

Thread Exercise

The following class implements a model of a student dining hall serving pizzas to students. 10 pizzas are baked, then served to 20 students. Students are numbered between 0 and 19 in the order they are served and print out a message as to whether they received a pizza.

- Rewrite the DiningHall class so that after the makePizza() method is called 10 times, the servePizza() method is called once each from 20 different threads.
- Insert synchronization to eliminate data races in your code, if any exist.
- Describe what data races may occur in your multithreaded code without synchronization.

```
public class DiningHall {
    static int pizzaNum;
    static int studentID;
    public void makePizza() { pizzaNum++; }
    public void servePizza() {
        String result;
        if (pizzaNum > 0) { result = "Served "; pizzaNum--; }
        else result = "Starved ";
        System.out.println(result + studentID);
        studentID++;
    }
    public static void main(String[] args) {
        DiningHall d = new DiningHall();
        for (int i = 0; i < 10; i++)
            d.makePizza();
        for (int i = 0; i < 20; i++)
            d.servePizza();
    }
}
```