**Technical Screening Questions for Market Data Team in Shanghai**

***Java Questions:***

1. What does the 'transient' modifier do?

a. Tells the compiler that the variable may be changed unexpectedly

**b. Prevents the variable from being persisted as part of the object's state**

c. Allows the variable to be passed by reference

d. Prevents further changes to the variable after assignment

2. What is 'reflection'?

a. The process of duplicating a variable and its state exactly.

**b. Runtime introspection of a class or package**

c. Persistence of an object and its state to disk or other I/O

d. The process of converting an object to a uniquely identifiable hash code

3. String literals in java are always interned

a. true

**b. false**

4. What is a 'weak reference'?

a. A variable that is passed by copy

b. A variable that is passed by value

c. A reference to an object that is stored in weak memory

**d. A reference to an object that may be garbage collected**

5. What is 'auto boxing'?

a. When the IDE generates the '[]' for you

**b. Automatic conversion of primitives type to reference types**

c. The automatic encapsulation of variables in an array

d. The generation of protected memory blocks for safety

6. What are 'generic classes'?

a. A feature introduced in Java 6

b. General purposes classes like Object and String that are re-used in different ways

**c. A capability in Java to allow operations on various types while providing type safety**

d. A capability in Java to allow operations on reference types while not converting to

7. What's the difference between a static synchronized method and a synchronized instance method?

a. A static synchronized method will generate a compile-time error

b. A synchronized instance method can only be executed by at most 1 thread

**c. A static synchronized method can only be executed by 1 thread per class**

d. Only a synchronized instance method will lock the classes monitor

8. Given the following

String str1 = “abcd”;

String str2 = new String(str1);

What will the following return you (true or false)?

a. str1 == str2? **FALSE**

b. str1 == “abcd” **TRUE**

c. str2 == “abcd” **FALSE**

d. “abcd”.intern() == str2 ? **FALSE**

e. str1 == str2.intern()? **TRUE**

9. What happens when you store multiple objects that only returns 1 as a hashcode into a HashMap?

a. Will throw an exception.

b. Only 1 object is stored in the HashMap at all times.

c. Lookup time stays constant as the map grows

**d. Lookup will become slower as the map grows.**

10. Which implementation of the List interface provides for the fastest insertion of a new element into the middle of the list ?

a. Vector

b. ArrayList

**c. LinkedList**

d. All the same

11. What’s the difference between a thread’s start() and run() methods ?

1. **The start() method starts the execution of the new thread and calls the run() method. Start() will return immediately and the new thread normally continues until run() method returns.**
2. The start() method starts the execution of the new thread and will not return until the run() method returns.
3. The run() method does nothing and sub-class override the method with code to execute in the new thread.
4. **If The thread is instantiated with a Runnable argument, the thread’s run() method executes the run() method of the Runnable object in the same thread.**