Regression Task

You will be provided with a table with traffic data in the format presented below (Tab. 1):

Time	Intensity	Occupancy	Velocity	Velocity 85%	Intensity Motorcar	Intensity Trac	100<V<110	110<V<120
07.06.21 15:55:00	1284	10,6	89	100,8	648	480	96	72
07.06.21 15:50:00	1260	11,3	92,9	105,4	468	588	252	48
07.06.21 15:45:00	1104	9,4	90,8	101,7	528	444	120	60

Tab. 1 Traffic detector data format.

The table will have next columns:

1. Time – time moment of measurements. The interval between measurements is 5 minutes. During this period, some data are averaged (Intensity, Occupation, Velocity), some are accumulated (100<Velocity<110 and so on).
2. Intensity – the number of vehicles per hour.
3. Occupancy – the lane occupancy by cars as a percentage of its length.
4. Velocity – kilometers per hour.
5. Velocity 85% – average velocity of 85% the fastest cars.
6. Intensity Micro – the number of vehicles with size < 3 meter per hour.
7. Intensity Motorcar – the number of vehicles with 3 < size < 7.6 meter per hour.
8. Intensity Trac – the number of vehicles with 7.6 < size < 10 meter per hour.
9. Intensity Bus – the number of vehicles with 10 < size < 13 meter per hour.
10. Intensity Trailer – the number of vehicles with 13 < size meter per hour.
11. 0<V<10 – the number of vehicles with velocity between 0 and 10 kilometers per hour for 5 minutes.

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12. 110<V<120 – the number of vehicles with velocity between 110 and 120 kilometers per hour for 5 minutes.

Each student will receive a personal table after contacting me in my telegram. The data collected in three days. All the data in the table are given for the hourly time interval. If you want to come back to real 5 minutes quantitative measurements multiply data by the factor of $\frac{1}{12}$. Intensity will change to the number of vehicles per 5 minutes. Speed and Occupation do not need to be multiplied by this factor.

Output data format

You should send me the same table supplemented from above with the forecast data of your model for the next hour for Intensity, Occupancy and Velocity with an interval of 5 minutes in the amount of 12 lines.

Your answer will be considered correct if the relative error of each of the values does not exceed the range $0.02 \leq \Delta \leq 0.15$. Namely, let your velocity result be V_0 and the correct answer: V. The checking system will consider your answer correct if for each of the components of the

desired vector of function values is executed: $\frac{|V_0 - V|}{V} \leq \Delta$. The Δ will be set separately for each moment of time. With an increase as move away from the known data.