

# CodeIT Suisse 2021 Entry Challenge

It is the year 2038 and robots have the right to get paid for the work they do. As an employer of robots, you need to calculate how much a robot gets paid for cleaning your apartment.

How much a robot gets paid depends on when you ask the robot to work. After all, during the day the robot can be a little louder and work a bit faster whilst everyone is out of the house, but at night, you will need to turn on the super quiet mode, which takes more effort! Robots also cost a bit more over weekends, due to higher demand.

Your robot rates calculator needs to consider the following:

- A standard *minutely* rate for weekdays, and an 'extra' rate for weekends.
- When rates switches between day and night rates, for a total of four different rates (weekday/weekend + day/night).
- For every eight hours, the robot needs to take an hour of unpaid break (or part thereof) for planned system maintenance.

Implement an application that can take in an input like the example below, and provide an output as shown:

```
{
  "shift": {
    "start": "2038-01-01T20:15:00",
    "end": "2038-01-02T04:15:00"
  },
  "roboRate": {
    "standardDay": {
      "start": "07:00:00",
      "end": "23:00:00",
      "value": 20
    },
    "standardNight": {
      "start": "23:00:00",
      "end": "07:00:00",
      "value": 25
    },
    "extraDay": {
      "start": "07:00:00",
      "end": "23:00:00",
      "value": 30
    },
    "extraNight": {
      "start": "23:00:00",
      "end": "07:00:00",
      "value": 35
    }
  }
}
```

Sample output:

```
{ "value": 13725 }
```

Additional test cases for the sample rates above:

Start	End	Expected value
2038-01-01T20:15:00	2038-01-02T08:15:00	19650
2038-01-11T07:00:00	2038-01-17T19:00:00	202200
2038-01-01T20:15:00	2038-01-02T04:16:00	13725
2038-01-01T20:15:00	2038-01-02T05:16:00	13760

The problem statement has not been completely described - you should provide comments on any other assumptions you have made on top of these two:

1. Shift timestamps will be given in ISO format "yyyy-MM-dd'T'hh:mm:ss", rates in "hh:mm:ss".
2. Duration boundaries are [inclusive, exclusive), e.g. a shift from 7 am to 11 pm will fit into a single day rate, without incurring a minute of the night rate.

Assessors will be considering code-readability, implementation and assumptions including checks/validations that your application performs. You are allowed to use third-party libraries.