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1 Introduction

The L^2-norm, or Euclidean distance, is often used to measure the distance between two points in an n-dimensional vector space. However, it can be slow to compute as it requires finding the square root of a number. As such, it is common to use the squared L^2-norm instead, which is often notated $\|\cdot\|_2^2$.

2 Implementation

Here is an implementation of the squared L^2-norm for 2D vectors.

```
\fun{SqL2Norm2D}{v}{
  \fun{Sq}{n}{ return n * n; }
  SqX := Sq(v.x);
  SqY := Sq(v.y);
  return SqX + SqY;
}
```

3 Conclusion

SqL2Norm2D is a really simple function and is fast on most architectures. Note that the factoring out of the Sq function may lead to a slight slowdown due to function call overhead. As such, it may be good to consider inlining the entire computation into a single return statement.