1. The stack also has a function sum() that returns the sum of all values in the stack. Also needs to be in O(1) time.
2. There is a bishop on the board with fixed location (bi, bj). The knight mustn't be captured by the bishop.  
   The implementation is not hard as long as you know how to perform BFS.
3. Second Round :- One Way Interview
4. 30 minutes || 10 Questions
5. You'll get 15 seconds to read and think about the question. After that, video recording automatically starts and there's a option if you want to stop early.
6. 10 questions are mixed of behavioural and technical questions. I got 3 behavioural question and 7 technical question.
7. In technical questions, I have to agree/disagree with the statements and provide explanation. Answers recording is between 45 seconds to 2 minutes depend on the questions. I hope above information helps someone to get the job.

Sell-side:

(a) Why is the the expected return of a stock not part of the option price in the Black-Scholes model? How would you explain this in simple terms to a trader who does not know the math of how the formula is derived?  
(b) How does the dependence of an option price on the stock's expected return change if we switch from a simple log-normal process for the stock to a process with stochastic volatility? What is different about the underlying economy in this case?

Buy-side:

(a) Are the markets efficient? If so, why are we hiring for people to trade quantitatively? If not, how would you go about finding those inefficiencies? (This can lead to different paths, like simple statistical tests, machine learning methods, etc.)  
(b) Suppose we have a strategy that tests well on paper over a five-year period. Discuss the next steps.  
(c) Explain the difference in business models between a hedge fund and an investment bank.

Here is one I saw:

Derive the pde for the (equivalent of) Black-Scholes PDE when you assume that the underlying process is a regular Brownian Motion, instead of a Geometric Brownian Motion.

*Let’s fast forward a year from today. You’ve made this hire—maybe it’s me and maybe it’s not—and a whole year has gone by. What does a homerun hire look like for you? In other words, what does success look like for you? What needs to happen in that year for you to look back and say ‘WOW, we are so happy we picked this person for this role’?*

Interviewer: So, have you applied anywhere else?

Me: Yes sir, I've applied to a couple of other firms as well.

Interviewer: Why? Aren't you serious about joining us?

Me: **No sir, it's just that I really needed some practice before I had my interview here**.

HFT firm?

The baseline is a general quant interview -- a helpful resource for that can be a book like Heard On The Street (http://www.amazon.com/Heard-Street-Quantitative-Questions-Interviews/dp/097005520X). An HFT interview would be different from that baseline in the following ways:

1. More emphasis on programming. Expect questions similar to what a top tech firm would ask. This would include algorithms, design, and actual coding.

2. Less emphasis on financial products and probably nothing on derivative pricing.

3. You may be asked for strategy ideas you have thought about or researched, but don't expect to have much discussion about strategies the company is employing.

4. Depending on the role and your background, there may be some discussion of execution strategies and market microstructure.

**Sample IMC Trading Technical Interview Questions:**

* Differentiate between a Set and a List.
* Do you think Quicksort is the fastest sorting algorithm?
* How would you describe “recursion” to a non-technical person?
* Can signed and unsigned integers store the same number of values?
* Explain HashMap to a non-technical person.
* Differentiate between a stack and a queue.
* Implement a stack with the ability to add numbers to multiple elements in O(1).
* Find the minimum number of moves needed for a knight on a chessboard to move to the target square.
* How would you implement the custom stack with the getMin() method in O(1) time?
* Are immutable objects thread-safe?
* Determine the data structures and algorithms for a library system.
* How would you develop an algorithm to determine the location of "artifacts" on a grid?

**Sample IMC Trading Behavioral Interview Questions:**

* Which has been your favorite project you’ve worked on to date?
* Tell us about a weakness of yours.
* How did you find out about this opportunity, and what interested you?
* Why do you want to join IMC?

1. Robot in grid, 2. busy intersection