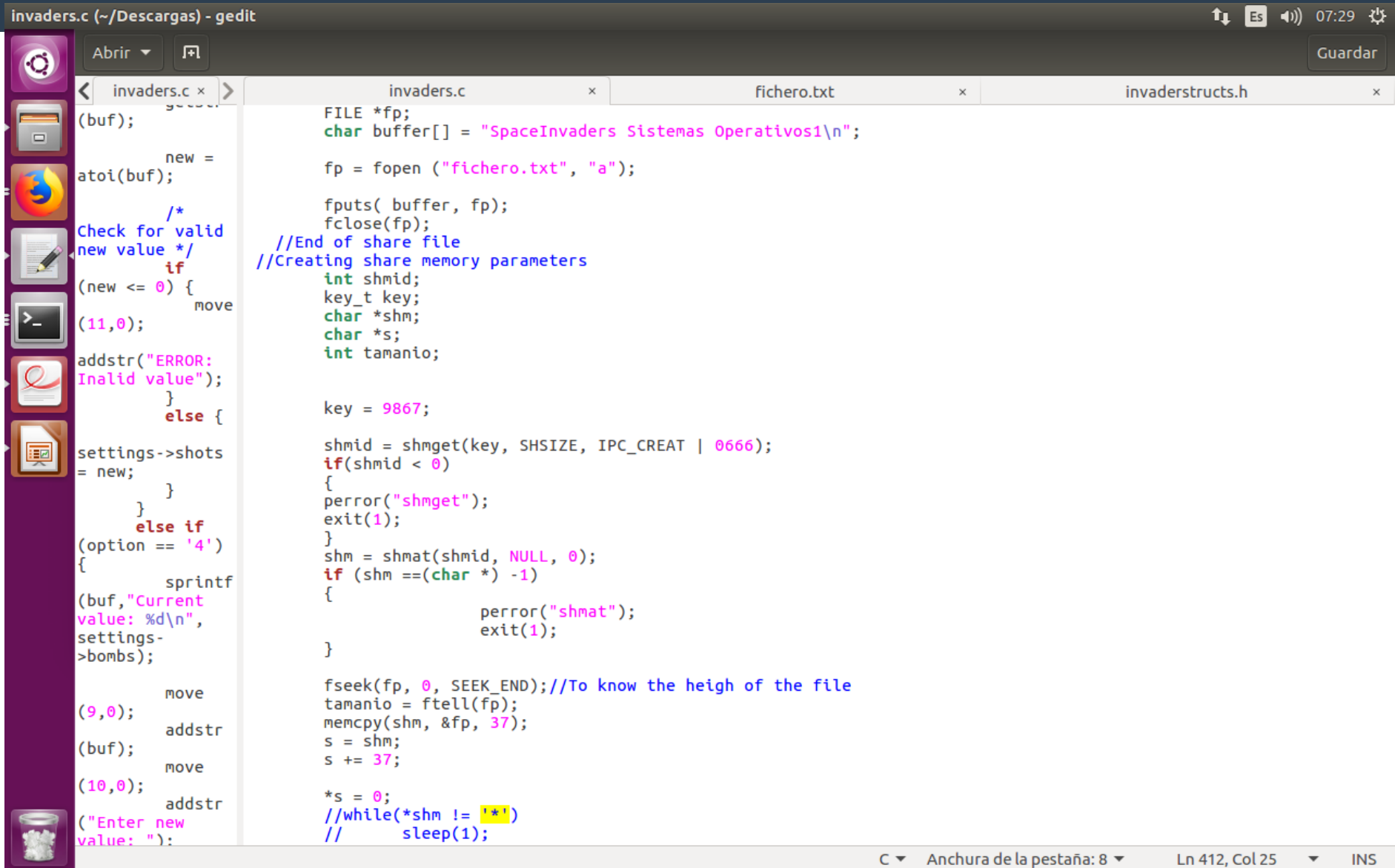
- Para poder conectarse desde un terminal linux es necesario ejecutar el siguiente comando o string de coneccion:
- `ssh -i "keyAmazonEC2.pem" ubuntu@ec2-54-166-68-245.compute-1.amazonaws.com`
- 
- Asegurandose de tener la clave.pem en el directorio donde se ejecute dicho comando.



