

-----Sequential

Gophers – 1

Incinerator -1

Total time – 930

```
public class SequentialImpl {
    public static void main(String ar[]){

        int pile=50,tot_dur=0,burnedBooks=0,remainingBooks=0,cardCapacity=5,incineratorCapacity=3,loadDur=10,pToIDur=30,iToPDur=30,unloadDur=10,burnDur=20;

        while(pile>0) {
            //load to cart
            pile -= cardCapacity;
            tot_dur += loadDur;

            //move to incinerator
            tot_dur += pToIDur;

            //unload from cart
            tot_dur += unloadDur;

            if (pile <= 0)
                break;

            //move to pile
            tot_dur += iToPDur;
            burnedBooks += incineratorCapacity;
            remainingBooks += cardCapacity-incineratorCapacity;
        }
        remainingBooks+=cardCapacity;

        while(remainingBooks>0){
            burnedBooks+=incineratorCapacity;
            remainingBooks-=incineratorCapacity;
            tot_dur+=burnDur;
        }
        System.out.println("Total duration : "+tot_dur);
    }
}
```

$$\left. \begin{array}{l} \} \\ \} \end{array} \right\}$$

-----Concurrent

1) Gophers-8 Time required-230

L : Load

M : Move

UL : Unload

MB : Move Back

I1 : Incinerator 1

I2 : Incinerator 2

B : Burn

R : Remain

Gophers	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
G1	L(5,45)	M	M	M	UL	MB	MB	MB	L(5,5)	M	M	M	UL	I1 : 3-B 2-R	I1 : 3-B	I1 : 3-B	I1 : 3-B	I1 : 3-B	I1 : 2-B				
						I1 : 3-B 2-R																	
G2		L(5,40)	M	M	M	UL	MB	MB	MB	L(5,0)	M	M	M	UL	I2 : 3-B 2-R	I2 : 3-B	I2 : 3-B	I2 : 3-B					
							I2 : 3-B 2-R																
G3			L(5,35)	M	M	M	UL	I1 : 3-B 2-R															
G4				L(5,30)	M	M	M	UL	I2 : 3-B 2-R														
G5					L(5,25)	M	M	M	UL	I1 : 3-B 2-R													
G6						L(5,20)	M	M	M	UL	I2 : 3-B 2-R												
G7							L(5,15)	M	M	M	UL	I1 : 3-B 2-R											
G8								L(5,10)	M	M	M	UL	I2 : 3-B 2-R										

2) Gophers-6 Time required – 260

L - load

M - move

UL - unload

W - wait

B - back

I1 – incinerator 1

I2 – incinerator 2

Gophers	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
G1	L(5,45)	M	B	L(5,35)	M	B	L(5,25)	M	B	L(5,15)	M	B	L(5,5)	M	END											
G2	W	M	UL	B	M	UL	B	M	UL	B	M	UL	B	M	UL	B	M	UL	END							
G3	W	I1 : 3-B	I1 : 2-B	I1 : 3-B	I1 : 2-B	I1 : 3-B	I1 : 2-B	I1 : 3-B	I1 : 2-B	I1 : 3-B	I1 : 2-B	I1 : 3-B	I1 : 2-B	I1 : 3-B	I1 : 2-B	I1 : 3-B	I1 : 2-B	I1 : 3-B	I1 : 2-B	END						
G4	L(5,40)	M	B	L(5,30)	M	B	L(5,20)	M	B	L(5,10)	M	B	L(5,0)	M	END											
G5	W	M	UL	B	M	UL	B	M	UL	B	M	UL	B	M	UL	B	M	UL	END							
G6	W	I2 : 3-B	I2 : 2-B	I2 : 3-B	I2 : 2-B	I2 : 3-B	I2 : 2-B	I2 : 3-B	I2 : 2-B	I2 : 3-B	I2 : 2-B	I2 : 3-B	I2 : 2-B	I2 : 3-B	I2 : 2-B	I2 : 3-B	I2 : 2-B	I2 : 3-B	I2 : 2-B	END						