Discussion-1: Module-1

Discussion Topic:
There are various selection structures that can be used in programming.
What are the different selection structures that can be used in the Java programming language?
Also, under what circumstances should each structure be utilized?
Provide examples to support your response in addition to constructive feedback on the structures and circumstances posted by your peers.

My Post:

Hello class,

In Java and similar object-oriented languages, selection structures are used to control the flow of execution and they are based on conditions.
The primary selection structures in Java are if, if-else, if-else-if ladder, and switch. Each serves different purposes depending on the conditions to be evaluated and the functionality needed. Here are some example:

```
if statement:
```
"The if statement in Java allows you to execute a block of code only if a given condition is true. If the condition is false, the code block is skipped" (Jassal, 2023).
Example:
```
int age = 20;
if (age >= 18) {
    System.out.println("You are eligible to vote.");
}
```

```
if-else statement:
```
"The if-else statement in Java allows you to execute one block of code if the condition is true, and another block if the condition is false" (Jassal, 2023).
Example:
```
int score = 75;
if (score >= 60) {
    System.out.println("Pass");
} else {
    System.out.println("Fail");
}
```

```
if-else-if ladder:
```
The if-else-if ladder in Java allows you to check multiple conditions in sequence and execute different code blocks based on the first true condition encountered (Jassal, 2023).
Example:
```
int marks = 85;
if (marks < 50) {
    System.out.println("Fail");
```

```
} else if (marks >= 50 && marks < 60) {
    System.out.println("D Grade");
} else if (marks >= 60 && marks < 70) {
    System.out.println("C Grade");
} else if (marks >= 70 && marks < 80) {
    System.out.println("B Grade");
} else {
    System.out.println("A Grade");
}
```

switch statement:

Java has a built-in switch statement, which allows you to perform multi-way branching based on the value of an expression (Jassal, 2023).

Example:

```
int day = 3;
switch (day) {
    case 1:
        System.out.println("Monday");
        break;
    case 2:
        System.out.println("Tuesday");
        break;
    case 3:
        System.out.println("Wednesday");
        break;
    default:
        System.out.println("Another day");
}
```

When to Use Each Structure:

- **if statement**: Opt for this when you need to check a single condition.
- **if-else statement**: Use this for straightforward yes/no decisions.
- **if-else-if ladder**: Best suited for checking multiple conditions.
- **switch statement**: Ideal for checking one variable against various constants. This simplifies the code and makes it more readable.

-Alex

References:

Jassal, S. (2023, August 7). *Java selection statements: Making smart decisions in your code*. LinkedIn. https://www.linkedin.com/pulse/javas-selection-statements-making-smart-decisions-your-satish-jassal/