CSE-250 Recitation

Feb 20 - Feb 25: Code Complexity

Asymptotic Notation

- Provide tight Big-O and Big-Ω bounds, and a Big-Θ bound if one exists.
  - $2n^2\log^2(n) + 5n^4 + 2^{\log(20n)}$
  - $7n\log(n) + 5n + 4\log(2^n)$
  - $5n^2\log^3(n) + 8n^2$

ArrayBuffer.append

```
def append(elem: T): Unit =
    {
      if(used == data.size){
        val newData = Array.copyOf(original = data, newLength =data.size * 2)

        for(i <- data.size until newData.size){ newData(i) = None }

        data = newData
      }

      data(used) = Some(elem)

      used += 1
    }
```

ArrayBuffer.append

- Write out, using case notation, the complexity for the above call
  - What is the Big-O bound of this expression?
- Write out the complexity of n calls to append using sum notation
  - What is the Big-O bound of n calls once summations are removed?