Interview Questions on Control Flow statements

1. **Explain the purpose of the if statement in Java.**
   The if statement is used to make decisions in Java. It allows you to execute a block of code only if a specified condition is true. If the condition is false, the code block is skipped.

2. **What is a switch statement and when would you use it?**
   A switch statement is used for multiple-choice decision-making. It evaluates an expression and compares it to several possible case values. It's useful when you have a specific value to match against different cases.

3. **How does the switch statement differ from a series of if statements?**
   A switch statement is more suitable when you have a single variable to compare against multiple possible values. It provides a cleaner and more efficient way to handle such situations compared to a series of if statements.

4. **What is a loop in Java, and why are loops useful in programming?**
   A loop is a control structure that allows you to execute a block of code repeatedly. It's useful for automating repetitive tasks and iterating through collections or ranges of values.

5. **Describe the differences between the while, do-while, and for loops.**
   while loop: Executes a block of code as long as a specified condition is true.
   do-while loop: Similar to while, but the condition is checked after the code block is executed, ensuring the block is executed at least once.
   for loop: Designed for iterating over a range of values. It includes initialization, condition, and iteration expressions.

6. **What is the difference between the if and else statements?**
   The if statement is used for conditional execution when a condition is true. The else statement is used in conjunction with if to execute a block of code when the if condition is false.

7. **What is an infinite loop? How can it be prevented?**
   An infinite loop is a loop that runs indefinitely because its terminating condition is never met. It can be prevented by ensuring that the loop condition eventually becomes false during the loop's execution.

8. **How can you read user input in Java?**
   Java provides the Scanner class in the java.util package to read user input. You can create a Scanner object and use its methods to read various types of input.

9. **What is the difference between next() and nextLine() methods in the Scanner class?**

The next() method reads and returns the next word (sequence of non-space characters) in the input. It stops at the first space or newline character.
The nextLine() method reads and returns the entire line of input, including spaces, until it encounters a newline character. It advances the cursor to the next line.

10. **How can you prevent unwanted newline characters from being read when using the Scanner class?**
    After reading a primitive data type (like nextInt() or nextDouble()), newline characters can be left in the input buffer. To consume these newline characters, you can use an additional scanner. nextLine () call.