Data structure
Review
Dr. Sophea PRUM
sopheaprum@gmail.com
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If a programmer codes just for fun he has all his skill.
If he codes for score his hand tremble and his breath is uneasy

1. Write a Java program to find the index of an array element

2. Write a Java program to find the maximum and minimum value of an array

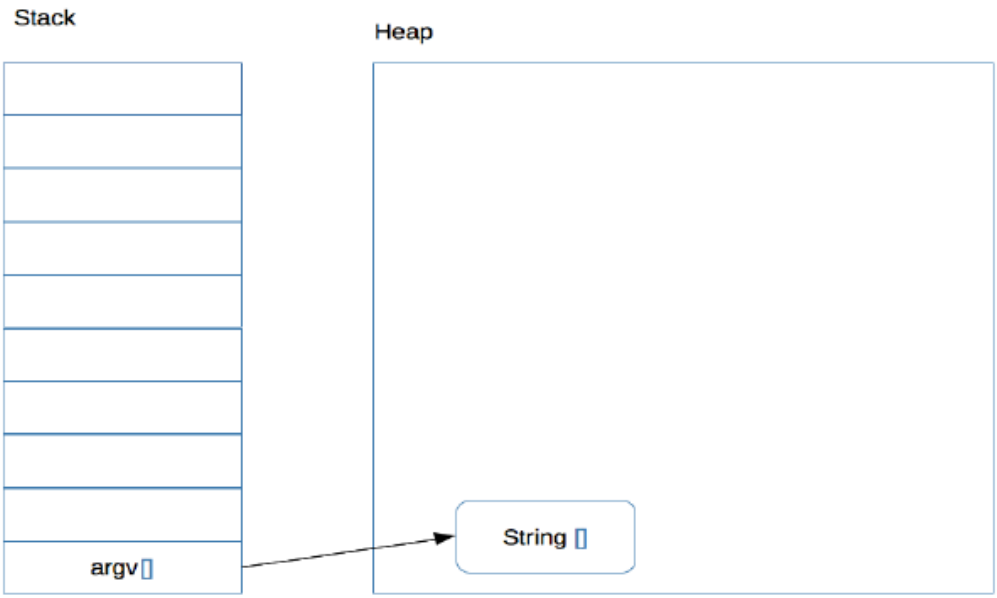
3. Write a Java program to find the index of maximum and minimum value of an array

4. Write a Java program to reverse an array of integer values

5. Given two ArrayLists of integer myArray1 and myArray2. Write the program allowing to print out the elements in myArray1 that does't exist in myArray2.

6. Write a Java program to find all pairs of elements in an array whose sum is equal to a specified number

7. Given the program below,
    a) Complete the schema of JVM memory management diagram
    b) what is the output of the system



```java
class Worker {

   private String name;
   private int age;
   private double wage;

   Worker(String name, int age, double wage) {
      this.name = name;
      this.age = age;
   }

   public static void main(String[] args){
      Worker mc1 = new Worker("Peter",25,235.0);
      Worker mc2 = new Worker("Alan",64,434.0);
      Worker mc3 = new Worker("Emily",36,320.0);
      Worker mc4 = mc1;
      mc4.name = "TOTO";
      mc1 = mc2;
      mc1.age = 30;
      mc4 = mc3;
      System.out.print(mc1.age + ", " + mc1.wage + ", " + mc1.name);
      System.out.print(mc2.age + ", " + mc2.wage + ", " + mc2.name);
      System.out.print(mc3.age + ", " + mc3.wage + ", " + mc3.name);
      System.out.print(mc4.age + ", " + mc4.wage + ", " + mc4.name);
   }
}
```

8. Factorial of n is the product of all positive descending integers. Factorial of n is denoted by n!. For example:

4! = 4*3*2*1 = 24

5! = 5*4*3*2*1 = 120

a) Write a method *int factorial(int n)* enable to return the value of n! By using recursive algorithm

b) Draw the schema tracing the execution of the method *factorial(5)*