Object-Oriented Databases

Make use of the benefits of Object oriented Programs
- Encapsulation
- Inheritance
- Polymorphism
and to support persistent objects

Objects reside on disk, can be accessed at any time and can be shared
Each object is uniquely accessible through an object-id value.
- Unique integer value
- Immutable

Object atom: \(<\text{object-id, type, literal-value}> \)
\(<3742, \text{int}, 85320> \)
\(<\text{collection of atom/object}> \)

Tuple
- Ordered
- Diff. type
- Finite size

Array
- Ordered
- Same type
- Finite size

List
- Ordered
- Same type
- Unlimited

Set
- Unordered
- Unique
- Same type
- Unlimited

Bag
- Unordered
- Same type
- Unlimited

Dictionary (Map)
- Key → Value

Employee Tuple:
\(<12175, \text{tuple}, <1272, 2412, \ldots, 8115>, 88, \text{Name}, \text{Name}, \text{Dept}, \text{tuple}> \)

No join operation
For each relationship (on the relational DB)
  Two relationships (directional) are needed in OODB.

Commercial OODB:
  - Gemstone
  - ObjectStore
  - O2
  - Versant

OQL (Object Query Language)

ODL (Object Definition Language) — define Schema.

Persistent collection objects can be accessed through their collection name.

Extent: Named persistent collection.