Assignment 1

CSD 207
Shiv Nadar University

Professor Sulabh Bansal

Submitted By:

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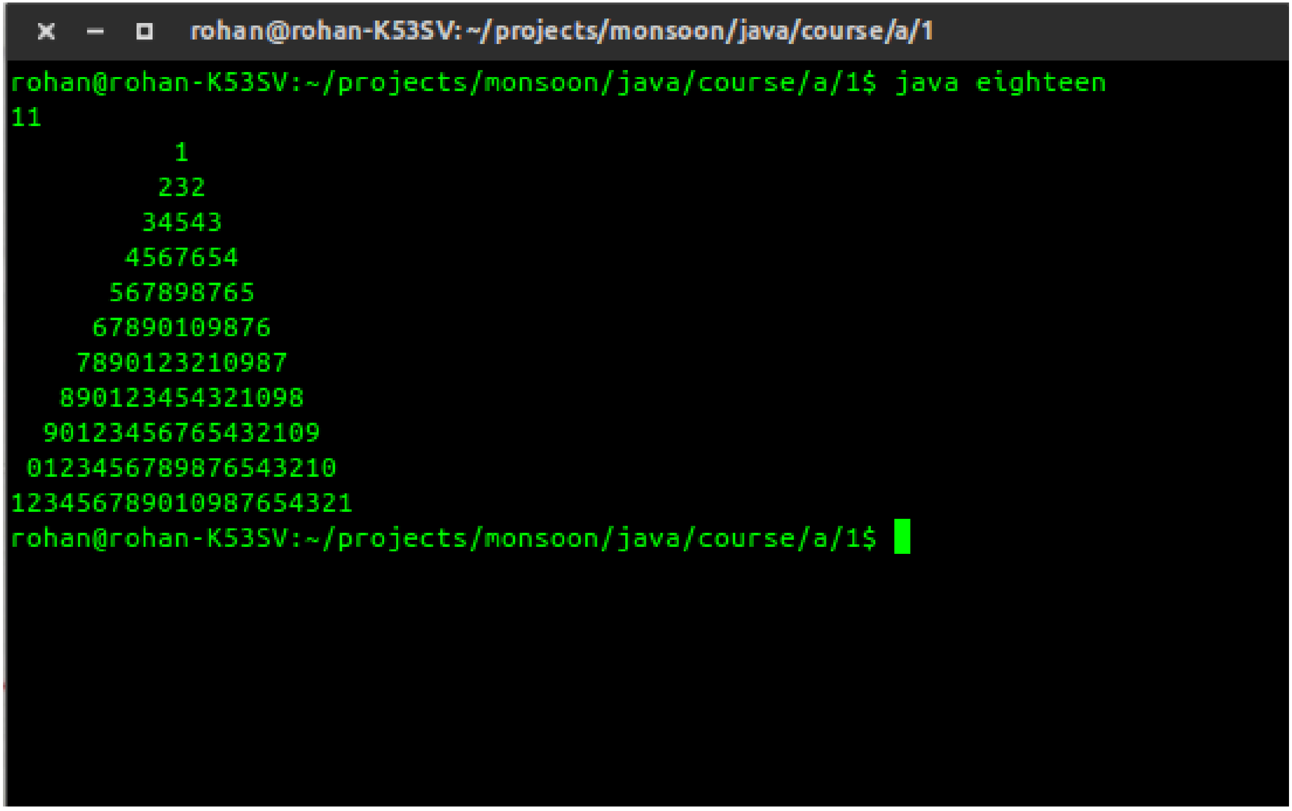
Btech CSE, II Year

Github Repository: https://github.com/rhnvrm/java_learn (Update after deadline of Assignment 1)

```
/* Q 18.
Print the following pyramid
1
232
34543
4567654
567898765
67890109876
7890123210987
890123454321098
90123456765432109
0123456789876543210

Done

Author: Rohan Verma (hello@rohanverma.net)
Output:
```



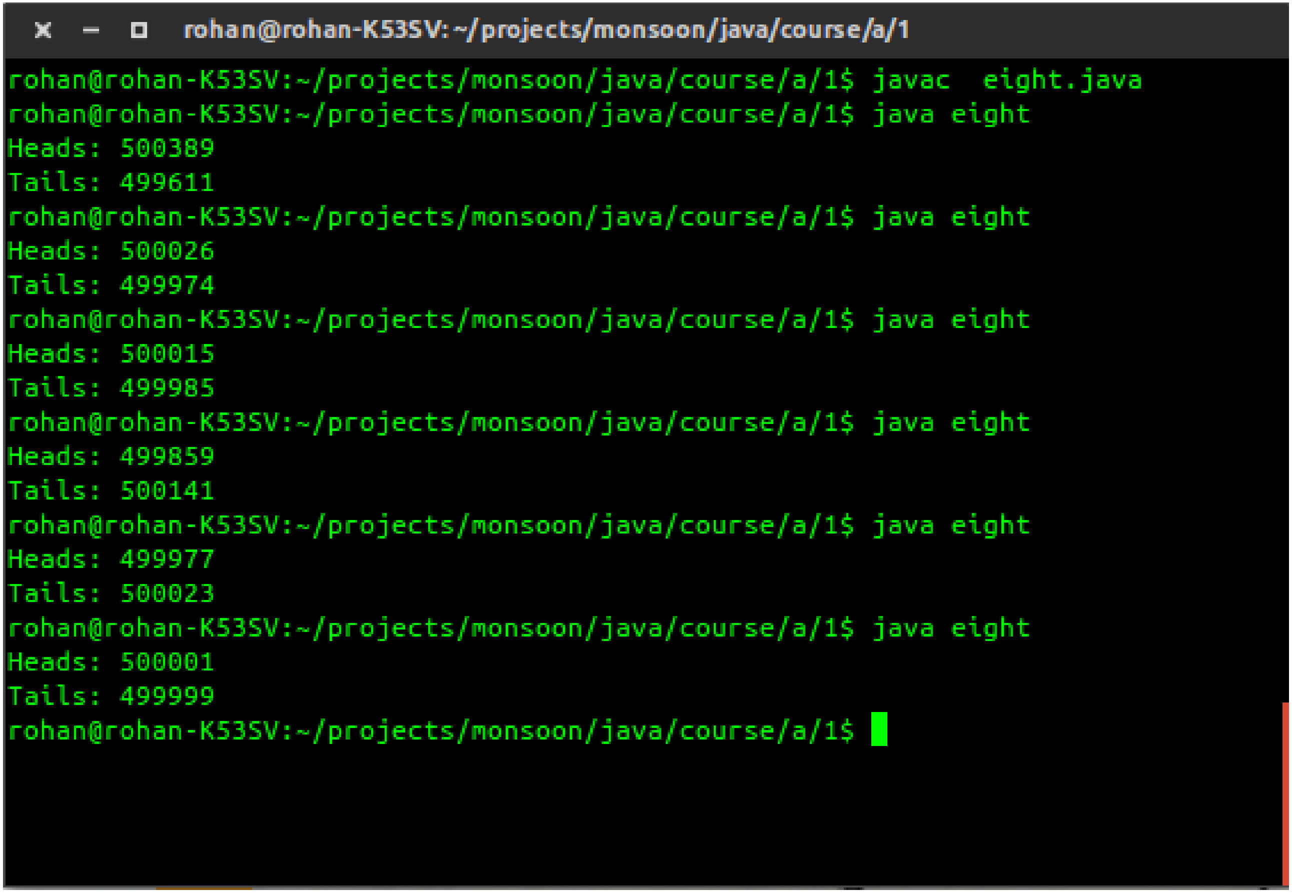
rohan@rohan-K53SV: ~/projects/monsoon/java/course/a/1

```
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java eighteen
11
          1
         232
        34543
       4567654
      567898765
     67890109876
    7890123210987
   890123454321098
  90123456765432109
 0123456789876543210
123456789010987654321
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ 
```

```
*/
import java.util.Scanner;


public class eighteen {

        public static void main( String [] args )
        {

                int n, c, d, num = 1, space;

                Scanner s = new Scanner(System.in);

                n = s.nextInt();

                space = n - 1;
                for ( d = 1 ; d <= n ; d++ )
                {
```

```
            num = d;
            for ( c = 1 ; c <= space ; c++ )
                System.out.printf(" ");
            space--;
            for ( c = 1 ; c <= d ; c++ )
            {
                System.out.printf("%d", num%10);
                num++;
            }
            num--;
            num--;
            for ( c = 1 ; c < d ; c++)
            {
                System.out.printf("%d", num%10);
                num--;
            }
            System.out.printf("\n");
        }

    }
}
```

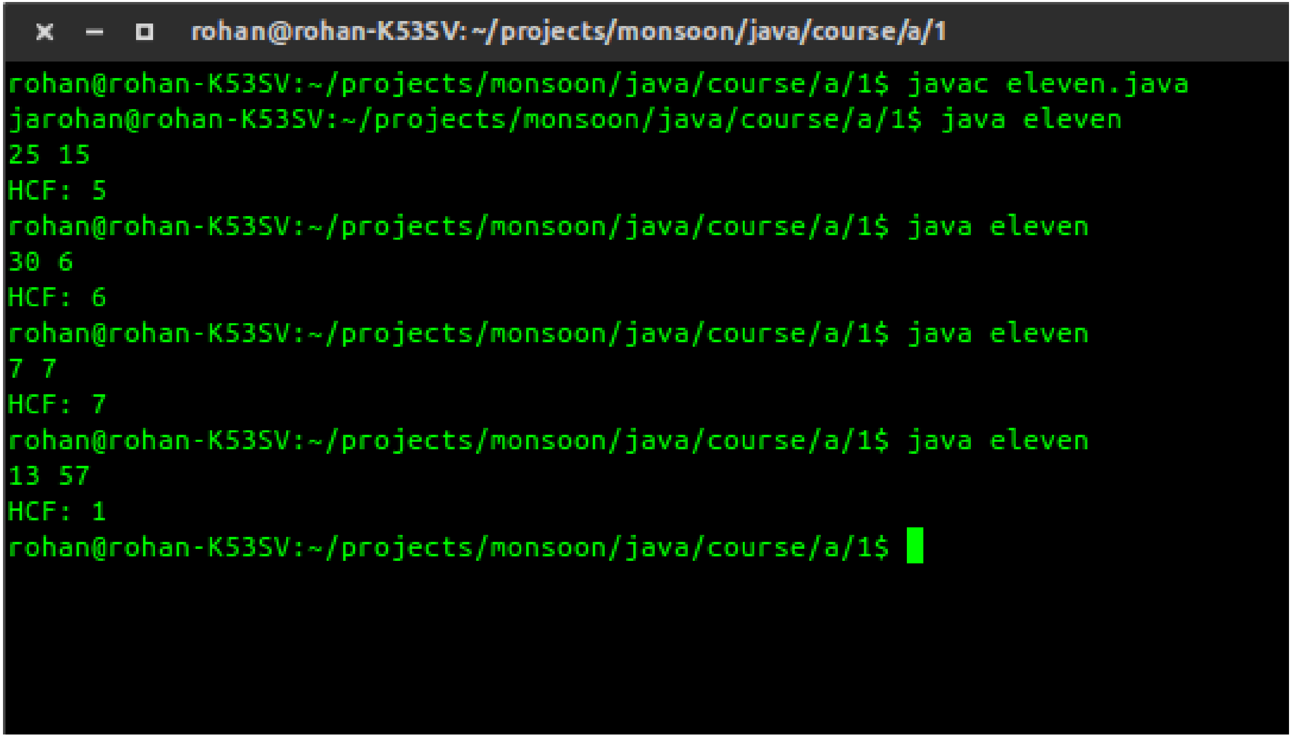
```
/* Q. Eight
Write a program that simulates flipping a
coin one million times and displays the number of
heads and tails.

Author: Rohan Verma (hello@rohanverma.net)
Output:
```



```
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ javac  eight.java
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java eight
Heads: 500389
Tails: 499611
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java eight
Heads: 500026
Tails: 499974
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java eight
Heads: 500015
Tails: 499985
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java eight
Heads: 499859
Tails: 500141
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java eight
Heads: 499977
Tails: 500023
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java eight
Heads: 500001
Tails: 499999
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$
```

```
*/
import java.util.Scanner;

public class eight {

        public static void main( String [] args )
        {

                int FLIPS = 1000000;

                int heads = 0, tails = 0, coin;



                for(int i = 0; i < FLIPS; i++){
                        coin = (int)((Math.random() > 0.5)?1:0);

                        if(coin == 0) heads++;
                        else tails++;
                }

            System.out.println("Heads: " + heads);
            System.out.println("Tails: " + tails);

        }
}
```

