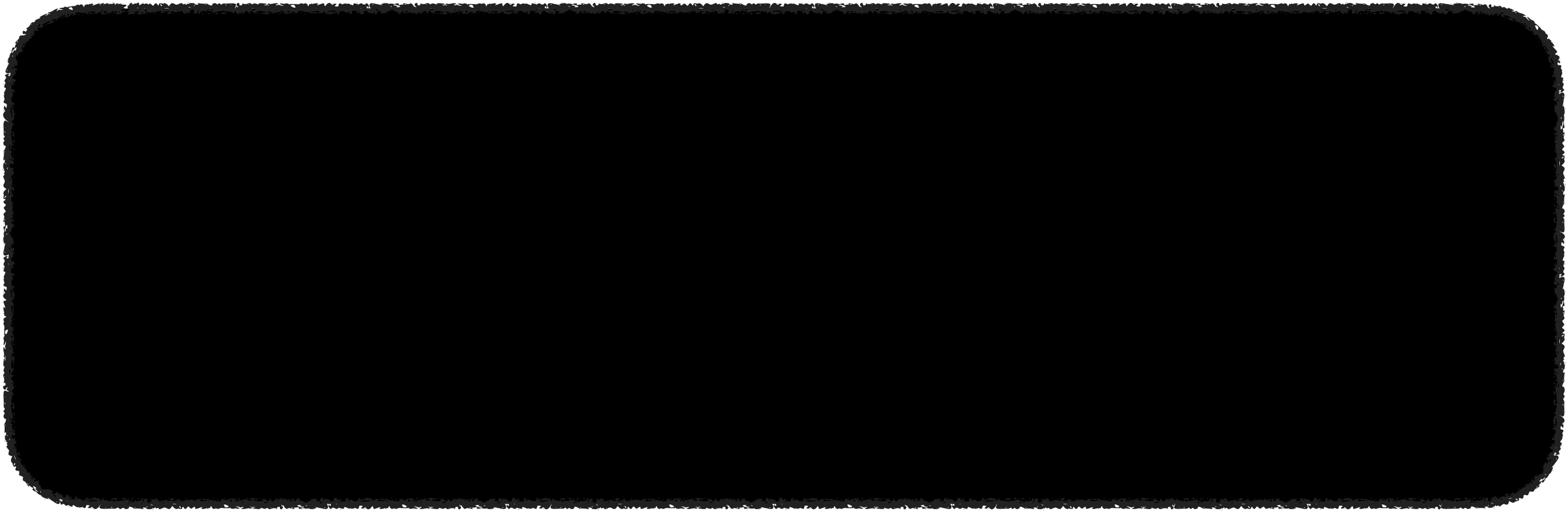


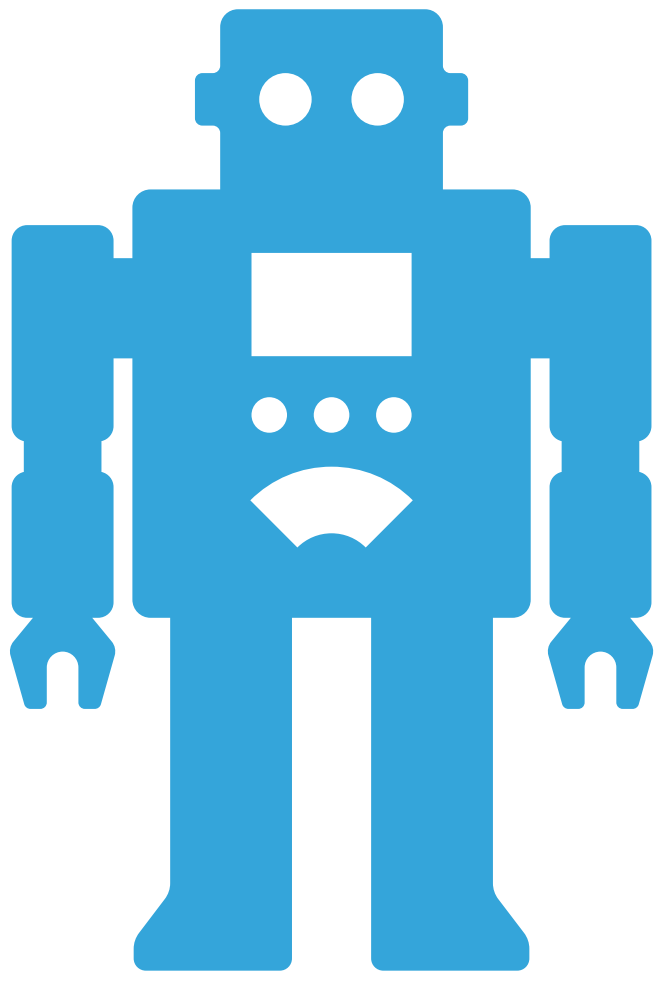

DONE


ORDER?

