CS302 Week 6

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What is the answer?

String s1 = "A very important programming tool.";
String s2 = s1.substring( 13, 14);
String s4 = new String( "Pickup by garbage collector");
if ( s1.contains( "gram")) {
    s4 = s1.substring( 6, 8).trim();
}
char c3 = s1.charAt( s1.indexOf('g') -3);
String answer = (s2 + c3 + s4).toUpperCase();
Course Items

- Exam 1 - Thursday
  - Bring ID and #2 pencil
- Online Course Evals this week
- Program 1: Math Trainer
  - Feedback and grades today
- Program 2: Eliza
  - Tests, Testing
Can I print the array like this?

```java
char [] characters = {'a','b','c','d','e'};
System.out.println( characters);

int []list = {10, 2, 23, 64, 25, 16, 67, 18, 39, 10};
System.out.println( list);
```
What will this print?

```java
int [] list;
list[0] = 10;
list[1] = list[0] + 20;
System.out.print( list[1]);
```
Are all Strings the same?

String []arr = new String[3];
arr[0] = "hello";
arr[1] = "hello";
arr[2] = new String("hello");
System.out.println( arr[1] == "hello" );
System.out.println( arr[1].equals( "hello") );
System.out.println( arr[2] == arr[1] );
System.out.println( arr[2].equals(arr[1]) );
public static void main(String[] args) {
    int x = 5, y = 10, z = 15;
    z = swap(x, y);
    System.out.println("x=\" + x + ", y=\" + y + ", z=\"");
}

public static int swap(int y, int x) {
    x = 1;
    int z = 1;
    return x + y + z;
}
What values of num are printed?

```java
int num = Integer.MAX_VALUE;
System.out.println( num);
num = num + 1;
System.out.println( num);
```
What is the result value?

Math.max( 3.0, 1) / 3
Instance vs. Class (static) Methods

Class (static)

- method definition has “static” modifier
- use name of class when calling

    Math.max( 10, 20);

Instance

- method definition does Not have “static” modifier
- use instance of class when calling

    Random randGen = new Random();
    randGen.nextInt( 5);
public static void countChar(char[] chars) {
    if (chars != null && chars.length > 0) {
        System.out.println("not null");
    } else {
        System.out.println("null");
    }
}
Simplify Logic

```java
if ( !(teamLabsAttended < 12 || codeLabCount < 300) ) {
    //what grade?
}

( !(teamLabsAttended < 12) && !(codeLabCount < 300) )

teamLabsAttended >= 12  &&  codeLabCount >= 300
```
Practice Exam

4, 6, 8
How can I remove second 11?

```java
int []list = {1,3,5,9,11,11,13,15,17,19, -1,-1};
```

- without leaving a blank in the middle.
- without duplicating other numbers.
- ok to add -1 (sentinel value) to end of the array.
public static void main( String [] args) {
    char [] characters = {'a','b','c','d','e'};
    print( characters);
    System.out.println( characters);
}

static void print( char []arr) {
    arr[2] = 'K';
    arr = new char[3];
    arr[1] = 'Z';
}
Generating a Random Number
Implicit Type Conversion

What will print out and why?

```java
int k = 'A';
System.out.println( k);
```
Input Validation

Scanner input = new Scanner( System.in);
input.nextLine();
int count = 4;
if ( input.hasNextInt())
    count = input.nextInt();
else {
    input.nextLine();
    count = input.nextInt();
}
System.out.println( input.nextLine());
Strings and Memory

class S {
    public static void main( String []args) {
        String name;    //Where and what is the value?

        new String("sad");  //What and where is the value?

        //What and where is the value?
        name = new String("happy");
    }
}
}
What is print out?

String str = "'Falling Off a Cliff' by Eileen Dover"
System.out.println( str.substring(4,8)));

String str2 = "'The Future of Robotics' by Cy Borg and Anne Droid"
System.out.println( str2.substring( str2.indexOf('o'), str2.lastIndexOf('B')));

String str3 = "'Technology in the 21st Century' by Rob Ott"
System.out.println( str3.substring( str3.indexOf('R') ).concat(".")));

Strings courtesy of Boy Scouts