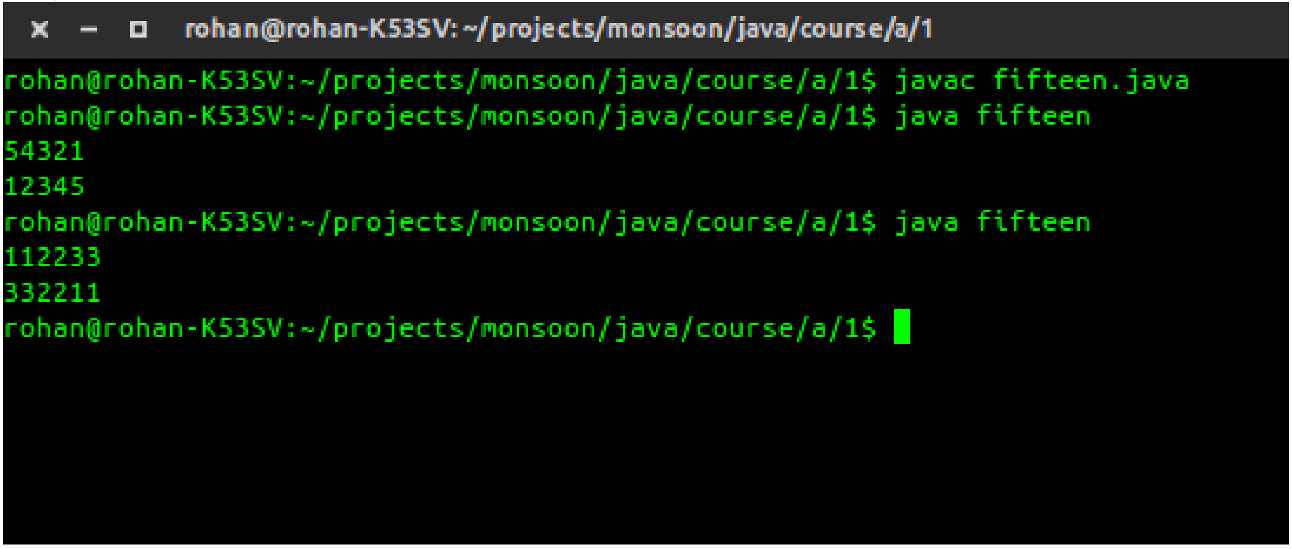
```
/* Q. Eleven

A solution to find the greatest common divisor of two integers n1 and n2 is as
follows: First
find d to be the minimum of n1 and n2, then check whether d, d-1, d-2, 2, or 1
is a divisor for
both n1 and n2 in this order. The first such common divisor is the greatest
common divisor
for n1 and n2. Write a program that prompts the user to enter two positive
integers and
displays the gcd.

Author: Rohan Verma (hello@rohanverma.net)
Output:
```



```
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ javac eleven.java
jarohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java eleven
25 15
HCF: 5
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java eleven
30 6
HCF: 6
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java eleven
7 7
HCF: 7
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java eleven
13 57
HCF: 1
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ 
```

```java
*/
import java.util.Scanner;


public class eleven {

        public static int hcf(int a, int b){

                int min = (a>b)?b:a;

                for(int i = min; i >= 1; i--){
                        if(a % i == 0 && b % i == 0){
                                return i;
                        }
                }

                return -1;

        }

        public static void main( String [] args )
        {
            int a, b;
            //Scanner
            Scanner s = new Scanner(System.in);

            a = s.nextInt();
            b = s.nextInt();

            System.out.println("HCF: " + hcf(a,b));

        }
}
```

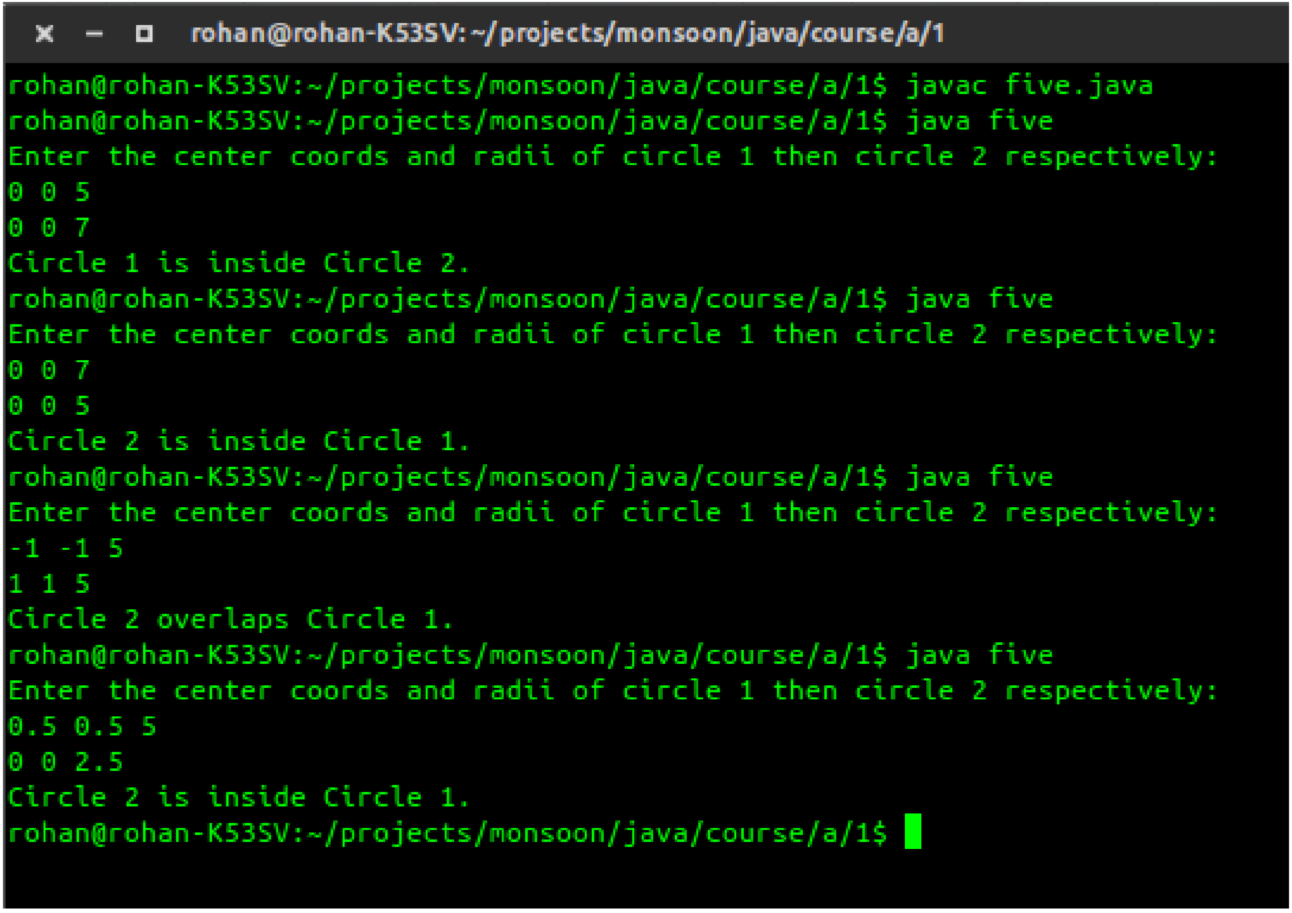
```
/* Q 15

Write a program to read an integer and reverse it.

Author: Rohan Verma (hello@rohanverma.net)
Output:
```



```
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ javac fifteen.java
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java fifteen
54321
12345
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java fifteen
112233
332211
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ 
```

```
*/
import java.util.Scanner;


public class fifteen {

        public static void main( String [] args )
        {

                int num;

                Scanner s = new Scanner(System.in);

                num = s.nextInt();

                int rev = 0;

                while(num != 0){
                        rev *= 10;
                        rev += num % 10;

                        num /= 10;
                }

                System.out.println(rev);
        }
}
```

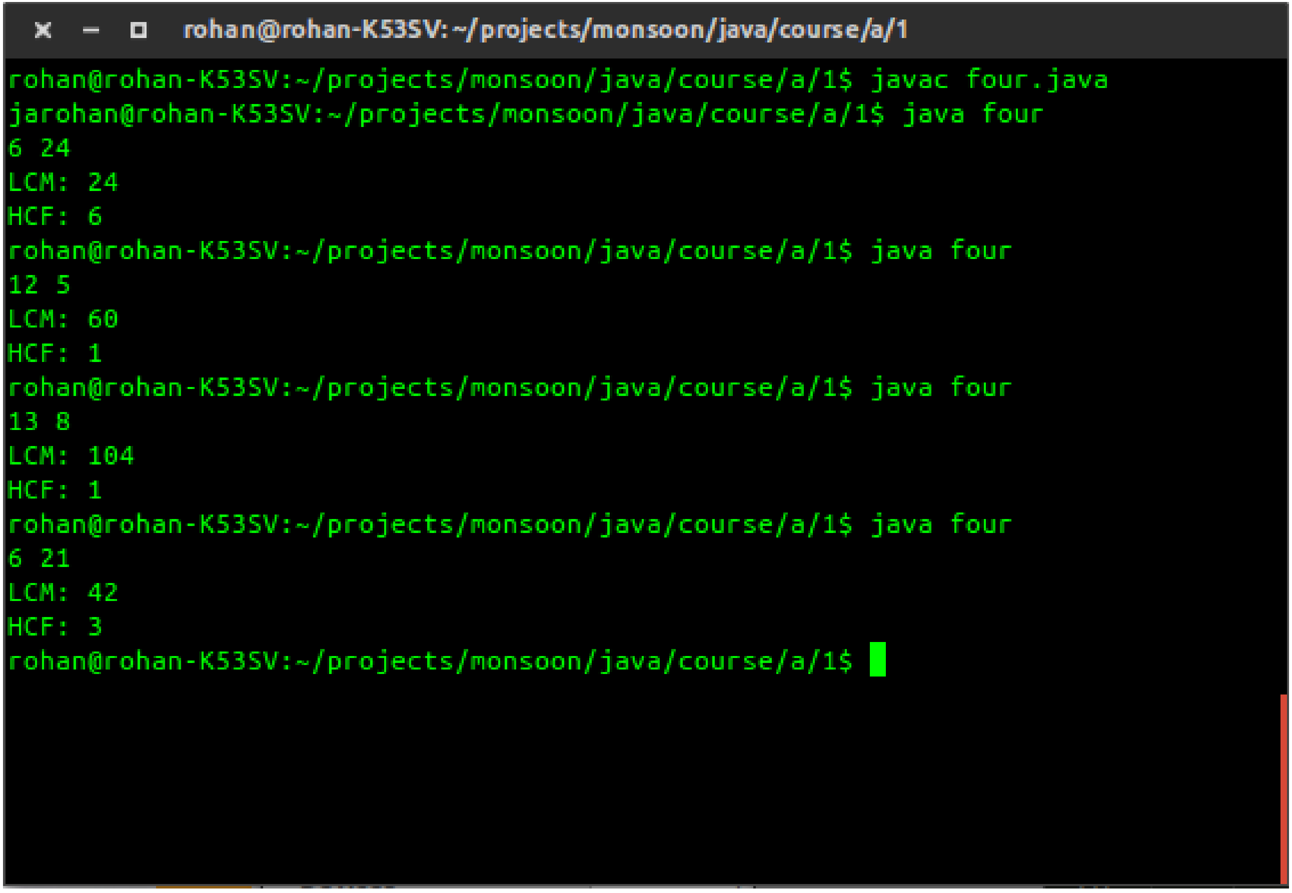
```
/* Q 5

Write a program that prompts the user to enter
a decimal integer and displays its
corresponding binary value.
Don’t use Java’s Integer.toBinaryString(int)
in this program.

Author: Rohan Verma (hello@rohanverma.net)
Output:
```



```
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ javac five.java
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java five
Enter the center coords and radii of circle 1 then circle 2 respectively:
0 0 5
0 0 7
Circle 1 is inside Circle 2.
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java five
Enter the center coords and radii of circle 1 then circle 2 respectively:
0 0 7
0 0 5
Circle 2 is inside Circle 1.
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java five
Enter the center coords and radii of circle 1 then circle 2 respectively:
-1 -1 5
1 1 5
Circle 2 overlaps Circle 1.
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java five
Enter the center coords and radii of circle 1 then circle 2 respectively:
0.5 0.5 5
0 0 2.5
Circle 2 is inside Circle 1.
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$
```

```
*/
import java.util.Scanner;


public class five {

        public static void main( String [] args )
        {
            double x1, y1, r1, x2, y2, r2;

            //Scanner
            Scanner s = new Scanner(System.in);

            System.out.println("Enter the center coords and radii of circle 1
then circle 2 respectively: ");

                x1 = s.nextDouble();
                y1 = s.nextDouble();
                r1 = s.nextDouble();
                x2 = s.nextDouble();
                y2 = s.nextDouble();
                r2 = s.nextDouble();
                double distance = Math.pow((x1 - x2) * (x1 - x2) + (y1 - y2) *
(y1 - y2), 0.5);

                if (r2 >= r1 && distance <= (r2 - r1)){
                System.out.println("Circle 1 is inside Circle 2.");
            }
            else if (r1 >= r2 && distance <= (r1 - r2) ) {
                System.out.println("Circle 2 is inside Circle 1.");
            }
            else if (distance > (r1 + r2)){
                System.out.println("Circle 2 does not overlap Circle 1.");
            }
            else {
                System.out.println("Circle 2 overlaps Circle 1.");
            }

        }
}
```

```
/*Q 4

Write a program to find out the L.C.M. and H.C.F. of two numbers.

Author: Rohan Verma (hello@rohanverma.net)
```

