University of Bahri
Collage of Computer Sciences& Mathematic
2nd Year –Object Oriented Paradigms

Lab No (1)Introduction to Java Programming

Compiling/running a program

1. ***Write* it.**
   - **Code**or **source code**: The set of instructions in a program.
2. ***Compile* it.**
   - **Compile**: Translate a program from one language to another.
   - **Byte code**: The Java compiler converts your code into a format named *byte code* that runs on many computer types.
3. ***Run* (execute) it.**
   - **Output**: The messages printed to the user by a program.

A Java program

```
publicclass Hello {
public static void main(String[] args) {
System.out.println("Hello, world!");
}
}
```

Comments

```
// This is a one-line comment.
/* This is a very long
multi-line comment. */
```

Strings

```
- "hello"
"This is a string.  It's very long!"
```

- \t tab character \n new line character
- \" quotation mark character \\ backslash character

Variables

Data type variable [= value][, variable [= value] ...] ;

```
inti,j k=6;
double  pi=3.14;
```

Interactive programs

- import java.util.*
- Scanner console = new Scanner(System.in);
- nextInt(),nextDouble(),next(),nextLine()

```
System.out.print("How old are you? ");
int age = console.nextInt();
System.out.println("You typed " + age);
```

The if statement

- if (test) {
    statement(s) ;
  }

```
if (gpa>= 2.0) {
System.out.println("Application accepted.");
}
```

The if/else statement

- if (test) {
    statement(s);
    } else {
    statement(s);
    }

-
```
double gpa = console.nextDouble();
if (gpa>= 2.0) {
System.out.println("Welcome to 2nd year!");
} else {
        System.out.println("Application denied.");
}
```

The for loop

for (initialization; test; update) {
    statement (s);
}

```
for (int i = 1; int i <= 10; i++) {
System.out.println("Welcome to 2nd year!");
}
```

The while loop

- while (***test***) {
  statement(s);
  }

```
intnum = 1;             // initialization
while (num<= 200) {     // test
        System.out.print(num + " ");
        num = num * 2;      // update
        }
```

Arrays

- type[] name = new type[length];
- name[index] // access
- name[index] = value; // modify

```
int[] numbers = new int[10];
numbers[2] = 27;
System.out.println(numbers[2]);
for (int i = 0; i < 9; i++) {
        System.out.print(numbers[i] + " ");
        }
```

Method

- modifier returnTypeMethodName (Parameter List) {
  // method body
  }

```
public static void printWarning() {
System.out.println("This product causes cancer");
System.out.println("in lab rats and humans.");
}
```

Calling a method

Methodname();

```
printWarning();
```

```
public class MethodsExample {
public static void main(String[] args) {
message1( );
message2( );
System.out.println("Done with main.");
   }
public static void message1( ) {
System.out.println("This is message1.");
   }
public static void message2( ) {
System.out.println("This is message2.");
message1( );
System.out.println("Done with message2.");
   }
}
```

Example :-

```
import java.util.Scanner;       // program uses class Scanner
public class Test {
      public static void main( String[] args )   {
            // create Scanner to obtain input from command window
             Scanner input = new Scanner( System.in );
             int grade;
            System.out.print( "CS1201 ava Programming" ); // prompt
            System.out.print( "Enter grade: or -1 to quit: ");  // prompt
            grade = input.nextInt(); // input grade
          while ( grade != -1 ){
                  if (grade >= 90 )
                        System.out.println( "A" );
                  else if (grade >= 80 )
                        System.out.println( "B" );
                  else if (grade >= 70 )
                        System.out.println( "C" );
                  else if (grade >= 60 )
                        System.out.println( "D" );
                  else
                  System.out.println( "F" );
                  // prompt for input and read next grade from user
                  System.out.print( "Enter grade or -1 to quit: " );
                  grade = input.nextInt();
            }// end of while
      }//end of main
}// end of class
```