Examples

Week 5

TernaryOperator.java

```
public class TernaryOperator
{
    public static void main (String[] args)
    {
        int a = 3, b = 5;

        System.out.println( "Difference is " + ( (a>b) ? (a-b) : (b-a) ) );
    }
}
```

```
Difference is 2
```

BitOperator.java

```
public class BitOperator {
    public static void main(String[] args) {

        short a = (short)0x55ff;
        short b = (short)0x00ff;
        System.out.println("[Bitwise logical operation]");
        System.out.printf("%04x\n", (short)(a & b));
        System.out.printf("%04x\n", (short)(a | b));
        System.out.printf("%04x\n", (short)(a ^ b));
        System.out.printf("%04x\n", (short)(~a));

        byte c = 20; // 0x14
        byte d = -8; // 0xf8
        System.out.println("[Shift operation]");
        System.out.println(c <<2);
        System.out.println(c >>2);
        System.out.println(d >>2);
        System.out.printf("%x\n", (d >>>2));
    }
}
```

```
[Bitwise logical
operation]
00ff
55ff
5500
aa00
[Shift operation]
80
5
-2
3ffffffe
```

MultipleOfThree.java

```
import java.util.Scanner;

public class MultipleOfThree {
    public static void main (String[] args) {
        Scanner in = new Scanner(System.in);

        System.out.print("Eneter number: ");
        int number = in.nextInt();

        if (number % 3 == 0)
            System.out.println("is a multiple of 3.");
        else
            System.out.println("is not a multiple of 3.");

        in.close();
    }
}
```

```
$ java MultipleOfThree
Eneter number: 249 ↵
is a multiple of 3.

$ java MultipleOfThree
Eneter number: 55 ↵
is not a multiple of 3.
```

Grading.java

```
import java.util.Scanner;
public class Grading {
    public static void main(String[] args) {
        char grade;
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter score(0~100): ");
        int score = scanner.nextInt();
        if(score >= 90)
            grade = 'A';
        else if(score >= 80)
            grade = 'B';
        else if(score >= 70)
            grade = 'C';
        else if(score >= 60)
            grade = 'D';
        else
            grade = 'F';
```

Grading.java

```
        System.out.println("Grade is " + grade);

        scanner.close();
    }
}
```

```
$ java Grading
Enter score(0~100): 89 ↵
Grade is B

$ java Grading
Enter score(0~100): 45 ↵
Grade is F
```

NestedIf.java

```
import java.util.Scanner;

public class NestedIf
{
    public static void main(String[] args)
    {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter score(0~100): ");
        int score = scanner.nextInt();

        System.out.print("Enter year(1~4): ");
        int year = scanner.nextInt();
```

NestedIf.java

```
        if (score >= 60) {
            if (year != 4)
                System.out.println("Pass!");
            else if (score >= 70)
                System.out.println("Pass!");
            else
                System.out.println("Fail!");
        }
        else
            System.out.println("Fail!");
        scanner.close();
    }
}
```

```
$ java NestedIf
Enter score(0~100): 65 ↵
Enter year(1~4): 4 ↵
Fail!

$ java NestedIf
Enter score(0~100): 55 ↵
Enter year(1~4): 3 ↵
Fail!

$ java NestedIf
Enter score(0~100): 80 ↵
Enter year(1~4): 4 ↵
Pass!
```

GradingSwitch.java

```
import java.util.Scanner;

public class GradingSwitch
{
    public static void main (String[] args)
    {
        Scanner scanner = new Scanner(System.in);

        char grade;
        System.out.print("Enter score(0~100): ");
        int score = scanner.nextInt();

        switch (score/10) {
            case 10: // score 100
            case 9:  // score 90~99
                grade = 'A';
                break;
```

GradingSwitch.java

```
            case 8:  // score 80~89
                grade = 'B';
                break;
            case 7:  // score 70~79
                grade = 'C';
                break;
            case 6:  // score 60~69
                grade = 'D';
                break;
            default: // score ~59
                grade = 'F';
        }
        System.out.println("Grade is " + grade);
        scanner.close();
    }
}
```

```
$ java GradingSwitch
Enter score(0~100): 89 ↵
Grade is B

$ java GradingSwitch
Enter score(0~100): 40 ↵
Grade is F
```

