



UNIVERSITAT_{DE}
BARCELONA

OPTIMIZATION

MASTER IN FUNDAMENTAL PRINCIPLES OF DATA SCIENCE

OPTIMIZATION PROBLEM 5

CONJUGATE GRADIENT METHOD PROBLEM



DATA SCIENCE @ UNIVERSITAT DE BARCELONA

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ACADEMIC YEAR 2021-2022

1 Problem description

Solve the linear system

$$\begin{pmatrix} 1 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 3 \end{pmatrix} \begin{pmatrix} x \\ y \\ z \end{pmatrix} = \begin{pmatrix} 1 \\ 1 \\ 1 \end{pmatrix}$$

using the conjugate-gradient method.

2 Solution