W04 Assignment: Program 4.1

Write a short Java program that does the following:

1. Tells the user what the program does.
2. Prompts the user to enter a hexadecimal digit.
3. Gets the user's input and saves it. If the value is not a valid hexadecimal digit tell the user and terminate the program.
4. Converts the hexadecimal digit into a four digit binary number.
5. Outputs the four digit binary number, including any leading zeros.
6. Outputs a goodbye message.

Here are some examples of what your program should look like when it runs (user input is in green):

```
This program converts a hexadecimal digit into a four digit binary number.
Enter a hexadecimal number: B

The binary value is 1011.
Goodbye.
```

```
This program converts a hexadecimal digit into a four digit binary number.
Enter a hexadecimal number: G

G is not a valid hexadecimal digit.
Goodbye.
```