

## OSSIM - Objective 5

### Important functions:

```
// time_2 = time_1 + time_2
Add_time( struct time_type* time_1, struct time_type* time_2 )

// time_2 = time_2 - time_1
Diff_time( struct time_type* time_1, struct time_type* time_2 )

// returns (time_1 / time_2); does NOT store the result in time_2
Divide_time( struct time_type* time_1, struct time_type* time_2 )

// time_2 = time_1 / n
Average_time( struct time_type* time_1, unsigned n, struct time_type* time_2 )
```

### Important (extern) variables:

// Total job processing time time_type Tot_Logon	// Average job processing time time_type Avg_Logon
// Total job blocked time time_type Tot_Block	// Average job blocked time time_type Avg_Block
// Total job wait time time_type Tot_Wait	// Average job wait time time_type Avg_Wait
// Total job execution time time_type Tot_Run	// Average job execution time time_type Avg_Run

### Instructions:

For each user

Calculate total processing time	$\text{Tot\_Logon} = \sum \text{total\_logon\_time}$
Calculate total job blocked time	$\text{Tot\_Block} = \sum \text{total\_block\_time}$
Calculate total job wait time	$\text{Tot\_Wait} = \sum \text{total\_ready\_time}$
Calculate total job execution time	$\text{Tot\_Run} = \sum \text{total\_run\_time}$
Calculate efficiency for each process	$\text{efficiency} = 100 * \left( \frac{\text{total\_block\_time} + \text{total\_run\_time}}{\text{total\_logon\_time}} \right)$

For each device

Calculate response time for each device 
$$\text{response} = \frac{\text{total\_busy\_time} + \text{total\_q\_time}}{\text{num\_served}}$$

Calculate total idle time for each device 
$$\text{total\_idle\_time} = \text{Clock} - \text{total\_busy\_time}$$

Calculate utilization for each device 
$$\text{utilize} = 100 * \left( \frac{\text{total\_busy\_time}}{\text{Clock}} \right)$$

Calculate average user execution time

Calculate average user logon time

Calculate average user blocked time

Calculate average user wait time

Calculate response time for CPU 
$$\text{CPU.response} = \frac{\text{CPU.total\_busy\_time} + \text{CPU.total\_q\_time}}{\text{CPU.num\_served}}$$

Calculate total idle time for CPU 
$$\text{CPU.total\_idle\_time} = \text{Clock} - \text{CPU.total\_busy\_time}$$

Calculate total utilization for CPU 
$$\text{CPU.utilize} = 100 * \left( \frac{\text{CPU.total\_busy\_time}}{\text{Clock}} \right)$$