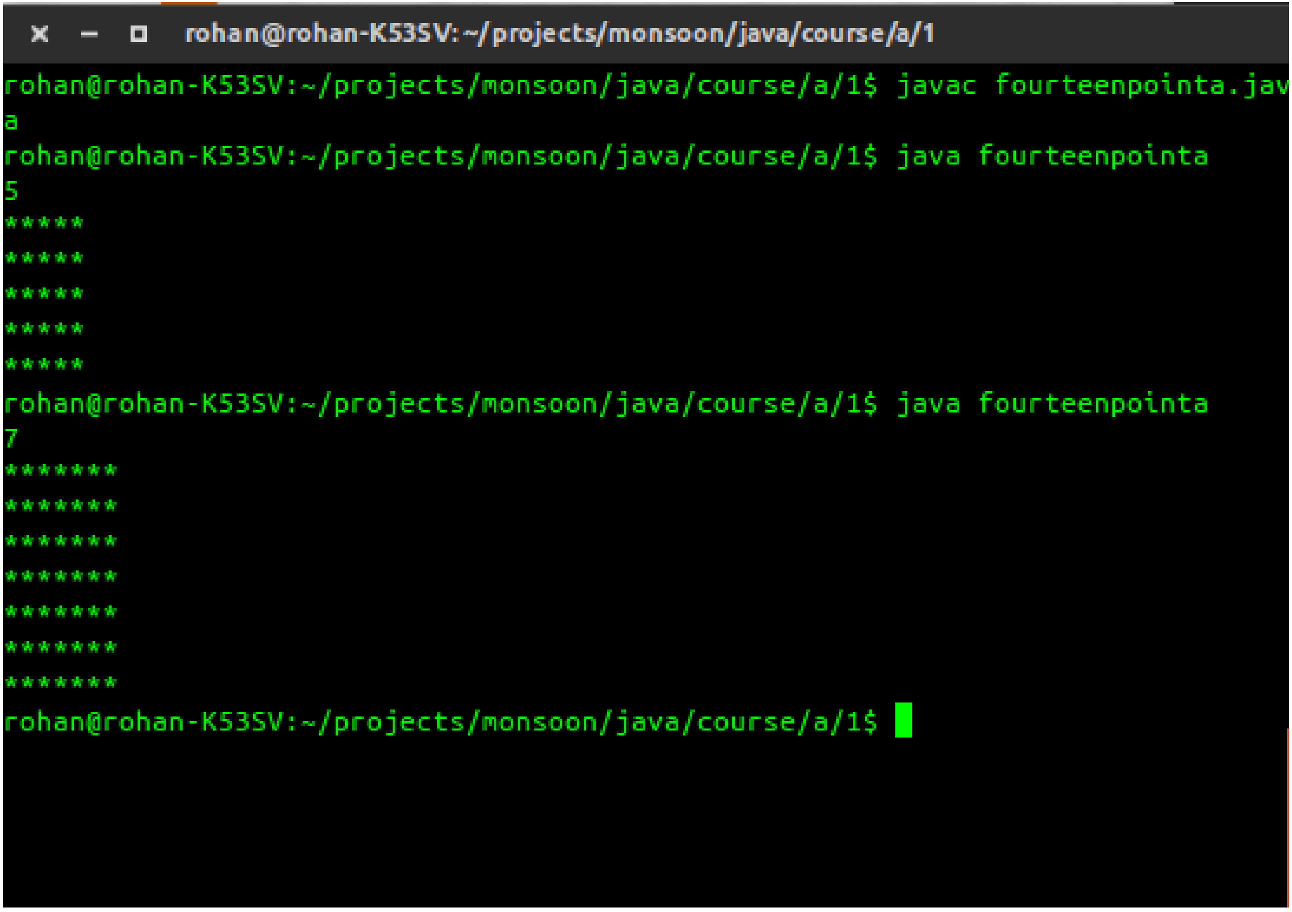


rohan@rohan-K53SV: ~/projects/monsoon/java/course/a/1

```
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ javac four.java
jarohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java four
6 24
LCM: 24
HCF: 6
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java four
12 5
LCM: 60
HCF: 1
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java four
13 8
LCM: 104
HCF: 1
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java four
6 21
LCM: 42
HCF: 3
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$
```

```
*/
import java.util.Scanner;

public class four {

        public static int hcf(int a, int b){
                if (b == 0) {
                        return a;
                }
                else {
                        return hcf(b, a % b);
                }
                //return -1;
        }

        public static int lcm(int a, int b){

                return (a*b)/hcf(a,b);
        }

        public static void main( String [] args )
        {
            int a, b;

            //Scanner
            Scanner s = new Scanner(System.in);
            a = s.nextInt();
            b = s.nextInt();

            System.out.println("LCM: " + lcm(a,b));
            System.out.println("HCF: " + hcf(a,b));

        }
}
```

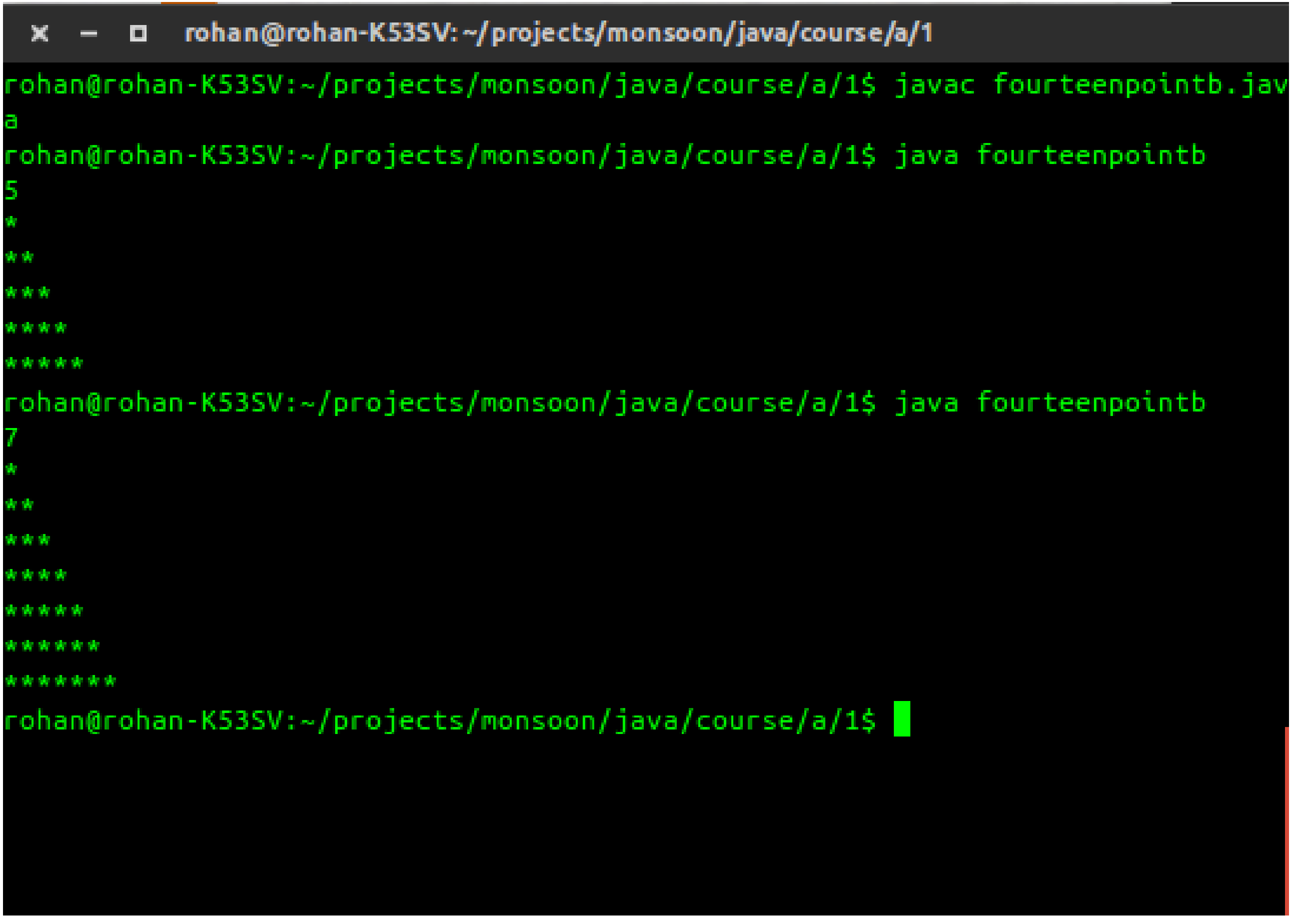
```
/* Q. 14.A

* * * * *
* * * * *
* * * * *
* * * * *
* * * * *

Author: Rohan Verma (hello@rohanverma.net)
```



```
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ javac fourteenpointa.jav
a
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java fourteenpointa
5
*****
*****
*****
*****
*****
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java fourteenpointa
7
*******
*******
*******
*******
*******
*******
*******
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$
```

```java
*/
import java.util.Scanner;


public class fourteenpointa {

        public static void main( String [] args )
        {

                int num;

                Scanner s = new Scanner(System.in);

                num = s.nextInt();

                for(int i = 0; i < num; i++){
                        for(int j = 0; j < num; j++){
                                System.out.print('*');
                        }
                        System.out.print('\n');
                }
        }
}
```

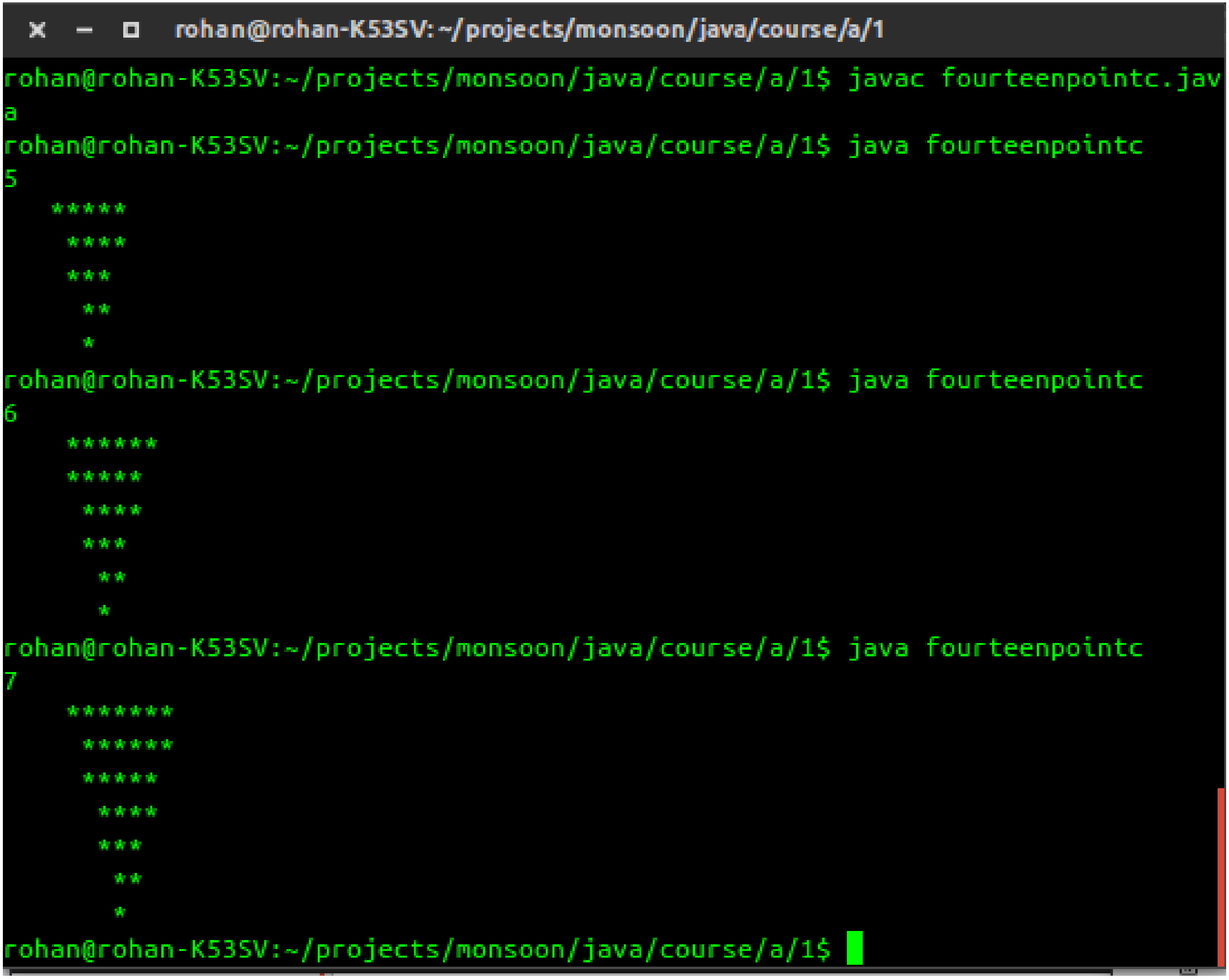
```
/* Q 14.B

*
* *
* * *
* * * *

Author: Rohan Verma (hello@rohanverma.net)
```



```
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ javac fourteenpointb.jav
a
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java fourteenpointb
5
*
**
***
****
*****
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java fourteenpointb
7
*
**
***
****
*****
******
*******
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ 
```

```
*/
import java.util.Scanner;


public class fourteenpointb {

        public static void main( String [] args )
        {

                int num;

                Scanner s = new Scanner(System.in);

                num = s.nextInt();

                for(int i = 0; i < num; i++){
                        for(int j = num - i - 1; j < num; j++){
                                System.out.print('*');
                        }
                        System.out.print('\n');
                }
        }
}
```

