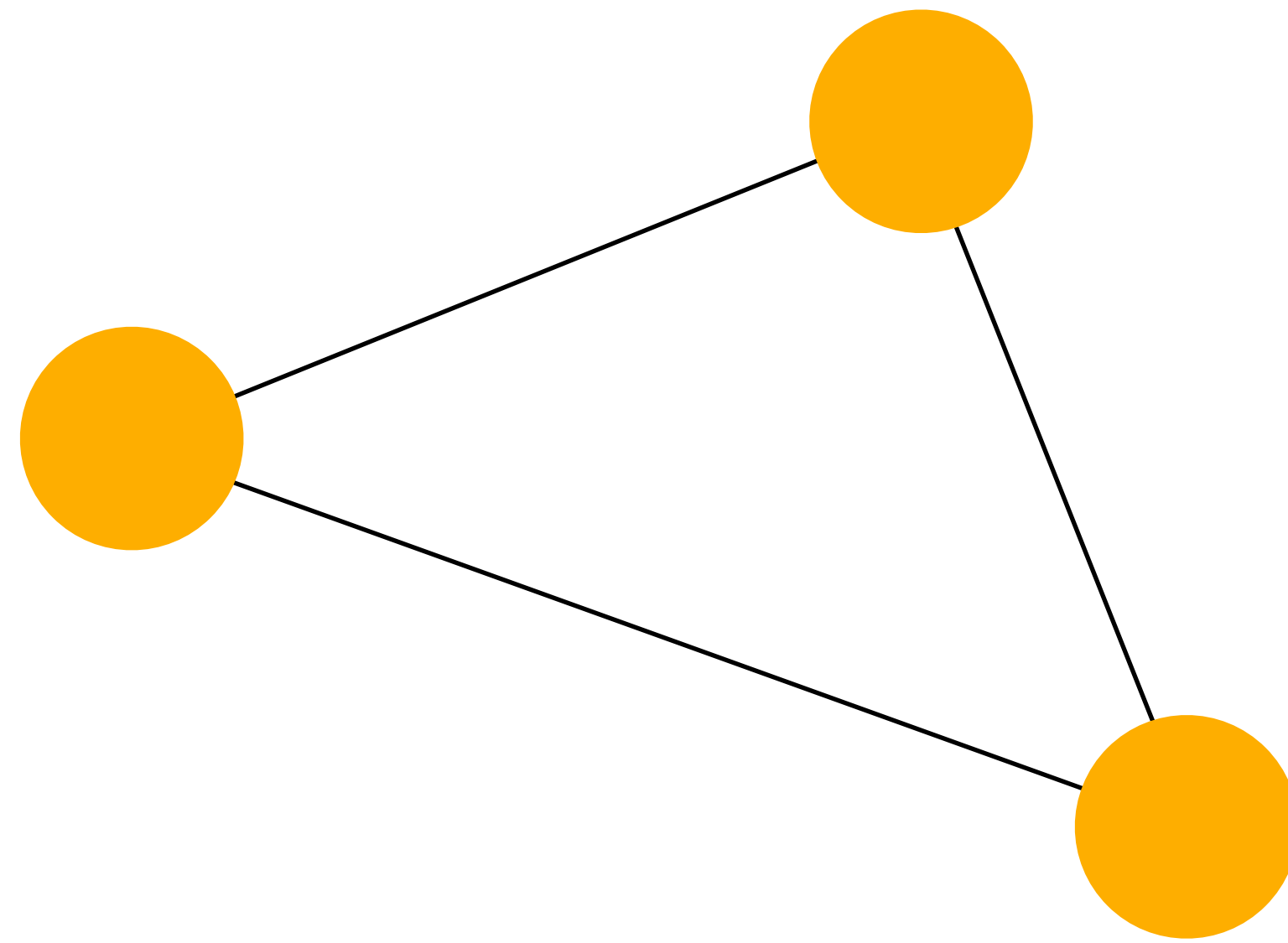# What are the **strengths** and **weaknesses** of vectors?

Abstraction


```
int *values;
int capacity;
…
```

Encapsulation

std::vector

- **Strengths**:

  - Fast Indexing

  - Fast insertion/removal at the end

  - Programmer defined order

- **Weaknesses**:

  - Slow searching

  - Fast insertion/removal at the middle and beginning

std::list

- **Strengths**:

  - Fast insertion/removal

  - Programmer defined order

- **Weaknesses**:

  - Slow searching

  - Slow indexing

std::set

- **Strengths**:

  - Fastish insertion/removal

  - Fast searching

- **Weaknesses**:

  - Ordering is not programmer-defined

  - No indexing

  - Element type must have < operator

std::unordered_set

- **Strengths**:

  - Very fast insertion/removal

  - Very fast searching

- **Weaknesses**:

  - "Arbitrary" and unpredictable ordering

  - No indexing

  - Extra configuration of element types