Domanda **1**

Risposta non data

Punteggio max.: 1,00

Given an intermediate layer $z^{[l]}$ (values before the activation function) of a mini-batch B of size 3:

1,27	2,54	2,72
-1,75	2,13	1,12

The intermediate layer consists of two units corresponding at the matrix rows of $z^{[l]}$.

Compute the normalized $z^{[l]}$ before adding β and γ (two learnable parameters) and insert the normalized value of $z_1^{[l](1)}$ in the form below (note: the $z_1^{[l](1)}$ before the normalization is 1,27 - see table). Epsilon = 0,0001.

Round the figure to three digits after the decimal point. Use comma as separator.

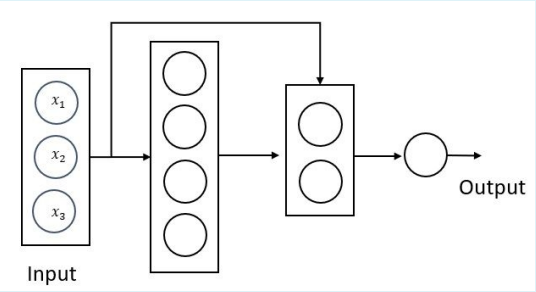
Risposta:

Domanda **2**

Risposta non data

Punteggio max.: 1,00

Suppose your input is a $x^{<i>}$ vector with three elements and you use the following ResNet for a regression task, with which you want to predict a single value:



How many parameters does this network have (including the bias parameters)?

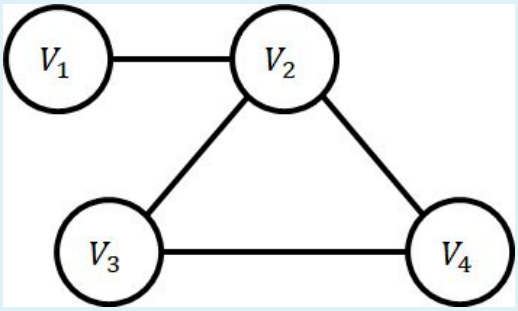
Risposta:

Domanda **3**

Risposta non data

Punteggio max.: 1,00

Consider the following graph:



in which each node is also connected with itself (self-loops).

Compute the Adjacency matrix, the Degree matrix, and the inverse of the Degree matrix. Then evaluate the operator the term $\hat{A}_{2,2}$

Round the figure to three digits after the decimal point. Use comma as separator.

Risposta:

Domanda **4**

Risposta non data

Punteggio max.: 1,00

Suppose the temperature in Udine over the first two days of January are:

Jan 1st: $\theta_1 = 12^\circ C$

Jan 2nd: $\theta_2 = 13^\circ C$

Say you use an exponentially weighted average with $\beta = 0,1$ to track the Temperature $(V_0 = 1)$.

Compute the valute $V_2^{corrected}$ after day 2 with bias correction.

Round the figure to three digits after the decimal point. Use comma as separator.

Risposta:

Domanda **5**

Risposta non data

Punteggio max.: 1,00

Suppose you are building a Deep Learning system for Face Landmark Detection with 32 keypoints for RGB images. How many units/neurons in the last layer does this network have?

Risposta: