**Heaps:**

1. **What are the two properties of a max heap?**
2. **What are the three different implementations for a priority queue? Describe the differences in runtimes of these methods: Add, remove\_max.**
3. **Draw a heap with 10 elements**
4. **Write the array representation of the heap**
5. **Where will we find the max element in the heap? Second Max?**
6. **Perform these operations on the heap:**

**Add(90)**

**Add(80)**

**Add(40)**

**Remove\_Max()**

**Remove\_Max()**

1. **Draw the resulting heap and its array representation.**
2. **Describe any problem that a heap could help improve.**