goals

- optimal offline algorithm OPT, or
 - a lower bound for OPT for a minimization problem
 - an upper bound for OPT for a maximization problem
- lower bound on any online algorithm ("no online algorithm can achieve a competitive factor better than...") for minimization problems (upper bound for maximization problems)
- online algorithm with competitive ratio (if possible of lower bound)
- for the competitive ratio
 - upper bound on ALG for a minimization problem
 - lower bound on ALG for a maximization problem