MELTDOWN & SPECTRE FOR NORMAL PEOPLE

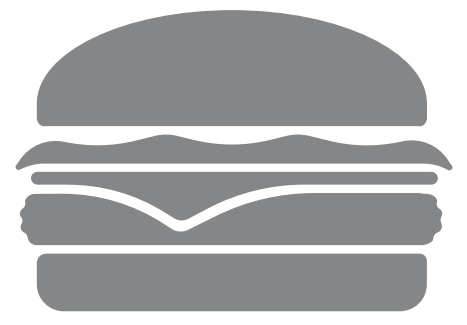
CONFIDENTIAL BURGERS INC. : SERIAL, IN ORDER EXECUTION

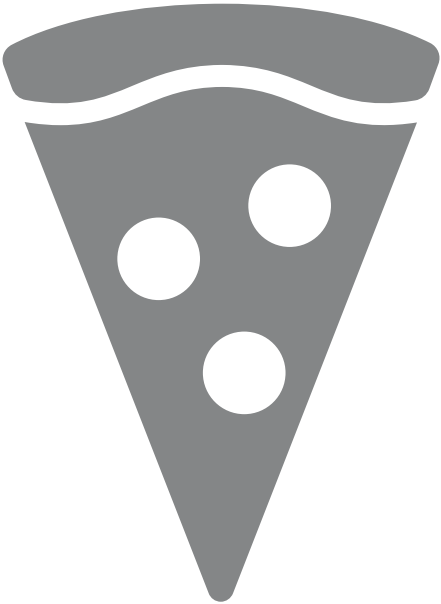
15



Customer

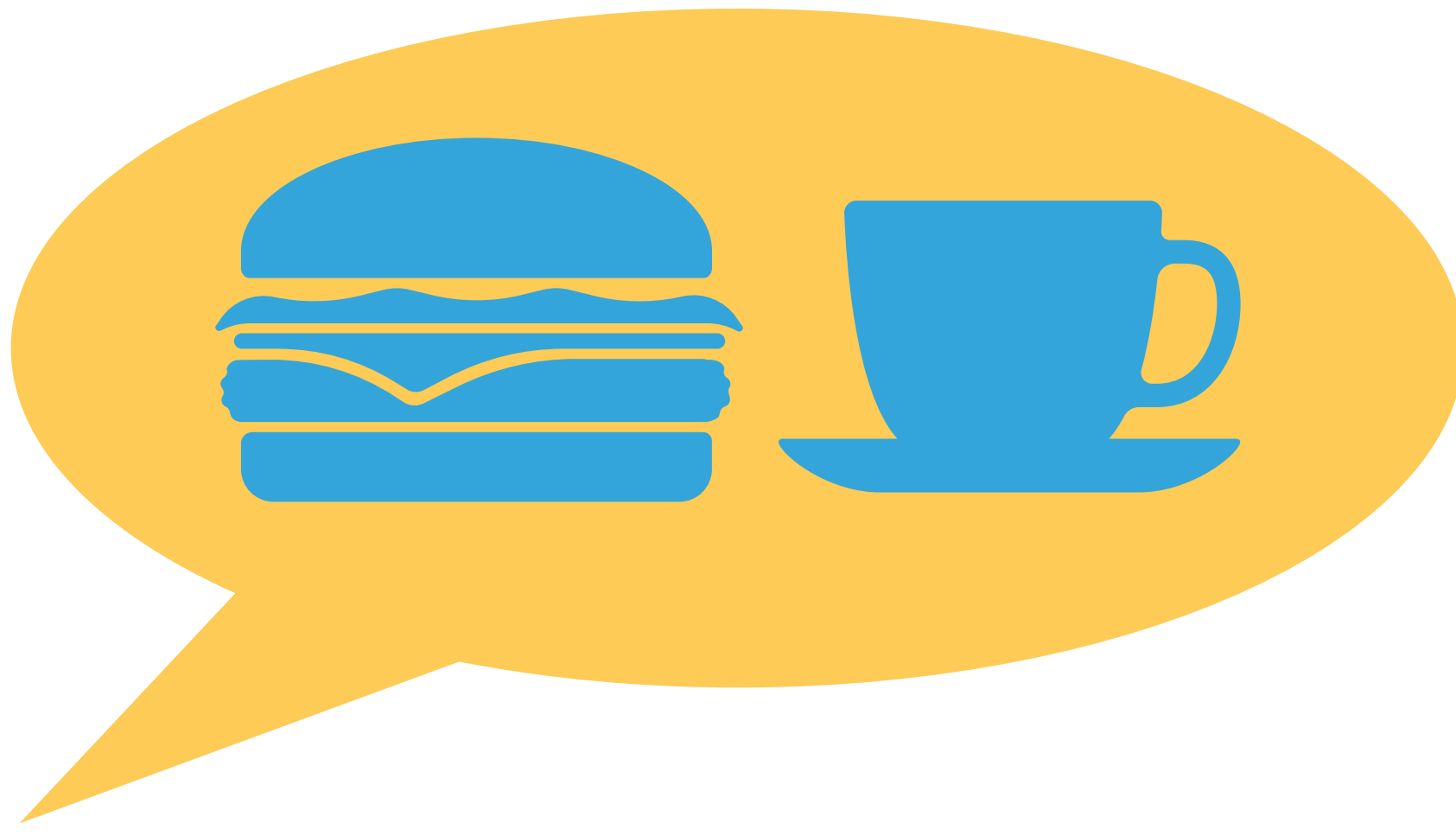