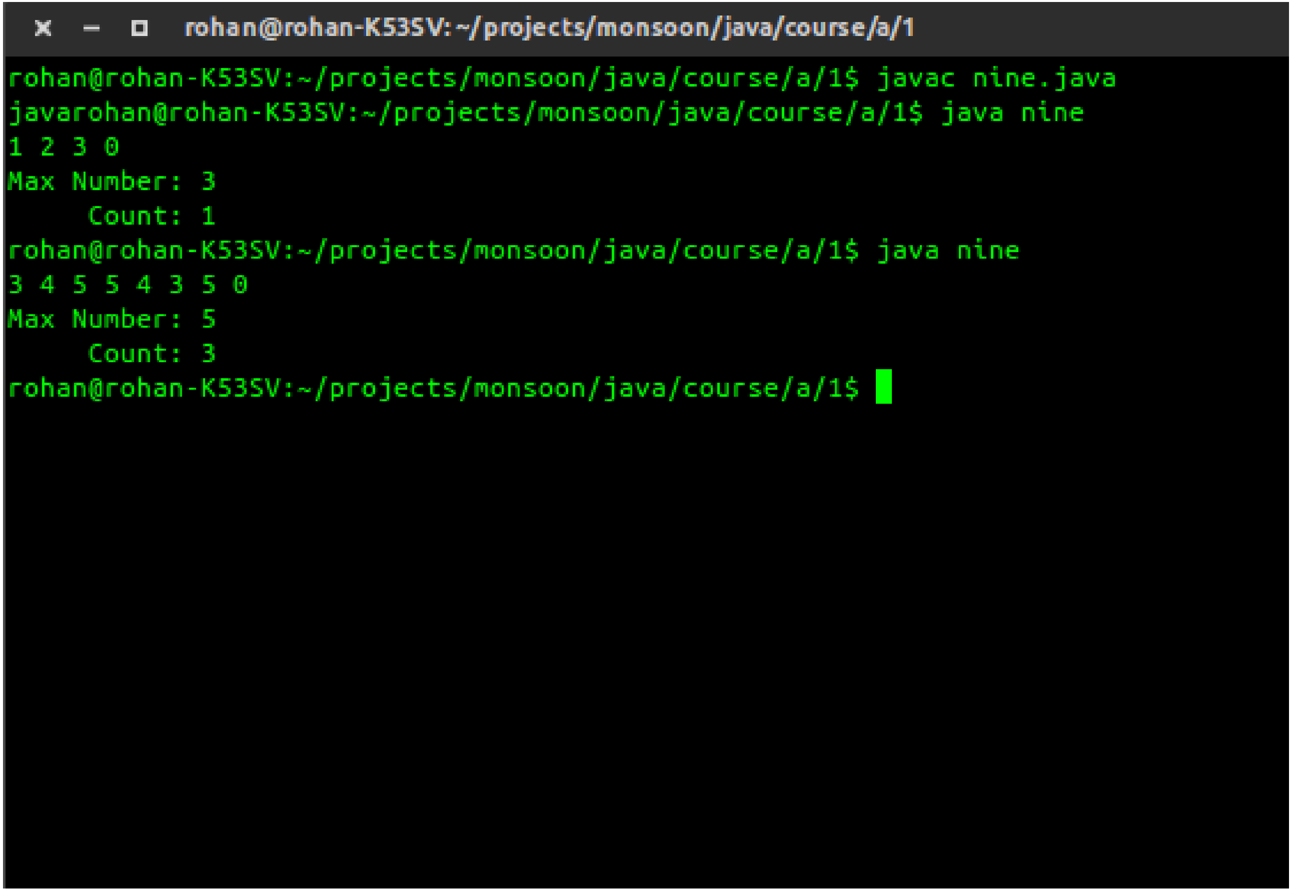
```
/* Q 14.C

 * * * * * *
  * * * * *
   * * * *
    * * *
     * *
      *

Author: Rohan Verma (hello@rohanverma.net)
Output:
```



```
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ javac fourteenpointc.jav
a
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java fourteenpointc
5
   *****
    ****
    ***
     **
     *
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java fourteenpointc
6
    ******
    *****
     ****
     ***
      **
      *
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java fourteenpointc
7
    *******
     ******
     *****
      ****
      ***
       **
       *
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ 
```

```
*/


import java.util.Scanner;


public class fourteenpointc {

        public static void main( String [] args )
        {

                int num;

                Scanner s = new Scanner(System.in);

                num = s.nextInt();
                for(int i = num; i > 0; i--){
                        for(int spaces = 0; spaces < num -i; spaces++){
                                System.out.print(' ');
                        }
                        for(int j = 0; j < i; j++){
                                System.out.print(”* ”);
                        }

                        System.out.print('\n');
                }
        }
}
```

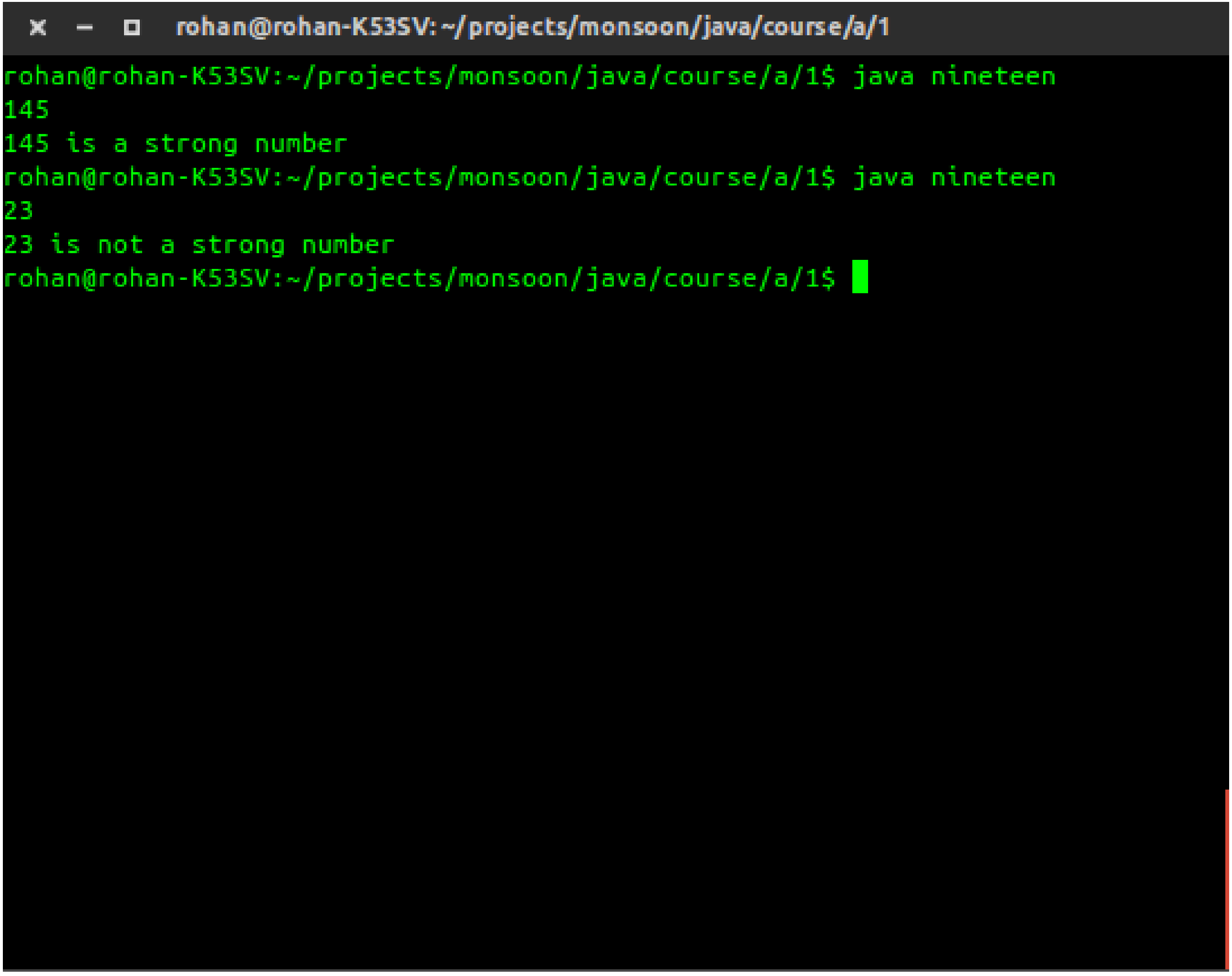
```
/* Q 9

Write a program that prompts the user to
enter the number of seconds, displays a message at
every second, and terminates when the time expires.

Author: Rohan Verma (hello@rohanverma.net)
Output:
```



```
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ javac nine.java
javarohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java nine
1 2 3 0
Max Number: 3
     Count: 1
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java nine
3 4 5 5 4 3 5 0
Max Number: 5
     Count: 3
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ 
```

```
*/
import java.util.Scanner;


public class nine {

        public static void main( String [] args )
        {

                int num, max = Integer.MIN_VALUE, count = 0;

                Scanner s = new Scanner(System.in);

                do{

                        num = s.nextInt();

                        if(max == num){
                                count += 1;
                        }
                        else if(max < num){
                                count = 1;
                                max = num;
                        }
                        else{
                        }



                }while(num != 0);

                System.out.println("Max Number: " + max);
                System.out.println("     Count: " + count);

        }
}
```

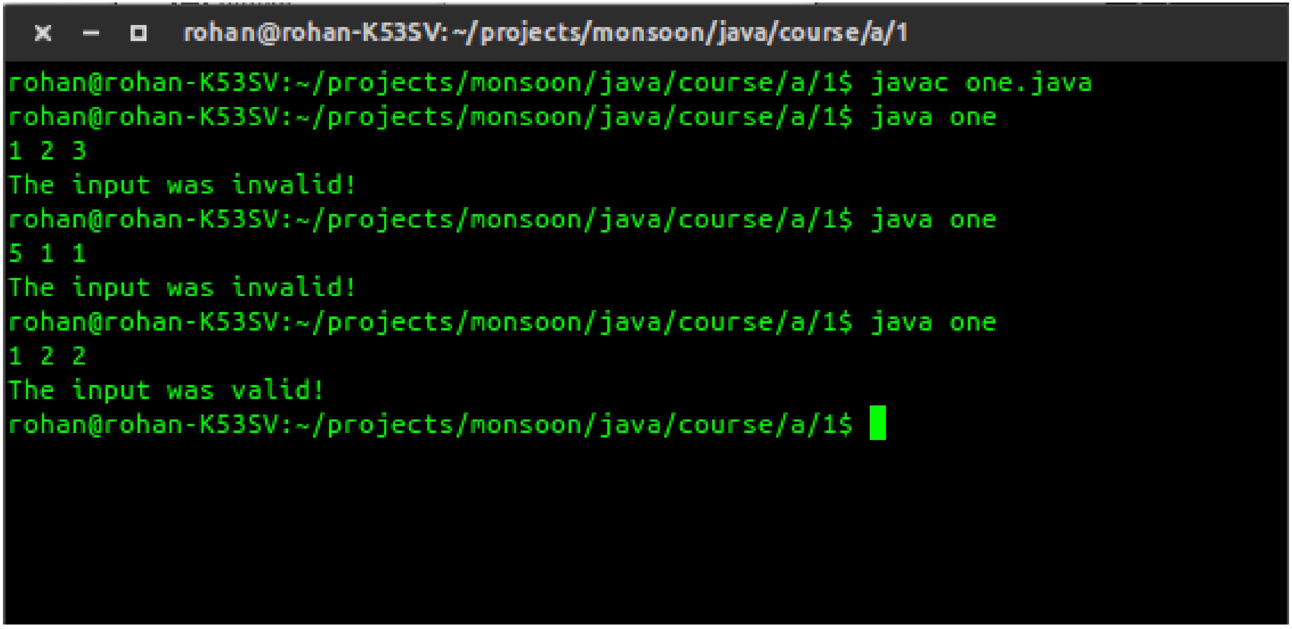
```
/* Q 19

In a strong number, the sum of the factorials of digits of a number is equal to
the original
number. Write a program to check given number is strong number or not.

Author: Rohan Verma (hello@rohanverma.net)
Output:
```



```
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java nineteen
145
145 is a strong number
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java nineteen
23
23 is not a strong number
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$
```

```
*/
import java.util.Scanner;


public class nineteen {

        public static void main( String [] args )
        {

                int num;

                Scanner s = new Scanner(System.in);

                num = s.nextInt();

                int temp = num,i,f,r,sum=0;
                while(num!=0){
                        i=1;f=1;
                        r=num%10;
                        while(i<=r){
                                f=f*i;
                                i++;
                        }
                        sum=sum+f;
                        num=num/10;
                }
                if(sum==temp)
                        System.out.printf("%d is a strong number\n",temp);
                else
                        System.out.printf("%d is not a strong number\n",temp);

        }
}
```

