Question 2a

Here are the short notes on the `for`, `while`, and `do-while` loops in Java:

(i) For Loop

Description

The `for` loop is used to execute a block of code for a specific number of times. It consists of three parts: initialization, condition, and increment/decrement. This loop comes in handy when the number of iterations is known beforehand.

Syntax

for (initialization; condition; increment/decrement) {

// Code to be executed

}

(ii) While Loop

Description

A `while` loop runs a block of code as long as the specified condition is true. It is useful when the number of iterations is not known in advance and depends on a condition being met.

Syntax

while (condition) {

// Code to be executed

}

(iii) Do-While Loop

Description

The `do-while` loop is another form of the `while` loop. The critical distinction, however, lies in the fact that in the case of `do-while`, at least one execution of the block of code is guaranteed, since the condition is evaluated after the execution of the loop body.

Syntax

do {

// Code to be executed

} while (condition);

Summary

- For Loop : This loop is best when the number of iterations is known. It is especially good for going through arrays or collections.

- While Loop : Best when the number of iterations is not known; continues until a condition is false.

- Do-While Loop : It's similar to the `while` loop but makes sure that at least the loop body is executed once