Waiter





Pizza oven

Burger grill



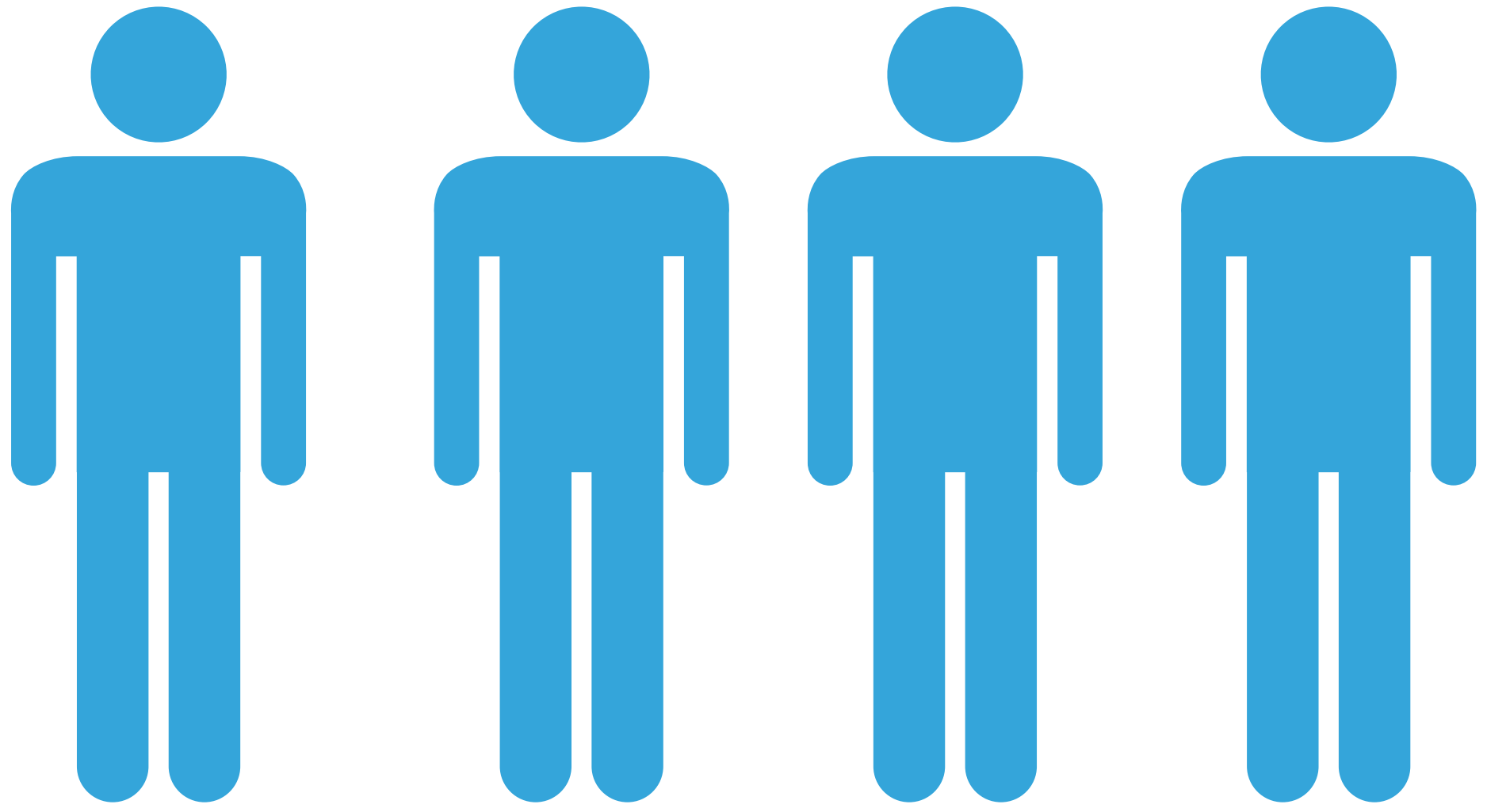
Coffee machine

- One customer[1] after another (**in order**)
- Each part of the order [2] executed **serially**