CoffeePrice.java

```
import java.util.Scanner;

public class CoffeePrice
{
    public static void main(String[] args)
    {
        Scanner scanner = new Scanner(System.in);

        System.out.print("What kind of coffee? ");
        String order = scanner.next();
        int price=0;
        switch (order) {
            case "Espresso":
            case "Cappuccino":
            case "Latte":
                price = 3500;
                break;
```

CoffeePrice.java

```
            case "Americano" :
                price = 2000;
                break;
            default:
                System.out.println("Not in the menu");
        }
        if(price != 0)
            System.out.println("The price is " + price);
        scanner.close();
    }
}
```

```
$ java CoffeePrice
What kind of coffee? Espresso ↵
The price is 3500

$ java CoffeePrice
What kind of coffee? Milk ↵
Not in the menu
```

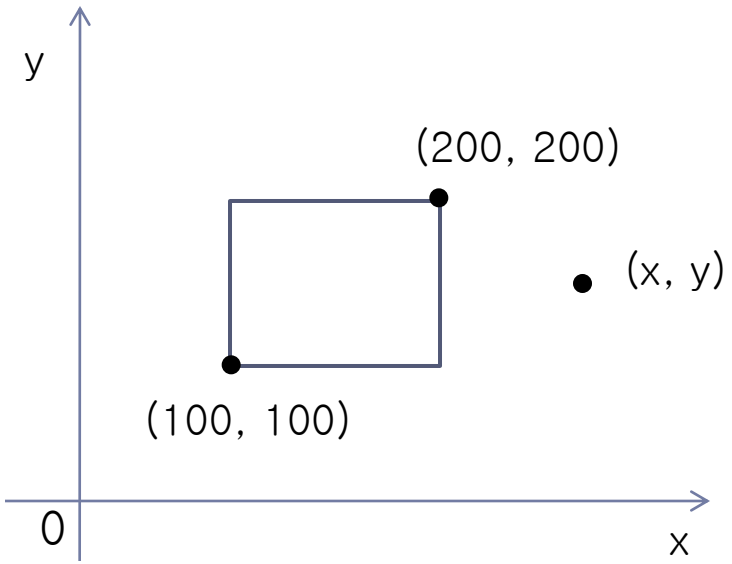
DanglingElse.java

```
public class DanglingElse
{
    public static void main( String[] args )
    {
        int x = 6;
        int y = 4;

        if ( x > 5 )
            if ( y > 5 )
                System.out.println( "A" );
        else
            System.out.println( "B" );
    }
}
```

Ex05_1.java

- 아래와 같은 프로그램을 작성하시오.
  - 정수 x와 y를 입력 받으시오.
  - 점 (x, y)가 이 직사각형 (100,100)~(200, 200) 안에 있는지 판별하여 출력하시오.

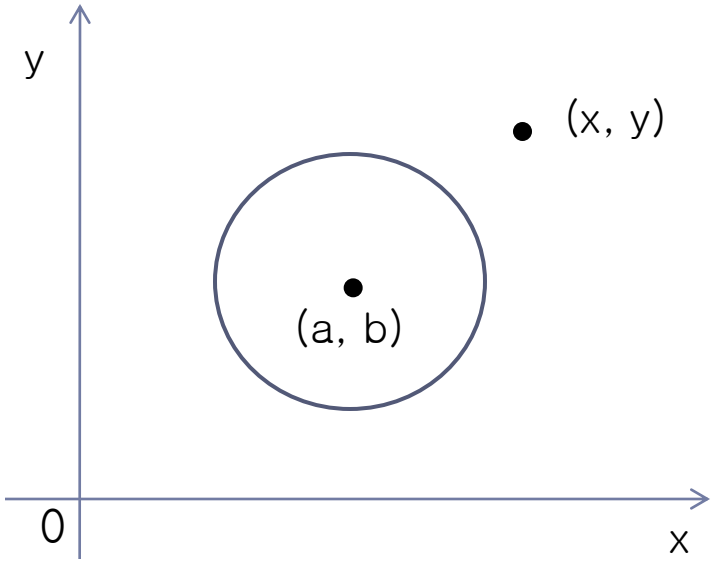



```
$ java Ex05_1
Enter x and y: 120 170 ↵
(120, 170) is inside the rectangle.

$ java Ex05_1
Enter x and y: 120 220 ↵
(120, 220) is not inside the rectangle.
```

