

## CANDIDATE NAME

### Exercise 1

A PostgreSQL database named **auto** can be found at the IP **178.22.68.101**, port **5434**, Username: **candidato** Password: **crossnova20** . The database contains a table **auto** with 8 columns with characteristics of several car models.

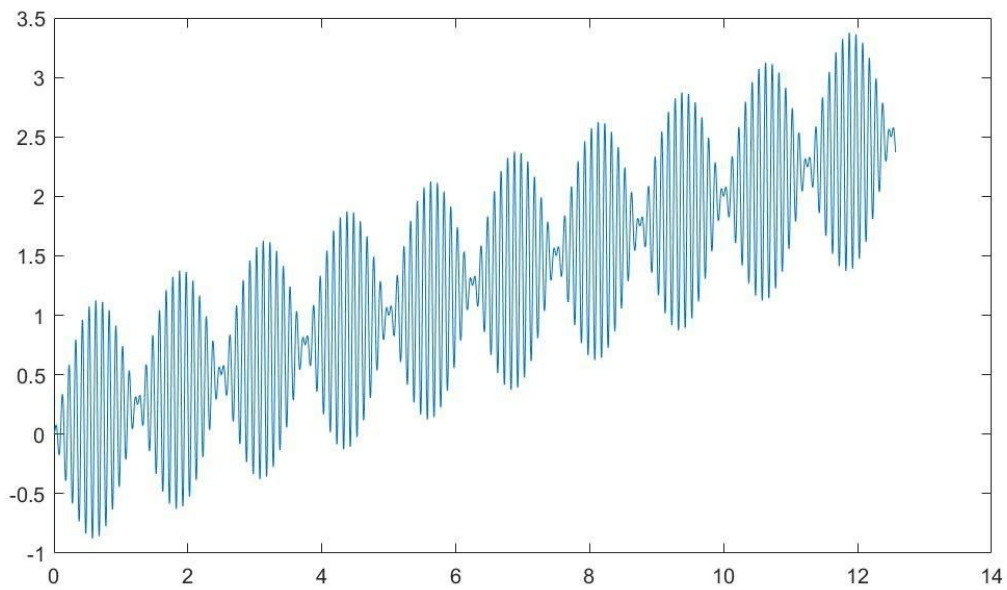
Using Python Plotly Dash <https://dash.plotly.com/layout> and Docker (<https://docs.docker.com/>) please create a micro dockerized webapp that allows to select with a selector 2 numerical columns (out of 8) from the table and visualize on the right the corresponding scatter plot (x: variable 1, y: variable 2). Please ignore non-numerical variables.

Finally deploy the dockerized app on one cloud computing platform, for example AWS, Azure, Digital Ocean etc using one of the free accounts available for these platforms. If there are issues using a credit card as guarantee, the cloudsigma platform offers a 1 week trial that does not require one.

**Deliverable:** Ip and port of the app, code, dockerfile.

## Exercise 2

Please reproduce the plot below using a programming language of your choice



**Deliverable:** picture and code

### Exercise 3 (optional)

Mario leaves home with 4 boxes each containing the same number  $n$  of toffees. He meets 4 of his friends and decides to share the first box of toffees. He eats one sweet and divides the rest equally among his 4 friends, each receiving the same number of toffees.

Then he meets another 5 friends and decides to share the second box of toffees. Again he eats one toffee and divides the rest among his 5 friends equally. He does the same with the remaining two boxes when he encounters a group of 6 friends and finally 7 friends.

How many toffees, at minimum, did Mario leave home with?