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Week8Meet - 10 pts

Turn in on BBL as soon as complete, but before end of day Sunday following the lecture.

Answer these questions as we progress through the meeting.

1. What goes into a tester for Events?

We can white box test the events class by creating the objects and testing setter/getter, toString, toFile, and compareTo methods.

2. Organize your thoughts into a high-level list of tasks the program should perform:

- Purchase a gift item in the shop
- Set a theme in the shop
- Take photos
- Ride the rides/attractions
- Eat meals
- Leaving the event

3. What is the purpose of the try/catch/finally structure?

This is used to catch and handle any foreseeable unexpected behavior that causes the program to stop abruptly.

The try block attempts to run the code where an exception could potentially occur.

The catch block will have code to handle the exception.

The finally block is optional and will run regardless of whether an exception is thrown or not.

4. Selection sort the following (show the state of the list on each iteration):

5 9 7 3 6 1 4 2 8

1. -> 1 9 7 3 6 5 4 2 8
2. -> 1 2 7 3 6 5 4 9 8
3. -> 1 2 3 7 6 5 4 9 8
4. -> 1 2 3 4 6 5 7 9 8
5. -> 1 2 3 4 5 6 7 9 8
6. -> 1 2 3 4 5 6 7 9 8
7. -> 1 2 3 4 5 6 7 9 8
8. -> 1 2 3 4 5 6 7 8 9

5. Insertion sort the following (show the state of the list on each iteration):

5 9 7 3 6 1 4 2 8

1. -> 5 9 7 3 6 1 4 2 8
2. -> 5 7 9 3 6 1 4 2 8
3. -> 3 5 7 9 6 1 4 2 8

4. -> 3 5 6 7 9 1 4 2 8
5. -> 1 3 5 6 7 9 4 2 8
6. -> 1 3 4 5 6 7 9 2 8
7. -> 1 2 3 4 5 6 7 9 8
8. -> 1 2 3 4 5 6 7 8 9

6. In a list of 100 items, what is the WORST case for linear search? The BEST case? The AVERAGE case?

Worst case: $O(N) = 100$ iterations (value at the end of the list)

Average case: $O(N/2) = O(N)$ 50 iterations (value in the middle of the list)

Best case: $O(1) = 1$ iteration (first value of the list)

7. In a list of 100 items, what is the WORST case for binary search? The BEST case? The AVERAGE case?

Worst case: $O(\log_2(N)) = 6$ iterations (First or last value of the list)

Average case: $O(\log_2(N)) = O(1/2 * \log_2(N))$ 3 iterations (25th or 75th value of the list)

Best case: $O(1) = 1$ iteration (Middle value of the list)

8. What is your current understanding of 'Order of n' $O(n)$?

Gives an idea of the performance of the algorithm based on the time complexity of an operation as the relative size of the input increases.

Reflect on your learning and your needs. After this class meeting, what topics do you feel like you learned and what topics do you feel like you need more information on to learn?

I would say I learned a lot about sorting and the different types of search algorithms. Also, I learned about how to handle exceptions in Java. Probably could use more practice in Big O notation and analyzing time complexity.