

# Homework 1: Vector Search

Naomi Derel 325324994, Gili Cohen 326280815, Renana Shachak

02.07.2024

## 1 Faiss

### 1.1 Running Times

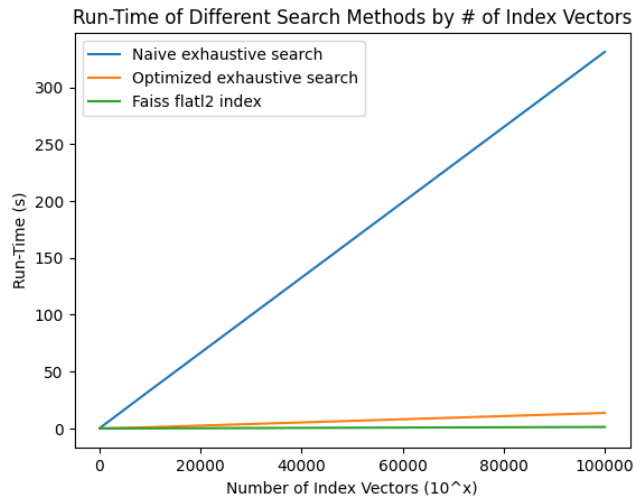


Figure 1.1.1: Running times by Number of Index Vectors

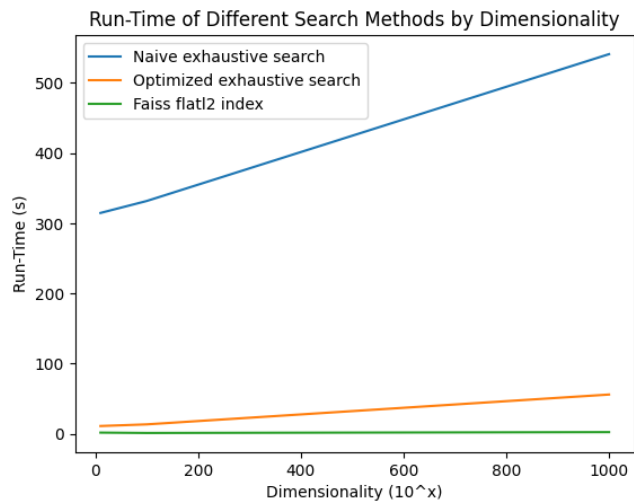


Figure 1.1.2: Running times by Dimentionality

## 1.2 Faiss LSH

# 2 Implementing an Index

## 2.1 LSH vs. Native Exhaustive Search

1. Running time of the `semi_optimized_exhaustive_search` function was: **4.14 seconds**.
2. Running time of building the LSH index was: **0.62 seconds**.
3. Running time of LSH search over query vectors was: **0.13 seconds**.
4. *Recall@10* for the LSH index was: **0.138**.

## 2.2 Custom Indexing Algorithm