

OBJECT ORIENTED PROGRAMMING

Seminar 7

Wildfires are unplanned, unwanted and uncontrolled fires that threaten human lives and the eco-system directly. For example, the wildfires in Australia in 2019 and 2020 affected nearly 3 billion animals and destroyed more than 45 million acres of vegetation.

You are asked to implement a wildfire simulation that will help authorities identify the weaknesses of the system in case such an unfortunate event takes place.

The main elements of this system are: the emergency notification system (central interface used to send messages about the emergency state), the population, fire-fighter units and the army. When a wildfire occurs, the emergency notification system will inform the population (through SMSs), the fire-fighter units and the army about the state wildfire.

Depending on the severity of the fire, the population should either be in an alert state or leave their homes. The fire-fighters should go out and put out the fire. Depending on the severity of the fire, the army should be in an alert state or use the available equipment to help fire-fighters stop the fire.

Discuss, design and implement a solution for this problem.

- What design pattern(s) would be suitable for this problem?
- What classes and STL data structures would you use? Do you need smart pointers?