Lab Goal : This lab was designed to teach you more about base conversion and to allow you to review using Comparable.

Lab Description : Read in a number and its base. Convert that number to binary(100101001) and then sort all of the binary values. You will sort all binary number by first comparing the number of ones. The numbers with the smallest number of ones will be first and the numbers with the largest number of ones will be last. If two numbers have the same number of ones, sort the numbers first by the base10 value. If the base 10 values are the same, then sort the numbers by their original values. Print out the original number, its value in base10, and lastly, print out the numbers value in binary.

Sample Data :

```
15
23642 8
65535 10
5 10
6 10
33 4
99 12
12345 7
512 7
2 10
1 10
10 2
15 10
12 13
14 15
15 16
```

Files Needed ::

Number.java
NumberRunner.java
number.dat

Java Base Conversion (allowed on this lab)

```
//converts 234 base 6 to base 10
int base10 = Integer.parseInt("234",6);

//converts base 10 to base 3
out.println(Integer.toString(base10, 3);
```

Sample Output :

```
1 1 1
10 2 10
2 2 10
5 5 101
6 6 110
14 19 10011
15 21 10101
12 15 1111
15 15 1111
33 15 1111
99 117 1110101
12345 3267 110011000011
512 254 11111110
23642 10146 10011110100010
65535 65535 1111111111111111
```