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Task 2.1P (Case complexity (Pass))

Question 1:

1. Best, worst, average case (number of operations)
   1. Case I
      * Best : 2
      * Worst :
      * Average :
   2. Case II
      * Best :
      * Worst :
      * Average :
   3. Case III
      * Best :
      * Worst :
      * Average :
   4. Case IV
      * Best :
      * Worst :
      * Average :
   5. Case V
      * Best :
      * Worst :
      * Average :
   6. Case VI
      * Best :
      * Worst :
      * Average :
2. Best, worst and average case (big-):
   1. Case I
      * Best :
      * Worst :
      * Average :
   2. Case II
      * Best :
      * Worst :
      * Average :
   3. Case III
      * Best :
      * Worst :
      * Average :
   4. Case IV
      * Best :
      * Worst :
      * Average :
   5. Case V
      * Best :
      * Worst :
      * Average :
   6. Case VI
      * Best :
      * Worst :
      * Average :
3. Overall performance in Big‐O notation:
   1. Case I :
   2. Case II :
   3. Case III :
   4. Case IV :
   5. Case V :
   6. Case VI :
4. Overall performance  in Big‐ Ω notation:
   1. Case I :
   2. Case II :
   3. Case III :
   4. Case IV :
   5. Case V :
   6. Case VI :
5. Overall performance in Big‐Θ notation:
   1. Case I :
   2. Case II :
   3. Case III : Not possible
   4. Case IV : Not possible
   5. Case V :
   6. Case VI :
6. Asymptotic Notations:
   1. Case I :
   2. Case II :
   3. Case III :
   4. Case IV :
   5. Case V :
   6. Case VI :

Question 2:

There are two reasons why the most commonly use asymptotic notation use is frequently Big-O:

* It is common to use Big-O simply because the Big-O notation is the upper bound (worst case) and the big- is the tightest bound. Thus, Big-O will be much more effective to analyze the performance of the Case.
* In addition, not every computer can access the (theta) symbol.

Question 3:

The asymptotic behavior for grows cubic, while grows less than linear.

For instance, two example equation:

If the value of n is 10, then , while

Hence, why is **much slower** compared to because it needs more time to run the Case completely, no matter how much the value for n is.

Question 4:

* True
  + The Big-O notation for
* False
  + The Big-O notation for is ()
* False
  + The Big-O notation for
  + The Big- Ω notation for it is
  + Hence, it must be ()
* True
  + The Big- notation for is