# Memoria compartida



# Memoria compartida



```
invaders.c (~/Descargas) - gedit
Abrir  Guardar

invaders.c x fichero.txt x invaderstructs.h x

(buf);
    new =
atoi(buf);
    /*
    Check for valid
    new value */
    if
    (new <= 0) {
        move
        (11,0);
        addstr("ERROR:
        Inalid value");
    }
    else {
        settings->shots
        = new;
    }
    else if
    (option == '4')
    {
        sprintf
        (buf,"Current
        value: %d\n",
        settings-
        >bombs);
        move
        (9,0);
        addstr
        (buf);
        move
        (10,0);
        addstr
        ("Enter new
        value: "):

FILE *fp;
char buffer[] = "SpaceInvaders Sistemas Operativos1\n";

fp = fopen ("fichero.txt", "a");

fputs( buffer, fp);
fclose(fp);
//End of share file
//Creating share memory parameters
int shmid;
key_t key;
char *shm;
char *s;
int tamaño;

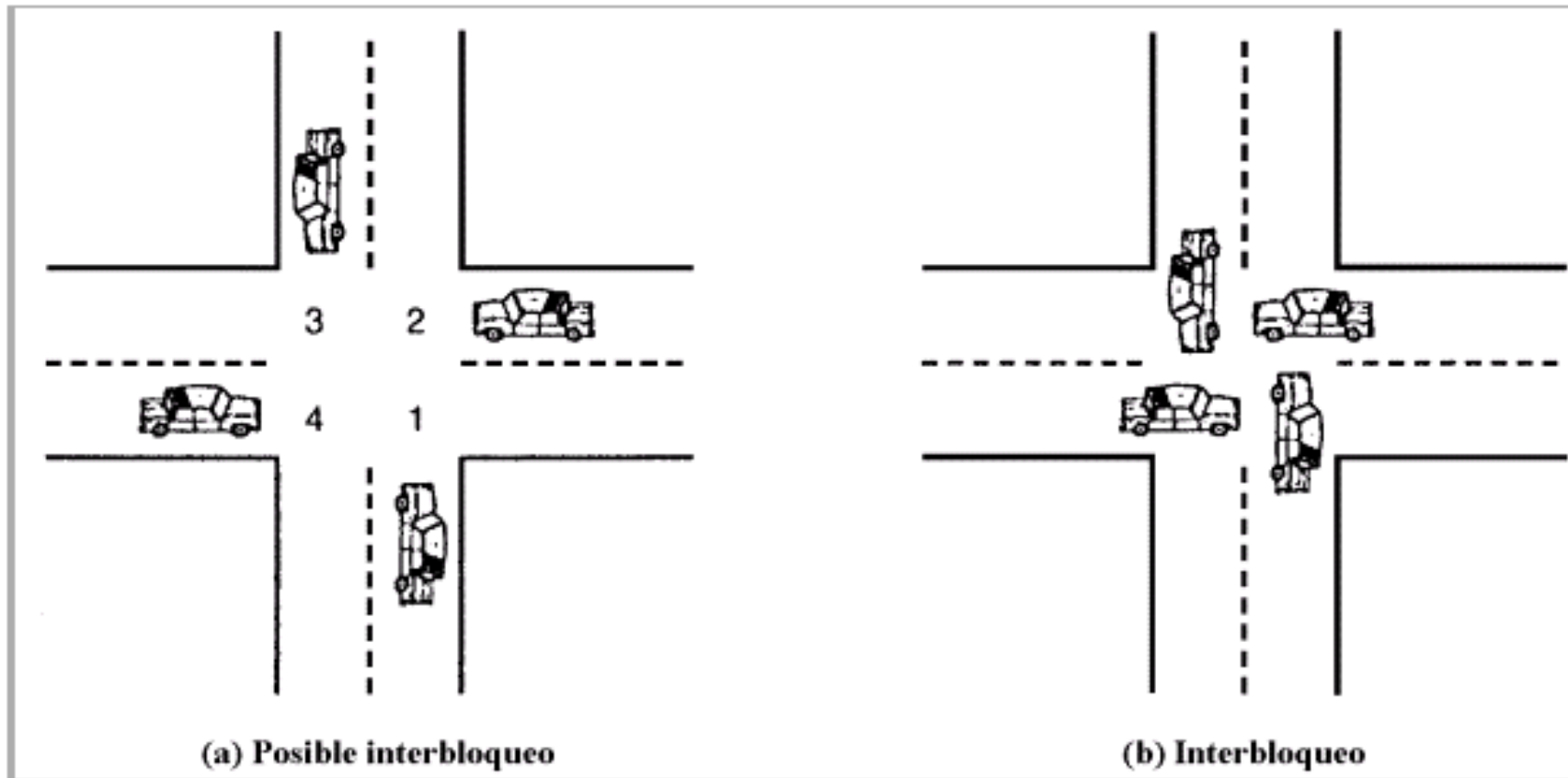
key = 9867;

shmid = shmget(key, SHSIZE, IPC_CREAT | 0666);
if(shmid < 0)
{
    perror("shmget");
    exit(1);
}
shm = shmat(shmid, NULL, 0);
if (shm ==(char *) -1)
{
    perror("shmat");
    exit(1);
}

fseek(fp, 0, SEEK_END); //To know the heigh of the file
tamaño = ftell(fp);
memcpy(shm, &fp, 37);
s = shm;
s += 37;

*s = 0;
//while(*shm != '*')
//    sleep(1);
```