Ex05_2.java

- 아래와 같은 프로그램을 작성하시오.
  - 원 중심의 좌표 (a, b)와 반지름 r을 입력 받으시오(실수값).
  - 점 (x, y)를 입력 받으시오(실수값).
  - 점 (x, y)가 이 원 안에 있는지 판별하여 출력하시오.

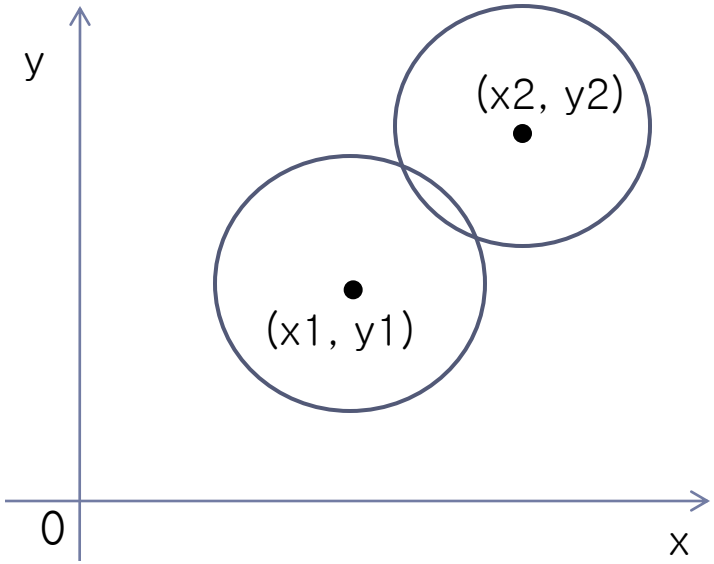



```
$ java Ex05_3
Enter a, b and r: 10 9 6.5 ↵
Enter x and y: 13 13 ↵
(13.0, 13.0) is inside the circle

$ java Ex05_3
Enter a, b and r: 10 10 6.5 ↵
Enter x and y: 15 15 ↵
(15.0, 15.0) is not inside the circle
.
```

Ex05_3.java

- 아래와 같은 프로그램을 작성하시오.
  - 원 A의 중심의 좌표 (x1, y1)와 반지름 r1을 입력 받으시오.
  - 원 B의 중심의 좌표 (x2, y2)와 반지름 r2을 입력 받으시오.
  - 두 원이 겹치는지 판별하여 출력하시오.




```
$ java Ex05_4
Enter x1, y1 and r1: 10 10 3 ↵
Enter x2, y2 and r2: 12 12 2 ↵
--> overlapped

$ java Ex05_4
Enter x1, y1 and r1: 10 10 3 ↵
Enter x2, y2 and r2: 15 15 1 ↵
--> not overlapped
```

Ex05_4.java

- 아래와 같은 프로그램을 작성하시오.
  - 정수를 입력 받으시오.
  - 입력 받은 숫자가 3~5이면 "spring", 6~8이면 "summer", 9~11이면 "fall", 12, 1, 2 이면 "winter"라고 출력하시오.
  - 그 이외의 숫자에 대해서는 "invalid input"을 출력하시오.
  - if-else 문을 사용한 버전과 switch문을 사용한 버전을 작성하시오.

```
$ java Ex05_5
Enter month (1~12): 1 ↵
winter

$ java Ex05_5
Enter month (1~12): 4 ↵
spring

$ java Ex05_5
Enter month (1~12): 0 ↵
invalid input
```