

Exercise 6: Optimization Based on Human Intelligence and Intuition

Summer Term 2024

In this exercise, you will be competing against all other class mates. To this end, you will be using a little program. After starting it, it reads two integer numbers (e.g., “1 2” but not “4, 5”) per input line, and reports the corresponding fitness value, also called function or objective value. Your task is to find the location of the minimum, which has the fitness value $f(x_{\min}, y_{\min}) = 0$.

Review: In the class, we have discussed the basic principles of optimization. Please, answer the following questions:

1. How will you be deriving the next test point from the knowledge you have gathered in the past?
2. How will you be handling two dimensions?
3. How do you want to determine your step size?

To Do: Locate the minimum of each of the following two test functions. Please note that the x and y coordinates of the minimum are within the interval $[-500, 1000]$.

Tasks: For the fastest one, we offer a coffee ☺.

1. Start the program and locate the minimum as quickly as possible.
2. Now, start the program and search again for the minimum.

x	y	$f(x, y)$

x	y	$f(x, y)$

Have fun, Theo and Ralf.