CS69011
Computing Lab 1
Assignment - 3

Submitted by -
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Task 1 : Part d
A brief report of how the simulator responds for different combinations of the tests in the packages P1 and P6. Since there exist 3 tests and 2 tests in package P1 and P6 respectively , therefore the total combination of tests came out to be 3! x 2! = 12

P1:ECG, ECHO , TREADMILL
P6: ECH, ECHO

```
Avg time(HH.MM) for P1 = 1.24
Avg time(HH.MM) for P2 = 1.14
Avg time(HH.MM) for P3 = 1.13
Avg time(HH.MM) for P4 = 2.13
Avg time(HH.MM) for P5 = 0.51
Avg time(HH.MM) for P6 = 2.22
```

P1: ECG ,ECHO,TREADMILL
P6: ECHO,ECG

```
Avg time(HH.MM) for P1 = 1.51
Avg time(HH.MM) for P2 = 1.12
Avg time(HH.MM) for P3 = 1.22
Avg time(HH.MM) for P4 = 2.20
Avg time(HH.MM) for P5 = 1.06
Avg time(HH.MM) for P6 = 2.22
```

P1:ECHO,ECG,TREADMILL
P6: ECH, ECHO

```
Avg time(HH.MM) for P1 = 1.43
Avg time(HH.MM) for P2 = 1.21
Avg time(HH.MM) for P3 = 1.32
Avg time(HH.MM) for P4 = 2.22
Avg time(HH.MM) for P5 = 1.11
Avg time(HH.MM) for P6 = 2.45
```

P1:ECHO,ECG,TREADMILL
P6: ECHO,ECG

```
Avg time(HH.MM) for P1 = 2.13
Avg time(HH.MM) for P2 = 1.06
Avg time(HH.MM) for P3 = 1.33
Avg time(HH.MM) for P4 = 2.26
Avg time(HH.MM) for P5 = 1.33
Avg time(HH.MM) for P6 = 2.40
```

P1:ECHO,TREADMILL,ECG
P6: ECH, ECHO

```
Avg time(HH.MM) for P1 = 2.06
Avg time(HH.MM) for P2 = 1.32
Avg time(HH.MM) for P3 = 1.24
Avg time(HH.MM) for P4 = 2.31
Avg time(HH.MM) for P5 = 1.13
Avg time(HH.MM) for P6 = 2.53
```

P1:ECHO,TREADMILL,ECG
P6: ECHO,ECG

```
Avg time(HH.MM) for P1 = 1.41
Avg time(HH.MM) for P2 = 1.14
Avg time(HH.MM) for P3 = 1.23
Avg time(HH.MM) for P4 = 2.12
Avg time(HH.MM) for P5 = 1.02
Avg time(HH.MM) for P6 = 2.41
```

P1:ECG,TREADMILL,ECHO
P6: ECH, ECHO

```
Avg time(HH.MM) for P1 = 1.52
Avg time(HH.MM) for P2 = 1.24
Avg time(HH.MM) for P3 = 1.33
Avg time(HH.MM) for P4 = 2.31
Avg time(HH.MM) for P5 = 1.02
Avg time(HH.MM) for P6 = 2.23
```

P1:ECG,TREADMILL,ECHO
P6: ECHO,ECG

```
Avg time(HH.MM) for P1 = 2.01
Avg time(HH.MM) for P2 = 1.11
Avg time(HH.MM) for P3 = 1.34
Avg time(HH.MM) for P4 = 2.24
Avg time(HH.MM) for P5 = 1.21
Avg time(HH.MM) for P6 = 2.34
```

P1:TREADMILL, ECG,ECHO
P6: ECH, ECHO

```
Avg time(HH.MM) for P1 = 1.52
Avg time(HH.MM) for P2 = 1.24
Avg time(HH.MM) for P3 = 1.31
Avg time(HH.MM) for P4 = 2.30
Avg time(HH.MM) for P5 = 1.22
Avg time(HH.MM) for P6 = 2.32
```

P1:TREADMILL,ECG,ECHO
P6: ECHO,ECG

```
Avg time(HH.MM) for P1 = 1.14
Avg time(HH.MM) for P2 = 1.10
Avg time(HH.MM) for P3 = 1.32
Avg time(HH.MM) for P4 = 2.12
Avg time(HH.MM) for P5 = 0.35
Avg time(HH.MM) for P6 = 2.12
```

P1:TREADMILL,ECHO,ECG
P6: ECH, ECHO

```
Avg time(HH.MM) for P1 = 1.31
Avg time(HH.MM) for P2 = 1.10
Avg time(HH.MM) for P3 = 1.12
Avg time(HH.MM) for P4 = 2.34
Avg time(HH.MM) for P5 = 1.01
Avg time(HH.MM) for P6 = 2.31
```

P1:TREADMILL,ECHO,ECG
P6: ECHO,ECG

```
Avg time(HH.MM) for P1 = 1.33
Avg time(HH.MM) for P2 = 1.22
Avg time(HH.MM) for P3 = 1.33
Avg time(HH.MM) for P4 = 2.26
Avg time(HH.MM) for P5 = 1.02
Avg time(HH.MM) for P6 = 2.44
```

Conclusion :

After analysing the above simulation results for all combination of tests , it was interesting to note that the test which was least common among all the package (or say among P1 and P6) , i.e TREADMILL , when the patient was first said to go for treadmill test then the total average time spend by patient was the least . There could also be one more reason for that the treadmill test was more time taking so it also reduces the total time taken by a patient of package P1. But I found the first reason to be more prominent .

There was no improvement for the patient of package P6 , because it anyway has the most clashing tests even with other packages also .

Task 1 :Part e

We might require duplicating ECG or ECHO facilities to get maximum improvement in throughput. Since the throughput is defined as the number of patients served per unit time, these two facilities are having the most of the crowd and it also increased the average time taken by a patient of package P6 .