

BASIC PROGRAMMING

Repetition and Selection

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What is Selection?

Selection is a statement that selects among a set of statements depending on the value of a controlling expression.

Selection Statements:
if, if-else, and switch

if
performs the actions if the statement is true, and skip it if the statement is false

if-else
performs the actions based on different type of statements

switch
performs one of many different actions, depending on the value of an expression

What is Repetition?

Repetition (also called a looping statement or a loop) is a statement that allows you to specify that a program should repeat an action while some condition remains true

Repetition Statements:
for, while, and do-while

for
if we want to loop for a specific number of times

while
if we want to loop until a certain condition is met

do-while
if we want it to loop until the condition is false



Code Examples

Do #1: Repetition

```
int a = 5
while(a < 5){
    System.out.println("Hey");
    a++;
}
```

Do #2: Selection

```
if (a < b){
    System.out.println("a is lesser than b");
} else if(a > b){
    System.out.println("a is greater than b");
} else{
    System.out.println("a is equal to b");
}
```

Do #3: Repetition

```
String name = "Fasilkom";
int i;
for (i = 0; i < name.length(); i++){
    System.out.println("name.charAt(i)");
}
```

Do #4: Selection

```
int number = 8;
if (number > 0){
    if (number < 10){
        System.out.println("The number is
        between 0 and 10");
    }
}
```

Don't #1:

```
int a = 1;
while (a >= 1){
    System.out.println("Hey");
    a++;
}
```

Don't #2:

```
if (a < b){
    System.out.println("a is lesser than b")
} else if (a > b){
    System.out.println("a is greater than b")
} else (a == b){
    System.out.println("a is equal to b")
}
```

Don't #3:

```
String name = "Fasilkom";
int i;
for (i = 0; i < 20; i++){
    System.out.println(name.charAt(i));
}
```

Don't #4:

```
int number = 8;
if (number > 0){
    if (number > 10){
        System.out.println("The number is
        between 0 and 10");
    }
}
```

It is not the best practice because it is an infinite loop

The syntax is error because else selection does not require a condition

The second "for" condition is not fulfilled, thus the 'number' will not be handled

The index is out of bound, thus not printing the way it should be