

## Experiment\_9\_TokenBased

### 1. Consumer.py

```
import signal
import time
import sys
from sk import ExchangeObject, DistributedMonitor
import random

def ctrl_c(signal, frame):
    print('Stopping...')
    ds.stop_zmq()
    sys.exit(0)
signal.signal(signal.SIGINT, ctrl_c)

my_id = sys.argv[1]
workers = sys.argv[1:]

ds = DistributedMonitor(my_id, False, workers)
ds.run_zmq()

i = 0 # program counter
while True:
    prod = ds.acquire()
    if prod:
        i = 0
        print("Processing:", prod.pop(0))
    else:
        print("There is nothing to process")
        i+=1
    time.sleep(random.randint(1,5))
    ds.release(prod)
    if (i>=5):
        print("Products are over")
        ds.stop_zmq()
        sys.exit(0)

    time.sleep(random.randint(1,5))
```

## 2. Product.py

```
import signal
import time
import sys
from sk import ExchangeObject, DistributedMonitor
import random

def ctrl_c(signal, frame):
    print('Stoping...')
    ds.stop_zmq()
    sys.exit(0)

signal.signal(signal.SIGINT, ctrl_c)
token = sys.argv[1]
if token == "1":
    token = True
else:
    token = False
my_id = sys.argv[2]
workers = sys.argv[2:]
ds = DistributedMonitor(my_id, token, workers)
ds.run_zmq()
i = 1 # product counter
while True:
    prod = ds.acquire()
    if not prod:
        prod = [0]
    else:
        tmp = prod[-1] + 1
        prod.append(tmp)
    print("Produces...", prod)
    i+=1
    time.sleep(random.randint(1,3))
    ds.release(prod)
    if (i >= 20):
        print("Made:", i)
        ds.stop_zmq()
        sys.exit(0)

time.sleep(random.randint(1,3))
```

## Output

```
pi@raspberrypi: ~/Desktop/DC/Experiment_9_TokenBased
File Edit Tabs Help
pi@raspberr... x pi@raspberr... x pi@raspberr... x pi@raspberr... x
pi@raspberrypi:~/Desktop/DC/Experiment_9_TokenBased $ python3 Consumer.py 127.0.0.1:5555 127.0.0.1:4444 127.0.0.1:2222 127.0.0.1:3333
Waiting for all the workers to start...
There is nothing to process
Processing: 0
Processing: 1
Processing: 1
Processing: 3
Processing: 5
Processing: 1
^CStopping...
pi@raspberrypi:~/Desktop/DC/Experiment_9_TokenBased $
```

```
pi@raspberrypi: ~/Desktop/DC/Experiment_9_TokenBased
File Edit Tabs Help
pi@raspberr... x pi@raspberr... x pi@raspberr... x pi@raspberr... x
pi@raspberrypi:~/Desktop/DC/Experiment_9_TokenBased $ python3 Product.py 0 127.0.0.1:3333 127.0.0.1:2222 127.0.0.1:4444 127.0.0.1:5555
Waiting for all the workers to start...
Produces... [0, 1]
Produces... [0, 1]
Produces... [0, 1]
Produces... [2, 3]
Produces... [4, 5]
Produces... [0, 1]
^CStopping...
pi@raspberrypi:~/Desktop/DC/Experiment_9_TokenBased $
```

```
pi@raspberrypi: ~/Desktop/DC/Experiment_9_TokenBased
File Edit Tabs Help
pi@raspberr... x pi@raspberr... x pi@raspberr... x pi@raspberr... x
pi@raspberrypi:~/Desktop/DC/Experiment_9_TokenBased $ python3 Product.py 1 127.0.0.1:2222 127.0.0.1:3333 127.0.0.1:4444 127.0.0.1:5555
Waiting for all the workers to start...
Produces... [0]
Produces... [0]
Produces... [0]
Produces... [1, 2]
Produces... [3, 4]
Produces... [0]
Produces... [0]
^CStopping...
pi@raspberrypi:~/Desktop/DC/Experiment_9_TokenBased $
```