Lab Task:

Write the python code to implement Optimization algorithms (Gradient Descent, Stochastic Gradient Descent (SGD), Adam, Newton’s methods and compare the results of these optimization. algorithms.

Hint： Minimize a simple quadratic function:

f(x) = x^2 - 4x + 4

The derivative (gradient) of this function is:

f′(x)= 2x – 4