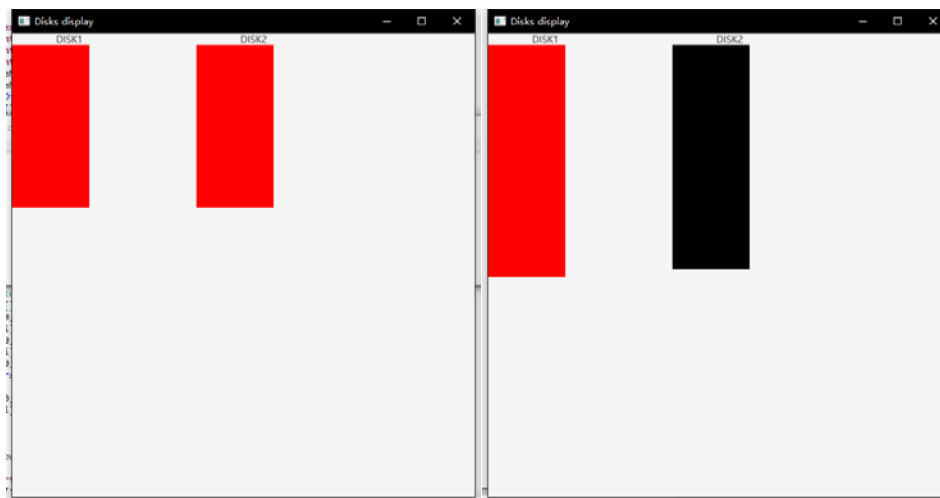


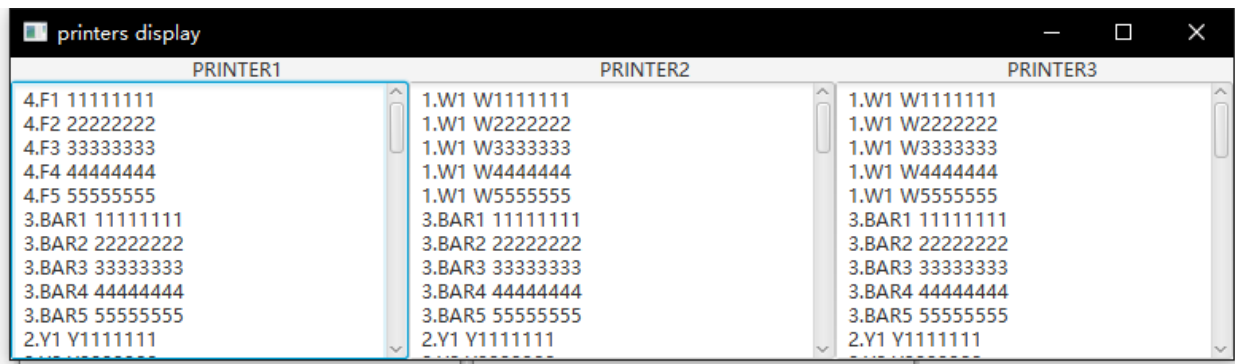
1. I separate 8 java files. In “myGUI.java”, I created 3 classes for disks, users and printers UI. The UserThread.java includes class UserThread, and it uses FileInfo in FileInfo.java, PrintJobThread from PrintJobThread.java and Disk from Disk.java. The Printer class is only connected with PrintJobThread since the printer only knows what it needs to print. In the main.java, I creates two ResourceManager objects from ResourceManager.java, 4 Users, 2 Disks, and 3 Printers, and finish all GUI setup.

2. By using ResourceManager, UserThread and PrintJobThread can wait(), and will be notify() when a disk or a printer is released.

3. All synchronized blocks synchronized on the same object can only have one executing thread at one time. Other threads are blocked until the thread inside the synchronized block exits the block.



In the screenshots above, the left shows both disks is been reading, the right shows only disk1 is being reading. The difference of length for each disks above shows that the disks are reading. The length means the “storage” used.



printers display		
PRINTER1	PRINTER2	PRINTER3
1.W1 W1111111	3.BAR1 11111111	1.W1 W1111111
1.W1 W2222222	3.BAR2 22222222	1.W1 W2222222
1.W1 W3333333	3.BAR3 33333333	1.W1 W3333333
1.W1 W4444444	3.BAR4 44444444	1.W1 W4444444
1.W1 W5555555	3.BAR5 55555555	1.W1 W5555555
3.BAR1 11111111	4.F1 11111111	3.BAR1 11111111
3.BAR2 22222222	4.F2 22222222	3.BAR2 22222222
3.BAR3 33333333	4.F3 33333333	3.BAR3 33333333
3.BAR4 44444444	4.F4 44444444	3.BAR4 44444444
3.BAR5 55555555	4.F5 55555555	3.BAR5 55555555
2.Y1 Y1111111	2.Y1 Y1111111	2.Y1 Y1111111
2.Y2 Y2222222	2.Y2 Y2222222	2.Y2 Y2222222

Above are the printer display. Three printers are working at the same time.

USERS DISPLAY			
USER1	USER2	USER3	USER4
1.Y1 Y1111111	2.Y1 Y1111111	3.BAR1 11111111	4.Y1 Y1111111
1.Y1 Y2222222	2.Y2 Y2222222	3.BAR2 22222222	4.Y2 Y2222222
1.Y1 Y3333333	2.Y3 Y3333333	3.BAR3 33333333	4.Y3 Y3333333
1.Y1 Y4444444	2.Y4 Y4444444	3.BAR4 44444444	4.Y4 Y4444444
1.Y1 Y5555555	2.Y5 Y5555555	3.BAR5 55555555	4.Y5 Y5555555
1.Z1 Z1111111	2.Y6 Y6666666		4.Z1 Z1111111
1.Z1 Z2222222	2.Y7 Y7777777		4.Z2 Z2222222
1.Z1 Z3333333	2.Y9 Y9999999		4.Z3 Z3333333
1.Z1 Z4444444	2.Y9 Y9999999		4.Z4 Z4444444
1.Z1 Z5555555			4.Z5 Z5555555

Above is the user display. It shows information that every users is saving to a disk.