I.e. first the burger, then the coffee

- PRO: Easy to implement and understand
- CON: Slow because resources[3] not utilised fully

[1] customer == CPU instruction [2] part == μOP - micro operation [3] oven, grill, coffee machine



- Decode instruction into μOPs (“Burger”, “Coffee”)

Schedule μOPs

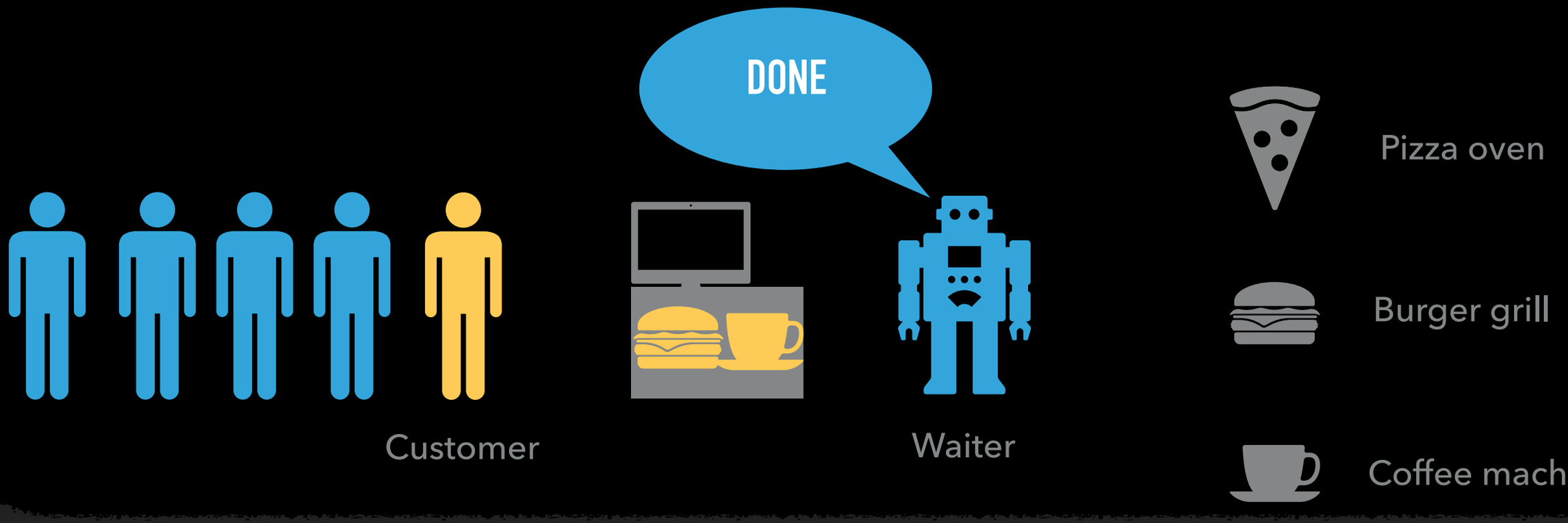
- run 1st μOP (grill the burger)

- run 2nd μOP (brew coffee, serial execution)

- retire instruction (customer)

- Decode instruction into μOPs (“Burger”, “Coffee”)
- Schedule μOPs
  - run 1st μOP (grill the burger)
  - run 2nd μOP (brew coffee, serial execution)
- retire instruction (customer)

CONFIDENTIAL BURGERS INC. : SERIAL, IN ORDER EXECUTION



- One customer[1] after another (**in order**)
- Each part of the order [2] executed **serially**

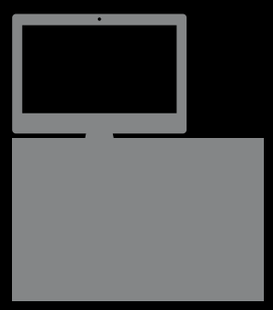
I.e. first the burger, then the coffee

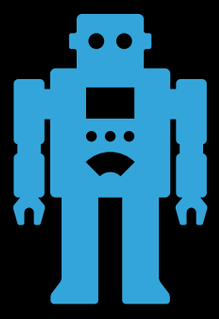
- PRO: Easy to implement and understand
- CON: Slow because resources[3] not utilised fully

[1] customer == CPU instruction [2] part == µOP - micro operation [3] oven, grill, coffee machine

CONFIDENTIAL BURGERS INC. : PARALLEL, IN ORDER EXECUTION

Customer





Waiter

Pizza oven

Burger grill

Coffee machine