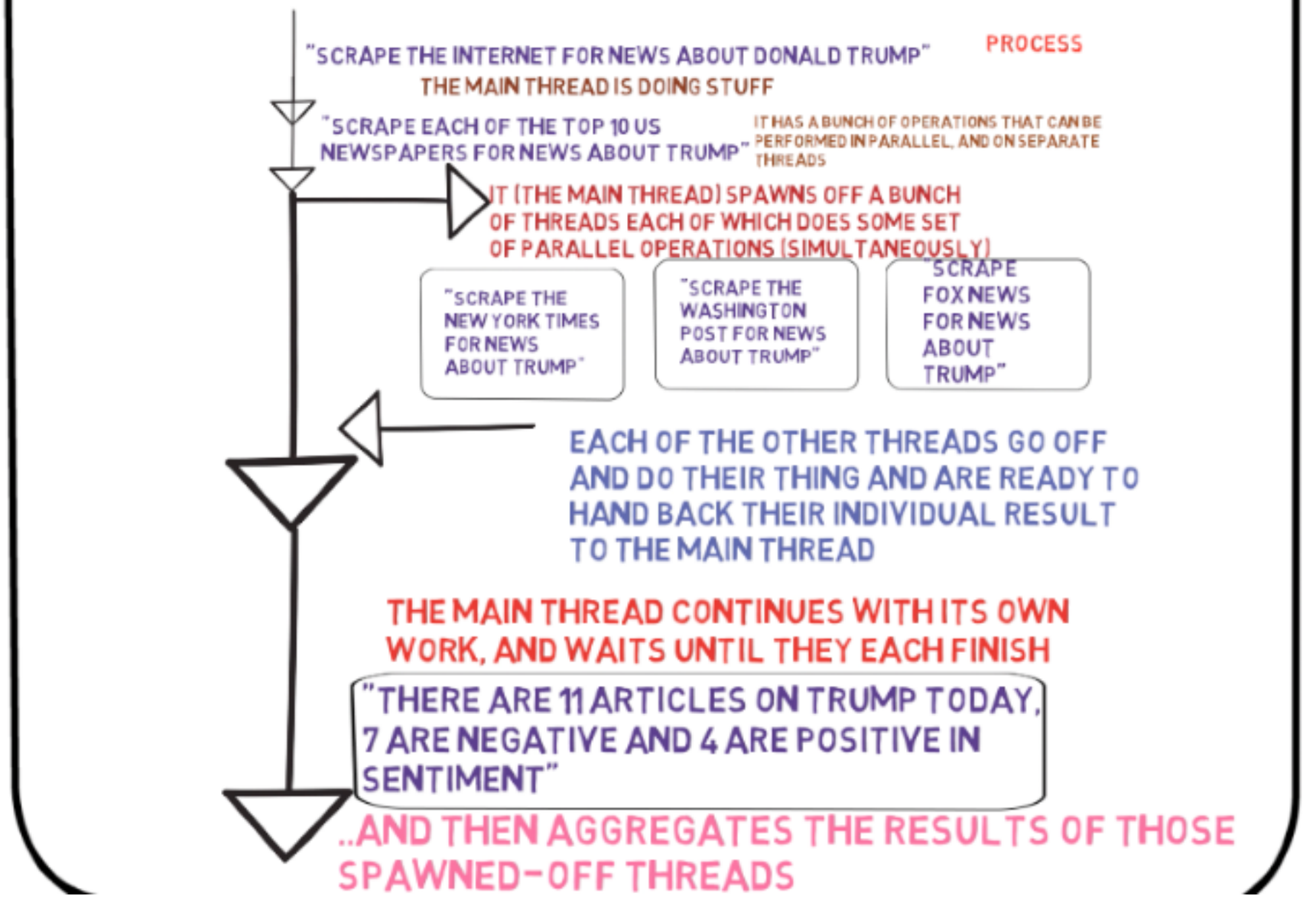
# THE COMMAND PATTERN IN ACTION: THREADING

# A TYPICAL USE-CASE FOR THREADING



IN JAVA THERE ARE 2 WAYS IN WHICH
THIS COULD BE ACCOMPLISHED

# OLD-SCHOOL

## RUNNABLE INTERFACE

IS IMPLEMENTED BY A CLASS WITH THE OPERATIONS TO BE CARRIED OUT ON THE OTHER THREADS

## "THREAD" IN-BUILT CLASS

OBJECTS OF THE THREAD CLASS TAKE IN THE RUNNABLE OBJECTS AND RUN THEM ON INDIVIDUAL THREADS

## "THREAD.JOIN()" ON THE THREADS

THE MAIN CLASS CALLS THE .JOIN METHOD ON EACH THREAD WHICH WILL WAIT UNTIL THE THREAD FINISHES

# NEW SCHOOL

## CALLABLE INTERFACE

IS IMPLEMENTED BY A CLASS WITH THE OPERATIONS TO BE CARRIED OUT ON THE OTHER THREADS

## "EXECUTORS" IN-BUILT CLASS

JAVA PROVIDES HELPER OBJECTS THAT KNOW HOW TO START, MANAGE AND STOP 'CALLABLE' OBJECTS

## "FUTURE.GET()"

FUTURES ARE OBJECTS WHICH WILL HOLD RESULTS IN THE FUTURE (I.E. ONCE THE CALLABLE OBJECT FINISHES WHATEVER STUFF IT HAD TO DO ON THE OTHER THREAD)

BOTH THESE WAYS DIRECTLY MAKE USE OF THE COMMAND PATTERN

WE THEN ASK THAT THIS OBJECT "DO ITS THING" (I.E. EXECUTE ITS ACTION) ON A SEPARATE THREAD

Callable

Runnable

1. DEFINE THE COMMAND OBJECT

```
Runnable runnable = new Runnable() {
    @Override
    public void run() {
        System.out.println("Hello");
    }
};
```

2. HERE THE ACTION IS TO PRINT TO SCREEN, SO THE RECEIVER (WHAT GETS ACTED UPON) IS SIMPLY THE SCREEN

```
Thread thread = new Thread(runnable);
thread.start();
```

3. THE INVOKER IS A THREAD OBJECT - THE CLIENT CALLS "START" ON THAT OBJECT TO TRIGGER THE EXECUTION OF THE ACTION