[19sp]:

* (Placeholder for todos added from Slack)

-- 17fa--

~~[MC]: check ALL of the auto tests and make sure they cover sufficient edge cases.~~

-- various semesters --

**HW3** -

* ~~For count\_sat\_words we initially provide an anonymous function with a failwith body -> explicitly tell students that they must fully delete this anonymous function when they are implementing this method~~
* ~~Emphasize in instructions that students should fully test their tree methods as these will be used again in BSTSet~~
* ~~In the tree file, explicitly state in instructions the definition of polymorphic when mentioning the max method~~
* Update the name of OLSet to OrderedListSet to make it more clear on what implementation of set that this module contains
* ~~Reminder in testing file to NOT use structural equality~~
* ~~how to test a function that depends on a different function?~~ 
  + ~~Clarification needed~~
* ~~Writing test against interface vs. specific implementation - using list inside the module, building up from empty~~
  + ~~Clarification needed~~
* ~~REDO instructions for hw3 - also move code explanations into HTML~~
* ~~We should continue doing post-mortems like~~ [~~this~~](https://docs.google.com/document/d/1_APnJfKqlNwqODJ9u3HkMsvHQfKoL4cIWBvtKCtibUo/edit) ~~-- summary, common questions, TA observations, student feedback, stats~~
* ~~JC: reverse is in the lecture notes and/or in the recitation materials. Do we want to remove from the lectures notes or homework or doesn’t matter?~~
* JC: We need to restore the definition of complete to be this from whatever it is now. It was changed in 17sp for unknown reason. Look into terminology of “complete” maybe and see if it's accurate.
  + ~~A "complete" binary tree is one where:  
     \* - every leaf is the same distance from the root  
     \* - every node has either 0 or 2 children~~

~~JC: String.uppercase is something we tell them to use, but it’s apparently deprecated and throwing a compiler warning upon submission~~

~~HW03 Post-Mortem~~

**~~Summary/Notes for next time:~~**

~~Some students thought that this assignment was very time-consuming, and there were several cases in which students powered through the problems without fully understanding what they were doing. To compare this with previous years, it is possible that students weren’t ready to digest two new major topics (HO functions and modules).~~

~~However, more HTML-based documentation might help. Inline explanations didn’t resonate with students. They expected descriptions of functionality/goals rather than educational material and generally skimmed over longer comments. After going so long that they got lost, they’d show up at office hours and ask questions that could be answered by reading the comments more carefully. It’d be nice if everyone read thing thoroughly, but the practical solution would be to better-designate explanatory sections of hw assignments, and we can do this more effectively (e.g. not in plain-text) in the HTML assignment page.~~

~~There was some confusion over OLSets vs. ULSets, particularly the [destutter] and [qsort] functions, but overall including ULSet seemed useful for demo-ing a struct.~~

~~Many students were confused about the functions in vocab (problem 8). People were especially confused about [count\_if] and [count\_words\_in\_dict]. There was also confusion about what to comment-out so as not to time-out the server. This note was right in the middle of everything else, and threw off some students in OHs. Lastly, should move [add] example of partial application earlier, as it offered into understanding [count\_words\_in\_dict].~~

**~~Common Questions~~**

* ~~My code isn’t running.~~

~~The problem is not with your code (unless it doesn’t compile..). Something is wrong with eclipse. Here are a few things to try:~~

~~\* If you are Windows, that means that your operating system has locked your executable and won't let eclipse update it. Run your task manager and kill any "ocamlrun" processes. Restart eclipse.~~

~~\* It could be that there is still a compilation error in your program, and eclipse is not very good at showing it to you. Look at the "OCaml Compiler Output" tab to see whether compilation is happening when you rebuild.~~

~~\* If all else fails, restart your computer.~~

~~If none of these help, please bring your laptop to office hours.~~

* ~~How is ULSet different from OLSet?~~

~~ULSet and OLSet both maintain the set invariants but the hidden list is structured differently. As a result of a different internal set of guarantees, functions are different between the two in adding to and extracting data from the set whilst maintaining the internal format.~~