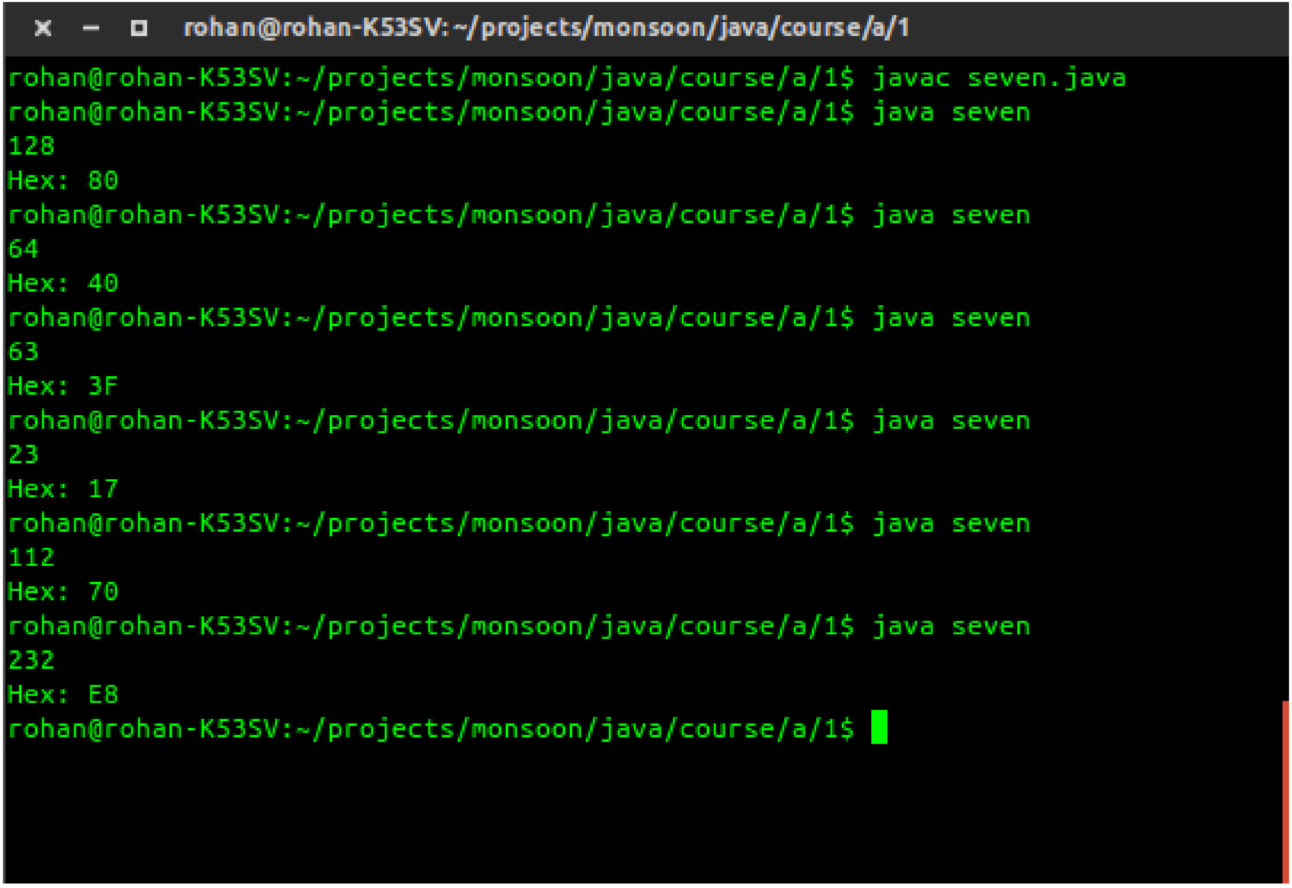
```
/* Q 1

Write a program that reads three edges for a triangle and determines whether the
input is
valid. The input is valid if the sum of any two edges is greater than the third
edge.

Author: Rohan Verma (hello@rohanverma.net)
Output:
```



```
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ javac one.java
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java one
1 2 3
The input was invalid!
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java one
5 1 1
The input was invalid!
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java one
1 2 2
The input was valid!
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$
```

```java
*/
import java.util.Scanner;


public class one {

        public static void main( String [] args )
        {
            // Input edge lengths of a b c
            int a,b,c;

            //Scanner
            Scanner s = new Scanner(System.in);

            a = s.nextInt();
            b = s.nextInt();
            c = s.nextInt();

            //Calculate sums
            int x = a + b;
            int y = b + c;
            int z = c + a;

            if(x > c && y > a && z > b){
                System.out.println("The input was valid!");
            }
            else{
                System.out.println("The input was invalid!");
            }
        }
}
```

```
/* Q 7

Write a program that prompts the user to enter a
decimal integer and displays its
corresponding hexadecimal value.
Don’t use Java’s Integer.toHexString(int) in this
program.

Author: Rohan Verma (hello@rohanverma.net)
Output:
```



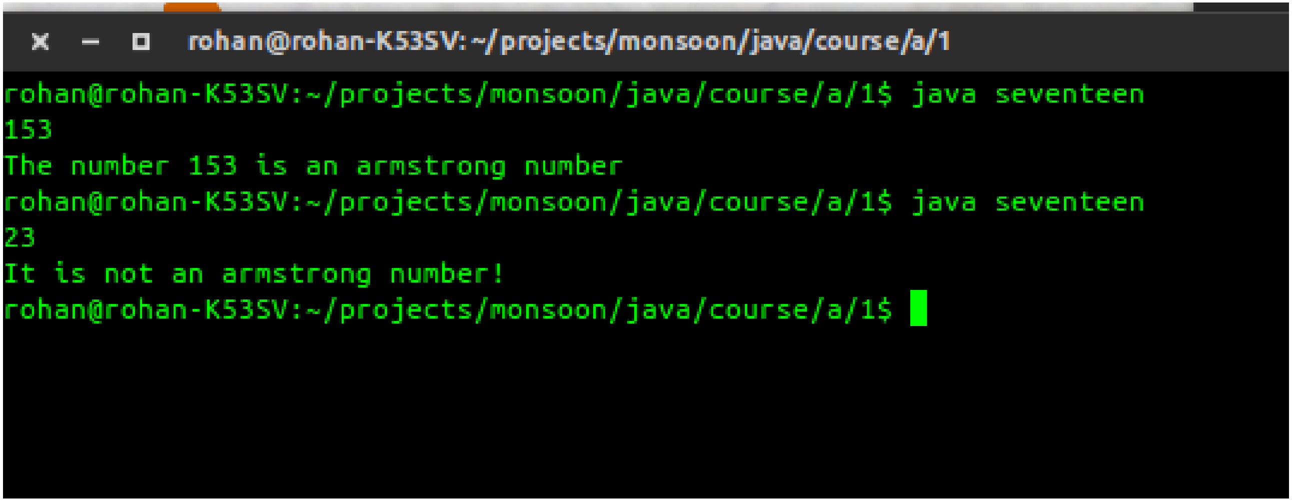
rohan@rohan-K53SV: ~/projects/monsoon/java/course/a/1

```
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ javac seven.java
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java seven
128
Hex: 80
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java seven
64
Hex: 40
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java seven
63
Hex: 3F
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java seven
23
Hex: 17
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java seven
112
Hex: 70
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java seven
232
Hex: E8
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$
```

```
*/
import java.util.Scanner;


public class seven {

        public static String reverse(String source){
        if(source == null || source.isEmpty()){
            return source;
        }
        String reverse = "";
        for(int i = source.length() -1; i>=0; i--){
            reverse = reverse + source.charAt(i);
        }

        return reverse;
        }

        public static String convert(int dec)
        {
            String hex = "";
```

```java
            while(dec != 0){

                int remainder = dec % 16;
                if(remainder > 9){
                        char x='e';
                        remainder -= 10;
                        switch(remainder){
                                case 0:
                                        x = 'A';
                                        break;
                                case 1:
                                        x = 'B';
                                        break;
                                case 2:
                                        x = 'C';
                                        break;
                                case 3:
                                        x = 'D';
                                        break;
                                case 4:
                                        x = 'E';
                                        break;
                                case 5:
                                        x = 'F';
                                        break;
                        }

                        hex += x;


                }
                else{
                                hex += (char)(remainder + 48);
                }
                dec /= 16;
            }
            return reverse(hex);
        }

        public static void main( String [] args )
        {
            int num;

            Scanner s = new Scanner(System.in);

            num = s.nextInt();

            System.out.println("Hex: " + convert(num));

        }
}
```

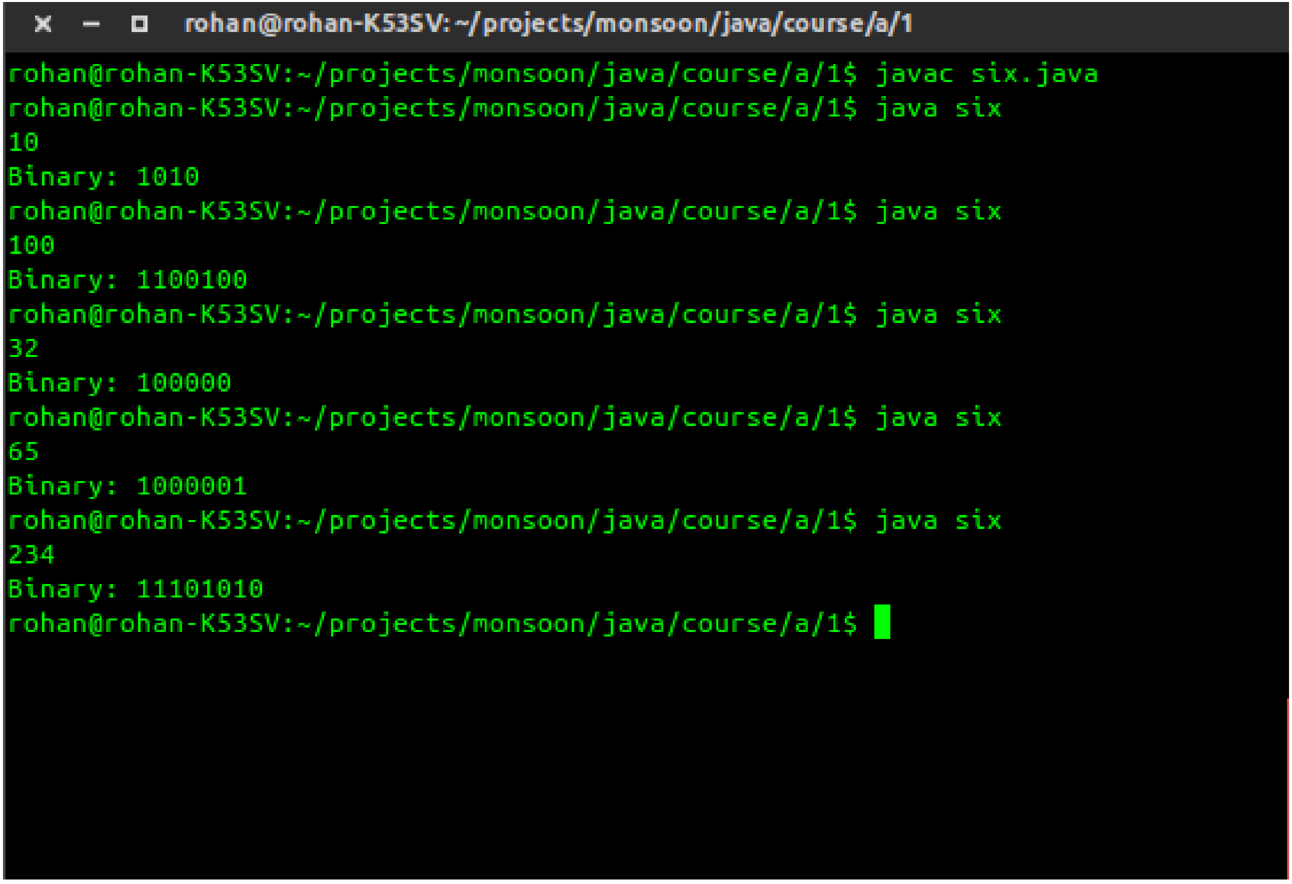
```
/* Q 17

An Armstrong number is one in which the sum of the cubes of digits of a number
is equal to
the original number. Write a program to check given number is Armstrong number
or not.
For example: n=153 => 1 3 + 5 3 +3 3 = 1+125+27= 153, so 153 is an Armstrong
number.

Author: Rohan Verma (hello@rohanverma.net)
Output:
```



```
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java seventeen
153
The number 153 is an armstrong number
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java seventeen
23
It is not an armstrong number!
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ 
```

```java
*/
import java.util.Scanner;


public class seventeen {

        public static void main( String [] args )
        {

                int num;

                Scanner s = new Scanner(System.in);

                num = s.nextInt();

                int sum = 0;
                int temp = num;
                while(num != 0){
                        sum += Math.pow((num%10),3);
                        num/=10;
                }
                if(sum == temp){
                        System.out.println("The number "+ temp + " is an
armstrong number");
                }
                else
                        System.out.println("It is not an armstrong number!");

        }
}
```

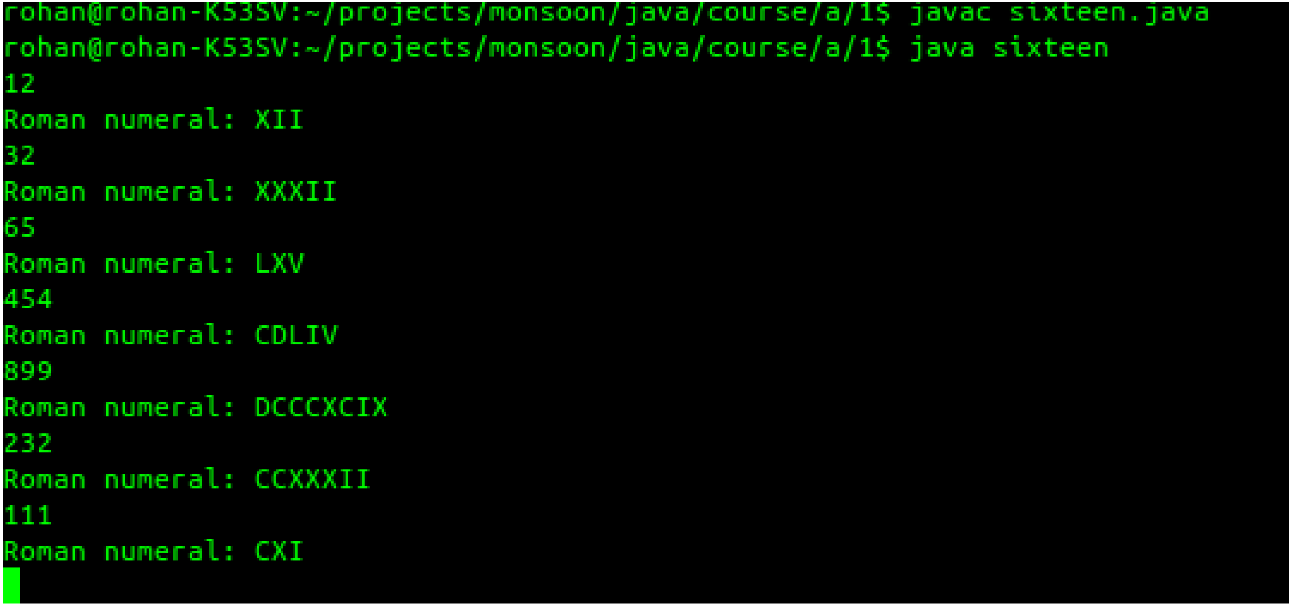
```
/* Q6

Write a program that prompts the user to enter
a decimal integer and displays its
corresponding binary value.
Don’t use Java’s Integer.toBinaryString(int)
in this program.

Author: Rohan Verma (hello@rohanverma.net)
```



```
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ javac six.java
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java six
10
Binary: 1010
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java six
100
Binary: 1100100
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java six
32
Binary: 100000
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java six
65
Binary: 1000001
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java six
234
Binary: 11101010
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$
```

```
*/
import java.util.Scanner;


public class six {

        public static int convert(int dec)
        {
            if (dec == 0)
            {
                return 0;
            }
            else
            {
                return (dec % 2 + 10 * convert(dec / 2));
            }
        }

        public static void main( String [] args )
        {
            int num;

            Scanner s = new Scanner(System.in);
            num = s.nextInt();

            System.out.println("Binary: " + convert(num));

        }
}
```

