1) You are working part-time in an electronics supply warehouse and your manager has discovered that you are studying algorithm design and wants your help solving a problem. There is only one customer service person working at a time on the sales counter and often there are several customers waiting to order and receive parts. Your manager has asked you to devise an algorithm for serving customers that minimizes the total waiting time.

Suppose you have n customers who are ready to order parts and you know in advance that each customer c_i will require t_i minutes. Your manager wants to minimize the total waiting time

$$\text{Minimize the total waiting time } T = \sum_{i=1}^{n} t_i$$

a.) Argue that the problem satisfies the criteria for using a greedy approach

b.) Devise a greedy algorithm to minimize the total waiting time

c.) Provide a convincing argument that your algorithm is correct

d.) Show the worst case performance of your algorithm

Due date: At the start of class Thursday April 3rd

How to submit: Neatly write or type out your response. If you are familiar with LaTeX, please use it. LaTeX is installed on all math and csis machines. It may be used in the browser (without installing anything) at `overleaf.com`.