① Runtime of the algorithm:
Both the inner and the outer for loops run from
1 -> n

∴ no. of iterations = $\sum_{i=1}^{n} \sum_{i=1}^{n} c = c \times \frac{n(n+1)}{2}$

∴ the runtime is $c \times \frac{n(n+1)}{2}$ where C is
the constant runtime ~~calle~~
for x = x+1

② Plotted on ipynb notebook.

③ The run time in $\frac{c \times (n^2 + n)}{2}$

The upper bound is $O(n^2)$

The lower bound is $\Omega(n^2)$

Big Θ is also n^2 because both upper and
lower bound is n^2

④ For n=0 the run time is ~~so~~ about ~~6.10~~ $\overset{3-10}{}$ microseconds

④ The ~~e~~ runtime for algorithm 2 is greater
as there are 2 declarative statements instead of 1

⑤ Due to additional computation the modified function
will have a greater runtime on average

⑥ implemented.