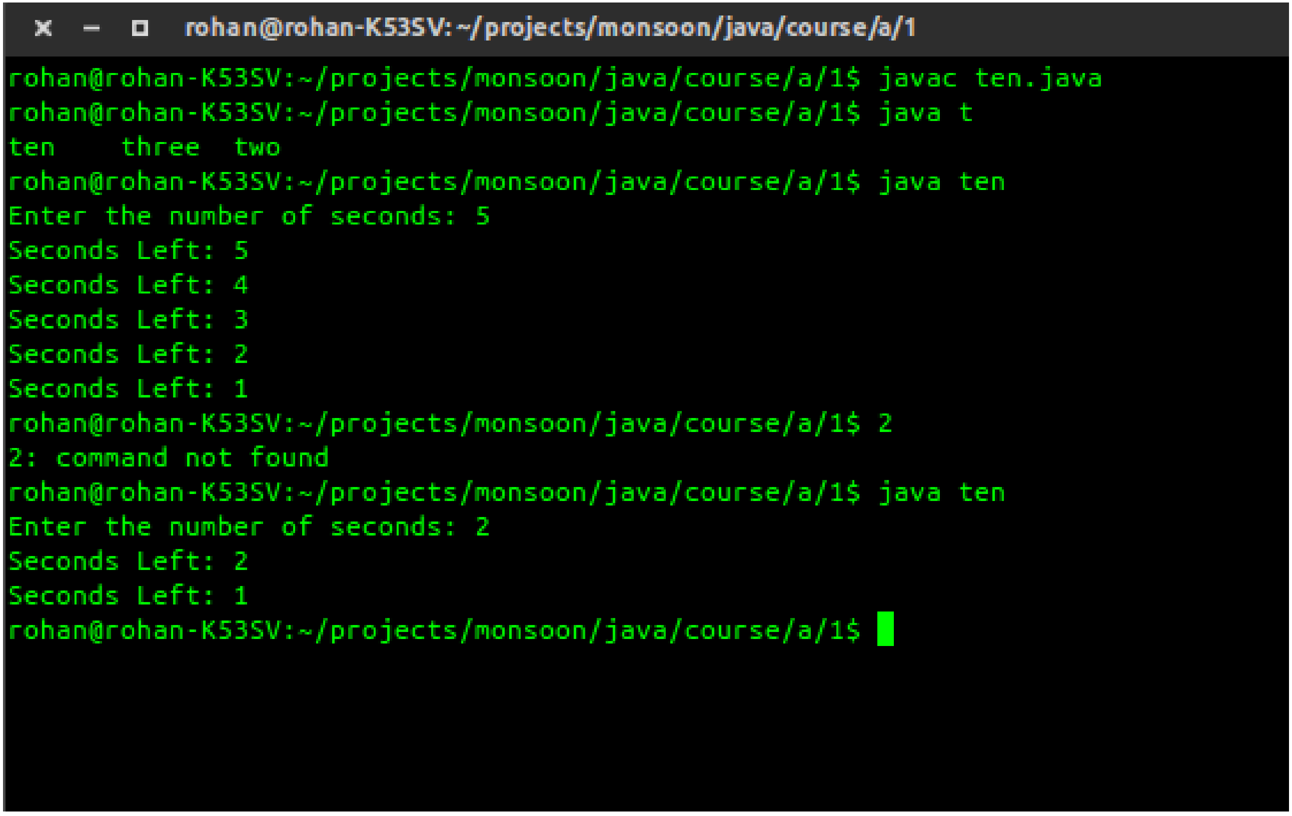
```
/* Q 16

Write an interactive program that will convert a positive integer
 quantity to a roman numeral
(e.g., 12 will be converted to XII, 14 will be converted to XIV,
and so on). Design the
program so that it will execute repeatedly, until a value of zero
is read in from the keyboard.

Author: Rohan Verma (hello@rohanverma.net)
```



```
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ javac sixteen.java
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java sixteen
12
Roman numeral: XII
32
Roman numeral: XXXII
65
Roman numeral: LXV
454
Roman numeral: CDLIV
899
Roman numeral: DCCCXCIX
232
Roman numeral: CCXXXII
111
Roman numeral: CXI
```

```
*/
import java.util.Scanner;


public class sixteen {

        public static String IntegerToRomanNumeral(int input) {
            if (input < 1 || input > 3999)
                return "Invalid Roman Number Value";
            String s = "";
            while (input >= 1000) {
                s += "M";
                input -= 1000;        }
            while (input >= 900) {
                s += "CM";
                input -= 900;
            }
            while (input >= 500) {
                s += "D";
                input -= 500;
            }
            while (input >= 400) {
                s += "CD";
                input -= 400;
            }
            while (input >= 100) {
                s += "C";
                input -= 100;
            }
            while (input >= 90) {
                s += "XC";
                input -= 90;
            }
            while (input >= 50) {
                s += "L";
                input -= 50;
            }
            while (input >= 40) {
                s += "XL";
                input -= 40;
            }
            while (input >= 10) {
                s += "X";
                input -= 10;
            }
            while (input >= 9) {
                s += "IX";
                input -= 9;
            }
            while (input >= 5) {
                s += "V";
                input -= 5;
            }
            while (input >= 4) {
                s += "IV";
                input -= 4;
            }
            while (input >= 1) {
                s += "I";
                input -= 1;
            }
            return s;
        }

        public static void main( String [] args )
        {

                int num;

                Scanner s = new Scanner(System.in);

                do{

                        num = s.nextInt();

                        if(num!=0){
                                System.out.println("Roman numeral: " +
IntegerToRomanNumeral(num));
                        }

                }while(num != 0);

        }
}
```

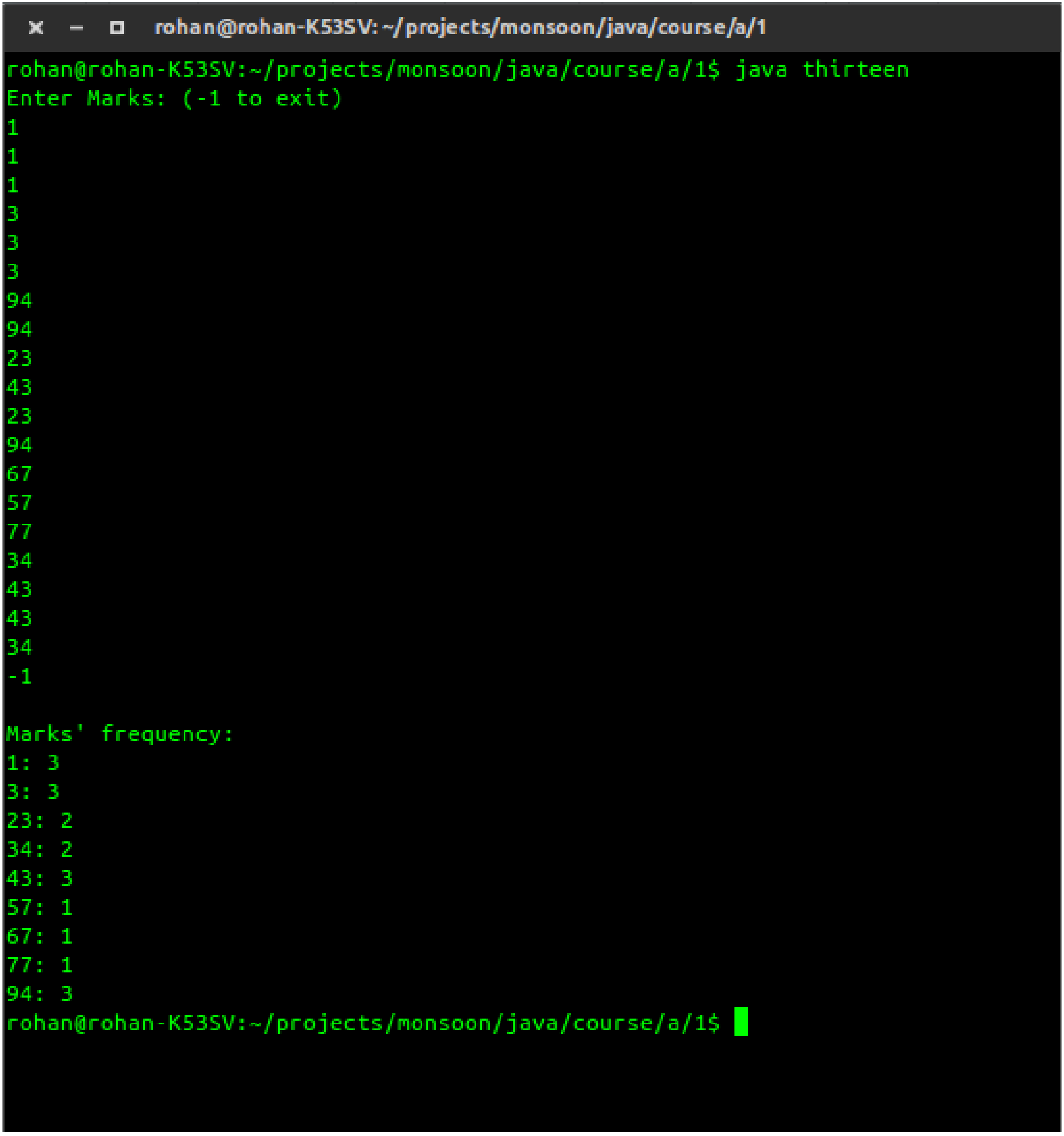
```
/* Q 10

Write a program that prompts the user to
enter the number of seconds, displays a message at
every second, and terminates when the time expires.

Author: Rohan Verma (hello@rohanverma.net)
```



```
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ javac ten.java
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java t
ten     three   two
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java ten
Enter the number of seconds: 5
Seconds Left: 5
Seconds Left: 4
Seconds Left: 3
Seconds Left: 2
Seconds Left: 1
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ 2
2: command not found
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java ten
Enter the number of seconds: 2
Seconds Left: 2
Seconds Left: 1
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$
```

```
*/
import java.util.*;

public class ten {

        public static void main( String [] args )
        {
                Scanner s = new Scanner(System.in);

                System.out.print("Enter the number of seconds: ");
                int sec = s.nextInt();

        while (sec > 0) {
            System.out.println("Seconds Left: " + sec);
            long start = System.currentTimeMillis();
            //wait till 1 sec \/
            while (start + 1000 > System.currentTimeMillis());
            sec--;
        }

        }

}
```

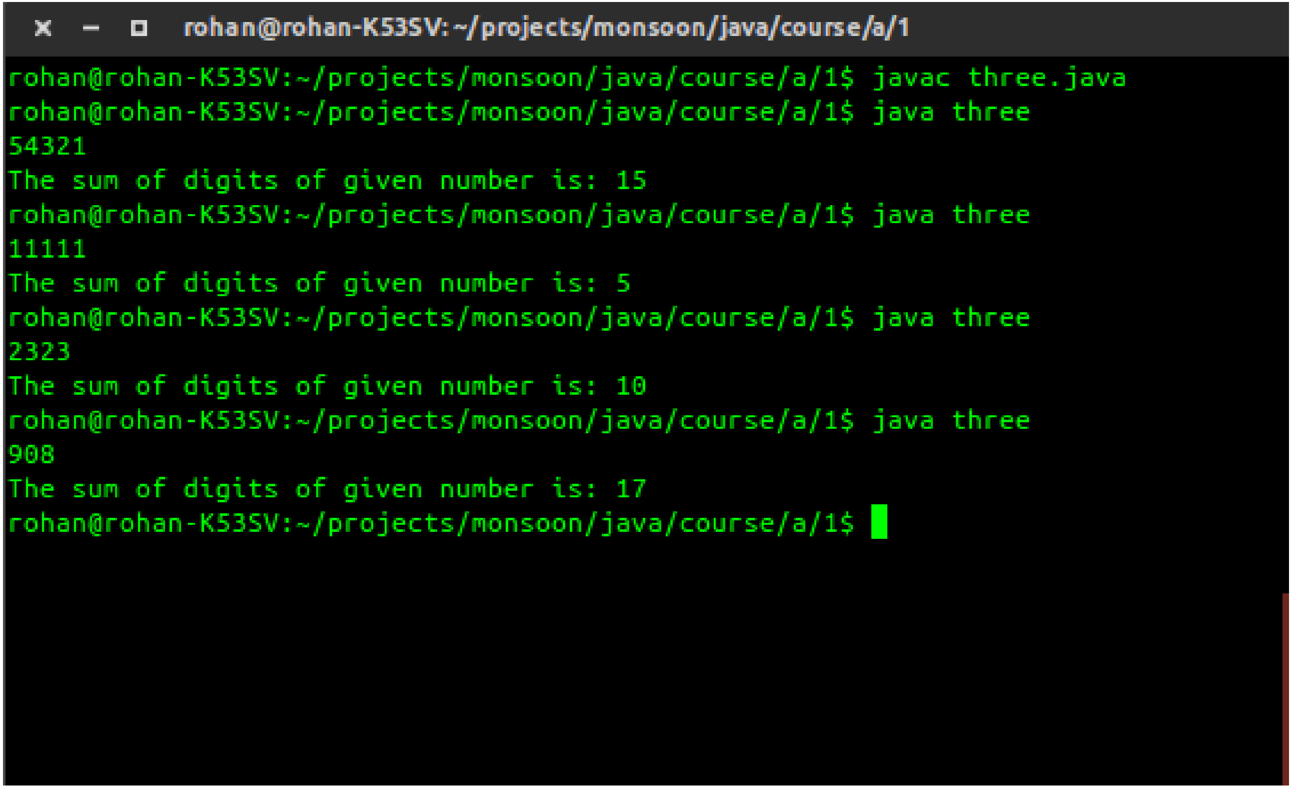
```
/* Q 13

Write a program to determine input the marks of n students in a subject and
determine the
frequency count of marks obtained i.e. how many students obtained 100, how many
99, how
many 98 and so on up to 0.

Author: Rohan Verma (hello@rohanverma.net)
```



```
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java thirteen
Enter Marks: (-1 to exit)
1
1
1
3
3
3
94
94
23
43
23
94
67
57
77
34
43
43
34
-1

Marks' frequency:
1: 3
3: 3
23: 2
34: 2
43: 3
57: 1
67: 1
77: 1
94: 3
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$
```

```
*/
import java.util.Scanner;


public class thirteen {

        public static void main( String [] args )
        {

                int num;

                int[] arr = new int[101];

                Scanner s = new Scanner(System.in);

                System.out.println("Enter Marks: (-1 to exit)");
                do{

                        num = s.nextInt();

                        if(num!=-1)arr[num] += 1;

                }while(num != -1);

                System.out.println("\nMarks' frequency: ");
                for(int i = 0; i < 101; i++){
                        if(arr[i] != 0){
                                System.out.println(i + ": " + arr[i]);
                        }
                }

        }
}
```

