This assignment was pretty well done (especially Q4). Just some general notes:

- In your “test_results.txt” file, even if you submitted “fastSearch.cpp” it says “fastSearch.cpp not found”. Please ignore that, it’s a typo and does not affect your testing results at all.

- A lot of students don’t put enough whitespace in their solutions. Please put enough spaces between statements and newlines wherever appropriate. A proof separated over multiple lines is much easier to read than a proof which is all in just one line. Also in the case the grader is spending too much time reading your solution because it’s horribly formatted, they can deduct a mark for that. Please make sure your solutions are easy to read.

Q1a Some students did not prove by induction, but just observed a pattern and stated that it must be true.

Q1b A common error was proving the bound for all $h$ but not for all $k$. One way to do this was doing induction on $k$ as well.

Q2a A lot of students solved this problem by arguing that if it was possible to do selection in $o(\log n)$ comparisons then we would be able to sort in $o(n \log n)$ comparisons. Which was an accepted answer and you got the marks if the answer was written properly. However, just make sure you’re able to do the problem with decision trees so that you’re comfortable with decision trees.

Q3 A common error was treating log as base 2 in some places and as base $e$ in other places without being consistent about it. For part b), a lot of students started their summation $\sum_{i=1}^{\infty} i \cdot P(X_k = i)$ at index 1. This should start at 0 since you can have a tower of height 0. However, no marks were taken off for this since it makes no difference to the math.

Q5 Some students didn’t have enough comments in their code to make it clear what they were trying to do.