# **Project 2 Scheduling of aperiodic tasks**

Demo Deadline: Week 14, May 18th, 2022.

Assume there are 100 available hard real-time tasks and 100 aperiodic jobs in the system. There is only one processor in the system, please schedule as most tasks as possible for the single processor system for 10000 time units.

## Inputs:

### 1. HRTTaskmodel.txt

Format: 10524

Task ID	Phase	Period	Execution time [e-, e+]
1	0	5	[2, 4]

```
1 3 99 12 15
2 3 100 32 34
3 0 82 36 38
4 1 49 15 26
5 0 93 6 9
```

## 2. OnlinejobsOfHRT.txt

Format: 2 3 2 4 2 3 3 4 2 3 4 3 4 4 2 3 4 ......

Execution times	Job 1	Job 2	Job 3	Job 4
Task 1	2	3	2	4

```
    1 3 99 12 15

    15 14 14 15 14 15 12 14 14 14 12 15 14 14 15 15 15 14 14 14 15 14 14

    14 14 14 14 14 14 14 14 14 14 15 15 12 14 14 15 15 12 12 12 15 12

    15 15 162 12 14 14 14 12 14 15 14 14 12 12 14 14 15 15 12 12 14 14 14

    15 15 162 12 14 14 14 15 15 14 14 14 14 14 14 14 12 12 12 15 15 14

    15 14 14 14 15 12 14 12 15 15 15 12
```

### 3. OnlinejobsOf100AP.txt

Format: 03

Job ID	Arrival time	Execution time
1	0	3
2	0	5

1 3 2		
2 2 5		
3 2 8		
4 0 8		
5 0 9		

### **Outputs:**

1. Number of periodic tasks in your system and list their task IDs.

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- 2. Hyper-period of your RTS.
- 3. Average CPU utilization in the duration, 10000 time units.
- 4. Your schedule of the system in the first 3 hyper-periods.
- 5. Average response time of aperiodic jobs. (two decimal places)
- 6. Average waiting time of aperiodic jobs. (two decimal places) да фара в д

# (It's just an example about the output format, don't trust it!)

- (1) 3 tasks: Task 2, Task 5, Task 8...
- (2) Hyper-period: 20..
- (3) 75%.
- (4) The format is not limited, but must be explained during the demotime.
- (5) 20.53
- (6) 4.62

#### Bonus:

- 1. Find the minimum required processors that can execute all the hard real-time tasks.
- 2. Compute the average CPU utilization of each processor in the duration, 10000 time units.
- 3. Compute the average response time of aperiodic jobs.
- 4. Compute the average waiting time of aperiodic jobs.