* ~~Are invariants ever explicitly stated?~~

~~No, but your functions need to preserve them.~~

**~~TA Observations~~**

* ~~Students don’t know how to write anonymous functions.~~
* ~~Students are able to describe the functions they need but don’t feel like they can just add functions that aren’t already stubbed for them.~~
* ~~There is a common misunderstanding of the fact that BSTs can contain the same data but not be structurally equal.~~
* ~~Students have trouble differentiating between inside and outside of module visibility, which manifested both in issues with implementation and moreover in testing.~~
* ~~Some students who ran into issues with runtime in vocab.ml were sorting their lists before creating trees from them (other mistakes people saw?).~~
* ~~The count\_if \* count\_words\_in\_dict duo was a maybe stumbling block that (I found) students didn’t have much trouble implementing if the role of the predicate in this case was better explained.~~

**~~Notes from assignment dev~~**

~~- MM: Clarify why base cases of [for\_all] and [exists] are different~~

~~- MM: Add hint to write [union] helper function for [BSTSet.transform]~~

~~- Or are we satisfied with the list conversion and remove/add solutions?~~

~~- MM: Don't shadow [BSTSet.add] with [Vocab.add] (rename to [plus])~~

~~- MM: Remove [qsort] and [destutter] from provided code?~~

~~- I almost feel like giving them ULSet as a model may have confused~~

~~expectations for OLSet~~

~~- Need clearer explanations of which functions should leverage~~

~~invariants, or at least how to identify when invariants are important~~

~~- MM: Put [filter] into set interface, even if we give implementation~~

~~- MM: Need \*much\* clearer explanation of expectations for vocab.ml~~

~~- Relationship between [count\_if] and [count\_if\_in\_dict]~~

~~- Standardize functions to use sets for all problems (no lists)~~

~~- MM: Remove note about short-circuiting; maybe caused students too much~~

~~confusion compared to writing if-then-else?~~

~~TG: Should adjust grading to specifically have portion for respecting / using invariant in OLSet.~~

~~MM: Have students write their set test cases in set\_interface.ml (and then use functors to do some clever tricks to run them for all their modules? that would be fun)~~

**~~Notes from Staff Meeting~~**

* ~~Students would figure out [count\_if] and [count\_if\_in\_dict] eventually, especially after understanding the role of predicate function. But still did not understand what they just did or why it worked overall~~
* ~~Students were intimidated by qsort and destutter implementations~~
* ~~Students did not understand why we had both OLSet and ULSet~~
* ~~Explanations of concepts in comments/code were generally ignored -- consider moving explanations to HTML (or including in both places). Can also film Thomas-based instructional videos~~

