4. Flow Control

Lesson 2:
Iterative statements

4.2. Iterative Statements

- Iterative statements execute a set of statements over and over again, until some condition is satisfied.

- Java has 3 types of Iterative Statements:
  - For loops
  - While loops
  - Do while loops

4.2. Iterative Statements
4.2.1. For loops

- A For loop has the form:

```
for (<Initialization statement>; <Boolean Expression>; <Increment statement>)
{
    <statement1.1>;
    <statement1.2>;
    ...
}
```

- First **<Initialization statement>** is executed.

- Next **<Boolean Expression>**is evaluated.

  – If **<Boolean Expression>** is true, **<statement1.1>, <statement1.2>** etc. and **<Increment statement>** are executed. The **<Boolean Expression>**is evaluated again, and the loop continues.

  – If **<Boolean Expression>** is false, executing the iterative statement is concluded.

4.2. Iterative Statements
4.2.1. For loops (cont…)

- For example, the following loop finds the sum of the numbers 0, 1, 2, …99.

```
int sum = 0;
for (int i = 0; i<100; i=i+1)
{
   sum = sum +i;
}
```

4.2. Iterative Statements
4.2.2. While loops (cont…)

- A While loop has the form:

```
while (<Boolean Expression>)
{
   <statement1.1>;
   <statement1.2>;
   …
}
```

- First **<Boolean Expression>**is evaluated.
  - If **<Boolean Expression>** is true, **<statement1.1>, <statement1.2>** etc. are executed. The **<Boolean Expression>**is evaluated again, and the loop continues.
  - If **<Boolean Expression>** is false, executing the iterative statement is concluded.

4.2. Iterative Statements
4.2.2. While loops (cont…)

- For example, the following loop finds the sum of the numbers 0, 1, 2, …99.

```
int sum = 0;
int i=0;
while (i<100)
{
   sum = sum +i;
   i = i+1;
}
```

4.2. Iterative Statements
4.2.3. Do While loops

- A Do While loop has the form:

```
do
{
    <statement1.1>;
    <statement1.2>;
    ...
}
while (<Boolean Expression>);
```

- First **<statement1.1>, <statement1.2>** etc. are executed.
- Next, the **<Boolean Expression>**is evaluated.
  - If **<Boolean Expression>** is true, **<statement1.1>, <statement1.2>** etc. are executed. The **<Boolean Expression>**is evaluated again, and the loop continues.
  - If **<Boolean Expression>** is false, executing the iterative statement is concluded.

4.2. Iterative Statements
4.2.3. Do While loops (cont…)

- For example, the following loop finds the sum of the numbers 0, 1, 2, …99.

```
int sum = 0;
int i=0;
do
{
   sum = sum +i;
   i = i+1;
}
while (i<100);
```