Case Study:

Using Social Network Analysis to determine criminal groups

Problem Definition

- How can we determine/identify the relationship between suspicious persons and the people they interact with to determine if they belong to an existing criminal organization?

  - Imagine! several similar crimes have taken place in a relatively short time. Determine whether the persons involved are related to each other and if there is a possibility that they are part of a criminal group.

Decomposition:

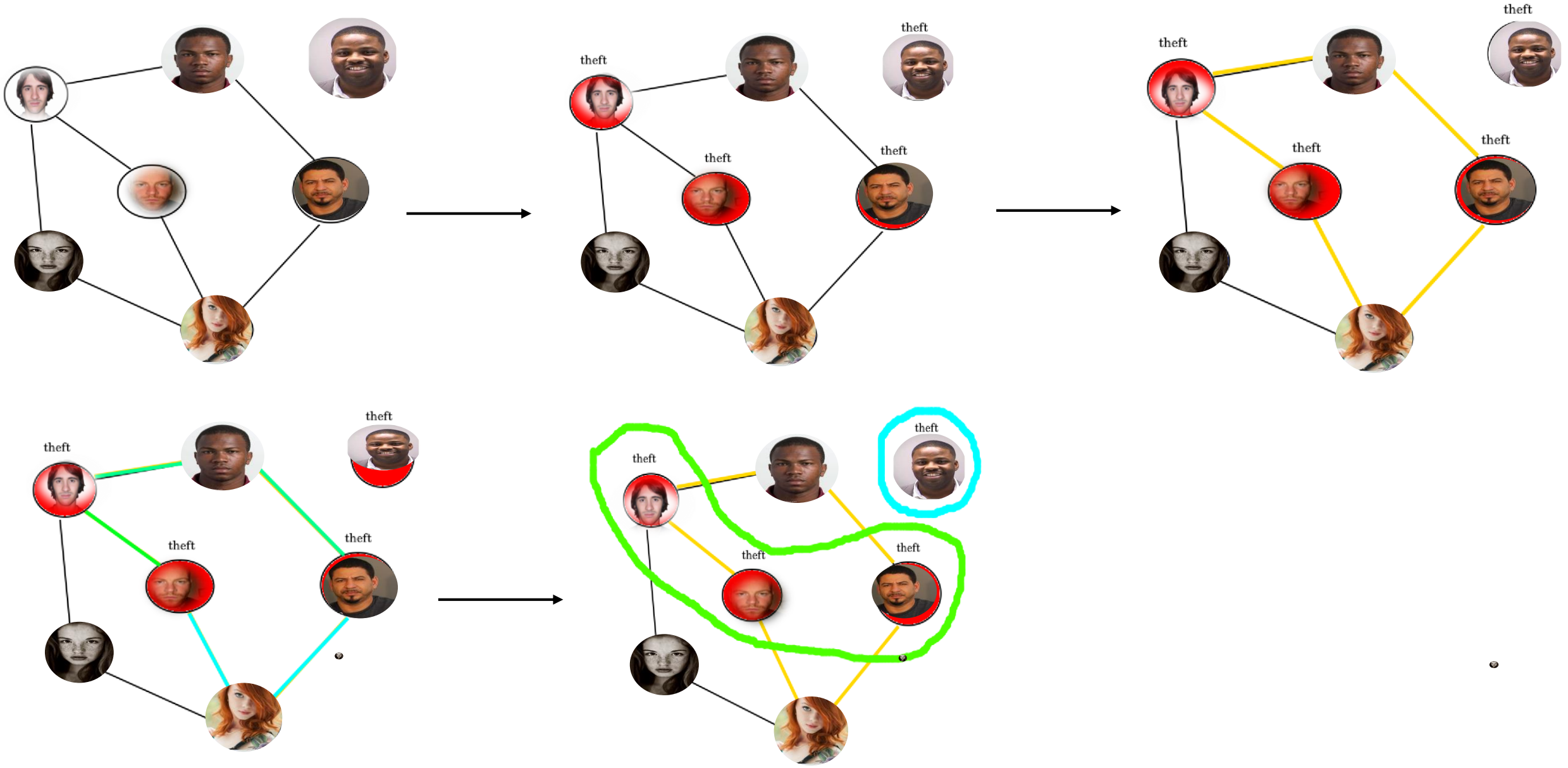
- **Sub problem:** set up a criteria on what makes a person suspicious
- **Sub problem:** Identify the people who are suspicious based on their crime types and crime rating
- **Sub problem:** determine the minimum number of people that connect each person who fall under the same type of crime.
- **Sub problem:** determine the relationship between crime types to determine the possibility that they are part of a singular criminal group.

Abstraction:

1. **Relevant Information:**
   - 1.1. People, relationships, crime rating
   - 1.2. Criteria for which type of crimes puts a person under “suspicion”. For example, jay walking is less likely indicative of organized crime than, say, robber or assassination.

2. **Less Relevant Information:**
   - 2.2 The algorithms to create to predict the weights or connectedness between people in the subgraphs.
   - 2.2. Criteria for which type of crimes puts a person under “suspicion”. For example, jay
   - walking is less likely indicative of organized crime than, say, robber or assassination.

Visual Aid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