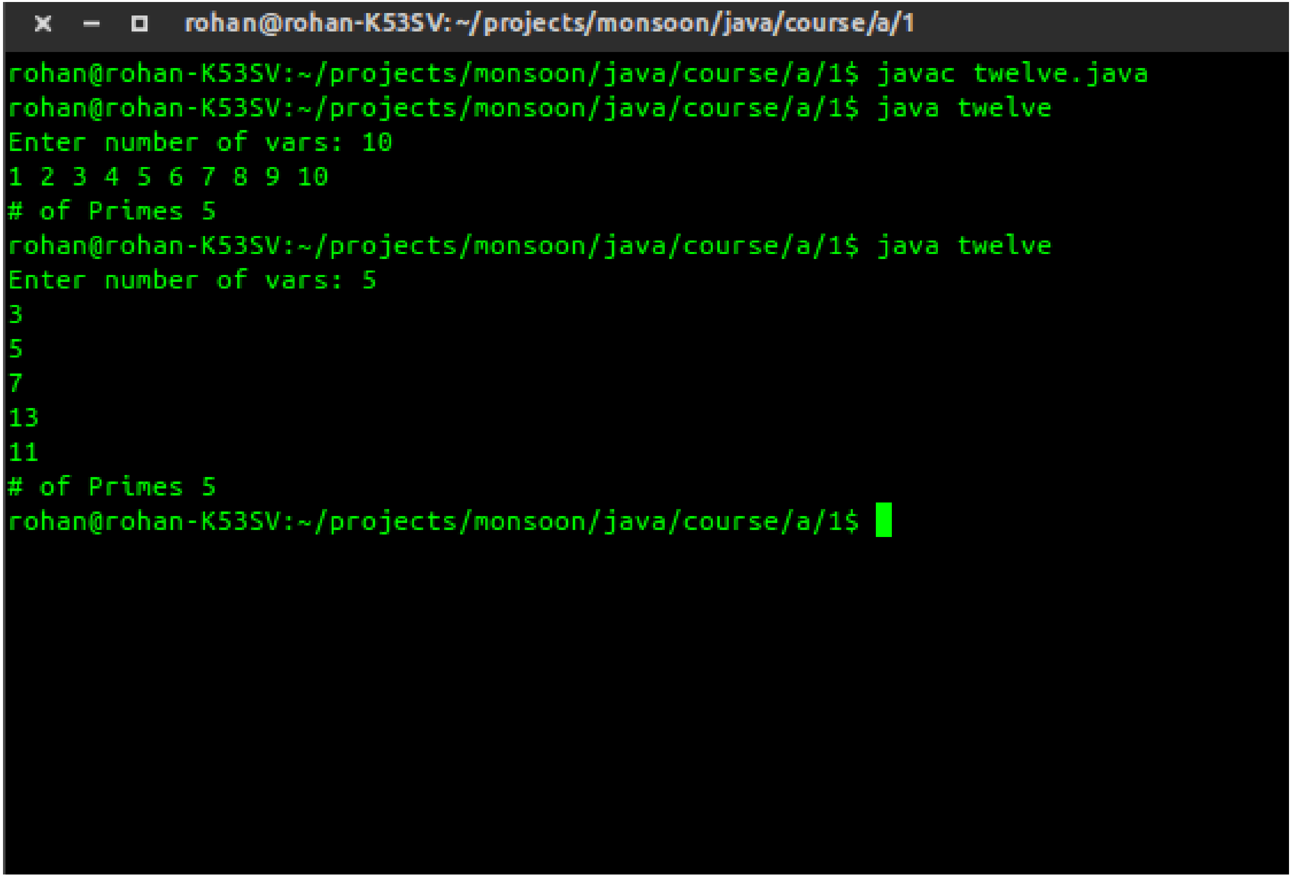
```
/*Q 3

Write a program to find out sum of digits of a given number.

Author: Rohan Verma (hello@rohanverma.net)
```



```
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ javac three.java
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java three
54321
The sum of digits of given number is: 15
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java three
11111
The sum of digits of given number is: 5
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java three
2323
The sum of digits of given number is: 10
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java three
908
The sum of digits of given number is: 17
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$
```

```java
*/
import java.util.Scanner;


public class three {

        public static void main( String [] args )
        {
            int num, sum;

            //Scanner
            Scanner s = new Scanner(System.in);

            num = s.nextInt();

            sum = 0;

            while(num != 0){
                //add remainder from num
                sum += num % 10;
                num /= 10;
            }
            System.out.println("The sum of digits of given number is: " + sum);
        }
}
```

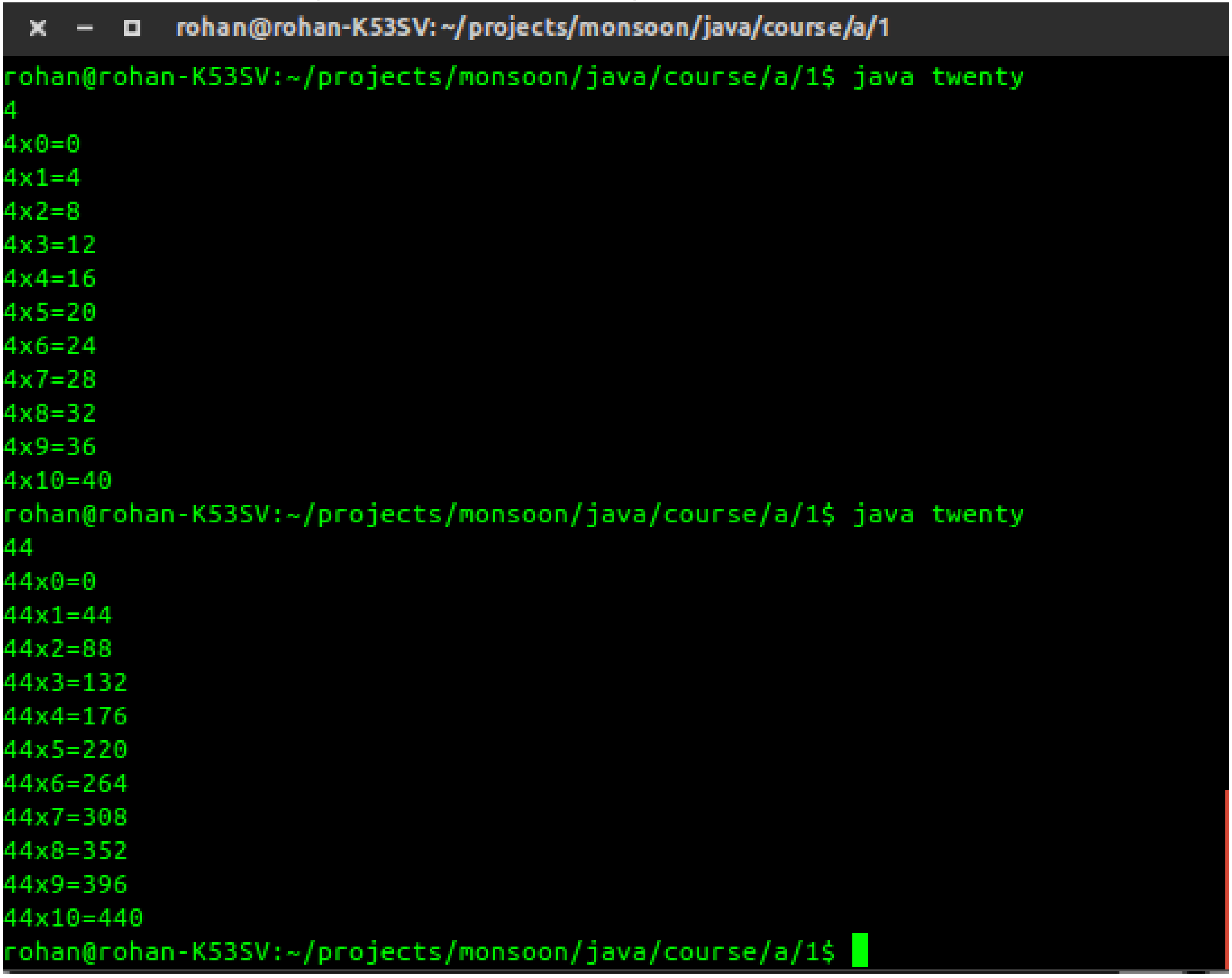
```
/* Q 12

Write a program to input a set of integers and count the number of primes.

Author: Rohan Verma (hello@rohanverma.net)
```



```
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ javac twelve.java
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java twelve
Enter number of vars: 10
1 2 3 4 5 6 7 8 9 10
# of Primes 5
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java twelve
Enter number of vars: 5
3
5
7
13
11
# of Primes 5
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$
```

```
*/
import java.util.Scanner;


public class twelve {

        public static boolean isPrime(int num) {
        if (num == 2 ) return true;
        if (num % 2 == 0) return false;
        for (int i = 3; i * i <= num; i += 2)
            if (num % i == 0) return false;
        return true;
        }

        public static void main( String [] args )
        {
            int num, vars, count = 0;

            //Scanner
            Scanner s = new Scanner(System.in);



            System.out.print("Enter number of vars: ");
            vars = s.nextInt();
            while(vars-- != 0){
                if(isPrime(num = s.nextInt())){
                        count+=1;
                }
            }

            System.out.println("# of Primes " + count);

        }
}
```

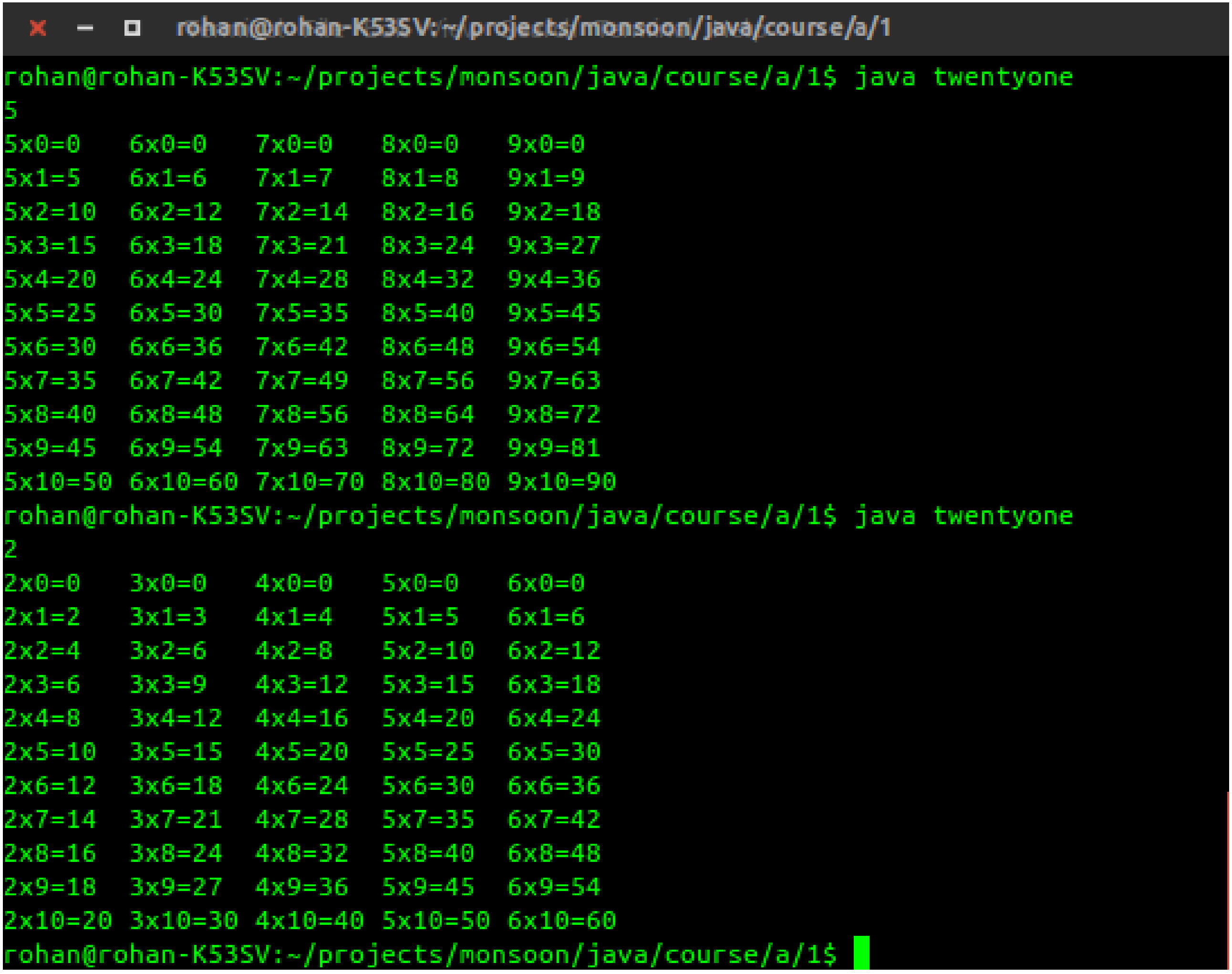
```
/* Q 20

Write a program to generate multiplication tables for 1 ,2, ..., 10. Each table
up to 10

Author: Rohan Verma (hello@rohanverma.net)
```



```
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java twenty
4
4x0=0
4x1=4
4x2=8
4x3=12
4x4=16
4x5=20
4x6=24
4x7=28
4x8=32
4x9=36
4x10=40
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java twenty
44
44x0=0
44x1=44
44x2=88
44x3=132
44x4=176
44x5=220
44x6=264
44x7=308
44x8=352
44x9=396
44x10=440
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$
```

```
*/
import java.util.Scanner;


public class twenty {

        public static void main( String [] args )
        {

                int num;

                Scanner s = new Scanner(System.in);

                num = s.nextInt();

                for(int i = 0; i <= 10; i++){
                        System.out.println(num + "x" + i + "=" + num*i);
                }

        }
}
```

