BIRZEIT UNIVERSITY

Selections

Liang, Introduction to Java programming, 11ᵗʰ Edition, © 2017 Pearson Education, Inc. All rights reserved

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Comparison Operators

Java Operator	Mathematics Symbol	Name	Example (radius is 5)	Result
<	<	less than	radius < 0	false
<=	≤	less than or equal to	radius <= 0	false
>	>	greater than	radius > 0	true
>=	≥	greater than or equal to	radius >= 0	true
==	=	equal to	radius == 0	false
!=	≠	not equal to	radius != 0	true

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if-else

```
if (radius >= 0) {
    area = radius * radius * 3.14159;
    System.out.println("The area for the " +
    "circle of radius " + radius +  " is " + area);
}
else {
    System.out.println("Negative input");
}
```

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Common Errors

❖ Adding a **semicolon** at the end of an **if** clause is a common mistake.

```
if (radius >= 0) ;          ← [ Wrong ]
{
    area = radius*radius*PI;
    System.out.println( "The area for the circle is " + area);
}
```

❖ This mistake is hard to find, because it is not a compilation error or a runtime error, it is a **logic** error.

❖ This error often occurs when you use the next-line block style.

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Logical Operators

Operator	Name
!	not
&&	and
||	or
^	exclusive or

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switch Statements
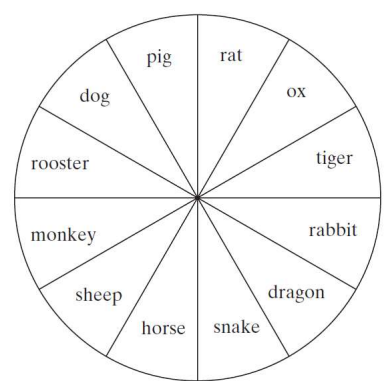
```
switch (status) {
    case 0:  compute taxes for single filers;
        break;
    case 1:  compute taxes for married file jointly;
        break;
    case 2:  compute taxes for married file separately;
        break;
    case 3:  compute taxes for head of household;
        break;
    default: System.out.println("Errors: invalid status");
        System.exit(1);
}
```

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Problem: Chinese Zodiac

Write a program that prompts the user to enter a
year and displays the animal for the year.


```
year % 12 =
```
0: monkey
1: rooster
2: dog
3: pig
4: rat
5: ox
6: tiger
7: rabbit
8: dragon
9: snake
10: horse
11: sheep

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Conditional Operator

```
if (x > 0)
    y = 1;
else
    y = -1;
```

❖ is equivalent to:

y = **(x > 0) ?** 1 **:** -1;

(boolean-expression) **?** expression1 **:** expression2

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Conditional Operator

if (num % 2 == 0)

    System.out.println(num + "is even");
else
    System.out.println(num + "is odd");

System.out.println((num % 2 == 0) ?

    num + "is even" :   num + "is odd");

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Formatting Output

❖ Use the **printf** statement:

  System.out.printf(format, items);

▪ Where format is a string that may consist of substrings and **format specifiers**.

▪ A format specifier specifies how an item should be displayed.

▪ An item may be a numeric value, character, boolean value, or a string.

▪ Each specifier begins with a **percent** sign.

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Frequently-Used Specifiers

Specifier	Output	Example
%b	a boolean value	true or false
%c	a character	'a'
%d	a decimal integer	200
%f	a floating-point number	45.460000
%e	a number in standard scientific notation	4.556000e+01
%s	a string	"Java is cool"

```
int count = 5;
double amount = 45.56;                          items
System.out.printf("count is %d and amount is %f", count, amount);


display        count is 5 and amount is 45.560000
```
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