**~~Student Feedback (from submissions)~~**

* ~~THIS WAS SOOOOOOO HARD~~
* ~~why . . .~~
* ~~Rather tough and time consuming. Felt like it was a lot in one week.~~
* ~~This homework would have been a lot more enjoyable if we had more time. There were a few times where, if I had more time, I would have really liked to think about the problem and solve it myself, but since I had other work and only a week to complete this, I had to go to office hours for help. The homework was pretty cool and I felt I could have learned a lot more if we had either more time to do it, or less problems per assignment.~~
* ~~Ran short on time, rather not use late day but will use if homework is completed~~
* ~~I was fine until you hit me with that count\_words\_in\_dict function...~~
* ~~This assignment was a bit confusing at times.~~
* ~~"Beanies are perfect 24/7. They're like a swim cap, but you know, for land." --Ryan Lochte~~
* ~~None~~
* ~~It was difficult.~~
* ~~Mood after completing homework: @\_\_@~~
* ~~Progress was like the sum of the harmonic series... slowed to a crawl.~~
* ~~zomg please shorter homework assignments when 160 has a midterm!~~
* ~~TOO MANY TEST CASES~~
* ~~This was tedious. A lot of repetition and a lot of time consumed.~~
* ~~I ran out of time =(~~
* ~~I have an infinite loop problem that I can't identify. All of my tests pass and I have tried to modify my functions so that they are less complicated but as a result I was unable to test some invariants, especially for OLSet. I hope that even though parts of the homework have a problem that I can still receive a grade.~~
* ~~it was hard :c~~
* ~~Thought this homework was pretty challenging. There were definitely some nuances that I didn't feel completely comfortable with.~~
* ~~This is my last submission left so I really hope this works.....:O~~
* ~~This is so hard. My friends and I discussed a couple questions together~~
* ~~Done?~~
* ~~I thought this homework covered too much material too quickly. It was interesting, but it took a very long time.~~
* ~~Not bad, took me a while, but I was fine since I started early~~
* ~~Second submission, two times is the charm?~~
* ~~Problem 6 was poorly written~~
* ~~Assignments are very long~~
* ~~makes me want to become a farmer~~
* ~~It was a lot of text... really hard to weed out where things were when you went back to check over work and look over it. Maybe it would be easier if the code was like 110 where the actual code was pretty clean, and the website was where all of the details were?~~
* ~~finished diameter and brushed up style a little, hopefully everything still passes~~
* ~~so long~~
* ~~this got real confusing, real fast~~
* ~~Hard~~
* ~~This was extremely time-consuming and pretty difficult at many points. I think this homework should be broken up into multiple assignments into the future, instead of lumping it into one.~~
* ~~Took very long to figure out some parts~~
* ~~massive rekt~~
* ~~I couldn't figure out count\_if for some reason. I thought I had it right, but it was taking forever, so I guessed on the numbers.~~
* ~~Wow.~~
* ~~This was a very boring and tedious homework. One of my least favorite coding assignments.~~
* ~~A bit tougher than the last ones and provided some practice for partial application~~
* ~~Oh man.~~
* ~~Harder than hw 1 and hw 2, definitely, but gave me a greater understanding of abstraction and interfaces.~~
* ~~Arrrrgggghhhhhhhhhh :'(~~
* ~~Also vocab.ml would not compile unless there was a print\_counts function, so instead of commenting the entire thing out, I just commented out most of the body and left print\_newline ()~~
* **~~it was really fun but SO LONG. seriously, there was no reason for this homework to be as long as it was~~**
* **~~Added more test cases for points. Slave of points~~**

**~~Stats (Overall)~~**

~~==============~~

~~hw03, Section: REG~~

~~median: 96.4~~

~~mean: 93.82~~

~~var: 59.07~~

~~stddev: 7.69~~

~~min: 41.5~~

~~max: 100.0~~

~~count: 174~~

~~zeros: 0~~

|  |  |  |  |
| --- | --- | --- | --- |
| ~~Problem~~ | ~~Max~~ | ~~Min~~ | ~~Average~~ |
| ~~Kudos (Tree Diameter)~~ | ~~5~~ | ~~0~~ | ~~0.170454545455~~ |
| ~~MG 0~~ | ~~15~~ | ~~2.5~~ | ~~11.90625~~ |
| ~~Problem 1 (Generic Types)~~ | ~~10~~ | ~~0~~ | ~~8.00604026846~~ |
| ~~Problem 2 (Higher-Order Functions)~~ | ~~12~~ | ~~0~~ | ~~11,8080526913~~ |
| ~~Problem 3 (Generic Binary Trees)~~ | ~~12~~ | ~~0~~ | ~~11.6067114094~~ |
| ~~Problem 4 (Binary Search Trees)~~ | ~~10~~ | ~~5~~ | ~~9.42105263158~~ |
| ~~Problem 4 (Generic Binary Search Trees)~~ | ~~8~~ | ~~0~~ | ~~7.71962616822~~ |
| ~~Problem 5 (Ordered List Set)~~ | ~~10~~ | ~~4.2~~ | ~~8.95~~ |
| ~~Problem 6 (Binary Search Tree Set)~~ | ~~10~~ | ~~5.8~~ | ~~9.3058823594~~ |
| ~~Problem 6 (Ordered List Set~~ | ~~16~~ | ~~0~~ | ~~15.2082352941~~ |
| ~~Problem 7 (Binary Search Tree Set)~~ | ~~17~~ | ~~0~~ | ~~15.6674528302~~ |
| ~~Problem 7 (Text Processing)~~ | ~~10~~ | ~~3.6~~ | ~~7.31176470588~~ |
| ~~Problem 8 (Text Processing)~~ | ~~12~~ | ~~0~~ | ~~10.3096926714~~ |