Name Guangcheng Zhou ID 642115502 Group _____

Tutorial 4 Algorithm Efficiency and Midterm review

1. What is the big-O of the following snippet

1.1

```
int result = 0
    int i = 1
while i < n
     if n % i == 0
        result += i
     end
i += 1
end
return result
```

Big O (n)

1.2

```
if array[0] == null
  return true
else
  return false
end
```

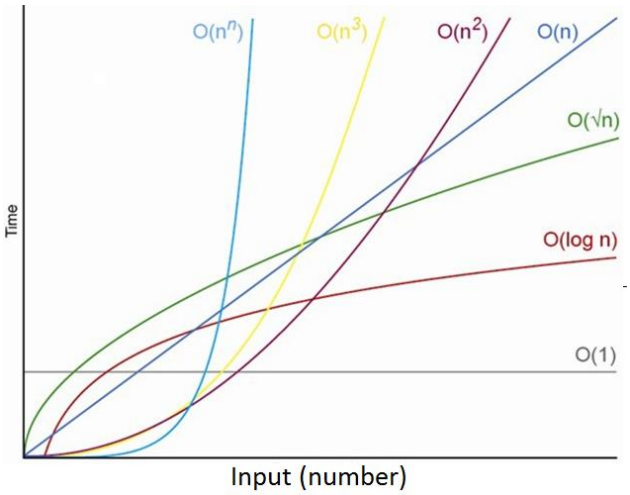
Big O(1)

1.3

```
public static int doSomething(int[] arr, int x){

    int size = arr.length;
    for(int i=0;i<size;i++){
      if(arr[i] ==x){
        return i;
      }
    }
    return -1;
  }
```

Big O(n)
…….



1.4 According to above comparison figure, which function represents the fastest algorithm?

Big O(1)
…….

2. Write a Java program that read a data file (you can download from the link here https://www.dropbox.com/s/chnpp0kkvpbbyfb/data.txt?dl=0

Your program must have a method call "mySearch" which responses to find for all the value in the given data file that are greater than 0.5. Below is an example output of the program from a different data file.

```
>Total number of values read: 15103
>Number of value > 0.5 is: 1343
```

What is the Big O of your method mySearch? Big O(1)……

Copy and paste your java source code here

```
import java.io.IOException;
import java.nio.file.Path;
import java.nio.file.Paths;
import java.util.Scanner;


public class my {
    public static void main(String[] args) throws IOException {
    String fileName = "C:/Users/13512/Downloads/data.txt";
    Path path = Paths.get(fileName);
    Scanner scanner = new Scanner(path);
    int total=0;
    int NumValue=0;

    while(scanner.hasNextLine()){

        String line = scanner.nextLine();
        double x=Double.parseDouble(line);
        if(mySearch(x)){
            NumValue++;
        }
        total++;
    }
    scanner.close();
    System.out.println(">Total number of values read: "+total);
    System.out.println(">Number of value: "+NumValue);
    }

    public static boolean mySearch(double x){
        if(x>0.5){
            return true;
        }else{
            return false;
        }
    }
}
```