CIS 1068

October 19, 2017

Administrative Stuff

- String methods due tomorrow
- Boston Accent
- Reading: up to chapter 5
- Midterms

Legal Identifiers

- Ch33zyHaX0R
- cous_cous
- 5GuysBurgerCount

Last Time

- midterm discussion
- guessing game
It's legal to have variables named `whiteWalkerName` and `WhiteWalkerName` in the same program, but not defined in the same method.
**True-False**

**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

---

**What’s Printed?**

```java
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);
        }
    }
}
```

---

**What’s Printed?**

```java
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

What’s Printed?

```java
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;
    }
}
```

What’s Printed?

```java
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++;
                }
            }
            System.out.println(j);
        }
    }
}
```

What’s Printed?

```java
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);
    }
}
```
What's Printed?

```java
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);
    }
}
```

What's Printed?

```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");
    }
}
```

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

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

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. Assume that we already have int x, int y, and the String s and String t already properly declared somewhere else in our program.

For example, if the English is "x is larger than 10", you’d write the Java expression `x > 10`. If the English is "x is smaller than 10", you’d write the Java expression `x < 10`.

1. t does not occur in s
   Answer
   ```java
   s.indexOf(t)==-1 OR !s.contains(t)
   ```

2. The sum of x and y is odd.
   Answer
   ```java
   (x+y)%2==1
   ```

3. s is longer than 10 characters and begins with the letter "F"
   Answer
   ```java
   s.length()>10 && s.beginsWith("F")
   ```

4. 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, ...).
   Answer
   ```java
   for (int i=50; i<=10000; i++) {
       if (i%7==0) {
           System.out.print(i + " ");
       }
   }
   ```
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, ...).

Answer
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: 1
if numLines=3: 1  1  1
  22 22
  333 etc.

Answer
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
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;
}