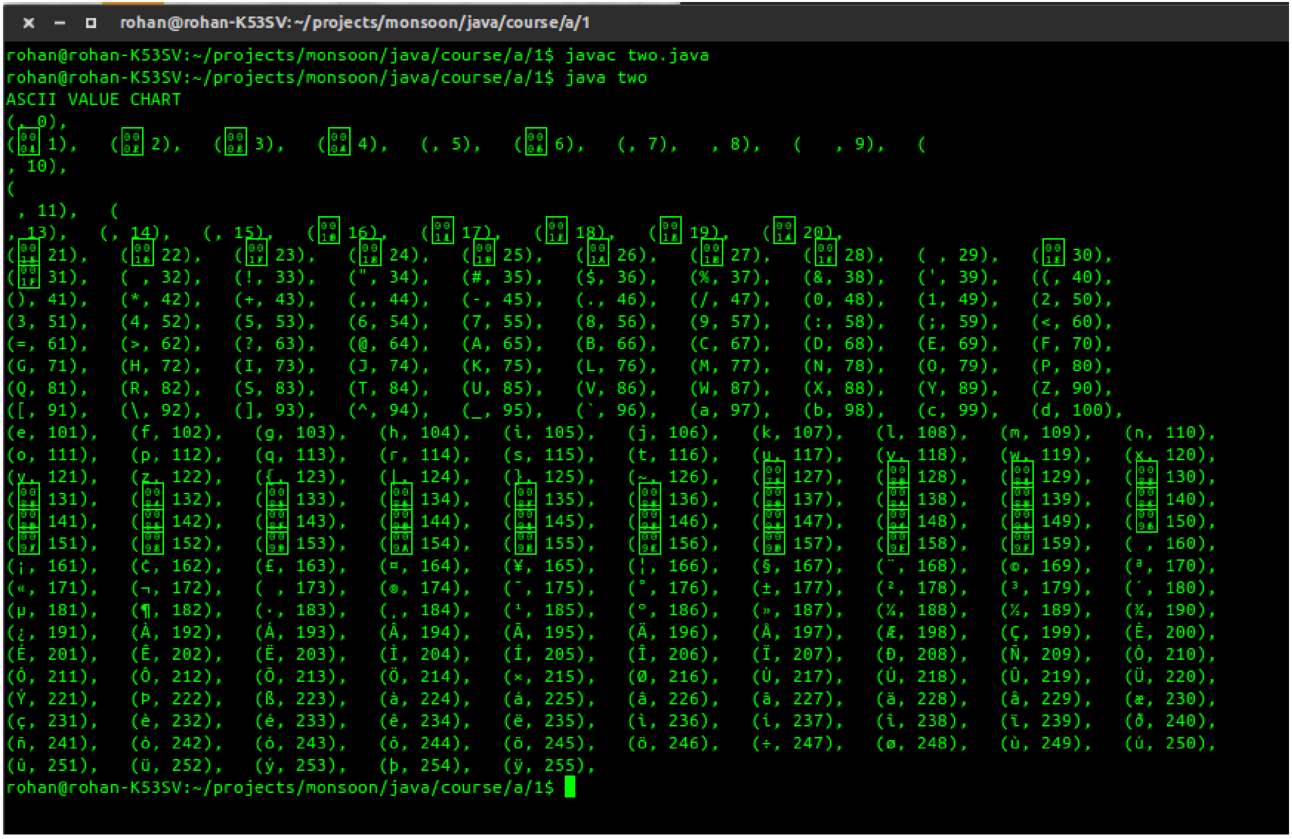
```
/* Q 21

Write a program to generate multiplication tables for 1 ,2, ..., 10. Each table
up to 10

Modify (20) so that your output now looks like this:
2x1=2 3x1=3 ... 5x1=5
2x2=4 3x2=6 ... 5x2=10
...
...
2x10=20 3x10=30 ... 5x10=50

Author: Rohan Verma (hello@rohanverma.net)
```



```
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java twentyone
5
5x0=0   6x0=0   7x0=0   8x0=0   9x0=0
5x1=5   6x1=6   7x1=7   8x1=8   9x1=9
5x2=10  6x2=12  7x2=14  8x2=16  9x2=18
5x3=15  6x3=18  7x3=21  8x3=24  9x3=27
5x4=20  6x4=24  7x4=28  8x4=32  9x4=36
5x5=25  6x5=30  7x5=35  8x5=40  9x5=45
5x6=30  6x6=36  7x6=42  8x6=48  9x6=54
5x7=35  6x7=42  7x7=49  8x7=56  9x7=63
5x8=40  6x8=48  7x8=56  8x8=64  9x8=72
5x9=45  6x9=54  7x9=63  8x9=72  9x9=81
5x10=50 6x10=60 7x10=70 8x10=80 9x10=90
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java twentyone
2
2x0=0   3x0=0   4x0=0   5x0=0   6x0=0
2x1=2   3x1=3   4x1=4   5x1=5   6x1=6
2x2=4   3x2=6   4x2=8   5x2=10  6x2=12
2x3=6   3x3=9   4x3=12  5x3=15  6x3=18
2x4=8   3x4=12  4x4=16  5x4=20  6x4=24
2x5=10  3x5=15  4x5=20  5x5=25  6x5=30
2x6=12  3x6=18  4x6=24  5x6=30  6x6=36
2x7=14  3x7=21  4x7=28  5x7=35  6x7=42
2x8=16  3x8=24  4x8=32  5x8=40  6x8=48
2x9=18  3x9=27  4x9=36  5x9=45  6x9=54
2x10=20 3x10=30 4x10=40 5x10=50 6x10=60
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$
```

```
*/
import java.util.Scanner;


public class twentyone {

        public static void main( String [] args )
        {

                int num;

                Scanner s = new Scanner(System.in);

                num = s.nextInt();
                for(int i = 0; i <= 10; i++){
                        System.out.print(num + "x" + i + "=" + num*i);
                        System.out.print('\t');
                        System.out.print(num+1 + "x" + i + "=" + (num+1)*i);
                        System.out.print('\t');
                        System.out.print(num+2 + "x" + i + "=" + (num+2)*i);
                        System.out.print('\t');
                        System.out.print(num+3 + "x" + i + "=" + (num+3)*i);
                        System.out.print('\t');
                        System.out.print(num+4 + "x" + i + "=" + (num+4)*i);
                        System.out.print('\n');
                }

        }
}
```

```
/* Q 2

Write a program to print ASCII value of all characters.

Author: Rohan Verma (hello@rohanverma.net)
```



```
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ javac two.java
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ java two
ASCII VALUE CHART
( , 0),
(□ 1),   (□ 2),   (□ 3),   (□ 4),   (, 5),   (□ 6),   (, 7),    , 8),   (   , 9),   (
, 10),
(
 , 11),   (
, 13),   (, 14),   (, 15),   (□ 16),   (□ 17),   (□ 18),   (□ 19),   (□ 20),
(□ 21),   (□ 22),   (□ 23),   (□ 24),   (□ 25),   (□ 26),   (□ 27),   (□ 28),   ( , 29),   (□ 30),
(□ 31),   ( , 32),   (!, 33),   (", 34),   (#, 35),   ($, 36),   (%, 37),   (&, 38),   (', 39),   ((, 40),
(), 41),   (*, 42),   (+, 43),   (,, 44),   (-, 45),   (., 46),   (/, 47),   (0, 48),   (1, 49),   (2, 50),
(3, 51),   (4, 52),   (5, 53),   (6, 54),   (7, 55),   (8, 56),   (9, 57),   (:, 58),   (;, 59),   (<, 60),
(=, 61),   (>, 62),   (?, 63),   (@, 64),   (A, 65),   (B, 66),   (C, 67),   (D, 68),   (E, 69),   (F, 70),
(G, 71),   (H, 72),   (I, 73),   (J, 74),   (K, 75),   (L, 76),   (M, 77),   (N, 78),   (O, 79),   (P, 80),
(Q, 81),   (R, 82),   (S, 83),   (T, 84),   (U, 85),   (V, 86),   (W, 87),   (X, 88),   (Y, 89),   (Z, 90),
([, 91),   (\, 92),   (], 93),   (^, 94),   (_, 95),   (`, 96),   (a, 97),   (b, 98),   (c, 99),   (d, 100),
(e, 101),   (f, 102),   (g, 103),   (h, 104),   (i, 105),   (j, 106),   (k, 107),   (l, 108),   (m, 109),   (n, 110),
(o, 111),   (p, 112),   (q, 113),   (r, 114),   (s, 115),   (t, 116),   (u, 117),   (v, 118),   (w, 119),   (x, 120),
(y, 121),   (z, 122),   ({, 123),   (|, 124),   (}, 125),   (~, 126),   (□ 127),   (□ 128),   (□ 129),   (□ 130),
(□ 131),   (□ 132),   (□ 133),   (□ 134),   (□ 135),   (□ 136),   (□ 137),   (□ 138),   (□ 139),   (□ 140),
(□ 141),   (□ 142),   (□ 143),   (□ 144),   (□ 145),   (□ 146),   (□ 147),   (□ 148),   (□ 149),   (□ 150),
(□ 151),   (□ 152),   (□ 153),   (□ 154),   (□ 155),   (□ 156),   (□ 157),   (□ 158),   (□ 159),   ( , 160),
(¡, 161),   (¢, 162),   (£, 163),   (¤, 164),   (¥, 165),   (¦, 166),   (§, 167),   (¨, 168),   (©, 169),   (ª, 170),
(«, 171),   (¬, 172),   ( , 173),   (®, 174),   (¯, 175),   (°, 176),   (±, 177),   (², 178),   (³, 179),   (´, 180),
(µ, 181),   (¶, 182),   (·, 183),   (¸, 184),   (¹, 185),   (º, 186),   (», 187),   (¼, 188),   (½, 189),   (¾, 190),
(¿, 191),   (À, 192),   (Á, 193),   (Â, 194),   (Ã, 195),   (Ä, 196),   (Å, 197),   (Æ, 198),   (Ç, 199),   (È, 200),
(É, 201),   (Ê, 202),   (Ë, 203),   (Ì, 204),   (Í, 205),   (Î, 206),   (Ï, 207),   (Ð, 208),   (Ñ, 209),   (Ò, 210),
(Ó, 211),   (Ô, 212),   (Õ, 213),   (Ö, 214),   (×, 215),   (Ø, 216),   (Ù, 217),   (Ú, 218),   (Û, 219),   (Ü, 220),
(Ý, 221),   (Þ, 222),   (ß, 223),   (à, 224),   (á, 225),   (â, 226),   (ã, 227),   (ä, 228),   (å, 229),   (æ, 230),
(ç, 231),   (è, 232),   (é, 233),   (ê, 234),   (ë, 235),   (ì, 236),   (í, 237),   (î, 238),   (ï, 239),   (ð, 240),
(ñ, 241),   (ò, 242),   (ó, 243),   (ô, 244),   (õ, 245),   (ö, 246),   (÷, 247),   (ø, 248),   (ù, 249),   (ú, 250),
(û, 251),   (ü, 252),   (ý, 253),   (þ, 254),   (ÿ, 255),
rohan@rohan-K53SV:~/projects/monsoon/java/course/a/1$ 
```

```
*/
import java.util.Scanner;


public class two {

        public static void main( String [] args )
        {
                System.out.println("ASCII VALUE CHART");
            for(int i = 0; i < 256; i++){
                System.out.print('(');
                        System.out.print((char)i);
                        System.out.print(", ");
                System.out.print(i);
                System.out.print("),    ");

                if(i % 10 == 0) System.out.print('\n');
            }
            System.out.print('\n');
        }
}
```