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COMPUTER PROGRAMMING

ITERATION STATEMENT



CONTENTS

- WHILE
- DO~WHILE
- FOR statement

Iteration Statement

- provides While / do-While / For statements for supporting an iteration logic function that the logic is repeated.

Iteration Statement (WHILE statement)

- Execute WHILE block while the condition statement is true.

```
while( expression )  
{  
    statement(s) ;  
}  
next statement(s) to be processed ;
```

Iteration Statement (WHILE statement)

- Obtain the sum from 1 to 10 (using WHILE statement)

```
class exWhile {  
    public static void main(String args[]) {  
        int a = 1;  
        while(a <= 10) {  
            System.out.println("a 값을 출력해봅니다.");  
            a++;  
        }  
    }  
}
```

Iteration Statement (WHILE statement)

```
class WhileNoBody {  
    public static void main(String args[]) {  
        int i=10, j=20;  
        while(++i < --j);  
        System.out.println("10에서 20사이의 중간값은 " + i + "입니다.");  
    }  
}
```

Iteration Statement (Do-WHILE statement)

- ☐ In case of Do-WHILE statement, do evaluate later conditional expression.
- ☐ WHILE block is **at least one time processed** .
- ☐ Repeat the statement(s) until the conditional expression becomes false.

Iteration Statement (Do-WHILE statement)

- output multiplication as following

EXAMPLE 1

□ Example for output multiplication

```
class DoWhile {  
    public static void main(String args[]) {  
        int N = 1;  
        System.out.println("* 구구단 3단 *");  
        do {  
            System.out.println("  " + 3 + "*" + N + " = " + (3*N));  
            N++;  
        } while(N < 10);  
    }  
}
```

EXAMPLE 2

□ Example for output comment according to the number choice

*****객체*****

객체는 정보를 관리하기 위한 논리적인 단위이다

*****클래스*****")

클래스는 객체를 생성하는 형판(template)이다

*****메시지*****

메시지는 객체에게 일을 시키는 행위이다

*****상속*****

상속은 상위 클래스로부터 모든 속성과 절차를 이어 받는다

EXAMPLE 2

```
class DoUseMenu {
    public static void main(String args[]) throws java.io.IOException {
        char choice;
        do {
            System.out.println("객체지향 용어 설명");
            System.out.println(" 1. 객체");
            System.out.println(" 2. 클래스");
            System.out.println(" 3. 메시지");
            System.out.println(" 4. 상속");
            System.out.print("원하는 번호를 입력하세요 : ");
            choice = (char) System.in.read();
        } while( choice < '1' || choice > '4' );

        System.out.println("\n");
        switch(choice) {
            case '1':
                System.out.println("*****객체*****");
                System.out.print("객체는 정보를 관리하기 위한 논리적인 단위이다");
                break;
            case '2':
                System.out.println("*****클래스*****");
                System.out.print("클래스는 객체를 생성하는 형판(template)이다");
                break;
            case '3':
                System.out.println("*****메시지*****");
                System.out.print("메시지는 객체에게 일을 시키는 행위이다");
                break;
            case '4':
                System.out.println("*****상속*****");
                System.out.print("상속은 상위 클래스로부터 모든 속성과 절차를 이어
받는다");
                break;
        } } }
```

Iteration Statement (FOR statement)

- Iterate block while satisfy the condition starting with given initial values

```
for(initialization ; termination ; increment)
{
    statement(s);
}
```

Iteration Statement (FOR statement)

□ example

```
class DoubleC {  
    public static void main(String args[ ]) {  
        int a, b;  
        for(a=1, b=10; a<b; a++, b--) {  
            System.out.print("a = " + a);  
            System.out.println(" b = " + b);  
        }  
    }  
}
```

Iteration Statement (FOR statement)

□ Deformed example for For statement

```
class Forflag {  
    public static void main(String args[]) {  
        int i;  
        boolean flag = false;  
        i = 1;  
        for( ; !flag; ) {  
            System.out.println("i의 값은 " + i + "입니다.");  
            if(i == 10) flag = true;  
            i++;  
        }  
    }  
}
```

Iteration Statement (FOR statement)

□ Nested For statement

```
class NestedFor {  
    public static void main(String args[]) {  
        int i, j;  
        for(i=1; i<10; i++)  
        {  
            for(j=1; j<i; j++)  
                System.out.print(" * ");  
  
            System.out.println();  
        }  
    }  
}
```

JAVA Data Type

- ASCII code table



Iteration Statement (FOR statement)

□ Sample output using a character constant

```
class Alphabet{
    public static void main(String args[]){
        int i;
        char c;
        for(i=0; i<26; i++){
            System.out.print((char)('A' + i));
            System.out.print("(" + ('A' + i) + "), ");
            System.out.print((char)('a' + i));
            System.out.print("(" + ('a' + i) + ") \t");
            if(i % 5 == 4)
                System.out.println();
        }
    }
}
```

CONCLUDE

- WHILE
- DO~WHILE
- FOR Statement