6 COMPUTER PROGRAMMING

ITERATION STATEMENT

CONTENTS

□ **WHILE**

□ **DO~WHILE**

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Iteration Statement

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

☐ **If the statements are repeated, specify block using " { statement (s) } ".**

Iteration Statement (WHILE statement)

☐ **Execute WHILE block while the condition statement is true.**

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

☐ **examples**

```
class exWhile {
  public static void main(String args[]) {
  int  a = 1;
    while(a  <= 5) {
     System.out.println("a 값을 출력해봅니다:");
     a++;
    }
  }
}
```

Iteration Statement (WHILE statement)

☐ **Obtain the sum from 1 to10 (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)

- ☐ **WHILE block is at least one time processed .**
- ☐ **Repeat the statement(s) until the conditional expression becomes false.**

```
do {
      statement(s) ;
} while( expression );
```
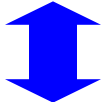
☐ **output multiplication as following**

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);
 }
}
```

```
do {
  System.out.println("   " + 3 + "*" + N + " = " + (3*N));
} while(++N < 10);
```

EXAMPLE 2

☐ **Example for output comment according to the number choice**

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);
}
```

☐ **example**

```
class For {
  public static void main(String args[]) {
    int n;
    System.out.print("1에서 10까지의 정수 : " );
    for(n=1; n < 11; n++)
      System.out.print(n + "  " );
  }
}
```

⟷

```
for(int n=1; n < 11; n++)
System.out.print(n + "  " );
```

☐ **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**

```java
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**