CIS 1068

April 19, 2018
Histogram of 1068 midterm 2

$\mu = 72.0, \sigma = 22.2, \text{median}=77.0$
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
How much is a terabyte?

- $10^3$
- $10^6$
- $10^9$
- $10^{12}$
- about a billion
Suppose that we have A, which is a two-dimensional array of int. Which of the following gives us the item in A which is stored in the last row, first column?

- A[0][A[0].length-1]
- A[length][0]
- A[A.length-1][0]
- A[0].length-1
- Impossible to tell with the information given.
What is printed by the following?

```java
1 public class Mystery12 {
2     public static void func(int x, int y, int z) {
3         if (x>y+z) {
4             x+=y;
5         }
6         y--;            // Error at line 6
7         z=z%2;
8         System.out.println(x);
9     }
10    public static void main(String args[]) {
11        int x=11, y=19, z=31;
12        func(z, x, y);
13    }
14 }
```

▶ 42
▶ 31
▶ 30
▶ 10
▶ Error
public class WhatsPrinted {
    public static void multiplier(int A[], int x) {
        for (int i=0; i<A.length; i++) {
            A[i]*=x;
        }
    }
    public static void main(String args[]) {
        int A[] = {0,10,20};
        int B[] = {0,5,10};
        multiplier(B, 2);
        if (A==B) {
            System.out.println("same");
        } else {
            System.out.println("different");
        }
    }
}
public class WhatsPrinted {
    public static void func(int A[], int x) {
        for (int i=0; i<A.length; i++)
            A[i]+=x;
    }

    public static void main(String args[]) {
        int []A = new int[3];
        A[0]=55;
        A[1]=22;

        func(A, A[1]);
        System.out.println(A[0]);
    }
}
public class WhatsPrinted {
    public static void mystery(int A[], int x) {
        for (int i=1; i<A.length; i++) {
            if (i%2==0) {
            } else {
                A[i]-=A[i-1]+x;
            }
        }
    }
    
    public static void main(String args[]) {
        int A[] = {10,20,30,40};
        mystery(A, 2);
        System.out.println(A[A.length-1]);
    }
}
What's printed by the following?

```java
public class WhatsPrinted {
    public static void main(String args[]) {
        int x = 51;
        do {
            System.out.println(x + " ");
            x++;
        } while (x < 10);
    }
}
```

- 51
- 0
- 10
- nothing
- compiler error
public class WhatsPrinted {
    public static void mystery(int y, int z) {
        if (y + 3 > z) {
            y++;
        } else {
            y--;
        }
    }

    public static void main(String args[]) {
        int x = 10;
        int y = 20;
        int z = 30;

        mystery(x, y);

        System.out.println(y);
    }
}
public class WhatsPrinted {

    public static void func(int A[], int x) {
        int B[] = new int[A.length];
        for (int i=0; i<A.length; i++) {
            B[i]=A[i]*x;
        }
        A=B;
    }

    public static void main(String args[]) {
        int arr[]={31,20,18,5};
        func(arr, 2);
        System.out.println(arr[0]);
    }
}
public class WhatsPrinted {
    public static void main(String args[]) {
        String s1 = "bob";
        String s2 = "lob";
        String s3 = "law";

        for (int i=0; i<3; i++) {
            if (i%3==0) {
                s1+=s3;
            } else if (i%3==1) {
                s2+=s1;
            } else {
                s3+=" ";
            }
        }

        System.out.println(s1+s2);
    }
}
```java
public class WhatsPrinted {
    public static void main(String args[]) {
        String s1 = "bob";
        String s2 = "lob";
        String s3 = "law";

        for (int i=0; i<3; i++) {
            if (i%3==0) {
                s1+=s3;
            } else if (i%3==1) {
                s2+=s1;
            } else {
                s3+=" ";
            }
        }
        System.out.println(s1+s2);
    }
}
```

Answer: boblawlobbobboblaw
class Stuff {
    int x;
    /* constructor */
    public Stuff(int newX) {
        x = newX;
    }
}

public class WhatsPrinted {
    public static void func(Stuff s) {
        s.x *= 2;
    }
    public static void main(String args[]) {
        Stuff s1 = new Stuff(10);
        Stuff s2 = new Stuff(4);
        func(s2);
        s2.x += 2;
        if (s1 == s2) {
            System.out.println("same");
        } else {
            System.out.println("different");
        }
    }
}
Write the few lines of code that prints all of the integers from 320 to 4000 that are divisible by 7 using a

- a for loop
- a while loop
- a do-while loop
Write the single line of code which declares a two-dimensional array of double with NCOL columns and NROW rows.
Write a method which is passed String \( s \). The method returns a reference to a new String which is exactly the same as the one referenced by \( s \) except that all vowels are in upper case and all non-vowels are in lower-case. For example, if \( s \) is a reference to the String “From Craigslist. For Sale: Lightly used tombstone. Perfect for someone named Nigel Carruthers.” the method returns a reference to the String “frOm crAIgslIst. fOr sAlE: lIghtly UsEd tOmbstOnE. pErfEct fOr sOmEOnE nAmEd nIgEl cArrUthErs.”. Java contains the static methods …

Write a method which is passed \( A \), which is a reference to an array of String. The method converts every String in \( A \) as described in part ???. You may call your function from part ??.
Write a method which is passed the *name* of a file, which contains nothing but exam scores. The method is also passed a double `passingGrade`. Any score greater or equal to `passingGrade` is considered to be passing. The method returns the average of the scores that are passing. If no score is passing, return -1. If it helps, you may assume that no score is lower than 0 and no score is higher than 100. You may also assume that the file contains nothing but scores and spaces (i.e., it contains no punctuation, numbers, etc.). You are not responsible for handling `FileNotFoundException`.
Write a method which is passed A, which is a reference to an array of double. This array contains temperatures in degrees F. The method returns a new array consisting of all of the freezing temperatures in the array that A references. (Recall that freezing is 32.0F or lower). If there are no freezing temperatures, the method returns null.