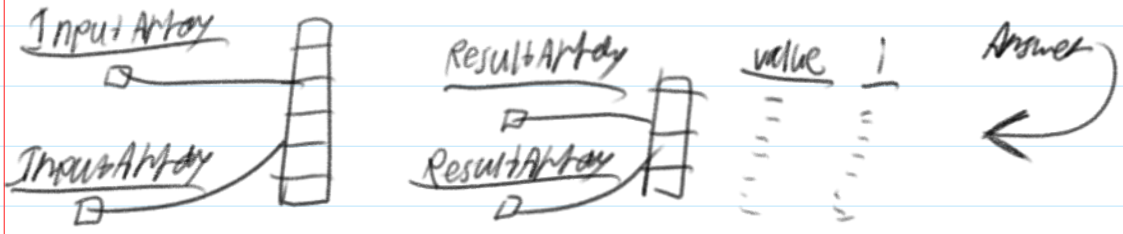
Week2-3

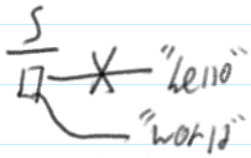
Wednesday, September 6, 2023 11:54 AM

NOTE: Map memory also includes showing output
Be very specific when showing mapped memory. Lost points because of being too general with answers.



NOTE: Practice writing code, do one required practice problem per week.

Take a coding problem, and solve it.
Then come back later after some time and solve it again.
The idea is to have the code syntax to come without thinking.



String s = new String("hello");
Which is the same thing as
String s = "hello";
Strings are immutable, they can't be changed.
String's length() function needs parantheses because they are parameters to a function of class String.
Array's don't have a function, their length; command is a property of it.

NOTE: Do more string practice later, since we barely remember all the string commands.

Shallow copy and deep copy:

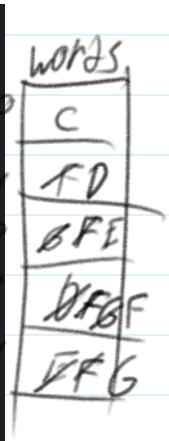
A shallow copy is when a new variable points to the same address as the variable it's copying.
A deep copy is when a copy of the data within the address is made to a different variable.

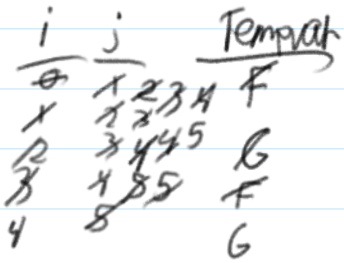
```java
public class Main {
    public static void main(String[] args) throws IOException{
        String[] words = new String[5];
        Scanner inFile = new Scanner(new File( pathname: "strings.txt"));
        String line = inFile.nextLine();

        words = line.split( regex: ",");

        for (int i = 0; i < words.length - 1; ++i) { //Sort
            for (int j = i + 1; j < words.length; ++j) {
                if (words[i].compareTo(words[j]) > 0) {
                    String tempVar = words[i];
                    words[i] = words[j];
                    words[j] = tempVar;
                }
            }
        }

        for (int j = 0; j < words.length; ++j) { //Print
            System.out.println(words[j]);
        }
```





Very important question from interviews to remember the answer for: What is encapsulation and why is it important?

Data/member variables/member instances
methods/member functions

Encapsulation is the method in which data is protected from inside and outside sources.

Almost all variables in this course will be private.

Constructor: Method that is automatically called when an object is instantiated.

- Default: No parameters

Mutator/Setter: Allow changes to member variables
Accessor/Getter: Retrieves the contents of the member variables.

```
Public class Dog{
Private String name;
Private String breed;

Public Dog(){
name="";
breed="";
}
Public Dog(Stringp_name,Stringp_breed){
name=p_name;
breed=p_breed;
}

Public String getName(){
Return name;
}
Public void setName(Stringp_name){
name=p_name;
}

Public String getBreed(){
Return breed;
}
Public void setBreed(Stringp_breed){
breed=p_breed;
}

}

/*
This class is called a "tangible thing."
*/
```

All member variables have a keyword called "this".
Using "this" means you will specialize the member variable instead of a different variable with the same name.

Header of the function is the signature. The signature is the name, parameters, and return type.

"Any time you use the new command, it's heap storage. Everything else, usually variables, is stack storage."

```
public class Main {
    public static void main(String[] args) throws IOException {
        ArrayList<Dog> stuff = new ArrayList<Dog>();
```

Shihtzu/n
5/n
fido/n

Things to remember:
Making an array
Making an arraylist
Creating a new class
Reading into a new file
Creating and writing into a new file
Parsing string
Converting string to int
Converting int to string
How to use Scanner

HW is posted:
Will be writing a morse code assignment
Class MorseLetter (converts to morse)
- Two member variables
- Character, string.

Class MorseCode
- Array of morse. NOT ARRAYLIST. Only 26.

Container: Anything that can hold multiple pieces of data.

It is bad design to pass around a container into different objects.
So never parameterize or return a container like an ArrayList.

This means that constructors will be different in classes that function as a container.
Containers don't use set/gets, usually more like:
Add, remove, find, modify.
Input and output should also not be used in the container classes.

Those search algorithms at the sem start will be a very big part of the exam. So study them for the exam next Friday!