WA8 AND PA4

BME 121 2016

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WA8

- To declare a class that implements some interface:

```
class SomeClass : IInterface {

        // also implement the interface's methods
        type IInterface.Method() {
                // …
        }
}
```

- See week 11 lecture IAreaCalculable example, or Lab 10 slide 19
- Also see https://msdn.microsoft.com/en-us/library/4d7sx9hd(v=vs.110).aspx

PA4

- Reuse some code for node removal (from week 10 lab solutions):
  - RemoveHead, RemoveTail, RemoveAt(i) → but modify them to return Drugs instead of strings
- Implement RemoveAll(Func<Drug, bool> test) using the above 3 as helper methods
  - test.Invoke(someDrug) returns true if someDrug passes the test.
  - Check every node from head to tail (using Node current = head, and int i = 0)
    - current keeps moving down the list before any removal
    - if node i passes the test, then remove node i using RemoveAt(i), and add the Drug to a new linked list
    - if node i doesn't pass the test, then i++
    - Stop when i reaches count.

PA4 Main and Testing

- The DrugRecords class is coded up to process the input file, but the LinkedList class isn't. Solution is a simple transfer of Drug objects:

```
DrugRecords records = new DrugRecords(@"RXQT1503-100.txt");
LinkedList originalList = new LinkedList();
foreach( Drug drug in records.DrugList )
{
        originalList.Append(drug);
}
```

- Start your Main method this way.

PA4 Main and Testing

- Suggested test cases (feel free to devise your own):

1) [Case: multiple vitamins somewhere in the linked list]
   Remove all drugs whose name contains the word “VITAMIN”
   - Check that the original linked list doesn’t have any drugs containing VITAMIN, and
   - Check that the linked list returned by RemoveAll only has drugs containing VITAMIN
   - Check that the count of the two linked lists add up to the same as the original
2) [Case: only 1 vitamin at the head of linked list]
   Prepend one of these VITAMIN drugs back into the original linked list, run it again and check that RemoveAll only returns that drug, and the original linked list has no VITAMINs.

PA4 Main and Testing

3) [Case: only 1 vitamin at the tail of linked list]
   Append one of these VITAMIN drugs … (otherwise same test as 2)
4) [Case: linked list has only 1 drug and it's a vitamin]
   Run RemoveAll on the linked list returned by the call to RemoveAll in 3), check that the linked list returned by 3 now no longer has any elements.
5) [Case: linked list has no drugs]
   Run RemoveAll on the linked list returned by the call to RemoveAll in 3) one more time, check that neither lists have anything.
6) [Case: linked list has no vitamins]
7) Etc…

Bonus: Elevator Pitch for Projects

- Goal: In 20-30 seconds, deliver a well crafted summary (and **appetizer**) that invites people to become more curious about what you're **uniquely** working on
- 4 Parts, 4 sentences:
  - What problem are you solving?
  - Why is this problem worth solving? (aka why should I, the audience, care about this problem?)
  - What is your unique solution?
  - How does the solution address the problem / what's the benefit of the solution?

Bonus: Elevator Pitch for Projects

- What problem are you solving?
  - “Wheel chairs don’t come with ramps, and the lack of accessible building entrances is a major obstacle for persons with accessibility needs.”
- Why is this problem worth solving? (aka why should I, the audience, care about this problem?)
  - “Even if a building has one such entrance, the hindrance is unfair and adds up to billions of dollars worth of time and productivity loss each year.”
- What is your unique solution?
  - “Inspired by quadcopters, we’ve designed and built a special wheel chair that comes with a stable and controllable flight mode. Unlike other wheel chairs that tries to climb stairs, ours provide a gentle and non-bumpy experience to the user.”
- How does the solution address the problem + what’s the benefit and impact of the solution?
  - “Not only does our wheel chair enable the user to navigate current barriers with ease, it is also a platform for building personal flight transportation in the future.”

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  - "Inspired by quadcopters, we've designed and built a special wheel chair that comes with a stable and controllable flight mode. Unlike other wheel chairs that tries to climb stairs, ours provide a gentle and non-bumpy experience to the user."
- How does the solution address the problem and what's the benefit and impact of the solution?
  - "Not only does our wheel chair enable the user to navigate current barriers with ease, it is also a platform for building personal flight transportation in the future."

A wheel chair that climbs using tank treads actually exists: https://www.youtube.com/watch?v=3lb_8nmy90c