Anggota Kelompok:

1. Moody
2. Jose
3. Yosia

The Dining Philosopher Problem menyatakan bahwa N filsuf duduk mengelilingi meja melingkar dengan satu garpu di antara setiap pasangan filsuf. Ada satu garpu di antara setiap filsuf. Seorang filsuf boleh makan jika dia dapat mengambil dua garpu yang berdekatan dengannya Satu garpu dapat diambil oleh salah satu pengikutnya yang garpu tetapi tidak keduanya.

Kode yang digunakan:

```
import threading
import time
import sys


class Philosopher(threading.Thread):
    running = True

    def __init__(self, index, forkOnLeft, forkOnRight):
        threading.Thread.__init__(self)
        self.index = index
        self.forkOnLeft = forkOnLeft
        self.forkOnRight = forkOnRight

    def run(self):
        while(self.running):
            time.sleep(20)
            print ('Philosopher %s is hungry.' % self.index)
            self.dine()
```

```
    def dine(self):
        fork1, fork2 = self.forkOnLeft, self.forkOnRight
        while self.running:
            fork1.acquire()
            locked = fork2.acquire(False)
            if locked: break
            fork1.release()
            fork1, fork2 = fork2, fork1
        else:
            return
        self.dining()
        fork2.release()
        fork1.release()

    def dining(self):
        print ('Philosopher %s starts eating. '% self.index)
        time.sleep(25)
        print ('Philosopher %s finishes eating and leaves to think.' % self.index)
```

```
def main():
    forks = [threading.Semaphore() for n in range(filsuf)]
    philosophers= [Philosopher(i, forks[i%filsuf], forks[(i+1)%filsuf])
            for i in range(filsuf)]

    Philosopher.running = True
    for p in philosophers: p.start()
    time.sleep(85)
    Philosopher.running = False
    time.sleep(100)
    print ("Now we're finishing.")
```

```python
if __name__ == "__main__":
    n = len(sys.argv)
    global filsuf
    global makan
    if n == 5:
        if sys.argv[1] == "--filsuf" and sys.argv[3] == "--makan":
            filsuf = int(sys.argv[2])
            makan = int(sys.argv[4])
            main()
    else:
        print("wrong format!")
        print("format : python dining_philosopher.py --filsuf n --makan n")
```

Evaluasi project:

1. **evaluasi program tersebut menggunakan 5 filsuf dan 1 makan.**

```
py dining_philosopher.py --filsuf 5 --makan 1
```

```
Philosopher 1 is hungry.
Philosopher 2 is hungry.
Philosopher 0 is hungry.
Philosopher 1 starts eating.
Philosopher 3 is hungry.
Philosopher 4 is hungry.
Philosopher 3 starts eating.
Philosopher 3 finishes eating and leaves to think.
Philosopher 1 finishes eating and leaves to think.
Philosopher 4 starts eating.
Philosopher 2 starts eating.
Philosopher 1 is hungry.
Philosopher 3 is hungry.
Philosopher 2 finishes eating and leaves to think.
Philosopher 4 finishes eating and leaves to think.
Philosopher 1 starts eating.
Philosopher 3 starts eating.
Philosopher 2 is hungry.
Philosopher 4 is hungry.
Philosopher 1 finishes eating and leaves to think.
Philosopher 3 finishes eating and leaves to think.
Philosopher 0 starts eating.
Philosopher 0 finishes eating and leaves to think.
Now we're finishing.
```

2. **evaluasi program tersebut menggunakan 10 filsuf dan 2 makan.**

```
py dining_philosopher.py --filsuf 10 --makan 2
```

```
Philosopher 8 is hungry.
Philosopher 7 is hungry.
Philosopher 0 is hungry.
Philosopher 0 starts eating.
Philosopher 5 is hungry.
Philosopher 5 starts eating.
Philosopher 3 is hungry.
Philosopher 3 starts eating.
Philosopher 1 is hungry.
Philosopher 6 is hungry.
Philosopher 2 is hungry.
Philosopher 4 is hungry.
Philosopher 9 is hungry.
Philosopher 8 starts eating.
Philosopher 5 finishes eating and leaves to think.
Philosopher 8 finishes eating and leaves to think.
Philosopher 0 finishes eating and leaves to think.
Philosopher 6 starts eating.
Philosopher 9 starts eating.
Philosopher 3 finishes eating and leaves to think.
Philosopher 1 starts eating.
Philosopher 4 starts eating.
Philosopher 0 is hungry.
Philosopher 5 is hungry.
Philosopher 8 is hungry.
```

```
Philosopher 3 is hungry.
Philosopher 1 finishes eating and leaves to think.
Philosopher 6 finishes eating and leaves to think.
Philosopher 4 finishes eating and leaves to think.
Philosopher 9 finishes eating and leaves to think.
Philosopher 7 starts eating.
Philosopher 2 starts eating.
Philosopher 5 starts eating.
Philosopher 0 starts eating.
Philosopher 6 is hungry.
Philosopher 4 is hungry.
Philosopher 9 is hungry.
Philosopher 1 is hungry.
Philosopher 5 finishes eating and leaves to think.
Philosopher 7 finishes eating and leaves to think.
Philosopher 0 finishes eating and leaves to think.
Philosopher 2 finishes eating and leaves to think.
Philosopher 8 starts eating.
Philosopher 3 starts eating.
Philosopher 3 finishes eating and leaves to think.
Philosopher 8 finishes eating and leaves to think.
Now we're finishing.
```