SWITCH STATEMENTS

zyBook 3.14

Oracle - Java Tutorial: The switch Statement

SWITCH STATEMENTS

```
switch ( <variable> ){
    case <value>:
        <statements>;
        break;
    case <value>:
        <statements>;
        break;
    ...
    default: //optional
        <statements>;
        <break>;
}
```

- Control the flow of your program

- May be used in place of complex if-else blocks

- switch statements can be cleaner and easier to maintain that if-else blocks

- If the calculated value does not match any listed values then no case code is executed, unless the optional default case is implemented.

- Remember to include break after the statements for each case!!! (unless you explicitly intend to fall through)

- Can only switch on variables of type: byte , short , char , int , enum types, String objects (Java 7 and later)

```java
import java.util.Scanner;
public class RaceResults {
    public static void main(String[] args) {
        Scanner in = new Scanner(System.in);
        System.out.print("Enter place (int): ");
        int place = in.nextInt();
        if (place == 1) {
            System.out.println("First Place!");
        } else if (place == 2) {
            System.out.println("Second Place!");
        } else if (place == 3) {
            System.out.println("Third Place!");
        } else {
            System.out.println("Finisher!");
        }
    }
}
```

```
$ javac -d bin -cp bin src/RaceResults.java

$ java -cp bin RaceResults
Enter place (int): 1
First Place!

$ java -cp bin RaceResults
Enter place (int): 3
Third Place!

$ java -cp bin RaceResults
Enter place (int): 10
Finisher!
```

```java
import java.util.Scanner;
public class RaceResultsSwitch {
    public static void main(String[] args) {
        Scanner in = new Scanner(System.in);
        System.out.print("Enter place (int): ");
        int place = in.nextInt();
        switch (place) {
            case 1:
                System.out.println("First Place!");
                break;
            case 2:
                System.out.println("Second Place!");
                break;
            case 3:
                System.out.println("Third Place!");
                break;
            default:
                System.out.println("Finisher!");
                break;
        }
    }
}
```

```
$ javac -d bin -cp bin src/RaceResultsSwitch.java

$ java -cp bin RaceResultsSwitch
Enter place (int): 1
First Place!

$ java -cp bin RaceResultsSwitch
Enter place (int): 3
Third Place!

$ java -cp bin RaceResultsSwitch
Enter place (int): 10
Finisher!
```

CASES CANNOT BE RANGES!

```java
1   import java.util.Scanner;
2
3   public class RaceResultsMedalInvalid {
4       public static void main(String[] args) {
5           Scanner in = new Scanner(System.in);
6           System.out.print("Enter place (int): ");
7           int place = in.nextInt();
8           switch (place) {
9               case <=3:
10                  System.out.println("You earned a medal!");
11                  break;
12              default:
13                  System.out.println("You did not earn a medal.");
14                  break;
15          }
16      }
17  }
```

```
$ javac -d bin -cp bin src/RaceResultsMedalInvalid.java
src/RaceResultsMedalInvalid.java:9: error: illegal start of type
            case <=3:
                ^
src/RaceResultsMedalInvalid.java:9: error: ';' expected
            case <3:
                 ^
2 errors
```

```java
1   import java.util.Scanner;
2
3   public class RaceResultsMedal {
4       public static void main(String[] args) {
5           Scanner in = new Scanner(System.in);
6           System.out.print("Enter place (int): ");
7           int place = in.nextInt();
8           switch (place) {
9               case 1:
10              case 2:
11              case 3:
12                  System.out.println("You earned a medal!");
13                  break;
14              default:
15                  System.out.println("You did not earn a medal.");
16                  break;
17          }
18      }
19  }
```

```
$ javac -d bin -cp bin src/RaceResultsMedal.java

$ java -cp bin RaceResultsMedal
Enter place (int): 1
You earned a medal!

$ java -cp bin RaceResultsMedal
Enter place (int): 3
You earned a medal!

$ java -cp bin RaceResultsMedal
Enter place (int): 10
You did not earn a medal.
```

SWITCH STATEMENT REMINDERS

- Cannot use ranges as cases

- Can only switch on byte , short , char , int , enum types, String objects

- Values are matched exactly. For example: uppercase values will not match to lowercase values

- Remember your break statements!