Graph Algorithm, Exercise 5

1. Regarding vertex cover problem...
   (a) Construct an instance so that the greedy strategy does not give an optimal solution.
   (b) Construct an instance so that the greedy strategy performs *very badly*, in the sense that the returned solution is not even an \(\alpha\)-approximation. How large can your \(\alpha\) be?

2. In class we showed how to use Hall’s marriage theorem to prove König’s theorem. Now use König’s theorem to prove Hall’s marriage theorem.