1. The greedy algorithm taught in class, but only run the sort by density option instead of both sort by density and sort by value; and instead of excluding the first item that makes current weight exceed maximum allowed weight , include that item.

**Proof of correctness**: including the first item that makes our weight exceed does not make our weight exceed because no item is too big (i.e. ). Before including , the current weight is adding makes total weight . This new algorithm also makes our total value because as proved in lecture, including a fraction of item such that the total weight is equal to when running by sorted density makes our value equal to the optimal value , including the entirety of thus makes our total value .

1. The greedy algorithm taught in class, but make weight limit .

**Proof of correctness**: