# Exercise 2

**Problem 1.**    Explain the difference between a regular register and an atomic register. Provide an example execution that is allowed for a regular register but not allowed for an atomic register.

**Problem 2.**    Consider the transformation from binary regular to M-valued MRSW regular registers given in class. Prove that:

1. The resulting registers are regular.

2. The transformation would not work if the Write operation would first write 0, and then 1. (You should provide a counterexample that breaks regularity.)

3. The resulting registers are not atomic. (You should provide a counterexample execution that breaks atomicity.)

**Problem 3.**    Consider the transformation from binary MRSW regular to M-valued MRSW regular explained in class. Does the same transformation work for binary MRMW regular to M-valued MRMW regular registers?