1. $O(nmlog(nm))$
2. The matching is stable is there is no any pair (s, c), such that
    - student s is not enrolled to college c
    - student s prefers college c than s's current admission state (we could consider unmatched to be of 0 evaluation value)
    - either is capable to enroll more student and s can increase c's satisfaction value, or c prefers c than some other student s' that has been enrolled to c
3. Pf. (by contradiction) (We can consider unenrollment to be a college evaluated by every student with value 0, as well as well students evaluated by every college with value 0)
    - Suppose (s, c) is a unstable pair: s is enrolled in c', s prefers college c (i.e. $eval(s, c') < eval(s, c)$), and c prefers not to accept s or prefers another student s' (i.e. $eval(c, s') \leq eval(c, s)$).
        - Case 1: s never applied for c. Because students applied in decreasing order or preference, so s prefers c' to c, then (s, c) is stable.
        - Case 2: s applied for c. c unenrolled s (sooner or later), i.e. c prefer other students than s, so (s, c) is stable.
4. Yes, GS produces a student-optimal matching.