CIS 1068

October 19, 2017
Administrative Stuff

▶ String methods due tomorrow
▶ Boston Accent
▶ Reading: up to chapter 5
▶ Midterms
Last Time

- midterm discussion
- guessing game
Legal Identifiers

- Ch33zyHaX0R
- cous_cous
- 5GuysBurgerCount
Legal Identifiers

- Ch33zyHaX0R yes
- cous_cous
- 5GuysBurgerCount
Legal Identifiers

- Ch33zyHaX0R yes
- cous_cous yes
- 5GuysBurgerCount
Legal Identifiers

- Ch33zyHaX0R yes
- cous_cous yes
- 5GuysBurgerCount no
It's legal to have variables named *whiteWalkerName* and *WhiteWalkerName* in the same program, but not defined in the same method.
question
It’s legal to have variables named `whiteWalkerName` and `WhiteWalkerName` in the same program, but not defined in the same method.

answer
- False.
- Java is case sensitive
- `whiteWalkerName` and `WhiteWalkerName` are different
- bad idea but legal
public class WhatsPrinted {
    public static void main(String args[]) {
        func(0);
    }
    
    public static void func(int start) {
        for (int i=start; i>=0; i--) {
            System.out.print(i);
        }
    }
}
public class WhatsPrinted3 {
    public static void ifElse(int a, int b) {
        if (a < b) {
            a++;        
        }
        if (a < b) {
            a++;        
        } else {
            b++;        
        }
        if (a >= b) {
            b = b - 5;
        }
        System.out.println(a + "," + b);
    }
    public static void main(String args[]) {
        ifElse(10,5);
        ifElse(3,9);
    }
}
Question
About how much is a terabyte?

Answer
$10^{12}$ or $2^{40}$ or about a trillion bytes
Which analogy is most accurate?

- cookie cutter is to cookie as object is to class
- **cookie is to cookie cutter as object is to class**
- cookie cutter is to cookie as blueprint is to object
- cookie is to cookie cutter as blueprint-class is to class
- cookie is to cookie cutter as base class is to object
public class WhatsPrinted1 {
    public static void main(String args[]) {
        int y=10;

        func(y);
        System.out.println(y);
    }

    public static void func(int x) {
        x*=2;
    }
}
public class WhatsPrinted5 {
    
    public static int func(int y) {
        return y*2;
    }
    
    public static void main(String args[]) {
        int x=10;
        func(x);
        System.out.println(x);
    }
}
public class WhatsPrinted2 {
    public static void main(String args[]) {
        int nx=0;
        for (int i=0; i<5; i++) {
            for (int j=0; j<3; j++) {
                if ((i+j)%2==0) {
                    nx++;
                }
            }
        }
        // last value of j
        System.out.println(j);
    }
}
public class WhatsPrinted4 {
    public static void func(int x, int y, int z) {
        x++;
        y+=z%2;
        z*=2;
        System.out.println(z);
    }
    public static void main(String args[]) {
        int x=10, y=21, z=30;
        func(y, z, x);
    }
}
```java
public class WhatsPrinted10 {
    public static void main(String args[]) {
        yetAnotherFunc();
        System.out.println();
    }

    public static void anotherFunc() {
        someFunc();
        System.out.print("b");
    }

    public static void yetAnotherFunc() {
        someFunc();
        System.out.print("c");
        anotherFunc();
    }

    public static void someFunc() {
        System.out.print("a");
    }
}
```
public class WhatsPrinted01 {
    public static void func(int x, int y, int z) {
        x += y / 2;
        z++;
        y %= 3;
    }

    public static void main(String [] args) {
        int x = 10, y = 20, z = 30;
        func(z, x, y);
        System.out.println(x);
    }
}
Question
What’s the most important job of the Java compiler?

Answer
To translate my code into more primitive instructions
public class WhatsPrinted08 {
    public static void main(String args[]) {
        String s1="bob";
        String s2="lob";
        String s3="law";

        for (int i=0; i<5; i++) {
            if (i%2==0)
                s2+=s3;
            else
                s1+=s2;
        }
        System.out.println(s1);
    }
}
Expression Evaluation

\[ \frac{516}{10}/5/2.0 \times 2 + \frac{14}{5} \]
Expression Evaluation

2.5 * 2 * 5 / 10 + 1.5
Expression Evaluation

"hard".charAt(0) + "exam".substring(2, 4);

h a m

h a m
Expression Evaluation

1 + 2 + "1" + (3 + 4) + 5 * 6

7 30

✓ 3.730
Expression Evaluation

!(2<7%2*3 || 5%10>=5+3)
Expression Evaluation

$72 \% 10 + 2 \% 5 - 9 \% 4$
Expression Evaluation

11 + 2 * 5 / 2
Question
Translate each of the following statements from English to Java. For example, if the English is "x is larger than 10", you’d write the Java expression $x > 10$. Assume that we already have int $x$, int $y$, and the String $s$ and String $t$ already properly declared somewhere else in our program.

t does not occur in $s$

Answer
$s$.indexOf($t$)==-1 \ OR \ !s.contains($t$)
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The sum of \( x \) and \( y \) is odd.

Answer
\((x+y)\%2==1\)
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$s$ is longer than 10 characters and begins with the letter "F"

Answer
$s$.length()>10 & $s$.startsWith("F")

or
$s$.length()>10 & $s$.charAt(0)=='F'
Question
Write the few lines of code that print the integers between 50 and 10000 that are evenly divisible by 7 (i.e. 56, 63, 70, 77, 84, ...).
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Answer

```java
for (int i=50; i<=10000; i++) {
    if (i%7==0) {
        System.out.print(i + " ");
    }
}
```
Question
Write a method called printTri( ) that takes an integer numLines as an argument. The method prints a triangle which is numLines high with the following format:
if numLines=1:  if numLines=3:  if numLines=3:  etc.
1  1  1
  22  22
    333
**Question**

Write a method called `printTri()` that takes an integer `numLines` as an argument. The method prints a triangle which is `numLines` high with the following format:

- if `numLines=1`: 1
- if `numLines=3`: 1 2 2
- if `numLines=3`: 1 2 2 3 3 3

**Answer**

```java
public static void printTri(int numLines) {
    for (int i=1; i<=numLines; i++) {
        for (int j=1; j<=i; j++) {
            System.out.print(i);
        }
        System.out.println();
    }
}
```
Question
Write a method which is passed an integer $n$. The method returns the sum of all of the positive integers from 1 to $n$. For example, if $n$ is 5, the method returns 15, because 15 is $1+2+3+4+5$. You do not have to write a complete class. You do not have to use a Scanner to read user input from the keyboard.

Answer
```java
public static final int sumToN(int n) {
    int sum = 0;
    for (int i = 1; i <= n; i++) {
        sum += i;
    }
    return sum;
}
```
Question
Write a method which is passed an integer $n$. The method returns the sum of all of the positive integers from 1 to $n$. For example, if $n$ is 5, the method returns 15, because 15 is $1 + 2 + 3 + 4 + 5$. You do not have to write a complete class. You do not have to use a Scanner to read user input from the keyboard.

Answer
public static final int sumToN(int n) {
    int sum=0;
    for (int i=1; i<=n; i++) {
        sum+=i;
    }
    return sum;
}