



PUCMM
Pontificia Universidad Católica
Madre y Maestra

Por: Junior Hernández

L6. Salvando a Josefo

- **Planteamiento:**

1.- Tienes que devolver correctamente quién es el "superviviente", es decir: el último elemento de una

permutación de Josefo.

Básicamente, debes asumir que n personas se ponen en un círculo y que se eliminan en pasos de k

elementos, así:

josephus_survivor (7,3) => significa 7 personas en un círculo;

uno de cada 3 se elimina hasta que quede uno

[1,2,3,4,5,6,7] - secuencia inicial

[1,2,4,5,6,7] => 3 se cuenta

[1,2,4,5,7] => 6 se cuenta

[1,4,5,7] => 2 se cuenta

[1,4,5] => 7 se cuenta

[1,4] => 5 se cuentan

[4] => 1 contado, 4 es el último elemento: ¡el superviviente!

Haz prueba con diversos valores de n (3,37, 103, etc)

- **Solución:**

Código

```
fn josephus_survivor_1 (n: i32, k: i32) {  
  let mut personas: Vec<i32> = Vec::new();  
  for pos in 1..n+1{  
    personas.push(pos);  
  }  
  let mut index = -1;  
  let mut len;  
  len = personas.len() as i32;  
  while len > 1 {  
    println!("{:?}",personas);  
    index = (index + k) % len;  
    let eliminado = personas.remove(index as usize);  
    println!("eliminado {}",eliminado);  
    println!("Queda:");  
    index -= 1;  
    len -= 1;  
  }  
  println!("El ganador es: {:?}",personas.first());  
  return;  
}  
  
fn main() {  
  println!("{:?}",josephus_survivor_1(7, 3));  
}
```

Salidas: n(7, 3)

```
[1, 2, 3, 4, 5, 6, 7]  
eliminado 3  
Queda:  
[1, 2, 4, 5, 6, 7]  
eliminado 6  
Queda:  
[1, 2, 4, 5, 7]  
eliminado 2  
Queda:  
[1, 4, 5, 7]  
eliminado 7  
Queda:  
[1, 4, 5]  
eliminado 5  
Queda:  
[1, 4]  
eliminado 1  
Queda:  
El ganador es: Some(4)  
()
```

n(34,7)

[1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34]

eliminado 7

Queda:

[1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34]

eliminado 14

Queda:

[1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34]

eliminado 21

Queda:

[1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34]

eliminado 28

Queda:

[1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 22, 23, 24, 25, 26, 27, 29, 30, 31, 32, 33, 34]

eliminado 1

Queda:

[2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 22, 23, 24, 25, 26, 27, 29, 30, 31, 32, 33, 34]

eliminado 9

Queda:

[2, 3, 4, 5, 6, 8, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 22, 23, 24, 25, 26, 27, 29, 30, 31, 32, 33, 34]

eliminado 17

Queda:

[2, 3, 4, 5, 6, 8, 10, 11, 12, 13, 15, 16, 18, 19, 20, 22, 23, 24, 25, 26, 27, 29, 30, 31, 32, 33, 34]

eliminado 25

Queda:

[2, 3, 4, 5, 6, 8, 10, 11, 12, 13, 15, 16, 18, 19, 20, 22, 23, 24, 26, 27, 29, 30, 31, 32, 33, 34]

eliminado 33

Queda:

[2, 3, 4, 5, 6, 8, 10, 11, 12, 13, 15, 16, 18, 19, 20, 22, 23, 24, 26, 27, 29, 30, 31, 32, 34]

eliminado 8

Queda:

[2, 3, 4, 5, 6, 10, 11, 12, 13, 15, 16, 18, 19, 20, 22, 23, 24, 26, 27, 29, 30, 31, 32, 34]

eliminado 18

Queda:

[2, 3, 4, 5, 6, 10, 11, 12, 13, 15, 16, 19, 20, 22, 23, 24, 26, 27, 29, 30, 31, 32, 34]

eliminado 27

Queda:

[2, 3, 4, 5, 6, 10, 11, 12, 13, 15, 16, 19, 20, 22, 23, 24, 26, 29, 30, 31, 32, 34]

eliminado 3

Queda:

[2, 4, 5, 6, 10, 11, 12, 13, 15, 16, 19, 20, 22, 23, 24, 26, 29, 30, 31, 32, 34]

eliminado 13

Queda:

[2, 4, 5, 6, 10, 11, 12, 15, 16, 19, 20, 22, 23, 24, 26, 29, 30, 31, 32, 34]

eliminado 24

Queda:

[2, 4, 5, 6, 10, 11, 12, 15, 16, 19, 20, 22, 23, 26, 29, 30, 31, 32, 34]

eliminado 2

Queda:

[4, 5, 6, 10, 11, 12, 15, 16, 19, 20, 22, 23, 26, 29, 30, 31, 32, 34]

eliminado 15

Queda:

[4, 5, 6, 10, 11, 12, 16, 19, 20, 22, 23, 26, 29, 30, 31, 32, 34]

eliminado 29

Queda:

[4, 5, 6, 10, 11, 12, 16, 19, 20, 22, 23, 26, 30, 31, 32, 34]

eliminado 6

Queda:

[4, 5, 10, 11, 12, 16, 19, 20, 22, 23, 26, 30, 31, 32, 34]

eliminado 22

Queda:

[4, 5, 10, 11, 12, 16, 19, 20, 23, 26, 30, 31, 32, 34]

eliminado 4

Queda:

[5, 10, 11, 12, 16, 19, 20, 23, 26, 30, 31, 32, 34]

eliminado 20

Queda:

[5, 10, 11, 12, 16, 19, 23, 26, 30, 31, 32, 34]

eliminado 5

Queda:

[10, 11, 12, 16, 19, 23, 26, 30, 31, 32, 34]

eliminado 26

Queda:

[10, 11, 12, 16, 19, 23, 30, 31, 32, 34]

eliminado 12

Queda:

[10, 11, 16, 19, 23, 30, 31, 32, 34]

eliminado 34

Queda:

[10, 11, 16, 19, 23, 30, 31, 32]

eliminado 31

Queda:

[10, 11, 16, 19, 23, 30, 32]

eliminado 30

Queda:

[10, 11, 16, 19, 23, 32]

eliminado 32

Queda:

[10, 11, 16, 19, 23]

eliminado 11

Queda:

[10, 16, 19, 23]

eliminado 23

Queda:

[10, 16, 19]

eliminado 10

Queda:

[16, 19]

eliminado 16

Queda:

El ganador es: Some(19)