P1) Construct an instance of the stable matching problem with 4 companies and 4 applicants that has 3 stable matchings.

P2) Show that an instance of the stable matching problem has exactly one stable matching iff the company optimal matching is equal to the applicant optimal matching.

P3) Suppose we put n circles into the plane. Show that we can color the regions with 2 colors such that any two neighboring regions are colored with distinct colors.