

Part A:

```
import java.util.Scanner;

public class HW4 {

    public static void main(String[] args) {

        Scanner keyboard = new Scanner(System.in);
        System.out.print("Enter a a binary string: ");
        String binaryString = keyboard.nextLine();
        int binaryInt = bin2Dec(binaryString);
        System.out.println(binaryInt);
    }

    public static int bin2Dec(String binaryString) {
        try {
            return Integer.parseInt(binaryString, 2);
        }
        catch (NumberFormatException e) {
            System.out.println("A NumberFormatException
occurred.");
            e.printStackTrace();
        }
        return 0;
    }
}
```

Output:

Enter a a binary string: 1001001001
585

Part B:

```
import java.util.Scanner;

public class HW4PartB {

    public static void main(String[] args) throws
    BinaryFormatException {

        Scanner keyboard = new Scanner(System.in);

        System.out.print("Enter a binary string: ");

        String binaryString = keyboard.nextLine();

        int binaryInt = bin2Dec(binaryString);

        System.out.println(binaryInt);

    }

    public static int bin2Dec(String binaryString) throws
    BinaryFormatException {

        if (!isBinaryString(binaryString)) {

            throw new BinaryFormatException();

        } else {

            return Integer.parseInt(binaryString, 2);

        }

    }

    public static boolean isBinaryString(String binaryString) {
```

```

        int i = 0;

        while (i < binaryString.length()) {

            if (binaryString.charAt(i) != '0' &&
binaryString.charAt(i) != '1') {

                return false;

            }

            i++;

        }

        return true;

    }

    public static class BinaryFormatException extends Exception {

        public BinaryFormatException() {

            super("Not a binary value.");

        }

    }

}

```

Output:

```

Enter a binary string: 100100001
289

```