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CS 2050
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HW #1

Solutions for the Exercises

Ex.1.1

1. a= 7 b,= 206 c, = true
2. a, = 1.18, double b,=
10.0 double c,= 4.1 double d, ="33" integer

3. Source code is

```
1 //HOME WORK PROBLEMS FROM TEXTBOOK
2 // The following code is written to check the given instruction on the Algs4ed
3 //Chapter 1, Ex 1.1, Pro#3
4 // Abinet Kenore, MW 06:00 TO 07:50 CS 2050 Fall 2016,
5 //
6 import java.util.*;
7 public class CS2AlgsE113P54 {
8     public static void main (String[] args){
9
10        Scanner console = new Scanner (System.in); // creating the scanner
11
12        // Write a program that takes three integers in a command line arguments
13        // and prints equal if all three are equal, not equal otherwise
14
15        int a, b, c; // Declaring the variables
16        String eq = "The numbers are Equal";
17        String neq = "the numbers Not Equal";
18        // prompt the user to enter three numbers
19        System.out.println(" Please Enter the first numbers");
20        a = console.nextInt();
21        System.out.println(" Please Enter the second number ");
22        b = console.nextInt();
23        System.out.println(" Please Enter the thrid number ");
24        c = console.nextInt();
25
26        if ( a == b && b == c ){
27            System.out.println(eq);
28        }
29        else {
30            System.out.println(neq);
31        }
32        System.out.println();
33        System.out.println("Tested by ABINET KENORE. ");
34    } // End of the main
35 } // End of the class
```

4. Corrections and comment

- a, if(a> b) then c = 0; we don't use then in java.
- b, if {a> b}{c = 0;} it was missing {
- c, is correct
- d, if (a> b): c = 0 else b = 0 ;hanging else statement

5. source code is

```

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4 // Abinet Kenore, MW 06:00 TO 07:50 CS 2050 Fall 2016,
5 //
6 import java.util.*;
7 public class CS2AlgsE113P54 {
8     public static void main (String[] args){
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10        Scanner console = new Scanner (System.in); // creating the scanner
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15        int a, b, c; // Declaring the variables
16        String eq = "The numbers are Equal";
17        String neq = "the numbers Not Equal";
18        // prompt the user to enter three numbers
19        System.out.println(" Please Enter the first numbers");
20        a = console.nextInt();
21        System.out.println(" Please Enter the second number ");
22        b = console.nextInt();
23        System.out.println(" Please Enter the thrid number ");
24        c = console.nextInt();
25
26        if ( a == b && b == c ){
27            System.out.println(eq);
28        }
29        else {
30            System.out.println(neq);
31        }
32        System.out.println();
33        System.out.println("Tested by ABINET KENORE. ");
34    } // End of the main
35 } // End of the class

```

6. The out put is

```

----jGRASP exec: java CS2AlgsE116P54
0
1
1
2
3
5
8
13
21
34
55
89
144
233
377
610
----jGRASP: operation complete.

```

1.1.7a The answer is

```

----jGRASP exec: java CS2AlgsE117aP55
3.00009
----jGRASP: operation complete.

```

1.1.7b The answer is

```

----jGRASP exec: java CS2AlgsE117bP55
499500
----jGRASP: operation complete.

```

1.1.7c The answer is

```

    ----jGRASP exec: java CS2AlgsE117cP55
1023
    ----jGRASP: operation complete.

```

1.1.8 a . prints b on the screen or command line

1.1.8b. prints b and c

1.1.8c. prints out e from the unicode.

1.1.12. The answer is

```

    ----jGRASP exec: java CS2AlgsE1112P1
0
1
2
3
4
5
6
7
8
9
    ----jGRASP: operation complete.

```

EX 1.2.

1.2.6. The source code is

```

2 // The following code is written to check the given instruction on the Algs4ed
3 //Chapter 1, Ex 1.2, Pro#12
4 // Abinet Kenore, MW 06:00 TO 07:50 CS 2050 Fall 2016,
5 //
6 import java.util.*;
7 import java.util.Calendar;
8 public class CS2AlgsDayofTheWKP114 {
9     public static void main (String[] args){
10
11 Scanner console = new Scanner (System.in); // creating the
12     Calendar calendar = Calendar.getInstance();
13     Date tday = new Date();
14     // Display statements
15     System.out.println("Today is : " + tday); // prints the day, month, date time, and year
16     int day = calendar.get(calendar.DAY_OF_WEEK);
17     System.out.println(day); // Prints 1 for Sunday and so on
18     System.out.println(calendar.get(calendar.WEEK_OF_MONTH)); // Prints the Wk no. with in the month
19     System.out.println(calendar.get(calendar.DAY_OF_MONTH)); // Prints the day with in that month
20     System.out.println(calendar.get(calendar.DAY_OF_YEAR)); // Prints no. of the days in the year
21     System.out.println(dayofTheWeek(day)); //
22
23     }
24
25     public static String dayofTheWeek (int dayofTheWeek){
26         switch (dayofTheWeek) { // Prints out the Exact day of the Weekcase 1: return "Sundly";
27             case 1: return ("Sunday ");
28             case 2: return ("Monday ");
29             case 3: return ("Tuesday ");
30             case 4: return ("Wenseday ");
31             case 5: return ("Thursday ");
32             case 6: return ("Friday");
33             case 7: return ("Saturday");
34             default: return null;
35         }
36     }
37 }

```

1.2.12. The source code is

```

1 //HOME WORK PROBLEMS FROM TEXTBOOK
2 // The following code is written to check the given instruction on the Algs4ed
3 //Chapter 1, Ex 1.2, Pro#6
4 // Abinet Kenore, MW 06:00 TO 07:50 CS 2050 Fall 2016,
5 //
6 import java.util.*;
7 public class CS2AlgsE126P114 {
8     public static void main (String[] args){
9
10 Scanner console = new Scanner (System.in); // creating the scanner
11
12         // Write a program which detects the given two strings s and t are circular shifts
13         // of one another
14         String s, t;
15         s = "ACTGACG"; // Given strings
16         t = "AACCGGT"; // Given strings
17         if ( s.length() == t.length())
18             {System.out.println("The letters Match");
19             }
20         else{System.out.println("The letters are not Matchning");};
21     }
22 }
23

```

EX 1.3.'S Answers

1.3.3.

EX 1.4's Answers

1.4.1 $N(N-1)(N-2)/6$

$$4(3)*(2)/6 = 4$$

1.4.5 a. N,

1.4.5.b. 1

1.4.5.c. 1

1.4.5d. $2N^3$

1.4.5.e. 2

1.4.5.f. 2

1.4.5.g. N^{100}

1.4.6 a. running times = n;

b. running times = $O(N)$;

c. running times = $O(N \log(N))$

1.4.9 Answer: $2N^0 = bT$

$$4N^0 = 2b(2^{bt})$$

$$8N^0 = 2b(2^{2bt})$$

$$16N^0 = 2b(2^{3bt})$$

$$\text{formula} = 2^{rN^0} = 2^{rbt}$$