به نام خدا
گزارش کار آزمایش ۷ آزمایشگاه درس سیستم های عامل

نام استاد: سرکار خانم حسینی

نام دانشجو: فرشید نوشی

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- **الگوریتم بانکداران:**

این دستور کار برخلاف دستور کارهای قبلی، مانند پروژه ی درس استاد جوادی به کمک makefile ران گرفته شده است. کاری که برای ران کردن برنامه کافی است انجام شود نوشتن دستورات زیر میباشد توضیحات کدها به صورت کامنت در کد اصلی موجود میباشند. برای قسمت ورودی گرفتن برنامه نیز ما به این صورت عمل کردیم که در این برنامه آرایه ی available در ابتدای کار توسط آرگومان‌های برنامه گرفته می‌شود که نشان دهنده ی منابع در دسترسمان هست و ماتریس maximum از فایل max.txt که در فایل ارسالی موجود است خوانده می‌شود.

نمونه خروجی برنامه با دستورات زیر را در شکل های زیر می‌بینیم:

```
make bankers
./bankers.out 7 8 8 7 8
```

```
[....] ...........................................
Available:
7 8 8 7 8
Need:
4 2 2 3 1
1 3 5 2 1
1 4 5 3 2
3 4 1 3 4
2 3 1 2 1
Allocation:
0 0 0 0 0
0 0 0 0 0
0 0 0 0 0
0 0 0 0 0
0 0 0 0 0
Maximum:
4 2 2 3 1
1 3 5 2 1
1 4 5 3 2
3 4 1 3 4
2 3 1 2 1
================

Customer 1 Releases [0 0 0 0 0]
Customer 1 Requests [3 0 1 2 1] -> accepted
Customer 1 Releases [0 0 0 1 1]
Customer 1 Releases [1 0 0 0 0]
Customer 1 Releases [0 0 1 1 0]
Customer 1 Requests [0 2 1 1 1] -> accepted
Customer 1 Requests [1 0 1 2 0] -> accepted
Customer 1 Requests [1 0 0 0 0] -> accepted
Customer 1 Releases [1 0 1 1 0]
Customer 1 Releases [1 2 0 1 0]
Customer 2 Requests [0 2 5 0 0] -> accepted
Customer 2 Releases [0 1 5 0 0]
Customer 2 Requests [0 0 4 0 0] -> accepted
Customer 2 Requests [1 1 0 2 1] -> accepted
Customer 2 Requests [0 1 1 0 0] -> accepted
Customer 2 Releases [0 1 4 1 0]
Customer 2 Requests [0 1 2 0 0] -> accepted
Customer 2 Requests [0 0 1 0 0] -> accepted
Customer 2 Releases [1 2 4 0 1]
Customer 2 Requests [1 1 0 0 1] -> accepted
Customer 3 Releases [0 0 0 0 0]
Customer 3 Requests [0 3 1 0 1] -> accepted
Customer 3 Releases [0 2 0 0 0]
Customer 3 Requests [1 0 3 3 0] -> accepted
Customer 3 Requests [0 2 0 0 0] -> accepted
Customer 3 Requests [0 0 0 0 0] -> accepted
Customer 3 Requests [0 1 0 0 0] -> accepted
Customer 3 Releases [1 1 4 0 1]
```

```
Allocation:
0 0 0 0 0
0 0 0 0 0
0 0 0 0 0
0 0 0 0 0
0 0 0 0 0
Maximum:
4 2 2 3 1
1 3 5 2 1
1 4 5 3 2
3 4 1 3 4
2 3 1 2 1
====================

Customer 1 Releases [0 0 0 0 0]
Customer 1 Requests [3 0 1 2 1] -> accepted
Customer 1 Releases [0 0 0 1 1]
Customer 1 Releases [1 0 0 0 0]
Customer 1 Releases [0 0 1 1 0]
Customer 1 Requests [0 2 1 1 1] -> accepted
Customer 1 Requests [1 0 1 2 0] -> accepted
Customer 1 Requests [1 0 0 0 0] -> accepted
Customer 1 Releases [1 0 1 1 0]
Customer 1 Releases [1 2 0 1 0]
Customer 2 Requests [0 2 5 0 0] -> accepted
Customer 2 Releases [0 1 5 0 0]
Customer 2 Requests [0 0 4 0 0] -> accepted
Customer 2 Requests [1 1 0 2 1] -> accepted
Customer 2 Requests [0 1 1 0 0] -> accepted
Customer 2 Releases [0 1 4 1 0]
Customer 2 Requests [0 1 2 0 0] -> accepted
Customer 2 Requests [0 0 1 0 0] -> accepted
Customer 2 Releases [1 2 4 0 1]
Customer 2 Requests [1 1 0 0 1] -> accepted
Customer 3 Releases [0 0 0 0 0]
Customer 3 Requests [0 3 1 0 1] -> accepted
Customer 3 Releases [0 2 0 0 0]
Customer 3 Requests [1 0 3 3 0] -> accepted
Customer 3 Requests [0 2 0 0 0] -> accepted
Customer 3 Requests [0 0 0 0 0] -> accepted
Customer 3 Requests [0 1 0 0 0] -> accepted
Customer 3 Releases [1 1 4 0 1]
Customer 3 Requests [1 0 3 0 2] -> accepted
Customer 3 Releases [1 3 0 2 1]
Customer 4 Releases [0 0 0 0 0]
Customer 4 Requests [1 4 1 1 1] -> accepted
Customer 4 Releases [0 2 0 0 0]
Customer 4 Releases [0 0 0 0 1]
Customer 4 Releases [0 2 0 1 0]
Customer 4 Releases [0 0 0 0 0]
Customer 4 Releases [1 0 0 0 0]
Customer 4 Releases [0 0 0 0 0]
Customer 4 Requests [3 4 0 3 2] -> accepted
Customer 4 Requests [0 0 0 0 1] -> accepted
Customer 5 Requests [1 0 0 1 0] -> accepted
Customer 5 Requests [0 2 0 0 0] -> accepted
Customer 5 Requests [1 0 1 0 1] -> not accepted
Customer 5 Requests [1 1 0 1 1] -> not accepted
Customer 5 Releases [0 0 0 1 0]
Customer 5 Requests [1 1 1 1 1] -> not accepted
Customer 5 Releases [0 0 0 0 0]
Customer 5 Requests [0 1 0 0 1] -> not accepted
Customer 5 Releases [1 1 0 0 0]
Customer 5 Releases [0 0 0 0 0]
```