# Semaforos



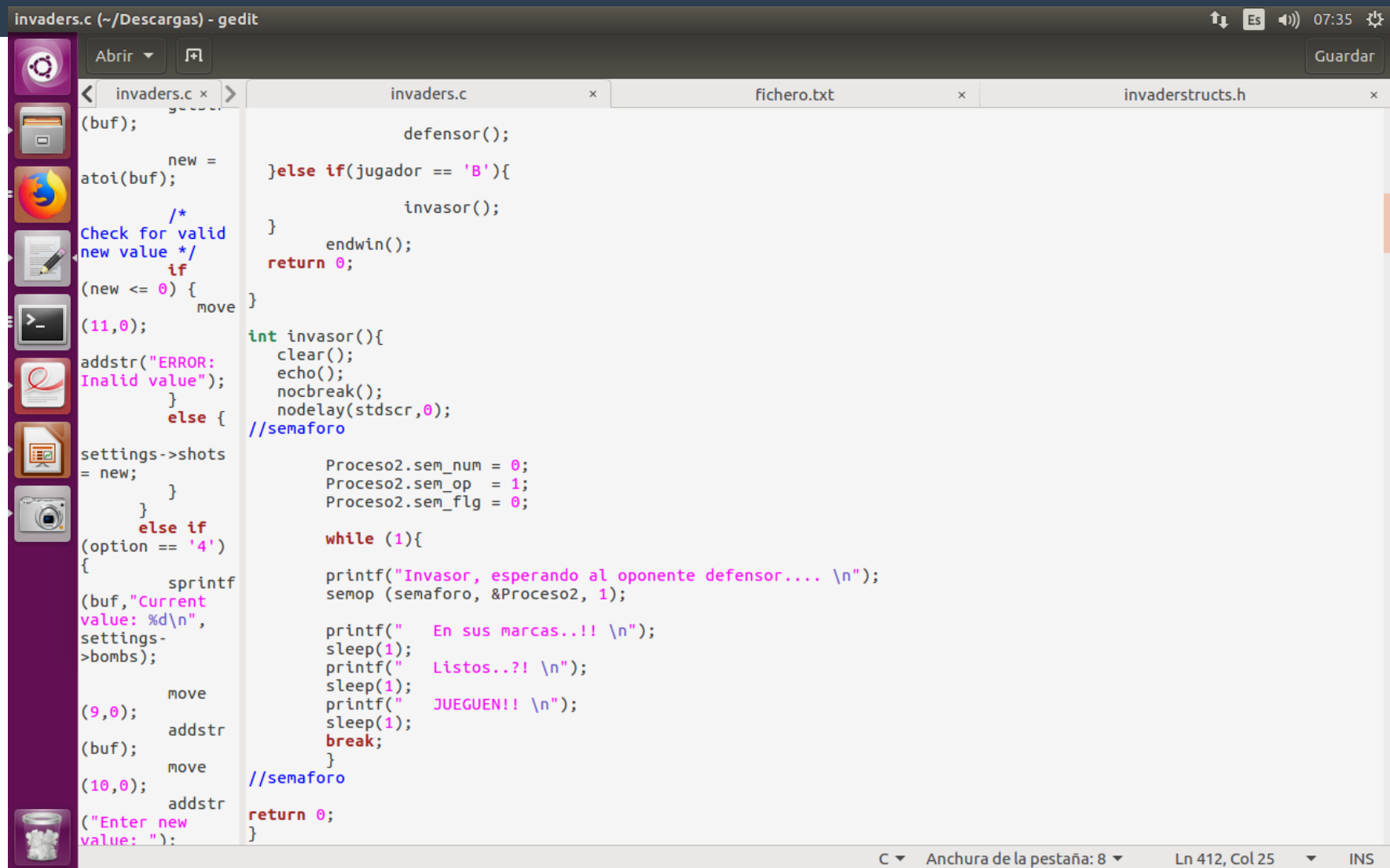


# Semaforos

- Un semáforo es una variable especial (o tipo abstracto de datos) que constituye el método clásico para restringir o permitir el acceso a recursos compartidos (por ejemplo, un recurso de almacenamiento del sistema o variables del código fuente) en un entorno de multiprocesamiento (en el que se ejecutarán varios procesos concurrentemente)



# Semaforos



The screenshot shows a gedit editor window titled "invaders.c (~/.Descargas) - gedit". The window has a sidebar on the left with icons for file explorer, Firefox, a notepad, a terminal, a red circle icon, a presentation icon, and a camera icon. The main editor area displays C code for a game. The code is split into two panes. The left pane shows the main game loop, and the right pane shows the invader function.

```
invaders.c (~/.Descargas) - gedit  
Abrir Guardar  
invaders.c x fichero.txt x invaderstructs.h x  
(buf);  
new =  
atoi(buf);  
/*  
Check for valid  
new value */  
if  
(new <= 0) {  
    move  
(11,0);  
    addstr("ERROR:  
Inalid value");  
} else {  
    settings->shots  
= new;  
}  
else if  
(option == '4')  
{  
    sprintf  
(buf,"Current  
value: %d\n",  
settings-  
>bombs);  
    move  
(9,0);  
    addstr  
(buf);  
    move  
(10,0);  
    addstr  
("Enter new  
value: "):  
    defensor();  
}else if(jugador == 'B'){  
    invasor();  
}  
endwin();  
return 0;  
int invasor(){  
    clear();  
    echo();  
    nocbreak();  
    nodelay(stdscr,0);  
    //semaforo  
    Proceso2.sem_num = 0;  
    Proceso2.sem_op = 1;  
    Proceso2.sem_flg = 0;  
    while (1){  
        printf("Invasor, esperando al oponente defensor.... \n");  
        semop (semaforo, &Proceso2, 1);  
        printf("    En sus marcas..!! \n");  
        sleep(1);  
        printf("    Listos..?! \n");  
        sleep(1);  
        printf("    JUEGUEN!! \n");  
        sleep(1);  
        break;  
    }  
    //semaforo  
    return 0;  
}
```

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# Semaforos

