

OD: activities

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Cypher

1. Return all nodes

```
MATCH (n)
RETURN n
```

2. Return all edges

```
MATCH ()-[e]-(n)
RETURN e
```

3. Return all neighbour nodes of 'John'

```
MATCH (:{name: 'John'})-[]-(n)
RETURN n
```

4. Return the incident nodes of all edges

```
MATCH (n1)-[e]-(n2)
RETURN n1, n2
```

Adjacency list vs Incidence list

First adjacency then incidence.

1. Tree

```
[ 1 -> [4]
, 2 -> [4]
, 3 -> [4]
, 4 -> [1,2,3]
]
```

```
e1 := (1,4)
e2 := (2,4)
e3 := (3,4)
```

```
[ 1 -> [e1]
, 2 -> [e2]
, 3 -> [e3]
, 4 -> [e1,e2,e3]
]
```

2. CC

```
[ 1 -> [2,4]
, 2 -> [1,3]
, 3 -> [2,4]
, 4 -> [1,3]
]
```

```
e1 := (1,2)
e2 := (1,4)
e3 := (2,3)
e4 := (3,4)
```

```
[ 1 -> [e1, e2]
, 2 -> [e1, e3]
, 3 -> [e3, e4]
, 4 -> [e2, e4]
]
```

3. Clique

```
[ 1 -> [2,3,4]
, 2 -> [1,3,4]
, 3 -> [1,2,4]
, 4 -> [1,2,3]
]
```

```
e1 := (1,2)
e2 := (1,3)
e3 := (1,4)
e4 := (2,4)
e5 := (2,3)
e6 := (3,4)
```

```
[ 1 -> [e1,e2,3]
, 2 -> [e1,e4,e5]
, 3 -> [e2,e5,e6]
, 4 -> [e3,e4,e6]
]
```